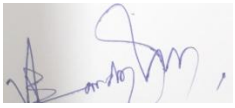
ANNUAL REPORT
2016-2017 & 2017-18

UTTAR BANGA KRISHI VISWAVIDYALAYA
Pundibari, Cooch Behar-736165, W.B.
www.ubkv.ac.in

Preface

The North Bengal campus started functioning as a constituent College of Agriculture under the Faculty of Agriculture of BCKV for imparting B.Sc. (Ag.) Hons. Course for 30 students. Later on the Government of West Bengal up-graded the North Bengal Campus into a full-fledged Agricultural University by the name of Uttar Banga Krishi Viswavidyalaya on the 1st February in 2001 by the West Bengal Act XX of 2000 with the jurisdiction area of the then six Northern districts viz., Darjeeling, Cooch Behar, Jalpaiguri, Dakshin Dinajpur, Uttar Dinajpur and Malda comprising one college, three Regional Research Stations, their three sub-stations and two Krishi Vigyan Kendras (KVKs) as on 22 August 2000. In the mean while the University has evolved to have three faculties and one college namely: The Faculty of Agriculture, Faculty of Horticulture and Faculty of Technology at Pundibari, Coochbehar and College of Agriculture at Majhian, Dakshin Dinajpur, West Bengal bestowing higher education in emerging areas of modern agricultural sciences and technology. The three Regional Research Stations at Majhian (Dakshin Dinajpur); Pundibari (Cooch Behar) and Kalimpong (Kalimpong) along with their sub-stations are conducting location-specific high value research and five KVKs at Coochbehar, Darjeeling, Dakshin Dinajpur, Uttar Dinajpur and Malda to provide vocational training and latest location-specific agricultural know-how emanating from the research to the local people. The University has progressed a lot in academics and infrastructural growth. Legitimately, the Indian Council for Agricultural Research (ICAR) has accredited the Faculty of Agriculture during the year 2012-2013 for next five years. Recently, the newly formed district (Alipurduar) has been considered under the jurisdiction area of this University. The University floated in motion a number of initiatives and reforms for improving and enhancing the quality of education, strengthening of library, constructing the provision of scholarships and fellowships, adopting measures for reducing inbreeding to have quality assurance in agricultural education, developing norms and standards with respect to department, faculty positions and minimum infrastructure for different faculties at UG and PG levels, reforming the examination system, introducing the entrance test at PG (M.Sc. and Ph.D.) level, introducing the practical oriented experimental learning courses on entrepreneurship development in three distinct areas namely Bio-control agent production, Vermicompost production and Mushroom production, introducing the communication skills and personality development, computer knowledge, agri-business, environmental science, bio-technology courses, etc. From academic session 2016-17, Recommendations of the Indian Council of Agricultural Research (ICAR) Vth Deans' Committee have been adopted along with implementation of student READY program for developing entrepreneurial skill among the students and placement of students in KVKs, CADC under RAWE programme for on-field exposure and experience of real situation of village. It is worthy to mention that the Student "READY" (Rural and Entrepreneurship Awareness Development Yojana) programme has been introduced for ensuring and assuring employability and develop entrepreneurs for emerging knowledge-intensive agriculture.



Prof. Subhendu Bandyopadhyay

Registrar (Actg.)

Content

Progress of the University in Nutshell

The degree program of B.Sc. in Agriculture science in the northern part of the state was started way back in 1979 when the North Bengal Campus of *Bidhan Chandra Krishi Viswavidyalaya* (*BCKV*) was established at the *Gram Sevak* Training Centre situated at the premises of the office of the Principal Agricultural Officer (Govt. of West Bengal) in Coochbehar town. The North Bengal campus started functioning as a constituent College of Agriculture under the Faculty of Agriculture of *BCKV* for imparting B.Sc. (Ag.) Hons. Course for 30 students. The campus was later shifted to its present location at Pundibari (Coochbehar Block- II) where the headquarters of the Uttar Banga Krishi Viswavidyalaya is situated and the mentioned campus possessed huge infrastructural facilities viz., classrooms, laboratories, library, teachers' room-cum-laboratories, office establishments, and instructional farm, hostels and staff quarters for teachers and staff spreading over in a farmland area of 330 acres. Later on the Government of West Bengal up-graded the North Bengal Campus into a full-fledged Agricultural University by the name of *Uttar Banga Krishi Viswavidyalaya*on the 1st February in 2001 by the West Bengal Act XX of 2000 with the jurisdiction area of the then six Northern districts viz., Darjeeling, Cooch Behar,Jalpaiguri, Dakshin Dinajpur, Uttar Dinajpur and Malda comprising one college, three Regional Research Stations, their three sub-stations and two *Krishi Vigyan Kendra*s(*KVK*s) as on 22 August 2000. In the mean while the University has evolved to have three faculties and one college namely: The Faculty of Agriculture, Faculty of Horticulture and Faculty of Technology at Pundibari, Coochbehar and College of Agriculture at Majhian, Dakshin Dinajpur, West Bengal bestowing higher education in emerging areas of modern agricultural sciences and technology. The three Regional Research Stations at Majhian (Dakshin Dinajpur); Pundibari (Cooch Behar) and Kalimpong (Kalimpong) along with their sub-stations are conducting location-specific high value research and five *KVK*s at Coochbehar, Darjeeling, Dakshin Dinajpur, Uttar Dinajpur and Malda to provide vocational training and latest location-specific agricultural know-how emanating from the research to the local people.

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From academic session 2016-17, Recommendations of the Indian Council of Agricultural Research (ICAR) Vth Deans'Committee have been adopted along with implementation of student READY program for developing entrepreneurial skill among the students and placement of students in *KVK*s, CADC under RAWE programme for on-field exposure and experience of real situation of village. It is worthy to mention that the Student "READY" (Rural and Entrepreneurship Awareness Development Yojana) programme has been introduced for ensuring and assuring employability and develop entrepreneurs for emerging knowledge-intensive agriculture.

In the last two years (2017 & 2018), a total of 96 students from the Faculty of Agriculture, 28 students from the College of Agriculture, 27 students from Faculty of Horticulture and 35 students from Faculty of Technology have successfully completed their undergraduate degree programsin their respective disciplines and a total of 243 students are now pursuing their undergraduate programs. Among the fresh alumni, 19 students were awarded ICAR-Junior Research Fellowship (JRF), 8 students qualified GATE, 16 students qualified JNU Biotechnology exam (CEEB), 37 students qualified ICAR-National Eligibility Test (NET), 8 students qualified Agricultural Research Service(ARS) prelims and 14 students received ICAR-Senior Research Fellowship (SRF). Most of pass out students are now pursuing post-graduate studies in nationally acclaimed institutes / State Agricultural Universities viz., IARI, PAU, GBPUAT, BHU, etc. through national level entrance examinations. A good number of students are employed in State Agriculture Department while others are engaged in banks, private organization, etc.The faculty has taken initiative to conduct free coaching/ special classes for undergraduate students particularly for national level entrance examinations/other competitive examinations and at the same time successfully conducted free tutorial for SC/ST students. The faculty has also conducted student interface program and special lecture series through eminent personalities of various Universities, Research organizations, Government and private sectors for updating their knowledge, personality development and counselling.Notable emphasis has also been given on establishment of smart classroom, new laboratories, constant surveillance of examination system, on-line admission and attendance, publication of practical manuals, etc.Regular practical classes have been conducted both for field and laboratory exposure under catered course curricula through continuous monitoring and evaluation system.

The intake capacities in the Under-Graduate programme under Agriculture, Horticulture and Technology Faculties have been enhanced to 66, 20 and 21 from their earlier strengths of 50, 15 and 15, respectively. The intake capacity of newly started College of Agriculture at Majhian, Dakshin Dinajpur under this University for Under-Graduate programme in agriculture is 30 students per academic year. Launching of online admission including online counsellingat the UG level is a remarkable feat of the University to ensure transparency in intake process of students. The University has regularised the completion of the UG and PG courses as per Academic Calendars. One-month certificate course on Mushroom cultivation and processing was introduced for the farmers and the rural youth to develop entrepreneurship in rural areas. National Service Scheme (NSS) has come into view in the University headed by the NSS

Coordinator- cum- Hostel Superintendent for making the students more vibrant with the national service. One special coaching cell was formulated and came into action to conduct of special coaching classes for the students by the faculties for attaining positions in different All India based competitive examinations viz., JRF, NET, GATE, etc. During the last eighteen months the University provided ample number of Agricultural Research Scientists, Junior and Senior Research Fellows, GATE and NET qualifiers, etc. All these accomplishments have been achieved despite meagre strength of the faculties, very inadequate financial support due to effective student-teacher team work. One Engineering workshop was established to impart the skill-embedded knowledge about the latest engineering technologies to the students of the Faculty of Technology. In fact, with alarge number of sanctioned teaching positions lying vacant, the teachers of the varsity have nurtured the students with sincerity, dedication and affection, which ultimately harnessed the conquest. The University has tried to get approval to fill up the vacant posts of various departments under the respective faculties of the University and *KVK*s, filled a few of them in the *KVK*s in the last eighteen months through Direct recruitment and encouraged teachers with regular efforts under Career Advancement Scheme. Development of Faculty Exchange Programme with some leading Universities namely Western Sydney University, Banaras Hindu University, etc. are in progress. Such programmes are already in operation with Bidhan Chandra Krishi Viswavidyalaya, North-Eastern Hill University, Central Agricultural University, Imphal, etc. International exchange programme with leading international institutes like CIMMYT, ICARDA, ACIAR, etc. are also in progress. The Placement Cell was reconstituted and Campus interview by different National Banks and Private Companies was initiated. Twenty numbers of Faculty upgradation lectures were organised during last eighteen months for updating the knowledge of the faculty members, students. The faculty members of the University and Department of Agriculture, Government of West Bengal have jointly organised the classes for newly appointed *Krishi PrayuktiSahayak*s. One model classroom with modern facilities and a capacity of 80 students is already functional. The model instructional farm of the University is fully functioning with a worth-mentioning Integrated Farming System model at the main campus for proficiency-embedded knowledge enhancement of the students during practical classes. The students of the college are engrossed with the year-round activities in addition to their compulsory academic adherence. The participation of the students at the All India Agri-Unifest and Agri-Sports, severalother students-related activities like World Yoga Day celebration, Statistics day celebration, 'one-tree one-student', cleanliness campaign, blood donation camp, marathon, inter-year championships, etc. are going on regularly within the campus of the University. Also, the students of this University are participating in different national level sports and cultural competitions. The University also celebrated the Agricultural Education Day successfully involving students of schools of two districts.

For ensuring employability and to develop entrepreneurs for emerging knowledge-intensive agriculture, interactive Student READY program has been implemented through Experiential Learning Programs (ELPs)/Hands-on Training (HOT), Village Attachment/Rural Agriculture Work Experience (RAWE) and Industrial attachment/ exposure. At present three ELPs are

actively operational under UG course curricula following ICAR norms and guidelines viz., Biocontrol Agent Production, Vermi-Compost Production and Processing and Mushroom Production and Processing. Use of smart class room / interactive board (mechanism): Pedagogical practices of teachers using ICT has been in existence in the faculty for long. Each classroom is equipped with LCD projector, white screen and address system along with traditional system of teaching. However, the interactive podium and interactive board are currently not available in the classrooms that would be installed as and when funds are available. Audio-Visual based presentation by the instructors has been implemented for better understanding of the catered courses. Students get benefits from ICT (through the display of simulations) uses as it makes understanding and assimilation of difficult part of a course or on concepts easier.

Personnel training programmes through Student READY have the potential to increase the income of the stakeholders, lifting low-income workers into the middle class and preventing others from falling out of it with the mission of 'earning while learning'. Although, individuals pursue education for many reasons where, the career advancement is an important consideration for virtually all students for getting a reliable path to develop new opportunities, but do not have the time or funds to sustain years of additional training. The imperative for such students is to increase their skills quickly and inexpensively so that they get monetary rewarding jobs. Workforce training programs can help building up the skills they need to get higher-paying jobs as far as possible. The Data Base Management System repository through the Nodal Cell will improve the effectiveness of workforce development programs not for just creating the information but also for making sure that individual trainees and other stakeholders have the ability to use it to improve their decisions. The driving force of the students is the motivation provided by the faculty for developing professionalism to foster incisive research into agriculture, analysing finances and the impact of finance systems such as tariffs on industry, while also exploring ways to maximise the utilisation of natural resources. Students can take work placement in 4th year, using the skills learnt in their degree to practical use. They are being guided by a consortium of teachers under a special committee to make them understand that careers can be forged in both the ongoing schemes to eradicate poverty through education of self-sufficient farming methods and by the groundbreaking developments of advanced research on agriculture. The academic head of the college (Dean of the Faculty) is in the process of meetings/ discussions with Heads of Departments and the faculty members to keep a close vigilance on the performance of the students for fine tuning.

The different agriculture extension services are provided by the Directorate of Extension Education through a Farm Advisory service centre at the Main campus, and five *KVK*s at Kalimpong, Pundibari, Majhian, Chopra and Ratua in the districts of Kalimpong, Coochbehar, Dakshin Dinajpur, Uttar Dinajpur and Malda, respectively. A significant number of mandatory extension programmes like vocational training, demonstration, farmers' fair and technology week, field days, exhibition, campaigns, group-meetings, farmers-scientists interaction, ex-trainee *Sammelan*, animal health and vaccination camp and field diagnostic visits have also been

conducted by all the *KVK*s. The trainings were conducted in the thematic areas like Production and Management Technology of Crops, Resource Conservation Technology, Nursery Management, Protected Cultivation, Orchard Management, Integrated Pest Management (IPM), Integrated Nutrient Management(INM), Exotic Vegetable, Household Food Security, Value Addition, Animal Health Management, Feed Management, Breed Upgradation, Integrated Fish Farming, Composite Fish Culture, Fish Breeding, Leadership Development, Natural Resource Management, Vermi-Composting, Honey Bee Rearing, Women & Child Care, etc. The different success stories have been observed and recognised in the jurisdiction areas of the University on the technologies like scientific floriculture, scientific pig rearing, vermi-composting, energy-rich low-cost weaning food, scientific technology for tea leaf plucking, scientific hybrid Magur production, bee-keeping, etc. which can excel the achievement of the University extension system. *KVK*s have been successfully implementing different climate resilient technologies like water harvesting and recycling, contingent crop planning, etc. under Technology Demonstration Component of the prestigious ICAR-NICRA project. Three *KVK*s viz., Cooch Behar, Kalimpong and Uttar Dinajpur are duly supported with Soil and Water Testing Labs.During the period several number of soils, plant and water samples have been analysed and subsequent prescriptions have been forwarded to 3673 number of farmers. Instructional farms of the *KVK*s have successfully produced and distributed 150 metric tons (MT) of cereals, 9 MT oilseeds, 5 MT pulses, 20 MT spices and 45 MT other crops to the farmers and we are proud to share that farmers of this area have chosen our seed materials as their best option.

The *KVK*s have developed a strong linkage with the Department of Agriculture (Govt WB) through ATMA and other State Govt. Departments, ICAR-CRIJAF, ICAR-NIRJAFT, ICARDA, IPNI, NAIP, BADP, *Nehru Yuva Kendra*, PPV&FRA, NRRI, CIAE, CFTRI for technology back stopping, registration of farmers' varieties, fabrication of tools, demonstration, training, etc. In the last eighteen months, the University trained 37663 practising farmers, 8549 rural youth and 47944 extension functionaries through *KVK*s.The documentation of farmers' practices is also an important activity of *KVK*s. The technologies available for large-scale adoption are Lime Dressing of Black Gram Seeds for Acid Soils, Zero Tillage Rice Cultivation, Healthy Seed Bed Preparation, Integrated Pest Management (IPM) Module for Mealy Bug in Pineapple, Eco-friendly Management Module of Brinjal Fruit and Shoot Borer, Integration of Fish-Duck-Dyke Vegetable Production System, Indigenous De-wormer for goats, Low-Cost Weaning Food, Low-cost feed supplement for pregnant mother, Need-based N application using LCC in *kharif* rice, Variety and nutrient management in Jute, Application of micro-nutrient (boron) under boron deficient old alluvial soils, Techniques to reduce leaf curl disease of chilli for higher production and productivity, Technological option for inter-cropping practice of banana with French bean and garden pea in terms of yield and net returns, manual efficacy for enhancement of fish yield, low-cost balanced feed on the yield performance of dairy animals, low-cost feed formulated with locally available ingredients on layer bird, suitable variety of wheat at optimum time through zero-tillage (ZT) method under low and low- medium land, productivity enhancement of paddy grown with green manure crop, profit enhancement of maize with different crop combinations

through intercropping, productivity enhancement of fishes by application of feed mixture. The introduction of web-based Farmers' Advisory Service through implementation of Disease and Pestilence Warning System Project paves the way to make the society more knowledge-vibrant. All the *KVK*s under the jurisdiction of the *Uttar Banga Krishi Viswavidyalaya* has started sending messages on different aspects of agricultural practices to the mobile sets of the farmers of the respective districts to get the farmers acquainted with need-based information on crop management, plant protection, disease outbreak, market intelligence, weather forecasting, etc. Recently, the University has successfully organised a one-day workshop on "Farming Diversity for Doubling Farmer's Income" in the cordial presence of Dr. Jay Cummins, University of Adelaide, International Agriculture for Development, Australia. The University has adopted a Schedule-Tribe dominated village named UTTAR CHAKWAKHETI and integrated various activities for its overall development. The University as a Technical Support Institution (TSI) successfully prepared Comprehensive District Agricultural Plan (C-DAP) for seven districts of North Bengal. Regularised publication of "UBKV Newsletter" and the publication of seasonal agricultural extension bulletin '*Uttarer Krishi Katha*' for the farmers of North Bengal helps in showcasing the University events and technology. World Soil Day was successfully observed at the University campus. New *KVK* in Alipurduar district has been proposed to ICAR for its establishment to serve the farmers in a better way.

A new building (at the University campus, Pundibari) with modern facilities for Central Library of the University has been taken over from the PWD, Govt. of West Bengal on 18 September 2018. Presently, *UBKV* possesses a formidable collection of books (34000), bound volumes of journals (4500), reports, pamphlets, theses, etc. (450). Currently, the library is enriched with 34 Indian Journals, 04 Foreign Journals, 85 e-Indian journals, 88 eBook, 05 Periodicals and 131 CD-ROM. The Central Library is also a member of the Consortium of e-Resources in Agriculture or 'CeRA', a national consortium of Universities and '*Krishi Kosh*' or 'e-*Granth*'- a digital repository of theses. Within very short span of time the Library will be fully automated in the service of issuing and returning of books and journals with the help of software LYBSYS. University library is attached with National Digital Library (http://community.worldlibrary.in) under National Mission on Education through Information Communication Technology programme.Using the ICAR development fund for e-resources, the *UBKV* has recently started restoring of LAN within University Campus through W-LAN with UTM and continuous power back-up system and also started the process of Campus Automation through "UBKV Connect" project as a bold step forward to start ERP first time in any SAU of Eastern India. *UBKV* also owns NKN connectivity supported by NIC and RailTel with one 1Gbps connection along with a separate 2-3 Mbps connectivity of WBSWAN to remain connected with 341 blocks of West Bengal.

Significant infrastructural development and modernization in the farms have taken place with the implementation of Mega Seed Project. *UBKV* farms have virtually been transformed into seed production units of breeder seeds, foundation seeds, certified and Truthfully Labelled (TFL)

seeds. 37 tons pulses seeds were produced in the last year though pulses seed hub, Malda. Astoundingly, the *UBKV* farms also produced 523 quintal foundation seed, 1500 quintal certified seed, 450 quintal Truthfully Labelled (TFL) seeds and 2050.50 quintal potato seeds. The *UBKV* has supplied approximately 2 lakh planting materials of different horticultural crops like Guava, Citrus, Mango, Litchi, Mandarin orange, Bay leaf, Banana, Litchi, Cinnamon, Betel vine, Black pepper, Cashewnut, etc. The University has given special consideration towards production of carp spawn. Four hatcheries have been installed at village level with fund support from DST, Govt. of India. Fish biodiversity study along with conservation is also gaining attention with production of Asian Major Carps, Singi, Tangra, etc. The University from ICAR-sponsored Mega Seed Project fund developed a seed testing laboratory fully equipped with all equipment and facilities for testing seeds from internal as well as external sources also in order to protect the farmers' interest through ensuring quality of seed. In addition to development of laboratory, *UBKV* has also established training facilities for the farmers as well as for the Government officials to impart training on production of quality seeds, storage, testing as well as on inspection and other issues, policies related to seed production, protection, quality, marketing and trade.

For the students the provision of improved facilities like gymnasium, Boys' and Girls' hostels, well-equipped medical unit, etc. have been build and are being further improved. For inviting students from abroad, the *Viswavidyalaya* has already established one International Hostel with financial support from the Indian Council of Agricultural Research (ICAR). The Administrative building, Farmers' Hostel and staff quarters of Cooch Behar *Krishi Vigyan Kendra* have been established. A seminar hall namely Swami Vivekananda Hall has been established with a provision of a large audio-visual hall for conferences. An examination hall has already been established. A Research Complex building with state-of-the-art infrastructure facilities are on the way.One girls hostel and one boys hostel (at theCollage of Agriculture, Majhian campus) with modern facilities has been taken over from the North Bengal Development Department, Govt. of West Bengal on 14 August, 2018.

Faculty of Agriculture

INTRODUCTION

Agricultural Education in Northern part of the State was starterd way back in 1979 when the North Bengal Campus (NB Campus) of Bidhan Chandra Krishi Viswavidyalaya (BCKV) was established at the GSTC (Gram Sevak Training Centre) situated at the premises of the office of the Principal Agricultural Officer (Govt. of West Bengal) in Coochbehar town. The NB Campus started its functioning as a constituent College of Agriculture under the Faculty of Agriculture of BCKV for imparting B.Sc. (Ag.) Hons. course for 30 students. The Campus was later shifted to its present location at Pundibari (Coochbehar Block- II) where the headquarters of the Uttar Banga Krishi Viswavidyalay is situated and the said Campus possessed huge infrastructural facilities viz., classrooms, laboratories, library, teachers' room-cum-laboratories, office establishments, and instructional farm, hostels and staff quarters for teachers and staff spreading over in a farmland area of 330 acres. The number of intake was gradually increased to 40. Post Graduate studies *i.e*. M.Sc. (Ag.) programme was introduced from 1999-2000 academic session in five Departments viz. Agronomy, Agricultural Entomology, Genetics and Plant Breeding, Plant Pathology and Soil Science and Agricultural Chemistry with intake capacity of 5 students/ department; although the teachers of the Campus were guiding Ph. D. students since mid 90's.

Later the State Govt. up-graded the NB Campus into a full-fledged Agricultural University by the name of Uttar Banga Krishi Viswavidyalay in 2001 with two Faculties namely the Faculty of Agriculture and Faculty of Horticulture as two separate teaching establishments. The Faculty of Agriculture has currently the following 10 Departments and apart from UG programme in Agriculture, it also offers M.Sc. and Ph.D. programme of studies in the following areas.

Name of the Departments:

1. Agronomy	6. Biochemistry
2. Agricultural Economics	7. Genetics and Plant Breeding
3. Agricultural Extension	8. Plant Pathology
4. Agricultural Statistics	9. Soil Science and Agricultural Chemistry
5. Agricultural Entomology	10. Seed Science and Technology

It is noteworthy that in the year 2014 the State Govt. established a new College of Agriculture as the Extended Campus of the University at Majhian, Dakshin Dinajpur (12 Km away from Balurghat town) with an intake capacity of 30 students for B.Sc. (Ag.) Hons. course.

The number of students during the last 17 years has increased to a great extent and the same is summarized below:

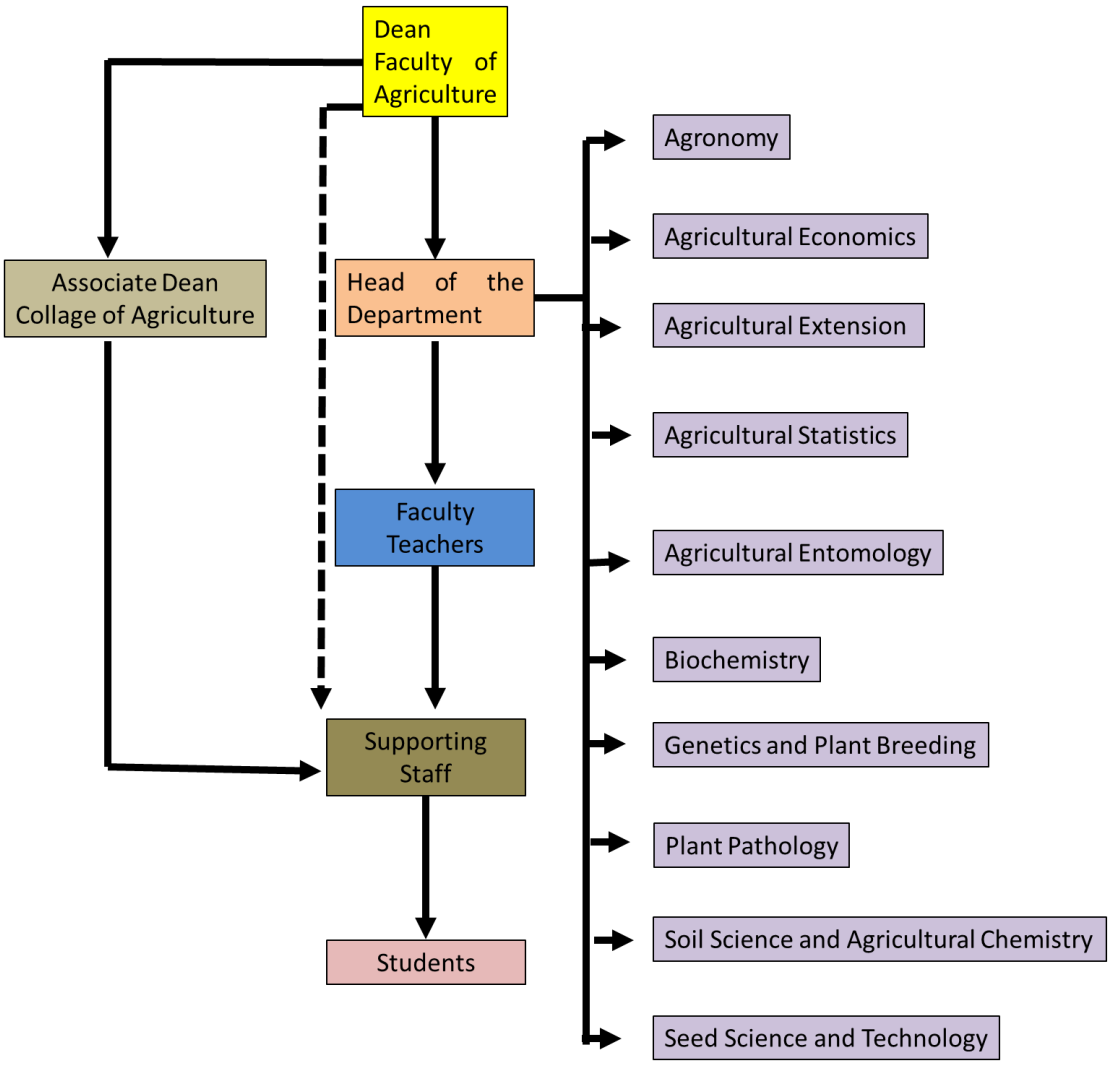
Sl. No.	Course	2001	2014	2017-18
1.	B. Sc. (Ag.) Hons.	164 [@41 / year]	264 [@66 / year]	264 [66 /year]
2.	M. Sc. (Ag.)	45 [@ 5 /Department]*	45 [@5/Department]*	60* [@5/Department]
3.	Ph. D.	18 [@ 2 /Department]*	30 [@2/Department]*	60* [@2/Department]
	Total	227	339	384

*Variation in the number of students at M.Sc. and Ph. D. level is due to number of available candidates applied for admission.

Objectives

- To provide an education system that is contemporary and meets the changing needs of the agricultural sector.
- To make agricultural education responsive to the needs of the farming sector
- To widen the knowledge base by providing vacationnal training in agricultural sciences to the rural youth from all strata of the farming community
- To start courses of current and future relevance to build a strong academic foundation for the scientific and technical manpower generated by the University.

Faculty Administration



Organizational Chart

Teaching Members of the Faculty

Name of the department	Sl. No.	Name of the Teacher	Designation	Mobile No.	E-mail address
Agronomy	1.	Prof. Ashis Kumar Singha Roy	Professor	+919434685854	aksroyukv@rediffmail.com
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Seed Science and Technology		Dr. Bidhan Roy	Professor and Head	+919434117057 bcroy10@yahoo.com
		Dr. Puspendu Dutta	Assistant Professor	+919091393704 pdutta.pph@gmail.com
		Dr. Utpal Maity	Assistant Professor	+919733581689 utpalmaity.pph@gmail.com
Soil Science and Agricultural		Prof. Dibyendu Mukhopadhyay	Professor	+919434197891 dibsm107@gmail.com

Chemistry		Dr. Abhas Kumar Sinha	Associate Professor and Head	+919434197828 abskvk@yahoo.co.in
		Dr. Ganesh Chandra Banik	Assistant Professor	+919475902914 gcbanik79@yahoo.co.in
		Dr. Amrit Tamang	Assistant Professor	+918100906370 tamang_amrit@rediffmail.com
		Dr. Shovik Deb	Assistant Professor	+919434685382 shovikiitkgp@gmail.com

Teaching Members of the College of Agriculture

Agronomy		Dr. Jyotirmay Karforma	Associate Professor and Associate Dean (Actg.)	+91 9434169745 agcollegeubkv@rediffmail.com,
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Agronomy		Dr. Surajit Kundu		+919433535411 suragro01@gmail.com
Horticulture		Miss Prerna Baraily	Assistant Professor	+919002374705 Email: prernabaraily@gmail.com
Agricultural Extension		Kabita Mondal	Assistant Professor	+918902076532 Email: kabita.mondal@rediffmail.com
Genetics and Plant Breeding		Mr. Bimal Das	Assistant Professor	+919434934887 Email: bimal.das987@gmail.com

TEACHING (UNDER GRADUATE COURSES)

The University follows the recommendations of ICAR Vth Deans Committee sysllabus in UG studies. Semester wise distribution of courses at the UG Degree Programme [B.Sc. (Hons.) Agriculture] of Faculty of Agriculture, UBKV w. e. f. 2016-2017 academic session as per the ICAR-V Deans' Committee Recommendations is mentioned below in tabular form:

I Semester

Sl. No.	Course Name	Credit Hr.	Offering Department
1.	Fundamentals of Horticulture	2 (1+1)	PPHT
2.	Fundamentals of Genetics	3(2+1)	GPB
3.	Fundamentals of Soil Science-I	3(2+1)	SSAC
4.	Introduction to Forestry	2 (1+1)	FOR
5.	Communication Skills and Personality Development	2 (1+1)	EXT
6.	Fundamentals of Agronomy-I	2(1+1)	AGR
7.	Fundamentals of Crop Physiology	2(1+1)	SST
8. ¥	Fundamentals of Agricultural Economics	2(2+0)	ECO
9.	Elementary Mathematics*	2(2+0)*	STAT
10.	Rural Sociology & Educational Psychology	2 (2+0)	EXT
11.	Human Values & Ethics (non gradial)	1(1+0)**	EXT
12.	NSS/NCC/Physical Education & Yoga Practices**	2 (0+2)**	EXT
13.	Comprehension and Communication Skill in English	2(1+1)	EXT
	TOTAL	**27(17+10)**	

***R: Remedial course; **NC: Non-gradial courses,** ¥ : This course was offered in 2nd Semester for 2016-17 academic session only.

II Semester

Sl. No.	Course Name	Credit Hr.	Offering Department
1.	Fundamentals of Plant Breeding	3(2+1)	GPB

2.	Agricultural Microbiology	2(1+1)	SSAC
3.	Soil and Water Conservation Engineering	2(1+1)	F/Tech.
4.	Fundamentals of Plant Pathology-I	3(2+1)	PPA
5.	Fundamentals of Entomology	4(3+1)	ENT
6.	Fundamentals of Agricultural Extension Education	3(2+1)	EXT
7.	Fundamentals of Plant Biochemistry	3(2+1)	BCH
8.	Fundamentals of Agronomy-II	2(1+1)	AGR
	Total	**22(14+8)**	

III Semester

Sl. No.	**Course Name**	**Credit Hr.**	**Offering Department**
1.	Crop Production Technology – I *(Kharif Crops)*	3 (2+1)	AGR
2.	Fundamentals of Plant Biotechnology	3 (2+1)	GPB
3.	Agricultural Finance and Cooperation	3 (2+1)	ECO
4.	Agri- Informatics and Computer Application	2(1+1)	STAT
5.	Farm Machinery and Power	2 (1+1)	F/Tech.
6.	Production Technology for Vegetables and Spices	2 (1+1)	VSC
7.	Environmental Studies and Disaster Management	3(2+1)	FOR
8.	Fundamentals of Statistical Methods	3(2+1)	STAT
9.	Livestock and Poultry Management-I	2 (1+1)	AGR
10.	Fundamentals of Plant Pathology-II	1(1+0)	PPA
	Total	**24(15+9)**	

IV Semester

Sl. No.	**Course Name**	**Credit Hr.**	**Offering Department**
1.	Crop Production Technology –II *(Rabi Crops)*	3(2+1)	AGR
2.	Production Technology for Ornamental Crops, MAP and Landscaping	2(1+1)	FMAP
3.	Renewable Energy and Green Technology	2(1+1)	F/Tech.
4.	Problematic Soils and their Management	3(2+1)	SSAC
5.	Production Technology for Fruit and Plantation	2(1+1)	PPHT

	Crops		
6.	Principles of Seed Technology	3(2+1)	SST
7.	Farming System & Sustainable Agriculture	1(1+0)	AGR
8.	Agricultural Marketing Trade & Prices	3(2+1)	ECO
9.	Introductory Agro-meteorology & Climate Change	2(1+1)	AGR
10.	Elective Course	3(2+1)	
	Total	**24(15+9)**	

V Semester

Sl. No.	**Course Name**	**Credit Hr.**	**Offering Department**
1.	Livestock and Poultry Management-II	2 (1+1)	AGR
2.	Soil Fertility and Nutrient Management	3 (2+1)	SSAC
3.	Pests of Crops and Stored Grain and their Management	3 (2+1)	ENT
4.	Diseases of Field and Horticultural Crops and their Management -I	3 (2+1)	PPA
5.	Crop Improvement-I *(Kharif Crops)*	2 (1+1)	GPB
6.	Entrepreneurship Development and Business Communication	2 (1+1)	EXT
7.	Geoinformatics and Nano-technology and Precision Farming	2 (1+1)	AGR
8.	Practical Crop Production – I (*Kharif*crops)	1 (0+1)	AGR
9.	Intellectual Property Rights	1(1+0)	ECO
10.	Principles of Organic Farming	2(1+1)	
11.	Elective Course	3(2+1)	
	Total	**24(14+10)**	

VI Semester

Sl. No.	**Course Name**	**Credit Hr.**	**Offering Department**
1.	Rainfed Agriculture & Watershed Management	2 (1+1)	AGR
2.	Protected Cultivation and Secondary Agriculture	2 (1+1)	F/Tech.

3.	Diseases of Field and Horticultural Crops and their Management-II	3 (2+1)	PPA
4.	Post-harvest Management and Value Addition of Fruits and Vegetables	2 (1+1)	PPHT
5.	Management of Beneficial Insects	2 (1+1)	ENT
6.	Crop Improvement-II *(Rabi crops)*	2 (1+1)	GPB
7.	Practical Crop Production –II (*Rabi* crops)	1 (0+1)	AGR
8.	Farm Management, Production & Resource Economics	3 (2+1)	ECO
9.	Principles of Food Science and Nutrition	2(2+0)	PPHT
10.	Principles of Integrated Pest and Disease Management	3(2+1)	PPA
11.	Elective Course	3(2+1)	
	Total	**25(15+10)**	
	Grand Total	**142(91+51)**	

After 6th semester the student's READY programme under Vth Deans Committee will be implemented from the ensuing academic session. The Student READY programme is to be implemented in final year of under graduation course. It consists of **Rural Awareness Works Experience (RAWE) and Agro-Industrial Attachment (AIA)** during **seventh semester** and **Experiential Learning Programme (ELP)** during **eighth** semester. The University has already started this programme for last two years following the guidelines of students READY programme. However, in current academic session the fourth year students are under IVth Deans committee pursuing various elective courses under various modules in seventh semester:

Module 1: Crop Production

Course No.	Course	Cr. Hrs	Associated Department
AGR 401	Seed Production Technology	3(1+2)	Agronomy (Lead deptt) Seed Science
AGR 402	Agrometeorology and Crop Modeling	2(1+1)	Agronomy (Lead deptt) SSAC & Ag. Statistics
AGR 403	Integrated Farming Systems	2(1+1)	Agronomy
AGR 404	Water Management	3(1+2)	Agronomy (Lead deptt) SSAC
AGR 405	Organic Farming	3(2+1)	Agronomy (Lead deptt)

			SSAC
SSC 401	Integrated Nutrient Management	3(2+1)	SSAC (Lead Deptt) Agronomy
SSC 402	Remote Sensing and Geographical Information System for NRM and Land Use Planning	3(1+2)	SSAC (Lead Deptt) Agronomy
SSC 403	Soil Management	3(2+1)	SSAC

Module 2: Crop Protection

Course No.	Title	Credit Hours	Associated Department
ENT-401	IPM (Pest Scouting)	3(2+1)	Agril. Entomology
ENT-402	Management of post harvest insect pests	2(1+1)	Agril. Entomology
ENT-403	Non insect pest and their management	3(2+1)	Agril. Entomology
ENT-405	Apiculture	2(1+1)	Agril. Entomology
ENT-404	Biocontrol agents and biopesticides	2(1+1)	Agril. Entomology
ENT-406	Pesticides and their management	3(2+1)	Agril. Entomology
PPA 401	Mushroom Cultivation	2(1+1)	Plant Pathology
PPA 402	Epidemiology and Disease Assessment	2(1+1)	Plant Pathology
PPA 403	Bio-Control agents and their mass production	3(1+2)	Plant Pathology
PPA 404	Diagnosis and management of Plant Diseases	3(2+1)	Plant Pathology
PPA 405	Techniques in Plant Pathology	2(0+2)	Plant Pathology

Module 3: Social Science

Course No.	Title	Credit Hours	Associated Department
EXT 401	Agricultural Journalism	3(1+2)	Agril. Extension
EXT 402	Audio visual communication	3(1+2)	Agril. Extension
EXT 403	Multimedia technologies and cyber extension	3(1+2)	Agril. Extension(Lead Deptt) Agril. Statistics
ECO 401	Project Development , Appraisal & Monitoring	2(2+1)	Agril. Economics

ECO 402	International Trade	3(2+1)	Agril. Economics
ECO 403	Government Policies and Programe Related to Agriculture	2(2+0)	Agril. Economics
ECO 404	Farm Planning , Budgeting and Production Economics	3(2+1)	Agril. Economics
AST-401	Mathematics	2(2+0)	Agril. Statistics
AST-402	Simulation in Agriculture	2(1+1)	Agril. Statistics(Lead Deptt) SSAC and Agronomy
AST-403	Designing field experiments	3(2+1)	Agril. Statistics
AST-404	Sample Survey techniques in Agriculture	3(2+1)	Agril. Statistics
AST-405	Econometric Approach in Agriculture	2(1+1)	Agril. Statistics
AST-406	Regression Analysis	2(1+1)	Agril. Statistics
AST-407	Genetical Statistics	2(1+1)	Agril. Statistics
AST-408	Probability Distributions	3(2+1)	Agril. Statistics

Experiential Learning Units (EL Units)/Hands-on-Training Units (HoTs)

There are three EL units – (i) Mushroom Production and Processing, (ii) Vermi Compost Production and Processing and (iii) Biocontrol Agent Mass Production. These units have been established with ICAR fund.

The eight semester UG students are placed in groups in these EL units based on merit and choice and they learn all the procedures involved in the production and marketing of the individual produce of the ELPs. These EL units help students develop competence, capability, capacity development, expertise and confidence to start their own enterprise and turn job creators instead of job seekers.

The ELPs/HoT have their own bank account and has the following organizational set-up:

Chief Executive Officer

(Dean/Associate Dean of the Faculty/College)

↓

Managing Directgor

(Head of the Department)

Manager

(In-charge Faculty)

POST GRADUATE TEACHING, RESEARCH, INFRASTRUCTURE AND EXTENSION

DEPARTMENT OF AGRONOMY

POST GRADUATION TEACHING

Field of specialization for M.Sc and Ph.D.: Crop Husbandry, Weed Management and Water Management.

Post Graduate courses:

Code	Course title	Credits	Semester
AGRON 501*	Modern concepts in crop production	3+0	1st
AGRON 502*	Principles and practices of soil fertility and nutrient management	2+1	1st
AGRON 503*	Principles and practices of weed management	2+1	1st
AGRON 504*	Principles and practices of water management	2+1	1st
AGRON 505	Agrometeorology and crop weather Forecasting	2+1	2nd
AGRON 506 (CORE)	Agronomy of cereal crop-i (rice)	2+1	2nd
AGRON 507	Agronomy of cereal crops-ii (maize and millets)	2+1	3rd
AGRON 508	Agronomy of cereal crops ii (wheat and barley)	2+1	3rd
AGRON 509	Agronomy of pulse crops (kharif and rabi)	2+1	2nd
AGRON 510	Agronomy of oil seed crops (kharif and rabi)	2+1	2nd
AGRON 511	Agronomy of fibre crops	2+1	3rd
AGRON 512	Agronomy of sugar crops	2+1	3rd
AGRON 513	Agronomy of tuber crops	2+1	3rd
AGRON 514	Agronomy of fodder and forage crops	2+1	3rd
AGRON 515	Cropping systems and sustainable agriculture	2+0	2nd
AGRON 516	Dryland farming and watershed management	2+1	2nd
AGRON 517	Principles and practices of organic farming	2+1	2nd
AGRON 518	Diagnosis of nutritional deficiency in field crops and their remedial measure	2+1	2nd
AGRON 591	Master's seminar	1+0	4th
AGRON 601	Current trends in agronomy	3+0	1st/3rd/5th
AGRON 602	Crop ecology	2+0	1st/3rd/5th
AGRON 603	Advances in crop growth and productivity	2+1	1st/3rd/5th
AGRON 604	Advances in water management	2+1	2nd/4th
AGRON 605	Advances in weed management	2+0	1st/3rd/5th

Code	Course title	Credits	Semester
AGRON 606	Integrated farming systems and sustainable agriculture	2+0	$1^{st}/3^{rd}/5^{th}$
AGRON 607	Soil conservation and watershed management	2+1	$2^{nd}/4^{th}$
AGRON 608	Stress crop production	2+1	$2^{nd}/4^{th}$
AGRON 609	Crop production and system modeling	2+1	$2^{nd}/4^{th}$
AGRON 610	Advance technology in cereals production	2+1	$1^{st}/3^{rd}/5^{th}$
AGRON 691	Doctoral seminar I	1+0	$1^{st}/2^{nd}$
AGRON 692	Doctoral seminar II	1+0	6^{th}
AGRON 699	Doctoral research	45	

* Compulsory for Master's programme

Post graduate requirement:

i) For M.Sc. (Ag.) Degree: 4 years B.Sc(Ag.) Hons. Degree with Agronomy as a compulsory subject

ii) For Ph.D Degree: Two years Full time M.Sc. (Ag.) in Agronomy

PG student completed degree:

i) M.Sc.(Ag.) in Agronomy

Sl. No.	Name of the Students	Name of The Supervisor	Title of work
1	Roni Barman	Dr. Biplab Mitra	Evaluation of herbicides for control of broad leaved weeds in wheat
2	Koushik Nandi	Prof.S. Bandyopadhyay	Effect of date of sowing on growth and yield of maize-greengram system of intercropping
3	Monorama Behera	Prof. Asok Saha	Studies on varying K levels on early duration potato varieties
4	Jince Mary M Joy	Prof. A.K.Singha Roy	Performance of new timely sown wheat genotypes under restricted irrigation conditions
5	Md. Aziz	Dr. P.S.Patra	Response of split application of nitrogen on productivity of maize

ii) Ph.D in Agriculture (Agronomy)

Sl. No.	Name of the Students	Name of The Supervisor	Title of work
1	Augustina Saha	Prof. A.C.Sinha	"Effect of Integrated Nutrient Management on Buckwheat (*Fagopyrum esculantum* Moench)

			varieties and its residual effect on Mung bean (*Vigna radiate* L.) under Terai region of West Bengal"
2	Ananda Shankar Singha	Prof. Asok Saha	Effect of Cultivars and Date of Sowing on Growth and Yield of Rapeseed/Mustard in Rice-Rapeseed/Mustard Cropping System
3	Koushik Patra	Prof.S.Bandyopadhyay	Productivity, energy efficiency and economics of rice-wheat system as affected by varieties and crop establishment techniques in Sub-Himalayan plains of Bengal
4	Punabati Heisnam	Dr. A.K.Singha Roy	Studies of INM and effect of transplanting dates on growth, yield, quality and economics of aromatic rice cuitivar
5	Tapas Das	Dr. P.S.Patra	Effect of varied microclimate on Ground nut(*Arachis hypogaea L.*) due to tillage, date of sowing and nutrient management and impact assessment of imposed temperature variation using crop simulation model

Existing M.Sc students along with their supervisors

Sl. No.	Name of the Students	Name of The Supervisor	Title of Work
1	B.Tripathy	Prof. A.K.Singha Roy	Evaluation of performance of diverse varieties of wheat at different dates of sowing under changing climatic conditions
2	M. Akhila	Prof. Asok Saha	Nutrient management studies on confectionary groundnut varieties
3	H. Mandi	Prof. S. Bandyopadhyay	Effect of organic mulch and potassium management on growth, yield of late sown rabi Maize (*Zea mays* L.) in sub Himalayan plain
4	M. Pandey	Dr. Parthendu Poddar	Performance of 'CR Dhan 307' (Maudamani); a heavy panicle rice variety under various dates of planting and planting densities in

			terai zone of West Bengal
5	Arju Ahmed	Dr. P.S.Patra	Performance of Maize (*Zea mays* L.) under different method of zinc application
6	Sukanya Dutta	Dr. Shyamal Kheroar	Integrated weed management approach to improve weed control efficiencies for sustainable jute production
7	Suchitra Roy	Dr. Tarun Paul	Influence of tillage and herbicides on weed flora of wheat

Existing Ph.D students in Agriculture (Agronomy)

Sl. No.	Name of the Students	Name of the Supervisor	Title of work
1	Bidyapati Ngangom	Prof. A.K.Singha Roy	Response of various rice varieties to Zn application during summer season
2	Anwesh Rai	Prof. S. Bandyopadhyay	Optimization of sowing window and cultivars of winter maize under maize-cowpea cropping system and impact assessment of climate change using CSM CERES-maize
3	Triptesh Mondal	Prof. A.K.Singha Roy	Yield maximization in zero tillage wheat through Decision Support System (DSS) with Nitrogen splitting and lodging management
4	Santanu Das	Prof. Asok Saha	Evaluation of growth and yield performances of different potato(*Solanum tiberosum* L.) cultivars and influence of varying fertilizer levels on processing type variety
5	Prantick Singha	Dr. Biplab Mitra	Precision Nutrient Management in Wheat using NDVI Sensor and its Residual Effect on Succeeding Rice
6	Rajesh Saha	Dr. P.S.Patra	Yield and quality of aromatic rice under different source of organic nutrient and establishment technique
7	Everest Lepcha	Dr. Parthendu Poddar	Studies on dual purpose maize(grain-cum-fodder production) in rice-

Sl. No.	Name of the Students	Name of the Supervisor	Title of work
			maize cropping system
8	Soumya Saha	Prof.S.Bandyopadhyay	Studies on zinc application methods in direct seeded rice and zinc use efficiency of indigenous rice varieties of Terai West Bengal
9	Senjit Singh Ashem	Prof. A.K.Singha Roy	Integrated Nutrient Management in Summer Rice in *Terai* Zone of West Bengal
10	Nabarun Paul	Prof. Asok Saha	Varietal evaluation and response of microbial inoculation under polythene mulching for yield optimization in groundnut

RESEARCH

Area of Research

Research activities of the department are concentrated on Crop Husbandry, Water Management, Weed Management, Integrated Nutrient Management, Conservation Agriculture and Crop Weather Relation.

Scholarships, Stipends and fellowships

The students are getting University Research Scholarship, Junior/Senior research Fellowship and various other merit scholarship every year based on their performance.

Involvement of teachers in various Research Projects:

Sl. No.	Name of the Projects/scheme and funding Agency	Name of the P.I/Co. P.I/Associated Scientists	Year of commence-ment
1	"Gramin Krishi Mausam Sewa" Funded by Ministry of Earth Science, Govt. of India.	Dr. S. Bandopadhyay, Principal Nodal Officer	2005
2	"Forecasting of Agricultural Outputs Using Space, Agrometeorology and Land Based Observations (FASAL)" Funded by Ministry of Earth Science,	Dr. S. Bandopadhyay, P.I	2010

Sl. No.	Name of the Projects/scheme and funding Agency	Name of the P.I/Co. P.I/Associated Scientists	Year of commence-ment
	Govt. of India.		
3	Image IDGP: Image based system for identification of individual, breeds and diseases of pig and goat. Funded by Madia Lab Asia, New Delhi, Govt. of India	Dr. Dilip Kumar Hajra (PI)	2016-17
4	Socio economic upliftment of weaker section through piggery, Funded by RKVY	Dr. Dilip Kumar Hajra (PI)	2016-17
5	Scientific evaluation and CB analysis of duck rearing system special emphasis to socio economic upliftment through women empowerment	Dr. Dilip Kumar Hajra (Co-PI)	2017-18
4	Prevalence of GI parasites of cattle in Terai zone under Institute funded project	Dr. Dilip Kumar Hajra(Co-PI)	2015-16
5	All India Coordinated Wheat and Barley Improvement Project	Dr. Biplab Mitra (Agronomist)	2014-15
6	Sustainable and Resilient Farming System Intensification funded by ACIAR	Dr. Biplab Mitra (Co-PI)	2014-15
7	Improving water use for dry season agriculture by marginal and tenant farmers in the Eastern Gangetic Plains funded by ACIAR	Dr. Biplab Mitra (Co-PI)	2014-15
8	Australia-India Council sponsored Mobile E-Service Farmer Service Kiosks (MEFSK) through "Developing Innovative Agri-Entrepreneurship Roles for Young Agri-Professionals in West Bengal"	Dr. Biplab Mitra (Co-PI)	2017-18
9	All India Coordinated Research Network (AICRN) on Potential Crops	Dr. Tarun Paul (In-Charge)	2016-17

INFRASTRUCTURE

Classroom

- One UG classroom with capacity of 100 students equipped with LCD projector, white screen and CCTV.
- One PG classroom available in the department with capacity of 35 students.

Laboratory

- One functional laboratory for conduction of UG practical classes.

Equipment / Instruments

- Visible spectrophotometer, pH-meter, Hot air oven, Double distillation set, Analytical balance, Flame photometer, Conductivity meter, Centrifuge, Grinder, Nitrogen analyser.

EXTENSION ACTIVITIES

The department imparts training on vermicompost production and conservation agriculture for practicing farmers and some leading farmer's clubs of the district. The faculty members of the department participated in various extension activities organised by State Department of Agriculture, State Department of Agriculture Marketing, State Department of Forest, KVK and ongoing research project as resource persons.

PUBLICATIONS

Research papers, book chapters, books etc. published in referreed scientific journals and reputed publishers by the faculties and research scholars from different departments under the Faculty of Agriculture during 2017-18 are being listed as follows.

Research papers

Sl. No.	Title	Author(s)	Journals
1	Precision nutrient management in wheat (*Triticum aestivum* L.) using Nutrient Expert: Growth phenology, yield, nitrogen use efficiency and profitability under eastern sub-Himalayan plains (2018)	Mondal, T., Mitra, B. and Das, S.	*Indian Journal of Agronomy,* **63**(2): 174-180
2	Evaluation of barley (*Hordeum vulgare* L.) cultivars under different	Priya Devi, K., Mitra, B., Paul, T.,	*Journal of Crop and Weed,* **14**(1): 185-187

	dates of sowing in *Terai* zone of West Bengal (2018)	Das, S., Singha Roy, S. and Singha Roy, A. K.	
3	Straw mulch and restricted irrigation effect on productivity, profitability and water use in wheat (*Triticum aestivim* L.) under various crop establishment techniques in Eastern sub-Himalayan plains of India (2018).	Singha, P., Mondal, T., Patra, K. and Mitra, B.	*International Journal of Current Microbiology and Applied Sciences*, **7**(2): 1521-1533
4	Double transplanting: A indigenous technology practiced by the tribal farmers to combat aberrant climatic condition (2017)	Das, T. K., Samajdar, T., Mitra, B. and Greatush, M.	*Indian Journal of Hill Farming*, **30**(2): 238-241
5	Effect of organic sources for nitrogen management on growth and yield of grain amaranth (*Amaranthus hypochondriacus*) (2017)	Mahata D, Sinha A. C. and Singha Roy A. K.	*Green Farming*, **8**(3): 597-601
6	Comparison of organic and inorganic sources of nutrients on the performance of buckwheat (*Fagopyrum esculentum* Moench) (2017)	Mahata D, Patra P. S, and Sinha A. C.	*International Journal of Agricultural Sciences*, **13**(2): 215-221
7	Influence of planting dates and INM practices growth and yield of potato (*Solanum tuberasum* L.) (2017)	Baidya P, Rai A, Mahata D and Bandyopadhyay S.	*Green Farming*, **8**(6): 1284-1289
8	Nitrogen management and economics of potato (*Solanum tuberosum* L.) (2017)	Mahata, D, Ghosh, M, and Saha, A.	*Green Farming*,**8**(6): 1290-1293
9	Effect of Nitrogen Growth and Yield of Potato (*Solanum tuberosum* L.) (2018)	Mahata, D, Ghosh, M, Saha, A and Singha Roy A.K.	*International Journal of Current Microbiology and Applied Sciences*,**7**(1): 3311-3320
10	Integrated nutrient management on growth, yield, protein content and economics of grain amaranth (*Amaranthus hypochondriacus*) (2018)	Mahata D and Sinha A.C.	*Journal of Pharmacognosy and Phytochemistry*, **7**(1): 2796-2802
11	Importance of Farmers Awareness Programme under Gramin Krishi Mausam Sewa Project AMFU: Pundibari (2018)	Mahata, D, Rai A and Bandyopadhyay S.	*International Journal of Current Microbiology and Applied Sciences*, **7**(2): 2678-2684
12	Seasonal occurrence of	N. Shit, D. K. Hajra,	*Explor Anim Med Res*,

	gastrointestinal helminth parasites in cattle and buffaloes in bankura district, West Bengal, India (2017)	S. Baidya and A. Debbarma	**7**(1): 58-63
13	Effect of season on growth and reproduction performance of improved backyard poultry in North Eastern Hill Region (2018)	Manas Kumar Patra, D.K. Hajra, R.K. Das, Pradip Sarkar and Bidyut C. Deka	*Indian J. Anim. Res.*, **52**(7): 1071-1076
14	Epidemiological studies for strategic control of gastrointestinal helminths in cattle population under Sub-Himalayan Terai Zone of West Bengal. 2018	Nonigopal Shit, Dilip Kumar Hajra, Mrityunjay Mandal, Rupsanatan Mandal, Suprakash Pal and Ashutosh Sarkar	*Journal of Entomology and Zoology Studies*, **6**(5): 270-276

OTHER ACTIVITIES

i. A Number of thesis was evaluated for M.Sc. (Ag.) and Ph.D. Degree.

ii. Faculty members are involved as External Examiner in other Agriculture Universities and Central Universities(BCKV, Visva-Bharati, CAU, Tripura University, etc).

iii. Faculty members are acted as resource persons in different training programmes organized by the line departments of the state, NABARD, KVKs, NGOs, etc.

iv. Member, Board of Research Studies, BCKV.

v. Selection Committee Member in various Universities.

DEPARTMENT OF AGRICULTURAL ECONOMICS

POST GRADUATION TEACHING

Field of specialization for M.Sc. and Ph.D.:

A PG student can opt for any of the following advance area of specialization for the fulfillment of his/her course.

i. Farm Management & Production Economics

ii. Agril. Marketing & Price Analysis

iii. Agril. Finance & Project Analysis

iv. Agril. Development & Policy

Post graduate courses:

Sl. No.	Course No.	Course-Title	Credit Hour	Semester
Master Degree Major/Core Courses				
1.	AG ECON 501	Micro Economic theory and application	2(2+0)	1st
2.	AG ECON 502	Macro Economics and Policy	2(2+0)	1st
3.	AG ECON 503	Evolution of Economic thought	1(1+0)	1st
4.	AG ECON 504	Agril. Production Economics	2(1+1)	1st
5.	AG ECON 505	Agril. Marketing and Price analysis	3(2+1)	1st
6.	AG ECON 506	Research Methodology for Social Science	2(1+1)	2nd
7.	AG ECON 507	Econometrics	3(2+1)	2nd
8.	AG ECON 508	Linear Programing	2(1+1)	3rd
9.	AG ECON 509	Agril. Finance & Project Management	3(2+1)	3rd
Minor/Supporting Courses				
10.	AG ECON 510	Mathematics for Agril. Economics	3(3+0)	3rd
11.	AG ECON 511	International Economics	2(1+1)	1st
12.	AG ECON 514	Natural Resource and Environmental Economics	2(1+1)	2nd
13.	AG ECON 515	Intellectual Property Management	1(1+0)	2nd
14.	AG ECON 517	Rural Marketing	2(2+0)	2nd
15.	AG ECON 518	Commodity Futures Trading	2(2+0)	1st
Seminar				
16.	AG ECON 591	Master's Seminar	0+1	4th
Research				
17.	AG ECON 599	Master's Research	0+20	4th
Doctoral Degree Major Courses				
1.	AG ECON 601	Advanced Micro Economic Analysis	2(1+1)	1st
2.	AG ECON 602	Advanced Macro Economics Analysis	2(2+0)	1st
3.	AG ECON 603	Advanced Econometrics	3(2+1)	1st
4.	AG ECON 604	Advanced Production Economics	3(2+1)	1st
5.	AG ECON 605	Quantitative Development Policy Analysis	2(1+1)	2nd
6.	AG ECON 606	Advanced Agril. Marketing and Price analysis	3(2+1)	2nd
Minor / Supporting Courses				
7.	AG ECON 608	Commodity Future Trading	2(2+0)	1st & 2nd
8.	AG ECON 609	Natural Resource Management	2(1+1)	1st & 2nd
9.	AG ECON 610	Environmental Economics	2(2+0)	1st & 2nd
Doctoral Seminar				
10.	AG ECON 691	Doctoral Seminar – I	1(0+1)	2nd
11.	AG ECON 692	Doctoral Seminar – II	1(0+1)	5th
Doctoral Research				
12.	AG ECON 699	Doctoral Research	0+45	–

Post graduate requirement:

i) **For M.Sc.(Ag) Degree:**

4 years B.Sc. (Ag) Hons degree with courses on Agricultural Economics

ii) **For Ph.D. Degree:** Two years full time M.Sc.(Ag) in Agricultural Economics

3.2 Department of Agricultural Economics

Area of Research

- Crop based optimality study on agro economic regional problems using time series and cross sectional data collected from primary and secondary sources.
- Economic potentiality study of Farming system practice focusing on climate resiliency, market rationality and technological adaptation.
- Economic study of value added supply chain attributes with inter sectorial expansion.

Scholarships, Stipends and fellowships: URS-2

RESEARCH

On going research projects

Sl. No.	Name of the project	Name of the P.I/Co. P.I/Associated Scientists	Funding agency
1	Understanding Farm-Household Management Decision making for Increased Productivity in the Eastern Gangetic Plains	K.K.Das (P.I.)	ACIAR, Australia (through University of Western Australia)
2	Preparation of Human Development Report in Coochbehar District	K.K.Das (P.I.)	Govt. of West Bengal
3	Sustainable and resilient farming systems intensification in the eastern Gangetic Plains (SRFSI)	K.K.Das (Co- P. I.)	ACIAR, Australia
4	Using ICT to enhance adoption of new agricultural technologies	K.K.Das (P.I.)	University of Sydney and Curtin University (ACIAR), Australia

	and innovations		
5.	Development of innovative agri-entrepreneurship roles for young agri-professionals in West Bengal	K.K.Das (P.I.)	Australia-India Council, DFAT
6.	Enhancing Pulses Production for food and nutritional security, improved livelihoods and sustainable agriculture in West Bengal	K.K.Das (Co- P. I.)	Department of Agriculture, Govt. of West Bengal
7	Promotion of oilseed crops in Northern districts of West Bengal for livelihood security of small and marginal farmers	K.K.Das (Co- P. I.)	Dept. of Agriculture and Cooperation, Ministry of Agriculture & Farmers, Govt. of India
8	Promotion of Oilseed Crops in Northern Districts of West Bengal for Livelihood Security and Marginal Farmers	G. Mula (Co- P. I.)	National Mission for Oilseeds and Oil Palm, Dept. of Agriculture and Cooperation, Ministry of Agriculture & Farmer's Welfare, Government of India
9	To evaluate the bio efficacy and phytotoxicity of Carfentrazone ethyl 40% DF against weed flora in Wheat	G. Mula (Co- P. I.)	M/S KrishiRasayan Exports Pvt.

INFRASTACTURE

Classroom

- One PG classroom is available in the department with capacity of 35 students.

Laboratory

- One functional laboratory for conduction of UG practical classes.

Equipments/ Instruments

- Desktop computers, Laptop, Handycam

OTHER ACTIVITIES

The department mainly provides full resource support to conduct training by other unites of the University on specialized subject jurisdiction from farmers to executive level.

PUBLICATIONS

Research papers

Sl. No.	Title	Author(s)	Journals
1	Problems and prospects of coconut in Assam – a review (2017)	Pal, R. K and Das, K. K.	*Indian Coconut Journal*, (Vol. LIX (12): 5-9

Book chapter

Sl. No.	Title and Year	Author(s)	Publishers
1	Mentoring in Profession- A Tool for Individual and Organizational Skill Development in Training and Managerial Skill for Agriculture (2017)	T. N. Roy	Yash Publishing House, Jaipur-302016, edited by Prof. Chitra Henry *et al.*, SKRAU, Bikaner, Rajasthan

OTHERS ACTIVITIES

i. Director of Extension Education (Actg.): Prof. S. C. Sarker.

ii. In-Charge, Regional Research Station, Terai Zone: Prof. A. Sarkar.

iii. Chairman, Intellectual Property & Technology Management Committee (IP&TM): Prof. A. Sarkar.

DEPARTMENT OF AGRICULTURAL EXTENSION

POST GRADUATION TEACHING

Field of specialization for M.Sc. and Ph.D.:

i) Sample Survey

i) Forecasting and Statistical Modelling

ii) Design of Experiments

Post-Graduate Courses:

Course No.	Course-Title	Credit Hours	Semester
Master Degree Major/Core-Courses			
EXT-501	Development Perspectives of Extension Education	2+0	1st
EXT-502	Development Communication, Information Management and E-Extension	3+0	1st
EXT-503	Research Methods in Behavioral Sciences	3+0	1st
EXT-504	Diffusion and Adoption of Innovations	2+1	2nd
EXT-505	Entrepreneurship Development and Management in Extension	3+1	2nd
EXT-506	Human Resource Development	2+1	2nd
Minor/Supporting Courses			
EXT-507	Participatory Methods for Technology Development and Transfer	1+1	1st
EXT-508	Visual Communication	1+2	2nd
EXT-509	Gender Sensitization for Development	1+1	3rd
EXT-510	Market –Let Extension	1+1	3rd
EXT-511	Perspectives of Distance Education	1+1	Currently Not offered
EXT-512	Basic Imaging Technology	1+2	Currently Not offered
EXT-513	Rural Sociology	2+0	Currently Not offered
EXT-514	Educational Psychology	2+0	Currently Not offered
Master's Seminar and Research (1+20)			
EXT-591	Master's Seminar	0+1	4th
EXT-599	Master's Research	20	3rd
Master's Supporting Courses			
Any course from other departments		05	1st/2nd/3rd
Doctoral Major Courses(12 Cr-Hr)			

EXT 601	Advances in Agricultural extension	2+1	1st
EXT 602	Advanced Design and Techniques in Social Science Research	2+1	2nd
EXT 603	Advances in Training and Instructional Technology	2+1	2nd
EXT 604	Organizational Development	2+1	3rd
Doctoral Minor Courses (6 Cr-Hr)			
EXT 605	Media Management	2+1	2nd
EXT 606	Transfer of Technology in Agriculture	2+1	4th
EXT 607	Advanced Management Technique	2+1	Currently Not offered
EXT 608	Theory Construction in Social Sciences	2+0	Currently Not offered

Post-Graduate requirement

Sl. No.	Degree courses	Requirement
I	**For M.Sc. (Ag) Degree**	Four years B.Sc. (Ag) Hons. degree with Agricultural Extension as a compulsory subject.
II	**For Ph.D. Degree**	Two years full time M.Sc. (Ag) in Agricultural Extension

PG students completed degree:

M.Sc(Ag) in Agril. Extension

Sl No.	Name of the student	Title of the work	Chairman
1.	Subhrajyoti Panda	Assessing the effectiveness of Information Communication Technology (ICT) enabled extension Services for addressing the Information needs of the farmers in Cooch Behar district of West Bengal	Dr.K.Pradhan
2.	Keshav Ram	Exploring the utilization pattern of information sources towards sustainable livelihood within the district of Cooch Behar in West Bengal	Dr. K.Pradhan
3.	Arijit Sing Sardar	Farmers perception on Judgement of jackfruit characteristics	Prof. P.K.Pal
4.	Biman Maity	Analysing the perceived constraints in Pulses cultivation in selected north Bengal districts of west Bengal	Prof. P.K.Pal

Existing M.Sc(Ag) students:

Sl No.	Name of the student	Title of the work	Chairman
1	Peddi Naga arsha Vardhan	Impact of Krishi Vignyan Kendras on adoption of climate resilient technologies in agriculture in North Bengal districts of West Bengal	Prof. P.K.Pal
2	Subhajit Chakraborty	Study of Farmers' attitude, awareness and adoption of crop insurance in Cooch Behar district of West Bengal	Dr. S. Mondal

Existing Ph.D students

Sl No.	Name of the student	Title of the work	Chairman
1	Biman Maity	Assessment of Sustainable Livelihood restoration through Skill Development among Rural Youth in Agriculture	Dr.K.Pradhan
2	Tarun Kumar Das	Revisiting the extension strategies to avert climate change vulnerabilities in agriculture for ensuring food security	Dr. K.Pradhan
3	Subhrajoti Panda	Pluralistic Extension Services- Access, Quality and Implications from the Restructured Policy Reforms in Cooch Behar District of West Bengal, India	Prof. P.K.Pal
4	Gulam Tobar Ali	Role of Grass-root Organisations as the actors of Agricultural Knowledge Information System (AKIS) in Selected districts of North Bengal, India	Prof. P.K.Pal
5	Yenglem Lakshimai Devi	Participation of farm women in livelihood activities with special reference to selective ethnic races in Terai region of West Bengal, India	Dr. P. K. Pal
6	C. Vara Prasad	Harnessing the e-readiness of the agricultural system actors for sustainable agricultural development in Cooch Behar and Alipurduar districts of West Bengal	Dr. K. Pradhan
7	Satarupa Modak	Diffusion and adoption pattern organic production technology in Terai region of West Bengal, India	Dr. P. K. Pal
8	Norden Lepcha	Characterizing family farming in the Hill ecosystem of West Bengal, India	Dr. P. K. Pal

9	Bablu Ganguly	Assessing the existing agricultural information system network for agricultural development in Malda district of West Bengal	Dr. K. Pradhan
10	Avishek Saha	Reengaging youth in agriculture: a way forward to enhance agricultural productivity for a food secure society	Dr. K. Pradhan
11	Victor Sarkar	Reinventing the Impact of Self Help Group (SHG) towards Women Empowerment in West Bengal	Dr. K. Pradhan

Scholarships, stipends and fellowships

The students of this department are availing the University Research Scholarship, Rajiv Gandhi National Fellowship, ACIAR-SRFSI Project Fellowship etc.

RESEARCH

Areas of research: **Areas of research**

The M.Sc. and Ph.D. students of the department are mostly doing their research in the field like indigenous knowledge, women empowerment, entrepreneurship development, disaster management, watershed management, social capital, agricultural innovation system, Impact of KVK, e-readiness in agriculture, family farming, attitude towards crop insurance, climate change perception, sustainable livelihood extension reforms and AKIS etc. under close supervision of the chairman of their advisory committee.

On-going research projects:

The active involvement of the faculties of the Agricultural Extension Department in various research projects of the university is really praiseworthy. They actively participate in the research projects and improve the effectiveness of these projects through their valuable consultancy regarding social aspects of the projects. Such ongoing research projects are presented below:

1. AIC project, Mobile E-Service Farmer Service Kiosks (MEFSK) through "Developing Innovative Agri-Entrepreneurship Roles for Young Agri-Professionals in West Bengal"

2. “Enhancing Pulses Production For Food and Nutritional Security, Improved Livelihoods and Sustainable Agriculture in West Bengal”
3. National Information System on Agricultural Education Network in India (NISAgNET)”
4. Monitoring BGREI activities as scientist
5. “Sustainable Resilient Farming System Intensification in Eastern Gangetic Plains”
6. “ Improving dry season agriculture for marginal and tenant farmers in the Eastern Gangetic Plains through conjunctive use of pond and groundwater resources”

INFRASTRUCTURE

Classroom

- One PG classroom available in the department with capacity of 35 students.

Laboratory

- One functional laboratory for conduction of UG practical classes.

Instruments

- Slide Projector, Overhear Projector, Epi-diascope, Direct Projector, LCD Projector, Digital Visualiser, Interactive Board with Display Panel, Plotter, Digital hybrid camera, Digital camera

OTHERS ACTIVITIES

i. The department is rendering the advisory services through the extension staff working in the Directorate of Extension Education. The faculties of the department are also actively involved in the University extension activities conducted through the Directorate of Extension Education and Krishi Vigyan Kendra.

ii. Dr. K. Pradhan is the Editor of the UBKV Newsletter published by the Directorate of Extension Education, UBKV.

iii. Dr. P.K.Pal is the Editor of the University Bulletin “Uttarer Krishi Katha” published by the Directorate of Extension Education, UBKV.

PUBLICATION

Research papers

Sl. No	Title	Author(s)	Publishers
1	Enhancing the capacity of the women led Agricultural Innovation System through its diagnosis.	Das Rema and **Pradhan, K.** (2017)	*Indian Journal of Applied Research*. **7**(1): 748-753. **ISSN-2249-555X International Peer reviewed, Impact Factor 2016-3.919**
2	Identification and documentation of Indigenous Technical Knowledge (s) regarding pest control methods in agriculture**.**	**Pradhan, K;** Yolmo Zigme; Saha Avishek and Vara Prasad, C (2017)	*International Journal of Agriculture Sciences.* **9**(38) : 4580-4584. **ISSN 0975-3710, E-ISSN 0975-9107, NAAS rating 4.82**
3	Focusing on the involvement of women dairy farmers in decision making process at Manipur.	**Pradhan, K**; Devi Lakshimai Yanglem; Das Rema; Saha Avishek; Sarkar Victor and Ganguly Bablu (2017)	*Indian Research Journal of Extension Education*. **17** (1):1-4. **ISSN 0972-2181 Refereed, NAAS rating 4.81**
4	Sensitizing the peasants on the economic livelihood impact of the large cardamom enterprise.	Manger Saiman; **Pradhan, K.**; Saha Avishek; Vara Prasad C.; Sarkar Victor and Ganguly, Bablu (2017)	*Journal of Agroecology and Natural Resource Management*. **4**(2): 171-177. **ISSN 2394-0786, e-ISSN; 2394-0794, Refereed**
5	Exploration and Interpretation of Women Stakeholders' Overall Involvement in Women Led Agricultural Innovation System (AIS).	**Pradhan, K.** and Das Rema (2017)	*Indian Research Journal of Extension Education*. **17** (3):74-81. **ISSN 0972-2181 Refereed, NAAS rating 4.81**
6	Interpreting the farmers' Perception and Predisposition for Exploring the Contribution of Large Cardamom Enterprise on Livelihood Pattern in East Sikkim Himalayas.	Saiman Manger**, K. Pradhan,** Avishek Saha and Rema Das (2017)	*Indian Research Journal of Extension Education*. **17** (3):16-21. **ISSN 0972-2181 Refereed, NAAS rating 4.81**
7	Relationship of socio-economic factors with attributes of homegarden agro-forestry systems in	Subba Mohit.; Pala N A.; Shukla, G.; **Pradhan, K.** and Chakravarty, S. (2017)	*Journal of Tree Sciences*. **36** (2): 76-91. **ISSN 0970-7662, NAAS rating 3.51**

	Northern part of West Bengal.		
8	Participatory knowledge sharing among agricultural extension professional on organic farming practices.	Vara Prasad, C **and Pradhan, K.** (2018)	*Journal of Krishi Vigyan***. 6**(2): 168-171**. ISSN 2319-6432 (P), 2349-4433 (O). NAAS rating 4.41**
9	Perceiving the behavioural change of farmers through modern Information Communication Technology (ICT) tools.	**Pradhan, K.;** Panda Subhrajyoti and Prasad C. Vara (2018)	*Indian Research Journal of Extension Education*. 18(2): 46-53. **ISSN 0972-2181 Refereed, NAAS rating 4.81**
10	Climate Change Perception and Response Strategies of Forest Fringe Communities in Indian Eastern Himalaya.	Dey, T., Pala, N. A., Shukla, G., **Pal, P. K.,** Das, G. & Chakravarty, S. (2017).	Environment, Development and Sustainability (Springer). 15(5): doi 10.1007/s10668-017-9920-1 (**Impact Factor-1.379).**
11	Social and biophysical impacts of watershed development programmes: experiences from a micro-watershed area in India.	**Pal, P. K.,** Ganguly, B., Roy, D., Guha, A., Hanglem, A. and Mondal, S. (2017).	Water Policy. 19 (1): doi: 10.2166/wp.2017.189 **(Impact Factor-0.95: NAAS-6.95)**
12	Adoption of scientiic farm innovations towards enhancing nutritional security in selected areas of Kalimpong, West Bengal	Lepcha, N. Bandyapadhyay, A. K and **Pal, P K**. (2017).	Journal of Krishi Vigyan. 6(1): 10-14. doi : 10.5958/2349-4433.2017.00040.X **(NAAS-4.41)**
13	Assessing attitude towards activities of Rangamati Watershed Development Project in Cooch Behar district of West Bengal, India.	Ganguly, B. Hanglem, A. Lakshimai Devi, Y. Roy, D. Mondal, S. and Pal P. K. (2017).	Asian Journal of Agricultural Extension, Economics & Sociology. 19(3): doi: 10.9734/AJAEES/2017/35433 **(NAAS-4.35)**
14	Livelihood diversity in family farming in selected hill areas of West Bengal, India.	Pal, P. K.Bhutia, P. T. Das, Litan. Lepcha, N. and Nain,M.S. (2017).	Journal of Community Mobilization and Sustainable Development Vol. 12(2), 172-178. **(NAAS-5.30)**
15	Community Level Vulnerability to Climate Change: A Comparative Case Study between Selected Naga	Vimenuo S. Kuotsu, **P. K. Pal**, Deepa Roy, Sabita Mondal, Litan Das and Satarupa Modak.	*Journal of Applied Science and Technology [British Journal of Applied Science and Technology]. 23(6).*

	Tribes in India. C*urrent*	(2017).	DOI: 10.9734/CJAST/2017/35939 (**NAAS-5.32**)
16	Perspectives of Small Scale Tea Growing System (Stgs): A Study of North Bengal areas In India.	Avrajyoti Ghosh, Litan Das, **P. K. Pal**, A. Sarkar and M. S. Nain (2017).	Indian Journal of Extension Education 53 (4): 52-56. **(NAAS-5.32)**

Book chapters

Sl. No	Title	Author (s)	In
1	Refocusing the correlates of carbon sequestration through maintaining the carbon stock in home gardens of West Bengal, India. Natural Resources Management for Sustainable Development and Rural Livelihoods.	Subba Mohit; Pala, N A; Shukla Gopal; **Pradhan, K** and Chakravarty, S. (2017)	*In Eds V.P.Sati and K.C. Lalmalsawmzauva. Today & Tomorrow's Printers and Publishers*, New Delhi, India. **ISBN 81-7019-584-1**
2	Exploration and Extrapolation of Extension Strategy for Promotion of Spice Production and Processing in India.	Pradhan, K. (2018)	Indian Spices: The Legacy, Production and Processing of Indian Treasured Export. *In Eds. Amit Sarangi. Springer International Publishing*. pp. 421-438. **Print ISBN 978-3-319-75015-6**
3	Risk Management in Floriculture with focus on Insurance	S. Mondal (2017)	Advances in Floriculture & Urban Horticulture. (ISBN 978-93-85883-65-1)

Books

Sl. No	Title	Author (s)	Publishers
1	Glimpses of practical in Extension Education.	Pradhan, K.; Vara Prasad, C.; Saha, A; Das Rema; Sarkar, V. and Panda, S. (2017)	*New India Publishing Agency, New Delhi.* **ISBN 978-93-86546-01-2**

2	Dynamics of Extension Education	Litan Das, Subhrajyoti Panda and Anirban Mukherjee	Sharma Publisher and Distributor, New Delhi

DEPARTMENT OF AGRICULTURAL ENTOMOLOGY

POST GRADUATION TEACHING

Field of specialization for:

M.Sc.: Economic Entomology

Ph. D.: Economic Entomology

Post graduate courses:

Course No.	Course-Title	Credit Hour	Semester
Core-Courses			
ENT-501	Insect morphology	1+1	1st
ENT-502	Insect anatomy, physiology and nutrition	2+1	1st
ENT-503	Principles of taxonomy and classification of insects	2+1	1st
ENT-504	Insect ecology	1+1	2nd
ENT-506	Biological control of crop pests and weeds	1+1	1st
ENT-507	Insect toxicology	2+1	3rd
ENT-509	Principles of integrated pest management	1+1	2nd
ENT-510	Pests of field, horticulture and plantation crops and storage entomology	3+1	2nd
Minor/Supporting Courses			
ENT-505	Insect pathology	1+1	3rd
ENT-508	Plants resistant to insects	1+0	2nd
ENT-511	Insect vectors of plant viruses and other pathogens	1+0	4th
ENT-512	Commercial entomology	1+1	2nd
Doctoral Degree Courses			
Course No.	**Course Title**	Credit hours	Remarks
ENT-601	Immature stages of insects	1+1	1st
ENT-602	Insect behavior	1+1	4th

ENT-603	Recent trends in biological control	1+1	2nd
ENT-605	Advances in host plant resistance	1+1	2nd
ENT-606	Advanced acarology	1+1	3rd
ENT-607	Molecular approaches in entomological research	1+1	1st
ENT-608	Advanced IPM	2+0	1st

Post graduate requirement:

i. **For M.Sc.(Ag) Degree:** years B.Sc. (Ag) Hons degree with courses on Agricultural Entomology

ii. **For Ph.D. Degree:** Two years full time M.Sc.(Ag) in Agricultural Entomology

PG student completed degree:

M.Sc(Ag) in Agril. Entomology

Sl. No.	Topic	Name of the student	Reg. No.	Chairman
1	Bioecology of *Sitophilus oryzae* L. on wheat under terai agro-ecology of W.B.	Bireshwar Kundu	A-2015-05-M	Prof. T. K. Hath
2	Biodiversity and bioecology of predaceous Coccinellids.	Biwash Gurung	A-2015-06-M	Dr. S. Pal
3	ITK based pest management module on brinjal (*Solanum melongena* L.) under terai agro-ecological system of WB.	Sandip Mandal	A-2015-24-M	Dr. N. Laskar
4	Insect pests of linseed (*Linum usitatissimum* L.) and their sustainable management in terai region of WB.	Shankar Mahato	A-2015-26-M	Dr. J. Ghosh

Ph. D. degree awarded

Sl. No	Title of the thesis	Name of the scholar	Name of the supervisor	Year (Date of viva-voce)

1.	Life system study of *Cricula trifenestrata* Helf. (Saturnidae : Lepidoptera) towards formulation of its management strategy	Gharde Satish Krushna	N. Choudhuri	2017 (05.06.2017)
2.	Tephritid (Diptera: Insecta) fruit flies of economic importance under terai and hilly agro-ecological region of West Bengal"	Gobinda Roy	N. Laskar	2017 (18.09.2017)

Existing M. Sc. (Ag.) students

Sl. No.	Topic of dessertation work	Name of the student	Reg. No.	Chairman
1	Seasonal incidenceof insect pests of cabbage and effect of pest control modules for their sustainable management	Amit Raut	A-2017-20-M	Dr. J.Ghosh
2	Studies on mealy Bugs infesting various crops under terai agro-ecological situation of West Bengal	Y. Mohan Babu	A-2017-30-M	Dr. N. Laskar
3	Studies on the pest complex in brinjal and management of sucking pest with botanicals	N. Mamatha	A-2017-29-M	Mr. P. Sarkar
4	Diversityon seasonalincidents of aphids andtheir natural enemies from terai region of West Bengal	Atanu Maji	A-2017-05-M	Ms. M. Chatterjee

Existing Ph. D. students

Sl.	Topic of research	Name of the	Reg. No.	Chairman

No.	(tentatively proposed)	student		
1.	Arthropd diversity in wheat ecosystem with reference to wheat aphid and its biorational management	Biwas Gurung	A-2017-04-D	Dr. W. Reza
2.	Screening of different black gram germplasms against its pest complex.	Bireswar Kundu	A-2017-06-D	Dr. T. Dhar
3.	Screening of different banana cultivars against banana scare beetle...	Fouzia Bari	A-2017-05-D	Prof. S. K. Senapati
4.	Studies on insecticide resistance in *Empoasca flavescens* Fab and acaricide resistance in *Oligonychus coffeae* Nietner on tea	Biswajit Patra	A-2017-10-D	Prof. T. K. Hath

RESEARCH

Areas of research : Applied pest management of crops.

Scholarships, stipends and fellowships : 3 (Rajiv Gandhi National Fellowship)

Ongoing research projects

Sl. No.	Name of the project	Name of the P.I.s	Funding agency
1	Effect of some new generation insecticides of paddy.	Dr. Jaydeb Ghosh	Willowood India Limited
2	Evaluation of bio-efficacy and phytotoxicity of CCP- 4620 against mites of ea	Mr. Debanjan Chakraborty	Crystal Crop Protection Pvt. Ltd.
3	Bioefficacy evaluation of Abamectin 1.9% EC against red mite, *Tetranychus* spp. and serpentine leaf miner, *Liriomyza trifolii* of tomato.	Dr. N. Laskar	Crystal Crop Protection Pvt. Ltd.
4	Bio-efficacy phototoxicity and	Dr. J. Ghosh	Willword Chemicals Pvt. Ltd.,

	effect on natural enemies of some new generation insecticide molecular on different crops.		New Delhi
5.	To evaluate the bio-efficacy and phytotoxicity of UPI-917 and UPI-1316 against insect pests of paddy	Dr. N. Laskar	UPL India Ltd.
6.	Bee keeping for upliftment of rural livelihood under northern districts of West Bengal	Dr. N. Laskar	NABARD

INFRASTRUCTURE

Classroom

- One PG classroom available in the department with capacity of 35 students.

Laboratory

- One functional laboratory for conduction of UG practical classes. In addition to that Insect one Taxonomy laboratory, one Biocontrol laboratory is also functioning under the Department.

Equipments/ Instruments

- Simple dissecting microscope, Stereozoom trinocular microscope, Stereozoom binocular microscope, Research microscope, slide projector, Image Analyser, LCD Projector, Freezer, BOD incubator, Hot Air Over, Laminar Air Flow, Soxhlet, Distillation unit, Sprayer, Duster, Insect collection and preservation, display equipment, Insect/natural enemies rearing cages, appliances, Electronic weighing machine, Microtome, Computers, Still and video camera, Computers, Laptop, Printer, Scanner, and Accessories.

OTHERS ACTIVITIES

i. The Department of Agricultural Entomology celebrated **World Honey Bee Day -2017** on 21st August, 2017 in association with National Bank for Agriculture and Rural Development (NABARD). Interested farmers and bee keepers of northern districts of West Bengal were invited in the programme. Dignitaries of University, experts in the concerned feild, officials of line departments, Government of West Bengal were invited in the World

Honey Bee Day celebration programme. Objective of the programme were to aware the farmers regarding bee keeping and promotion of bee keeping among the farming community. Experts delivered lectures on the role of bee keeping in uplifting rural livelihood and entreprenureship development based on bee keeping. Bee keeping equipments were demonstrated during the programme.

ii. 12th National Symposium on Biotic Stress Management Strategies : Challenges Environmental Harmonization on 17-19th February, 2017 have been organised in association with Society of Plant Protection Sciences, New Delhi.

iii. P. G. students from Department of Zoology, ABN Seal College, Cooch Behar visited the Department on 17th June, 2017 and 18th December, 2017 guided by two teachers of the College. Teachers of the Department delivered lectures on Basic Entomological aspects. Feild visits were also conducted at the Crop Museum at Instructional Feild maintained by the Department of Entomology. (Number of students, name of the teachers to be mentioned).

iv. Students from different schools also visit the Department from time to time as a part of their educational tour/visits.

v. Farmers from different districts also come in the Department for advisory round the year. Advisory are provided as per their requirement.

iv. Three days residential farmers training on Bee keeping conducted successfully in association with Cooch Behar KVK and NABARD from 05 – 07 February, 2018.

v. Cooch Behar district agricultural input dealers visited the department on 21st December, 2017. Teachers of the Department delivered valuable lectures before them so as to enrish their know how on crop production and protection. Students from various schools visited the Department as a part of their education exposure on 20th April, 25th April, 27th July, 21st November, 2017.

vi. Teachers of the Department of Agricultural Entomology are also associated in other multiple assignments like Volantary Centre on AICRP-Biological Control, ELP on biological control agent mass production, Bringing Green Revolution in Eastern India (BGREI), GoWB- ICARDA and NMOOP projects etc.

EXTENSION ACTIVITIES

i. Organises farmers training programmes under different project activities.

ii. Prepare and distribute literatures on improved plant protection among the farming commuinites under different project activities.

iii. Advisories to the farmers are regularly being provided to the farming communities with regard to plant protection and allied aspects.

PUBLICATIONS

Research papers

Sl. No.	Title and year	Author(s)	Journals
1	Physico-Chemical Characters of Pumpkin (*Cucurbita moschata* Duch.) Ex Poir Genotype against the Melon Fly (*Bactrocera cucurbitae*) Reveals Resistance Traits in the Terai Region of West Bengal, India (2017)	Gazmer, R., Laskar, N. and Mondal, S.	*International Journal of Current Microbiology and Applied Sciences*, **6**(10): 2023-2031
2	Larval-pupal parasitoid, *Diachasmimorpha* spp. (Hymenoptera: Braconidae) associated with melon fly, *Bactrocera cucurbitae* (Coq.): A report (2017)	Laskar, N., Sinha, D. K., Roy, G., Gazmer, R. and Biswas, S.	*International Journal of Bio-resource, Environment and Agricultural Sciences* (IJBEAS), **3**(2): 545-547
3	Effect of physical characteristics and phenolic contents on jassid and pod borer of Cowpea (2017)	Satpathi, S. K., Pal, S., Gurung, B., Datta, S. Kundu, A., Mandal, R., Laskar, N. and Kheroar, S.	*University of Sindh Journal of Animal Sciences*, **1**(1):14-20
4	Seasonal incidence of insect pests on jackfruit, *Artocarpus heterophyllus* Lamarck (2017)	Chakraborty, D.	*International Journal of Advanced Biological Research*, **7**(3): 474-476
5	Field screening of some tomato genotypes against leaf miner under West Bengal conditions (2017)	Sarkar, P., Chakraborty, S. and Chakraborty, D.	*International Journal of Advanced Biological Research*, **7**(3): 490-494
6	Performance evaluation and dose standardization of a new acaricide, Pyridaben 20% WP against red spider mite, *Oligonychus coffeae* Nietener	Tudu, B, Chatterjee, M., Baskey, S., Chakraborty, S.	*Journal of Crop and Weed*, **14**(1): 195-200

	infesting tea under Terai region of West Bengal (2018)		
7	Evaluation the potentiality of some parameters to probe the elevated levels of resistance in Brassica sp. at the early period of aphid infestation in open field condition (2017)	Sharma, S. S., Paul, B., Saha, P., Sahoo, S. K., Mondal, K., Hath, T. K. and Mondal, H. A.	*Journal of Entomology and Zoology Studies*, **5**(6): 1356-1364

Book chapter

Sl. No.	Title of the chapter	Author (s)	Publisher
1	Insect and acarine pests of leafy vegetables and their eco-friendly management (Title of the book: Pest management in vegetable crops.	M. Chatterjee	Agro-India Publication Edt by: A. Samanta,B. Patra, S. Patra) (2018)

Books

Sl. No.	Title of the book (s)	Author (s)	Publisher
1	Cucurbits: Biotic and abiotic stresses (ISBN: 978-93-86546-50-0) (2018)	N. Laskar, B. Mondal and P. Choudhuri	New India Publishing Agency, New Delhi, India
2	*Uttarbanger Krishijiban* (Bengali) (ISBN: 978-93-83816-86-0) (2018)	N. Laskar	The Shee Book Agency, Kolkata

Booklets

Sl. No.	Title	Editor(s)	Publisher
1	*Moumachi Palon* (Bengali) (2017)	N. Laskar and S. K. Sahoo	Department of Entomology

DEPARTMENT OF AGRICULTURAL STATISTICS

POST GRADUATION TEACHING

Field of specialization for M.Sc. and Ph.D.

i. Sample Survey

ii. Forecasting and Statistical Modelling

iii. Design of Experiments

iv. Remote sensing

v. Econometrics

Post- graduate courses

Code	Course title	Credits
STAT 551	MATHEMATICAL METHODS-I	3+0
STAT 552	MATHEMATICAL METHODS-II	2+0
STAT 560	PROBABILITY THEORY	2+0
STAT 561	STATISTICAL METHODS	2+1
STAT 562	STATISTICAL INFERENCE	2+1
STAT 563	MULTIVARIATE ANALYSIS	2+1
STAT 564	DESIGN OF EXPERIMENTS	2+1
STAT 565	SAMPLING TECHNIQUES	2+1
STAT 566	STATISTICAL GENETICS	2+1
STAT 567	REGRESSION ANALYSIS	1+1
STAT 568	STATISTICAL COMPUTING	1+1
STAT 569	TIME SERIES ANALYSIS	1+1
STAT 572	ECONOMETRICS	2+0
STAT 575	DEMOGRAPHY	2+0
STAT 591	MASTER'S SEMINAR	1+0
STAT 599	MASTER'S RESEARCH	20+0

Courses for the students of M. Sc. and Ph.D programmes of other disciplines under both Faculty of Agriculture and Faculty of Horticulture

Code	Course title	Credits	Remarks
STAT 501	STATISTICAL METHODS FOR RESEARCH WORKERS	2+1	
FOR-513	GENERAL STATISTICAL METHODS AND RESEARCH METHODOLOGY	1+1	Offered by Department of Forestry
FOR-511	COMPUTER APPLICATION AND INFORMATION TECHNOLOGY	1+1	Offered by Department of Forestry

Doctoral degree courses

Course No.	Course-Title	Credit Hour
STAT 601	ADVANCED STATISTICAL COMPUTING	2+1
STAT 602	SIMULATION TECHNIQUES	1+1
STAT 611	ADVANCED STATISTICAL METHODS	2+0
STAT 612	ADVANCED STATISTICAL INFERENCE	3+0
STAT 613	ADVANCED DESIGN OF EXPERIMENTS	2+0
STAT 614	ADVANCED SAMPLING TECHNIQUES	2+0
STAT 615	ADVANCED STATISTICAL GENETICS	2+0
STAT 616	STATISTICAL MODELING	1+1
STAT 617	ADVANCED TIME SERIES ANALYSIS	2+0
STAT 618	STOCHASTIC PROCESSES	2+0
STAT 621	ADVANCED ECONOMETRICS	2+0
STAT 691	DOCTORAL SEMINAR I	1+0
STAT 692	DOCTORAL SEMINAR II	1+0
STAT 699	DOCTORAL RESEARCH	45+0

Post graduate requirement:

i) **For M.Sc.(Ag) Degree:**

4 years B.Sc. (Ag) Hons degree with courses on Agricultural Statistics

ii) **For Ph.D. Degree:** Two years full time M.Sc.(Ag) in Agricultural Statistics

PG students completed degree:

M.Sc(Ag) in Agril. Statistics

Sl. No.	Name of the Students	Name of The Supervisor	Title of work
1	Sangeeth Surendran	Dr. D.S.Gupta	Study on feasibility of zero tillage as a substitute of conventional tillage *wrt* rabi maize in Coochbehar districts of West Bengal

RESEARCH

Areas of research

Applied fields of Econometrics, Statistical Modeling and Forecasting, sample survey, remote sensing and GIS, Design of Experiment.

On-going research projects

1. Time Series Analysis of Data on Area, Production & Productivity of Cereal & Pulse Crops of Terai Agroclimatic Zone of West Bengal
2. Sustainable Resilient Farming System Intensification in Eastern IGP.
3. Development of innovative agri- entrepreneurship roles for young agri-professionals in West Bengal
4. Enhancing Pulses Production for Food and Nutritional Security, Improved Livelihoods and sustainable Agriculture in West Bengal
5. Long term time series analysis of data on area, production and productivity of oil seed crops and meteorological parameters (Temparature, Rainfall snd Sunshine hour) of Terai Agro-climatic zones of West Bengal
6. "Image IDGP-Image based identification of individual, breed and diseases of pigs and goat"

INFRASTUCTURE

Classroom

- One UG classroom is present in the department with capacity of 80 students.
- One PG classroom is also available in the department with capacity of 35 students.

Laboratory

- One functional laboratory for conduction of UG practical classes.

Instruments

- Desktop computers and projector

OTHERS ACTIVITIES

i. Faculties of the Department are associated with various Administrative, research and academic body of the University.

ii. Faculties regularly act as esource person in different workshops, seminar, trainings etc.

iii. **Celebration of 11th National Statistics Day :** In 2007 Government of India, has designated 29thJune as the "Statistics Day" in the category of Special Days to be celebrated every year at the National level in recognition of the notable contributions made by Late Professor Prasanta Chandra Mahalanobis in the fields of statistics, statistical system and economic planning. The objective of celebration of this Day is to create public awareness about the importance of statistics in socio-economic planning and policy formulation, to acknowledge the contribution of Prof. Mahalanobis. Every year Ministry of Statistics &Programme Implementation (MoSPI) and Indian Statistical Institute selects particular theme for the day based on current national importance for focused discussions and efforts throughout year to bring about improvements in selected area. The theme selected for the Statistics Day for the year 2017 was "Administrative Statistics". Statistics Day was also celebrated throughout the country by the field offices of National Sample Survey Office, State Governments and Universities/Departments by organizing Seminars, Conferences, Debates, Quiz Programmes, Lectures, Essay Competitions, etc. The department of Agricultural Statistics, UBKV, Pundibariwas taken initiative to celebrate national statistics day on the eve of Late Professor Prasanta Chandra Mahalanobis 125th birth anniversary on 29th June, 2017.

EXTENSION ACTIVITIES

i. Teachers are attached with several multidisciplinary research and extension mode projects running in the University and funded by different sponsoring agencies.

ii. Under the mandate of those projects teachers are extensively involved in farmer's training, on farm trial, data collection and statistical analysis and interpretation of the data accrued from the village level farmers' fields.

PUBLICATIONS

Research papers

Sl. No.	Title and year	Author(s)	Journals
1	Estimation of optimum time of spray for controlling rice leaf folder infestation on boro rice in terai region of West Bengal using best fitted linear and nonlinear growth model (2017)	Soumitra Sankar Das, ManojKanti Debnath, Satyananda Basak, Joydeb Ghosh and Aparajita Das	*Int. J. Curr. Microbiol. App. Sci.*, **6**(6): 2300-2309
2	Anthropogenic impacts on forest land use and land cover change: Modelling future possibilities in the Himalayan Terai (2018)	Shovik Deb, Manoj K. Debnath, Somsubhra Chakraborty, David C. Weindorf, Deo Kumar, Dibyendu Deb, Ashok Choudhury	*Anthropocene*, **21**:32-41
3	Different methods for judging the normality assumption for univariate and bivariate data and its remedial measure(2017)	S. S.das, A. K. Das, A. Mazumder and M. K. Debnath	*Journal of Crop and Weed*, **13**(1): 07-16
4	Modeling and Forecasting in Rainfall in Jabalpur Madhya Pradesh Using ARIMA Model (2017)	Preeti Tiwari, P. Mishra and M. K. Debnath	*Trends in Biosciences*, **10** (23):5046
5	Economic Threshold Level of Aphid on Mustard crop at Pundibari (A part of Coochbehar district): It‟s determination by application of probability and statistics	SatyanandaBasak, Soumitra Sankar Das, Satyabrata Pal	*International Journal of Zoology Studies* (ISSN: 2455-7269)

	(2018)		
6	An alternative approach for estimating above ground biomass using Resourcesat-2 satellite data and artificial neural network in Bundelkhand region of India (2018)	Deb, D., Singh, J.P., Deb, S., Dutta, D., Ghosh, A., and Chaurasia, R. S.	*Environmental Monitoring and Assessment*, **189**:576
7	Lemon cv. Assam lemon (*Citrus limon*Burm.) quality and soil-leaf nutrient availability affected by different pruning intensities and nutrient management (2018)	Ghosh, A., Dey, K., Bhowmik, N., Ghosh, S. K., Bandyopadhyay, S., Medda, P. S. and Ghosh, A.	*Current Science*, **112**(10): 2051-2065
8	Identification of prediction model on population buildup of *Dactynotus carthemi* HRL on safflower (*Carthamus tinctorius* L.) for timely intervention (2017)	Chaudhuri, N., Banerjee, D., Ghosh, A. and Senapati, S. K	*Journal of Entomology and Zoology Studies*, **5**(4): 1775-1779
9	Growth Behavior of Pineapple cv. Mauritius under Integrated Nutrient Management in Northern part of West Bengal, India (2018)	Bhowmik, N., Munsi, P. S., Ghosh, S. K., Deb, P. and Ghosh, A	*International Journal of Current Microbiology and Applied Sciences*, **6**(9): 2471-2488.
10	Effect of integrated nutrient management on flowering and fruiting characteristics of pineapple cv. Mauritius (2017)	Bhowmik, N., Ghosh, S. K., Munsi, P. S., Deb, P. and Ghosh, A	*Journal of Crop andWeed*, **13**(2): 144-156
11	Effect of Potassium-Boron Content of Leaf on Copra Yield of Coconut (*Cocos nucifera* L.) in *Terai* Region of West Bengal, India (2018)	Sathi Babu, N., Medda, P. S. Sinha, K. and Ghosh, A	*International Journal of Current Microbiology and Applied Sciences*, **7**(2): 398-410
12	Impact of Potassium-Boron Interaction on Leaf Nutrient Content and Nut Setting of Coconut (2017)	Sathi Babu, N., Sinha, A. K., Medda, P.S. and Ghosh, A	*International Journal of Current Microbiology and Applied Sciences*,**6**(12): 4025-4037

DEPARTMENT OF BIOCHEMISTRY

POST GRADUATION TEACHING

Field of specialization for M.Sc. and Ph.D.:

i. Biochemistry

ii. Agricultural Chemicals

M. Sc. (Ag.) courses

Course No.	Course Title	Credits	Semester
BCH 501	Basic Biochemistry	2+1	1st
BCH 502	Chemistry of Biomolecules	2+1	1st
BCH 503	Fundamentals of Enzymology	2+1	1st
BCH 504	Analytical Techniques in Biochemistry	1+2	2nd
BCH 505	Plant Biochemistry I	2+1	2nd
BCH 506	Metabolic Pathways I	2+0	2nd
BCH 507	Molecular Biology	2+1	1st
BCH 508	Pesticide Biochemistry	2+0	3rd
BCH 509	Basics of Immunology	2+1	3rd
BCH 510	Food and Nutritional Biochemistry	2+0	3rd
BCH 591	Master's Seminar	1+0	4th
BCH 599	Master's Research	20	

Ph. D. courses

Course No.	Course Title	Credits	Semester
BCH 601	Advanced Enzymology	2+0	3rd
BCH 602	Metabolic Pathways II	2+0	3rd
BCH 603	Transport Biochemistry	2+0	3rd
BCH 604	Advanced Molecular Biology	2+0	3rd
BCH 605	Advanced Techniques in Biochemistry	0+2	3rd
BCH 606	Plant Biochemistry II	2+0	2nd
BCH 607	Current Topics in Biochemistry	1+0	2nd

BCH 608	Functional Genomics and Metabolomics	2+0	2nd
BCH 609	Environmental Biochemistry	2+0	4th
BCH 691	Doctoral Seminar I	1+0	2nd
BCH 692	Doctoral Seminar II	1+0	4th
BCH 699	Doctoral Research	45	

Agricultural Chemicals

M. Sc. (Ag.) courses

Course No.	Course Title	Credits	Semester
BCH 521	Basic Chemistry-I	2+1	1st
BCH 522	Chemistry of Insecticides and Acaricides	2+1	1st
BCH 523	Basic Laboratory Techniques	1+2	1st
BCH 524	Pesticide Residue Analysis	1+1	1st
BCH 525	Chemistry of Fungicides and Nematicides	2+0	2nd
BCH 526	Chemistry of Herbicides and PGRs	2+1	2nd
BCH 527	Chemistry of Botanicals and Biopesticides	2+0	2nd
BCH 528	Analytical Techniques in Pesticide Chemistry	2+1	2nd
BCH 529	Basic Chemistry-II	2+0	3rd
BCH 530	Pesticide Formulations	2+1	3rd
BCH 531	Movement, Degradation and Metabolism of Pesticides	2+0	3rd
BCH 591	Master's Seminar	1+0	4th
BCH 599	Master's Research	20	

Ph. D. courses

Course No.	Course Title	Credits	Semester
BCH 621	Regulations and Quality Control of Pesticides	2+0	3rd
BCH 622	Advances in Insecticide Chemistry	2+0	1st
BCH 623	Advances in Fungicide and Herbicide Chemistry	2+0	2nd
BCH 624	Practicals in Pesticide Chemistry	0+1	2nd
BCH 625	Special Topics in Agrochemicals	1+0	1st
BCH 626	Principles of Pesticide Chemistry	2+0	1st
BCH 627	Pesticides and Environmental Risk Assessment	2+0	3rd
BCH 691	Doctoral Seminar I	1+0	1st
BCH 692	Doctoral Seminar II	1+0	6th
BCH 699	Doctoral Research	45	

Post graduate requirement:

i) For M. Sc. (Ag) Degree: Four years B. Sc. (Ag)/(Hort) Hons. degree

ii) For Ph.D. Degree: M. Sc. (Ag) degree in Biochemistry/ Agril. Chemicals

Students completed degree

M. Sc. (Ag) in Biochemistry

Sl. No.	Name of the Students	Name of The Supervisor	Title of work
1	Debayan Mondal	Prof. G.K.Pandit	Molecular characterization of geminiviruses from tomato in terai region of West Bengal

Existing M. Sc students:

Sl. No.	Name of student	Chairman	Proposed research topic
1.	Rosalin Laishram	Dr. N. Sahana	Development of novel turmeric based nano formulations and its characterization

Existing Ph.D. students

Sl. No.	Name of student	Chairman	Proposed research topic
1.	Debayan Mondal	Dr. N. Sahana	Evaluation of non basmati aromatic rice cultivars grown in North Bengal for genetic resistance and defense response against rice blast disease
2.	Suman Natta	Dr. S. Mandal	Characterization and evaluation of nutritional components of jackfruit (Artocarpus heterophyllus) for potential applications as functional food

RESEARCH

Areas of research

- **Biochemistry**

Biochemical analysis of indigenous crop plants with special reference to enzymology, lipid biochemistry, chemical biology. Molecular functioning of plant defense pathways during biotic and abiotic stresses.

- **Agricultural Chemicals**

  Degradation and metabolism studies of pesticides Pesticide residue analysis

Scholarships, stipends and fellowships: University Merit scholarship (M. Sc.) : 1 **;** University Research Scholarship (M. Sc.) : 2**;** Swami Vivekananda Merit Scholarship: 1

Ongoing research projects

1. Residue studies of some pesticides in different crops
2. Establishment of plant tissue culture unit for research, training, and commercial quality planting material production at UBKV
3. Generation of elite disease free planting material of turmeric through micropropagation and its distribution among tribal farmers of terrain plain of West Bengal
4. In vitro mass multiplication and conservation of some endangered citrus species of NEH region of India
5. Seed potato (minituber) production and commercialization in northern plains and hilly region of West Bengal
6. Promotion of oilseeds crops in northern districts of West Bengal for livelihood security of small and marginal farmers.

INFRASTRUCTURE

Classroom

- One PG class room equipped with AC and audio-visual aids.

Laboratory

- The department is having one well equipped UG laboratory

  Two PG-cum-research laboratories (Biomolecules Laboratory and Pesticides Laboratory and one dedicated Instrumentation Facility)

Equipment and Instruments

- UV-VIS Spectrophotometer, Cold Centrifuge, PCR, Protein Electrophoresis Unit, Western Apparatus, Refrigerator (-20 degree), Refrigerator (normal), Microwave Oven, Laminar Airflow, Agarose Gel Electrophoresis Unit, PAGE Unit, Dry Bath, Gel Transfer Unit, pH Meter, BOD Incubator, Shaker Incubator, Rotary Vacuum Evaporator, Hot Air Oven, Precision Balance (Electronic), Low Speed Centrifuge, Hot Plate, Magnetic Stirrer, Electrical Shaker, Plant Grinder, Water Baths (ordinary & thermostatic), Ultrasonic Bath, Soxhlet Extraction System, Vortex Shaker, Tissue Homogenizer, Melting Point Apparatus, UV Visualization Chamber (for TLC).

OTHERS ACTIVITIES

i. Faculties of the Department are associated with various Administrative, research and academic body of the University.

ii. Faculties regularly act as esource person in different workshops, seminar, trainings etc.

PUBLICATIONS

Research papers

Sl. No	Title	Author(s)	Journals
1	Antagonism Between LOX-pathway Enzymes and Antioxidative Molecules –a Potential Gateway for Flavour Quality Improvement in Soybean	Mandal S and Santha I. M.	Journal of Agriculture and Technology, 2016, 3 (1): 30-39
2	Effect of Imidacloprid on the activities of some enzymes of cabbage (*Brassica oleracea* L. var. capitata) leaf	Ashrafi, M. A. and Pandit, G. K.	International Journal of Recent Scientific Research, 2016, 7 (1): 8232-8235
3	Preparation of azomethine based nanochemicals and antibacterial activity against nitrifying bacteria.	Mondal P and Kumar R	Pesticide Research Journal, 2016, 28 (2): 194-200
4	Azomethine based nano-chemicals: Development, in vitro and in vivo fungicidal evaluation against Sclerotium rolfsii, Rhizoctonia bataticola	Mondal P, Kumar R and Gogoi R	Bioorganic Chemistry, 2017, 70: 153-162

	and *Rhizoctonia solani*		
5	Development of a PCR Based Detection System for Begomoviruses from Solanaceous Vegetables	Mondal D, Sil P, Sahana N, Mandal S, Pandit GK	International Journal of Bioresource Science, 2018, 4 (2): 101-105
6	Physico-Chemical Characters of Pumpkin (Cucurbita moschata Duch.) Ex Poir Genotype against the Melon Fly (Bactrocera cucurbitae) Reveals Resistance Traits in the Terai Region	Gazmer R, Mandal S, Laskar N	International Journal of Current Microbiology and Applied Sciences, 2018, 6 (10): 2023-2031

Book chapters

Sl. No	Title	Author(s)	Publishers
1	Extraction and Concentration Methods for Bioactive Components in Fruits and Vegetables	Mandal S, Paul P. K and Sahana N	Technological Interventions in the processing of fruits and vegetables Apple Academic Press 2018 Chapter 14

DEPARTMENT OF GENETICS AND PLANT BREEDING

POST GRADUATION TEACHING

Field of specialization for M.Sc. and Ph.D.:

Masters' Degree Programme

i) **Major Field** : Plant Breeding and Genetics

ii) **Minor Field**: Seed Science and Technology / Biochemistry

Doctoral Degree Programme

i) **Major Field** : Plant Breeding and Genetics

ii) **Minor Field**: Seed Science and Technology /Biochemistry

Post graduate courses

M. Sc. (Ag.) courses

Sl. No.	Course No.	Title	Credit Hours	Semester
1.	GP-501	Principles of Genetics	2+ 1	1st
2.	GP-502	Principles of Cytogenetics	2+`1	1st
3.	GP-503	Principles of Plant Breeding	2+`1	1st
4.	GP-504	Principles of Quantitative Genetics	2+`1	1st
5.	GP-505	Mutagenesis and Mutation Breeding	2+`1	3rd
6.	GP-506	Population Genetics	2+`1	2nd
7.	GP-507	Heterosis Breeding	2+`1	2nd
8.	GP-508	Cell Biology and Molecular Genetics	2+`1	2nd
9.	GP-509	Biotechnology for Crop Improvement	2+`1	2nd
10.	GP-510	Breeding for Biotic and Abiotic Stress Resistance	2+`1	3rd
11.	GP-511	Breeding Cereals , Forages and Sugarcane	2+`1	2nd
12.	GP-512	Breeding Legumes , Oilseeds and Fibre Crops	2+`1	3rd
13.	GP-513	Breeding for Quality Traits	2+`1	4th
14.	GP-514	Gene Regulation and Expression	2+`0	3rd
15.	GP-515	Maintenance Breeding , Concepts of Variety Release and Seed Production	1+1	4th

16.	GP-516	Germplasm Collection, Exchange And Quarantine	2+`1	3rd
17.	GP-517	Database Management, Evaluation and Utilization of PGR	2+`1	4th
18.	GP-591	Masters' Seminar	1+0	4th
19.	GP-599	Masters' Research	20	4th

Ph. D. courses

Sl. No.	Course No.	Title	Credit Hours	Semester
1.	GP-601	Plant Genetic resources and their Utilization	2+`0	1st
2.	GP-602	Advances in Quantitative Genetics	2+`1	1st
3.	GP-603	Genomics in Crop Improvement	2+`1	1st
4.	GP-604	Cellular and Chromosomal Manipulations in Crop Improvement	2+`0	2nd
5.	GP-605	Advances in Plant Breeding	2+`0	2nd
6.	GP-606	Crop Evolution	2+`0	3rd
7.	GP-607	Breeding Designer Crops	2+`1	3rd
8.	GP-608	Advances in Breeding of Major Field Crops	3+`0	4th
9.	GP-609	Microbial Genetics	2+`1	4th
10.	GP-610	In situ and Ex situ Conservation of Germplasms	2+`1	5th
11.	GP-691	Doctoral Seminar I	1+0	2nd
12.	GP-692	Doctoral Seminar II	1+0	6th
13.	GP-699	Doctoral Research	0+45	6th

Post graduate requirement:

i) For M.Sc.(Ag) Degree: B.Sc (Ag.) Hons. /B.Sc.(Hort.) Hons.

ii) For Ph.D. Degree: M.Sc.(Ag) in Genetics/ Plant Breeding/ Genetics and Plant Breeding /M.Sc.(Ag.) in Seed Science and Technology.

Students completed degree

M.Sc.(Ag) in Genetics and Plant Breeding

Sl. No.	Title of work	Name of the Scholar	Chairman
1.	Genotypic response to special aphid colony distribution in cow pea (Vigna unguiculata L. Walp.) vine study the resistance mechanism	Siddhartha Shankar Sharma	Dr. H. A. Mondal
2.	Study of diumalphotosysthesis, water use efficiency and light use efficiency of wheat under terai agroecological condition	Sourav Hazari	Dr. S. Das

Ph.D in Genetics and Plant Breeding

Sl. No.	Title of work	Name of the Scholar	Chairman
1.	Screening of farmers varieties of rice (*Oryza sativa* L.) for drought tolerance	Swarnajit Debbarma	Dr. Bidhan Roy

Existing M.Sc. (Ag) students

Sl. No.	Name of Student	Name of Supervisor	Registration No.	Title of dissertation
1	Ms. Albina Gurung	Dr. Hossain Ali Mondal	A-2017-3-M	Genotypic influence of aphid on *Brassica* species
2	Mr. Batchu Venkata Phaneendra Reddy	Dr. Avijit Kundu	A-2017-7-M	Identification of MYMV resistance and photoinsensitive mungbean (*Vigna radiata* L.) germplasm and their molecular characterisation using genic and EST-SSRs
3	Mr. Bodeddula Jayasankar Reddy	Dr. Rupsanatan Mandal	A-2017-9-M	Genetic diversity and molecular understanding of late blight disease resistant putative gene in potato tubers collected from the different parts of West Bengal
4	Mr. Supratim Sadhu	Dr. Moumita Chakraborty	A-2017-28-M	Studies on genotype × environment interaction of mustard under Terai Agro Climatic zone
5	Mr. Yendluri	Dr. Saikat Das	A-2017-31-M	Stability analysis of elite wheat genotypes under North Eastern

	Elijah Prabhanth			Plain Zone

Existing Ph. D. stcholars

Sl. No.	Name of Student	Name of Supervisor	Registration No.	Title of dissertation
1	Mr. Sourav Maity	Dr. Saikat Das	A-2014-6-D	Genetic assessment of wheat genotypes based on morpho-phenetic characterisation and trait-linked microsatellite (SSRs) evaluation
2	Mr. Bilin Maying	Prof. Suvendu Kumar Roy	A-2014-9-D	Studies on in-vitro and ex-vitro root and shoot response to phosphate deficiency in Indica rice and their validation with molecular markers
3	Ms. Aparajita Das	Prof. Arup Sarkar	A-2015-1-D	Evaluation of germplasm of brinjal (*Solanum melongena* L. for yield and resistance to bacterial wilt and fruit and shoot borer
4	Mr. Sahanob Nath	Dr. Saikat Das	A-2017-21-D	Population structure analysis and association mapping for resistance to spot blotch in bread wheat
5	Ms. Sanghamitra Rout	Prof. Tulsi Saran Ghimiray	A-2017-23 -D	Screening for aphid resistance and studies on combining ability for yield and it's attributing characters in mustard (Brassica juncea L. Czern & Coss.)
6	Mr. Siddhartha Shankar Sharma	Dr. Hossain Ali Mondal	A-2017-25 -D	Study on flower, seed, novel mass-propagation technique, active component analysis and aphicidal effect of Lower-Altitude primed *Valeriana Jatamansi*

RESEARCH

Areas of research

The faculty members are actively involved in various research programme sponsored by different funding agencies. Given the location of the university in the *Terai* region of West

Bengal, the research activities are primarily directed to sort out the available problems of agriculture in this region and also based on anticipatory approaches the research programme are set out by the faculty members. The major areas of research are enumerated below.

a) Collection, evaluation and screening of mungbean and cowpea genotypes against biotic and abiotic factors.
b) Collection, evaluation and screening of brinjal genotypes against bacterial wilt and fruit and shoot borer in eastern India.
c) Quality seed production in pulses (lentil, black gram and mungbean).
d) Collection, evaluation and maintenance of germplasms of crops including aromatic rice, wheat, mustard, jute and allied fibres, pegion pea, spices (ginger and turmeric), mung bean, brinjal and urd bean.
e) Collection, characterization of ginger germplasm.

Ongoing research projects

1. "Collection, characterization, in-situ and ex-situ conservation of rice of North-Eastern India including the areas under jurisdiction of the University"
2. ICARDA-GoWB Project on 'Enhancing Pulse Production for Food and Nutritional Security, Improved Livelihoods and Sustainable Agriculture in West Bengal" funded by Department of Agriculture, Government of West Bengal
3. "Creation of Seed Hubs for increasing indigenous production of Pulses in India" under NFSM to be implemented by ICAR-IIPR, Kanpur being the Nodal Agency
4. "A study on exploration, characterization and conservation of brinjal (Solanum melongena L.) germplasm in Eastern India"
5. "A study on exploration, characterization and conservation of brinjal (Solanum melongena L.) germplasm in Eastern India"
6. "Promotion of oilseed crops in Northern Districts of West Bengal for livelihood security of small and marginal farmers"
7. (NMOOP)
8. "Studies on bioefficacy and phytotoxicity of homobrassinoloate (0.04%) in tea and rice"
9. Seed potato (mini tuber) production and commercialization in northern plains of West Bengal"

10. “Generation of elite, disease free planting material of turmeric through micro-propagation and its distribution among tribal farmers of terrain plain of West Bengal”

INFRASTRUCTURE

Classroom

- One PG classroom available in the department with capacity of 35 students.

Laboratory

- One functional laboratory for conduction of UG practical classes.

Equipments/Instruments

- pH –meter, Hot- Air –Oven, Water Bath, Double distillation Unit, Cold Centrifuge, Analytical Balance, Vertical Gel Apparatus, Horizontal Gel Apparatus, Vortex -Mixture, Vertical- Autoclave, Laminar Air Flow Cabinet, Deep Freeze, Magnetic stirrer, BOD, Hot Air Blower, Micro-Oven, De-Humidifier, Spectrophotometer, Compound Microscope, Simple Microscope

OTHERS ACTIVITES

i. Faculties of the Department are associated with various administrative, research and academic body of the University.

ii. Faculties regularly act as esource person in different workshops, seminar, trainings etc.

iii. Faculties of the Department are acted as Reviewer of Journals like, Oryza, NRRI, Cuttack, Orissa, Journal of Crop and Weed, BCKV, West Bengal, Journal of Agriculture and Technology, UBKV, Cooch Behar, West Bengal, Electronic Journal of Plant Breeding, TNAU, Coimbatore, Tamil Nadu, American Journal of Plant Sciences (Scientific Research Publishing), Journal Bioinfo Publications, International Journal of Agriculture Sciences, Biosciences Biotechnology Research Asia, African Journal of Plant Science, African Journal of Food Science, Indian Journal of Science and Technology, Journal of Wheat & Barley Research, SAWBR, Karnal, Haryana.

iv. Faculties of the Department are acting as External Examiner in different Universities.

v. Faculties are engaged as various academic and extension programme as resource person round the year. Faculties of the Department contributed as a breeder in developing a Ginger variety **Mohini** (UBKV AADA-1) which has been notified for national release

throughout India in ginger growing states by Department of Agriculture and Farmers Welfare, Govt. of India on 16thJanuary, 2018. Novel and distinguishing Characteristics of the variety: (a) Bold size, (b) high yield, (c) high dry recovery content, (d) high range of essential oil and oleoresin content.

vi. Teachers of the Department are also associated as editorial committee member, editorial board member etc of different academic bodies across the country as well as world.

EXTENSION ACTIVITIES

i. Farmers' Training Programme on Quality Seed Production in Jute under TSP.
ii. Farmers' Training Programme on Quality Seed Production in Maize under TSP.
iii. Farmers' Training Programme on Quality Planting Material Production in Anthurium and Gerbera under DBT project on Biofarming.
iv. Training of ADAs under the Department of Agriculture, Govt. of West Bengal.

PUBLICATIONS

Research papers

Sl. No	Title	Author(s)	Journals
1	Stability of parents and their F1 population of tossa jute under different environments (2017)	Kale, V. A. and Roy, S. K.	*Electronic Journal of Plant Breeding*, **8**(1):216-225
2	Differential aphid colony establishment in *Dolichos lablab*varieties correlatedwith some plantspecific factors thatimpact on aphid (2017)	Mondal, H. A., Roy, S. K., Hijam, L., Chakraborty, M., Dutta, P. and Hath, T. K.	*American Journal of Plant Sciences*, **8**:754-769
3	Genetic variability and character association in rice (*Oryza sativa* L.) over different seasons (2017)	Roy, S. K., Sarkar, K. K. and Senapati, B. K.	*Journal of Agriculture and Technology*, **4**(1): 23-30
4	Performance of flax genotypes with respect to infestation of capsule borer, *Helicoverpa armigera* (Hubner) and other yield parameters in the hills of Darjeeling, India (2017)	Roy, S. K., Pal, S., Ghimiray, T. S. and Roy, A.	*Journal of Entomology and Zoology Studies*, **5**(5): 276-280
5	Variability comparison of mustard crosses in advanced segregating	Roy, S. K.,Chakraborty, M., Hijam, L., Mondal,	*International Journal of Pure and Applied*

	generations (2017)	H. A., Mandal, R., Kundu, A., Kale, V. A., Ashokappa, N. V., Sur, B. and Dash, S. K.	*Bioscience*, **5**(6):948-956
6	Evaluation of genetic variability and characterization of some elite turmeric genotypes in *terai* region in India (2017)	Bikash Chandra Deb and Soumendra Chakraborty	*International Journal of Current Microbiology and Applied Sciences*, **6**(5): 2357-2366
7	Effect of different micronutrients on turmeric variety Suranjana in *terai* region of West Bengal, India (2017)	S. Datta, S. Chakraborty, J. C. Jana, A. Debnath, M. K. Roy and S. Haque.	*International Journal of Current Microbiology and Applied Sciences*, **6**(5): 1471-1482
8	Evaluation of some turmeric genotypes in *terai* region of West Bengal (2017)	S. Chakraborty, S. Dutta, A. Debnath, S. Bandopadhyay, M. K. Roy and S. Haque	*International Journal of Science, Environment and Technology*, **6**(2): 2017
9	Inheritance and association of yield and its attributing traits in rice (*Oryza sativa*) (2017)	Lakshmi Hijam, K. K. Sarkar and S. Mukherjee	*Journal of Crop and Weed* :**13**(1): 64-71
10	A review on potato (*Solanum tuberosum* l.) and its genetic Diversity (2017)	Reddy B. J., Mandal R., Chakraborty M., Hijam L. and Dutta P.	*Int. J. Pure App. Biosci.*, **5**(6):948-956
11	Arabidopsis ACTIN-DEPOLYMERIZING FACTOR 3 is required for controlling aphid feeding from the phloem (2018)	Hossain A. Mondal, JoeLousis, Lani Archer, Monika Patel, Vamsi J. Nalam, Sujon Sarowar, Vishala Sivapalan, Douglas D. Root and Jyoti Shah	*Plant Physiology*, **176**:879-890
12	Shaping the understanding of Saliva- derived effectors towards aphid colony proliferation in host plant (2017)	Hossain A. Mondal	*Journal of Plant Biotechnology*, **60**:103-115
13	Evaluation the potentiality of some parameters to probe the elevated levels of resistance in *Brassica* sp. at early period of aphid infestation in open field condition (2017)	Siddharth Shankar Sharma, Bablu Paul, Pratik Saha, Shyamal Kumar Sahoo, Kashinath Mandal, Tapan Kumar Hath and Hossain Ali Mondal	*Journal of Entomology and Zoology Studies*, **5**(6): 1256-1364
14	Unlocking genetic diversity in selected chickpea genotypes using morphological and molecular markers (2017)	Mandal R., Pal S. and Shit N.	*Current Agriculture Research Journal*, **5**(1): 50-57
15	Effect of physical characteristics and phenolic contents on jassid	Satpathi K S., Pal S., Gurung B., Data S.,	*University of sindh journal of animal*

	and pod borer of cowpea(2017)	Kundu A., Mandal R., Lascar N., Kheroar S.	*sciences*,**1**(1):8-13
16	An evolutionary analysis of rice tungro bacilliform virus collected from Odisha, India (2017)	Chattopadhyay N., Mandal R and Tarafdar J	*Journal of mycology pathology research*, **55**(3): 243-249
17	Studies on metabolic hormones, sex steroids and mrna expression of caspase 2 bcl-xl gene in ovarian follicles of Japanese quil hens during stress (2017)	Shit., N., Sastry Kvh., Singh G., Mandal R., and Mohan J.	*Indian journal of poultry science*, **52**(1): 70-75
18	Variability comparison of mustard crosses in advanced segregating generations (2017)	Roy S. K., Chakraborty M., Hijam L., Mandal H. A., Mandal R., Kale V. A., Ashokappa N. V., Sur B. and Dash S. K	*International journal of pure applied biosciences*, **5**(6): 948-956
19	Species diversity and community structure of arthropod pests and predators in flax from Darjeeling (India) (2017)	Pal S., Mandal R., Sarkar S.	*Brazilian archives of biology and biotechnology*, **60**: 2017
20	Probable location identification of inserted tungro resistant gene in rice cultivar (2017)	Chattopadhyay N., Mandal R and Tarafdar J.	*Annals of plant protection Science*, **25**(2): 324-329
21	Evaluation of barley (*Hordeum vulgare* L.) cultivars under different dates of sowing in Terai zone of West Bengal (2018)	K. Priya Devi, Mitra B., Paul T., Das S., Singha Roy S. and Singha Roy A. K.	*Journal of Crop and Weed*, **14**(1): 185-187
22	Precision nutrient management in wheat (*Triticum aestivum)* using NutrientExpert®: growth phenology, yield, nitrogen-use efficiency and profitability under eastern sub-Himalayan plains (2018)	Mondal, T, Mitra B. and Das S.	*Indian Journal of Agronomy*, **63**(2): 174-180
23	The draft genome of *Corchorus olitorius* cv. JRO-524 (Navin) (2017)	Sarkar D, Mahato A K, Satya P, Kundu A, Singh S, Jayaswal P K, Singh A, Bahadur K, Pattnaik S, Singh N, Chakraborty A, Mandal N A, Das D, Basu T, Sevanthi A M, Saha D, Datta S, Kar C S, Mitra J, Datta K, Karmakar P G, Sharma T R, Mohapatra T, Singh N K	*Genomics Data*; DOI: 10.1016/j.gdata.2017.05.007

24	Status of zinc fractions in soils of Cooch Behar district, West Bengal(2017)	Gogoi S, Banik G C, Kundu A, Mukhopadhyay S, Mukhopadhyay D.	*Current Science*, **113**(6): 1173-1178

DEPARTMENT OF PLANT PATHOLOGY

POST GRADUATION TEACHING

Field of specialization for M.Sc. and Ph.D.: Mycology, Bacteriology, Virology, Fungal Pathology, Biological control, Fungi and Plant infection

Post graduate courses

M. Sc. (Ag.) courses

Sl. No.	Course No.	Title of the course	Credit Hour	Semester
Core courses				
1	PPA-501	Introductory Mycology	2+1	1st
2	PPA-502	Introductory Plant Virology	2+1	1st
3	PPA-503	Introductory Plant Bacteriology	2+1	1st
4	PPA-504	Principles of Plant Pathology	3+0	1st
5	PPA-505	Detection and Diagnosis of Plant Diseases	0+2	1st
6	PPA-506	Principles of Plant Disease Management	2+1	2nd
Minor/Supporting courses				
1	PPA-507	Diseases of Field Crops	2+1	2nd
2	PPA-508	Diseases of Fruits, Plantation and Ornamental	2+1	2nd
3	PPA-509	Diseases of Vegetables, Spices and Medicinal	2+1	2nd
4	PPA-510	Seed Health Technology	2+1	2nd
5	PPA-511	Chemicals in Plant Disease Management	2+1	2nd
6	PPA-512	Ecology of Soil Borne Plant Pathogens	2+1	2nd
7	PPA-513	Disease Resistance in Plants	2+0	3rd
8	PPA-514	Insect Vectors of Plant Viruses and other Pathogens	1+1	3rd

9	PPA-515	Biological Control of Plant Diseases	1+1	3rd
10	PPA-516	Integrated Disease Management	2+1	3rd
11	PPA-517	Epidemiology and Forecasting of Plant Diseases	2+1	3rd
12	PPA-518	Post Harvest Diseases	1+1	4th
13	PPA-519	Plant Quarantine	2+0	4th
14	PPA 591	Seminar I	1+0	4th

Ph. D. courses

Sl. No.	Course No.	Title of the course	Credit Hour	Semester
1	PPA-601	Advanced Mycology	2+1	1st
2	PPA-602	Advanced Virology	2+1	2nd
3	PPA-603	Advanced Bacteriology	2+1	2nd
4	PPA-691	Seminar I	1+0	2nd
5	PPA-604	Molecular basis of Host Pathogen Interaction	2+1	3rd
6	PPA-692	Seminar II	1+0	

Post graduate requirement:

i) For **M.Sc.(Ag) Degree**: Four years B. Sc. (Ag)/(Hort) Hons. degree

ii) For Ph.D. Degree: M. Sc. (Ag) degree in Plant Pathology

Students completed degree

M. Sc. (Ag.) in Plant Pathology

Sl. No.	Title of dessertation	Name of the student	Chairman
1.	Response to bioinoculation of Trichoderma spp. and fluoroscent pseudomona for induction of biochemical defence in cabbage against Alternaria leaf spot.	M. Avijeeth	Dr. A. Roy
2.	An integrated approach to manage the late blight of potato	Sushmita Jha	Prof. S. Khalko

3.	Studies on the blast disease of rice and its management strtegies	Suman Datta	Dr. S. Bandyopadhyaya
4.	Response of nitrogen and water management on spot blotch of wheat in north eastern plain	Tanmay Nag	Dr. P. M. Bhattacharya
5.	Response to spot blotch of wheat at hot spot of West Bengal	Soumen Mandal	Prof. A. K. Choudhury
6.	Influence of weather indices on spot blotch disease of wheat in north eastern plain zone of India	Rakesh Patsa	Dr. S. Hembram

Ph. D. in Plant Pathology

Sl. No.	**Title of dessertation**	**Name of the student**	**Chairman**
1.	Study of variation of pathogen causing spot blotch of wheat and different traits of the host related to its resistance	M. Dolpriya Devi	Dr. P. M. Bhattacharya
2.	Effect of organic production system on disease dynamics and soil health in rice based cropping system	Joyoshree Mahanta	Prof. S. K. Laha

RESEARCH

Areas of research

a) Identification, ecological adaptiveness and management approaches of disease problems in different crops.

b) Development and identification of disease resistant varieties of different crops.

c) Development of diagnostic tools for disease resistance in different crops.

d) Conservation agriculture and disease dynamics in climate resilient agriculture

e) Biological control of plant pathogens and refinement in mass production technology of the bioagents.

f) System approach in potential use of microbial inoculants for promotion of organic cultivation in the region.

g) Evaluation of newly released chemical fungicides for their potential against different pathogens.

h) Strain development and refinement in technology for mushroom cultivation.

On going research projects

1. Bio-efficacy and phytotoxicity study of WCPL6060 against blast(Pyricularia oryzae Cavara) & blight disease in paddy crop.
2. Evaluation of bioefficacy, phytotoxicity and residue of Cyazafamid 34.5%SC on potato and tomato crop.
3. To evaluate the bio-efficacy and Phytotoxicity and residue analysis of Tricyclazole 75% WP on paddy.
4. Study on Bio Efficacy, Phytotoxicity and residue analysis of some Herbicides & Chemicals in tea and non – cropped area.
5. Bio-efficacy, Phytotoxicity and effect on natural enemies of some new generation insecticide molecules on different crops.
6. Spot blotch of wheat: delivering resistant wheat lines and diagnostics and molecular markers for resistance.
7. Increasing food legumes production by small farmers to strengthen food and nutrition security through adoption of improved technologies and governance within south-south cooperation.
8. Sustainable and resilient farming systems intensification in Gangetic Plains.
9. Enhancing Pulses Production for Food and Nutritional Security, Improved Livelihoods and Sustainable Agriculture in West Bengal.
10. Survey and Surveillance for wheat blast caused by Magnaporthe oryzae pathotype triticum and strategic research to manage it.
11. Survey of pest and diseases of medicinal plants in West Bengal.
12. Evaluation of new fungicides offering better chemical management of plant diseases.
13. To evaluate the Bio-efficacy and phytotoxicity and residue analysis of Iprodion 50% WP against sheath blight disease in rice.
14. Development of a PCR based virus detection system for solanaceous vegetables in North Bengal.

15. Evaluation of bio-efficacy, Phytotoxicity and residue Cyazafamid 34.5% SC on potato and tomato crops.
16. Exploration of the Soil microbial diversity of different agro-ecological zones of North Bengal for Agricultural use.
17. To Evaluate the bio-efficacy and phyto-toxicity of Iprodione 50% WP against sheath blight disease in rice.

INFRASTRUCTURE

Classroom

- One PG classroom available in the department with capacity of 35 students.

Laboratory

- One functional laboratory for conduction of UG practical classes.

Instruments

- Microscope, trinocular microscope with photographic attachment, laminar air flow, autoclave (vertical and horizontal), BOD incubator, shaker incubator, refrigerator, deep freeze (800C), spectrophotometer (visible range and UV vis), single and double distillation, hot air oven, precision balance, pH meter, seed dryer, seed germinator, hot water bath, gel apparatus, vortex mixture, solid and liquid state fermentor, industrial mixer, grinder, ion analyser, SPAD meter.

OTHERS ACTIVITIES

i. Faculties of the Department are associated with various administrative, research and academic body of the University.
ii. Faculties regularly act as esource person in different workshops, seminar, trainings etc.
iii. Certificate course on Mushroom Production are regularly being conducted by the Department.
iv. Certificate course on mushroom spawn production is also being conducted by the faculties of the Department.
v. 12th National Symposium on Biotic Stress Management Strategies : Challenges Environmental Harmonization on 17-19th February, 2017 have been organised in association with Society of Plant Protection Sciences, New Delhi.

EXTENSION ACTIVITIES

On farm plant protection advisory services.

i. Proper diagnosis of disease problems communicated from farmers' end or government level.

ii. Capacity building of machinery service providers for use of modern agricultural implements used in conservation agriculture.

iii. Training to the farmers on appropriate crop husbandry protocols under conservation agriculture.

iv. Training on modern techniques in plant disease management.

v. Exposure to develop field knowledge on identification and preservation of diseases samples for UG students from different nearby colleges of North Bengal districts.

vi. Supply of microbial agents for promotion of organic cultivation.

vii. Training on appropriate use of biofertilizers and biocontrol agents.

viii. Training on mushroom spawn production and cultivation.

ix. Supply of quality spawn to the mushroom growers.

PUBLICATIONS

Research papers

Sl. No.	Title	Author(s)	Journals
1	Evaluation of some turmeric genotypes in Terai region of West Bengal (2017)	Chakraborty, S., Dutta, S., Debnath, A., Bandopadhyay, S., Roy, M. K. and Haque, S.	*International Journal of Science, Environment and Technology*, **6**(2): 1065-1070
2	Effect of Seed Bacterization with Fluorescent Pseudomonas on Growth Promotion of Jute (*Corchorus olitorius*) in Terai Zone of West Bengal (2017)	Khalko, S., Bandyopadhyay, S. and Debnath, A.	*Int. J. Curr. Microbiol. App. Sci.* **6**(6): 3036-3043
3	Morphological and cultural characterization of *Phyllosticta zingiberi* (Ramkr.) causing leaf spot disease of ginger (2017)	Rai, B., Bandyopadhyay, S., Thapa, A., Rai, A. and Baral, D.	*Journal of Applied and Natural Science*, **9**(3): 1662-1665

4	Efficacy of Combined Formulations of Fungicides in Managing Late Blight Disease ofPotato Caused by *Phytophthora infestans* (Mont.) de Bary (2018)	Jha, S., Khalko, S. Ashajyothi, M., Bandyopadhyay, S. and Roy, A.	*Int. J. Curr. Microbiol. App. Sci.* **6**(12): 765-771
5	In-vitro study of new generation chemicals against *Rhizoctonia solani* Kuhn causing Sheath blight of Rice (2017)	A Mushineni, S. Khalko and S. Thapa	*International Journal of Agricultural Science,* **9**(19): 4201-4203
6	Effect of New Generation Chemicals in Changing Host Physiological Traits to Manage Sheath Blight Disease Caused by *Rhizoctonia solani* Kuhn in Rice (2018)	A Mushineni, S Khalko, S Jha, P M Bhattacharya and A Roy	*Int. J. Curr. Microbiol. App. Sci.* **6**(11): 351-357
7	Postharvest Treatments on Storage Life of Guava (*Psidium guajava* L.) in Himalayan Terai Region of West Bengal, India (2018)	P Dutta, N Bhowmick, S Khalko, A Ghosh and S K Ghosh	*Int. J. Curr. Microbiol. App. Sci.,* **6**(3): 1831-1842
8	Effect of different micronutrients on turmeric variety Suranjana in terai region of West Bengal (2018)	Chakraborty, S., Dutta S., Jana. J. C., Debnath A., Roy M. K. and Haque S.	*Int. J. Curr. Microbiol. App. Sci*., **6**(5): 1471-1482
9	Identification and characterization of different pathogens associated with theRhizome Rot and wilt disease complex of ginger in Darjeeling Himalayas (2017)	Sharma. B. S., Debnath A., Ali. S. S., Baskey. S., Thapa. A. and Datta. S.	*J. Mycopathol. Res.,* **54**(4): 517-521
10	Evaluation of some important ginger genotypes in Terai region of West Bengal (2017)	Chakraborty S., Datta S., Debnath A. and Roy M. K.	*International Journal of Science, Environment,* **7**(2): 715-722
11	Effect of Conservation Agriculture Based Rice-Wheat System on Sheath Blight and Spot Blotch Diseases In Eastern India (2018)	Chowdhury, A. K., Bhattacharya, P. M., Santra, A. and Dhar, T	*J. Mycopathol, Res,* **54**(4): 543-547.
12	Wheat disease dynamics in south east Asia under changed climate scenario (2017)	Chowdhury, A. K.	*J. Mycopathol, Res,* **55**(2): 119-127
13	Climate change and plant diseases with special emphasis on cereal crops - An overview (2018)	Chowdhury, A. K., Roy, A and Chattopadhyay, C.	*SATSA Mukhapatra Annual Technical Issue,* **21**: 46-58
14	Cultural, Morphological and	Ali Sajeed, Sharma, B.	*Progressive Agriculture,*

	Genetic variability in *Exerohilum turcicum*– a review (2018)	R., Sherpa, F and Chowdhury, A. K.	**12**: 2721-2724
15	Domestication of *Macrobrachium rosenbergii* in terai region of West Bengal (2017)	Sarkar, D., Mukherjee, A., Chowdhury, A. K. and Ninawe, A. S.	*International Journal of Fisheries and Aquatic Studies*, **5**(5): 01-06.
16	The incidence of wheat blast in Bangladesh and its implications for South Asian wheat production (2017)	Chowdhury, A. K., Saharan,M. S., Agarwal Rashmi, Malaker, Paritosh, Duveiller, E.,Singh, P. K., Singh, R. P., Braun, H. J. and Joshi, A. K.	*Ind J. Genetics*, **77**(1): 1-9
17	Characterising variation in wheat traits under hostile soil conditions in India (2018)	Jaswant S. Khokhar, Sindhu Sareen, Bhudeva S. Tyagi, Gyanendra Singh, A. K. Chowdhury, T. Dhar, V. Singh, Ian P. King, Scott D. Young, Martin R. Broadley	PloS ONE 12(6): e0179208. https://doi.org/10.1371/journal.pone.0179208
18	Pooling together spot blotch resistance, high yield with earliness in wheat for eastern Gangetic Plains of South Asia (2018)	Ranjan, R, Chand Ramesh, Chowdhury A. K., Bhattacharya, P. M. and Joshi, A. K.	*Field Crops Research*, **214**:291-300
19	Performance of flax genotypes with respect to infestation of capsule borer, *Helicoverpa armigera* (Hubner) and other yield parameters in the hills of Darjeeling, India (2018)	Roy, S. K., Pal, S., Ghimiray, T. S. and Roy, A.	*Journal of Entomology and Zoology Studies*, 5(**5**):276-280
20	Species Diversity and Community Structure ofArthropod Pests and Predators in Flax, *Linum usitatissimum* L. from Darjeeling (India) (2018)	Pal, S., Mandal, R., Sarkar, I., Ghimiray, T. S., Sharma, B. R., Roy, A., Roy, S. K., Chakraborty, G. and Mitra, S	*Brazilian Archives of Biology and Technology*. http://dx.doi.org/10.1590/1678-4324-2017160492
21	Development of Intraspecific Hybridization of *Pleurotus flabellatus* for Better Yield and Nutrition	Baral, D., Roy, A., Thapa, S. and Bhutia, K. C.	*International Journal of Current Microbiology and Applied Sciences.* 6(**11**):735-742
22	Host Infection beyond the Traditional Range of *Sclerotium* (Athelia) *rolfsii* with *Physalisminima* (2018)	Hembram, S.	*Bioinformation*, **13**(10):333-338

Book chapter

Sl. No.	Title	Author(s)	Publishers
1	Holistic management of foliar blight disease of wheat and Barley (2018)	Chowdhury, A. K., Bhattacharya, P. M., Bandyopadhyay, S. and Dhar, T.	*Management of Wheat and Barley Diseases* Edited by DP Singh, Apple Academic Press, pp. 83-114
2	*Macrophomina jonito Pradhan rog o tar pratikar* (Bengali) (2017)	S. Das	SasyaSuraksha, AAPP, Kalyani
3	Biological control in 21stcentury: Opportunities and challenges in subsistence farming system of India (2018)	A. K. Chowdhury, Anamika Debnath, A. Roy, P. M. Bhattacharya and C. Chattopadhyay	Microbial Antagonists: Their role in biological control of plant diseases (Edtrs: Drs. R. N. Pandey, B. N. Chakraborty, Dinesh Singh and Pratibha Sharma) Today & Tomorrow's Printers and Publishers, New Delhi –110 002, India, pp. 37-63
4	Recent approaches for detection and management of diseases of Wheat (2018)	Chowdhury, A. K., Bhattacharya, P. M. and Chattopadhyay, C.	Recent Approaches for Management of Plant Diseases *Editors: Srikanta Das, Subtrata Dutta, B .N. Chakraborty and Dinesh Singh* Indian Phytopathological Society ISBN: 81-7019-599-X (India), 1-55528-443-4 (USA), pp 53-78
5	Future Smart Food, West Bengal (2017)	Chowdhury, A. K.	Future Smart Food-Rediscovering hidden treasures of neglected and underutilized species for zero hunger in Asia, Food and Agriculture Organization in United Nations, (Eds. Li,X and Siddique, KHM). Bangkok, Thailand, p 242
6	Microbial inoculants inorganic vegetable production: Current Perspective (2018)	Chatterjee, R., Roy, A. and Thirumdasu, R. K.	Zaidi, A. and Khan, M.S. (eds). Microbial Strategies for Vegetable Production. Spinger International Publishing DOI10.1007/978-3-319-54401-4_1.

Technical bulletin

Sl. No.	Title	Author(s) and Publishers
1	Fact Sheet, India-Morocco Food Legumes Initiative on Increasing Food Legumes Production by Small Farmers to Strengthen Food and Nutrition Security (2018)	Chowdhury, A. K.
2	Fact Sheet, OCPF and ICARDA on Increasing Food LegumesProduction by Small Farmers to Strengthen Food andNutrition Security (2017)	Chowdhury, A. K.
3	Fact Sheet, SRFSI, West Bengal (2018)	Chowdhury, A. K

DEPARTMENT OF SOIL SCIENCE AND AGRICULTURAL CHEMISTRY

POST GRADUATION TEACHING

Field of specialization for M.Sc. : Soil Science and Agricultural Chemistry

Ph.D.: Soil Science and Agricultural Chemistry

Post Graduate courses

M. Sc. (Ag.) courses

Course No.	Course-Title	Credit Hour	Remarks
Core-Courses			
Soils 501	Soil Physics	2+1	1st /3rd
Soils 502	Soil Fertility And Fertilizer Use	2+1	1st /3rd
Soils 503	Soil Chemistry	2+1	1st /3rd
Soils 504	Soil Mineralogy, Genesis, Classification and Survey	2+1	2nd/4th
Soils 507	Soil Biology and Biochemistry	2+1	2nd/4th
Minor/Supporting Courses			
Soils 505	Soil Erosion and Conservation	2+1	1st /3rd
Soils 506	Physical Chemistry	1+0	1st /3rd
Soils 510	Soil, Water and Air Pollution	2+1	3rd
Soils 511	Remote Sensing and GIS Techniques for Soil and Crop Studies	2+1	2nd/4th
Soils 512	Analytical Techniques and Instrumental Methods in Soil and Plant Analysis	0+1	2nd/4th
Soils 514	Management of Problematic Soils and Water	2+1	2nd/4th

Soils 515	Fertilizer Technology	1+0	1st /3rd
Soils 516	Land Degradation and Restoration	1+0	2nd/4th
Soils 591	Master's seminar	1+0	4th
Soils 599	Master's research	20	

Ph. D. degree courses

Course No.	Course-Title	Credit Hour	Remarks
Soils 601	Advances in soil physics	2+0	1st /3rd
Soils 602	Advance in soil fertility	2+0	1st /3rd
Soils 603	Physical chemistry of soil	2+1	2nd/4th
Soils 604	Soil Genesis and micropedology	2+0	2nd/4th
Soils 605	Biochemistry of Organic Matter	2+0	1st /3rd
Soils 606	Land Use Planning and Watershed Management	2+0	2nd/4th

Post graduate requirement:

i) **For M.Sc.(Ag) Degree:** Four years B. Sc. (Ag)/(Hort) Hons. degree

ii) **For Ph.D. Degree:** M.Sc(Ag) in SSAC

Students completed degree

M.Sc. (Ag) in SSAC

Sl.No.	Title	Student	Chairman
1.	Dynamics of aggregate associated carbon in soils under three ecologies of Northern part of W.B.	Parijat De	Prof. A. Choudhury
2.	A study to quantify nitrogen response & nitrogen use efficiency in wheat crop under different water management & tillage practice.	Samaresh Sahoo	Prof P. Mukhopadhyay
3.	Sorption-desorption characteristics of phosphorus in some soils of West Bengal	Basabdutta Bhabai	Prof. D. Mukhopadhyay
4.	Site specific nutrient management impact on some chemical & biological properties of soils of Coochbehar.	Dibakar Ray	Dr A.K Sinha
5.	Dynamics of potassium in some soils of Coochbehar districts of West Bengal	Navneet Kr Singh	Dr G.C. Banik
6.	Changes in status & distribution of K	Nirmal Barman	Prof P.

	in wheat soil response to tillage & management under rice – wheat cropping system.		Mukhopadhyay

Ph.D in SSAC : Nil

Existing students

M. Sc. (Ag.) course

Sl. No.	Name	Registration No.	Dissertation work	Chairman/Advisor
1	Puspendu Naskar	A-2017-17-M	Impact of topography and vegetation type on dynamics of soil carbon	Prof. A Chowdhury
2	Subhadeep Mandal	A-2017-24-M	Distribution of Boron in some soils of Cooch Behar and its effect on Cauliflower (Brassica oleracea var. Botrytis)	Dr. G.C. Banik
3	Abhisek Sen	A-2017-02-M	Distribution of DTPA extractable iron in some soil series of Cooch Beharand effect of iron in spinach	Prof. D Mukhopadhyay
4	Mun Mun Majhi	A-2017-15-M	Comparative soil carbon budgeting under forest and cultivated soils	Dr. Shovik Deb
5	Deyali Roy	A-2017-10-M	Assessment of temporal change in carbon pools and carbon foot printing analysis in Rice-Wheat system in *terai* agro-ecological zone.	Dr. A.K. Sinha
6	Barnali Roy	A-2017-06-M		Dr. A. Tamang

Existing Ph.D students

Sl. No.	Name	Registration No.	Dissertation work	Chairman/Advisor
1	Arjun Murmu	A-2015-02-D	Studies of long-term tillage and residue effect on soil carbon lability, N mineralization and crop productivity in Rice-wheat cropping systems	Prof. P Mukhopadhyay
2	Rakesh S	A-2015-10-D	Effect of short-term conservation agriculture on carbon dynamics in some acid alluvial soils of West Bengal	Dr. A.K. Sinha
3	Princy Takur	A-2016-08-D	Distribution of inorganic soil phosphorus fraction in some soil series of west bengal and maximizing the phosphorus use efficiency in summer rice (oryza sativa)	Prof. D Mukhopadhyay
4	Samresh Sahoo	A-2017-22-D	Studies to evaluate short-term interactive effect of tillage, different organic manure sources and chemical N fertilizer on soil fertility and biological functionality under maize grown in a Maize-Rice cropping sequence	Prof. P Mukhopadhyay
5	Parijat Dey	A-2017-17-D	Biological and molecular characterization of *Azotobacter* isolated from different agro-ecological zones of North Bengal	Prof. A Chowdhury
6	Basab Dutta Babai	A-2017-02-D	Distribution of Potassium fractions in some soil series of West Bengal and effect of potassium on yield potential of rice (oryza sativa)	Prof. D Mukhopadhyay
7	Nandini Roy	A-2017-14-D	Studies on aggregate stability and aggregate size associated carbon and nitrogen in some alluvial soils of West Bengal	Dr. A.K. Sinha

Scholarships, stipends and fellowships

Rajiv Gandhi National Fellowship by Universities Grant Commission (UGC) for Post Graduate students.

RESEARCH

Areas of research :

i. Sustaining soil productivity through integrated nutrient management under different cropping systems and agro-climatic zones;
ii. Tillage and crop residue management in crop production;
iii. Impact of climate change on soil processes and water resources;
iv. carbon sequestration in the context of climate change;
v. Micronutrient management in soils for higher crop productivity;
vi. Site specific nutrient management in rice-wheat and rice-maize cropping system;
vii. Use of remote sensing and GIS technique to identify spatial and temporal variability in soils.

Ongoing research projects

1. Retrieval of Biophysical Parameters in Buxa Tiger Reserve using GISAT
2. Enhancing Pulses Production for Food and Nutritional Security, Improved Livelihoods, and Sustainable Agriculture in West Bengal.
3. Sustainable and resilient farming systems intensification in the eastern Gangetic Plains
4. Optimising nutrient use efficiency under zero tillage operations in Rice - Maize cropping system in Coochbeharand Maldadistrict of West Bengal.
5. To evaluate the bio-efficacy and phytoxicity of GPH-315 against weed flora in tea
6. Efficacy of Superabsorbent (Zeba) and Zeba coated Urea and DAP on plant N & P contents, growth and yield traits & yield of Mustard crop under field conditions.
7. To evaluate the bio-efficacy and phytoxicity of Iprodione 50% WP against sheeth blight disease in rice

INFRASTRUCTURE

Classroom

- One PG classroom is available in the department with capacity to accommodate 35 students.

Laboratory

- Department is having separate laboratories for U G and P G students
- Department also has Research Laboratory for doing independent research
- One full-fledged computer room is present in the department

Instruments

Bench top conductivity /TDS/Temp meter, Spectrometer with Universal Cell Holder 10 mm upwards to 100 mm, pH meter, Kel Plus Scrubber System, Macro Block Digestion System, Nitrogen Stabilizer, Refrigerator with stabilizer, Spectrophotometer, Centrifuge R-24.R-23, pH system, Flame photometer, Conductivity meter, BOD, Rotary vacuum pump with desiccator, Muffle furnace, Oven and Distil Water Plant (glass made) etc.

OTHERS ACTIVITIES

i. Faculties of the Department are associated with various administrative, research and academic body of the University.

ii. Faculties regularly act as esource person in different workshops, seminar, trainings etc. and also act as reviewer of different Journal, external examiner of various Universities.

iii. Department of Soil Science and Agriculture Chemistry under the faculty of Agriculture of Uttar Banga Krishi Viswavidyalaya in collaboration with International Plant Nutrition Institute, Canada organised a National workshop at UBKV main campus in Pundibari, W.B. during 26^{th} - 28^{th} March, 2018. Eminent speakers in the field of Soil Science and Agronomy delivered lecture to the scientists, P.G. students and industry persons.

EXTENSION ACTIVITIES

i. Provide Resource Persons for Seminars, Symposia, Workshops / AIR / Doordarshan programmes;

ii. Provide Resource Persons for farmers training and trainers training for Government nodal department and NGOs'.

iii. Field visit to problem areas as a part of the Multi- Disciplinary Diagnostic Team for the Department of Agriculture, Government of West Bengal;

iv. Provide expertise trainings in soil testing and fertilizer recommendations.

v. Provide expertise for the Disaster management team of the Terai region;

vi. Undertaking consultancy services in needed areas.

PUBLICATIONS

Research papers

Sl. No	Title	Author(s)	Publishers
1	Stability of organo – zinc complex in application of inorganic and organic nutrients to rice (*Oryza sativa*) growing soils of West Bengal (India). (2018).	Roy, S. K. , Barman, K. K. and Mukhopadhyay, D.	*International Journal of Chemical Studies*. 6(2):2157 – 2164
2	Development of Analytical Method for Soil Organic Carbon; Rapid, Reliable, user-Friendly and Economical for Remote Areas. (2018).	Amrit Tamang, Partha Sarathi Patra, Parimal Panda, Manoj Kanti Debnath, Gobinda Mula and Ranjan Kumar Basak.	*Asian Journal of Soil Science" Vol 13 No. 1,*
3	Anthropogenic impacts on forest land use and land cover change: Modelling future possibilities in the Himalayan Terai. (2018)	Shovik Deb, Manoj K. Debnath, Somsubhra Chakraborty, David C. Weindorf, Deo Kumar, Dibyendu Deb and Ashok Choudhury.	*Anthropocene.***21**: 32-41.
4	Responses of split application of nitrogen on the performance of *Kharif* rice (*Oryza sativa* L.) in Terai zone of West Bengal. (2017).	Partha Sarathi Patra, Shyamal Kheroar, Ashok Choudhury, and Rajesh Saha,	*Asian J. Soil Sci.*, **12** (2): 265-270: DOI: 10.15740/HAS/AJSS/12.2/265-270.
5	Partha Sarathi Patra, Md Aziz, Rajesh Saha and **A. Choudhury** (2017). Bio-efficacy of Bispyribac acid 40% SC against weed flora in Rice (*Oryza Sativa* L). *International journal of tropical Agriculture*. **35(2)**: 259-265.		
6	Evaluation of chemical and	Bisweswar Mahato,	*International Journal of*

	biological indices for carbon and nitrogen mineralization of various organic matters used in tea garden. (2017).	Somsubhra Chakraborty, D. P. Ray, Parimal Panda, Bappa Paramanik, Naba Kishor Mahato, Arindam Kundu, Anarul Hoque and Ashok Choudhury	*Bioresource Science*. **4 (1)**: 47-56. DOI : 10.5958/2454-9541.2017.00009.3
7	Organic Phosphorus Mineralization by Isolated Phosphorus Solubilizing Fungi. (2017).	Parimal Panda, Bisweswar Mahato, Somsubhra Chakraborty, Bappa Paramanik, Ranajit Panda, Naba Kishor Mahato, Arindam Kundu, Abhijit Mahato and Ashok Choudhury	*Journal of Agriculture and Technology*.
8	Atmospheric nitrogen fixing capacity of Azotobacter isolate from Cooch Behar and Jalpaiguri Districts soil of West Bengal. (2017).	Puspendu Bikash Bag**,** Parimal Panda, Bappa Paramanik, Bisweswar Mahato and Ashok Choudhury.	*International Journal of Current Microbiology and Applied Sciences*.**6 (3)**: 1775-1788. DOI: https://doi.org/10.20546/ijcmas.2017.603.204
9	Non-saturated soil organic horizon characterization via advanced proximal sensors. (2017).	Valeria Cardelli, David C. Weindorf, Somsubhra Chakraborty, Bin Li, Mauro De Feudis, Stefania Cocco, Alberto Agnelli, Ashok Choudhury, Deb Prasad Ray, Giuseppe Corti	*Geoderma*, **288**: 130-142. (Elsevier) http://dx.doi.org/10.1016/j.geoderma.2016.10.036.
10	Phosphorus Solubilizing Bacteria from Tea Soils and their Phosphate Solubilizing Abilities. (2017).	Panda Parimal, **Choudhury Ashok**, Chakraborty Somsubhra, Ray Deb Prasad, Deb Shovik, Patra ParthaSarathi, Mahato Bisweswar, Paramanik Bappa, Singh AnilKumar, Chauhan Rajesh Kumar.	*International Journal of Bioresource Science*. **4 (2)**: 113-125. DOI : 10.5958/2454-541.2017.00018.4
11	Rapid assessment of regional soil arsenic pollution risk via diffuse reflectance spectroscopy. (2017).	Somsubhra Chakraborty, David C. Weindorf, Shovik Deb, Bin Li, Sathi Paul, Ashok Choudhury, Deb Prasad Ray.	*Geoderma*, **289**: 72–81. (Elsevier) http://dx.doi.org/10.1016/j.geoderma.2016.11.024

12	Microbial biomass and activity in relation to accessibility of organic carbon in saline soils of coastal agro-Ecosystem. (2018)	Deb, S.*, Mandal, B., Bhadoria, P.B.S., Schulz, E., Ghosh, S., Debnath, M.K.	*Proceedings of the National Academy of Sciences India Section B: Biological Sciences* 88: 633-643.
13	Forms of Phosphorus in Some Acidic Entisols of Subtropical Eastern India. (2017).	Deepranjan Sarkar, S. Rakesh, A. K. Sinha and P. Mukhopadhyay.	*International Journal of Plant & Soil Science.* 19(**3**): 1-9.
14	Different fractions of boron in soils of Alfisol and Entisol of West Bengal. 2018.	A Patra, AK Sinha, Rakesh S, S Biswas and P Mukhopadhyay.	*Journal of Pharmacognosy and Phytochemistry*. 7(1): 510-513.
15	Impact of Potassium-Boron Interaction on Leaf Nutrient Content and Nut Setting of Coconut. 2017.	N. Sathi Babu1, A. K. Sinha, P.S. Medda and A. Ghosh.	*Int.J.Curr.Microbiol.App.Sci* . *6*(12): 4025-4037

Book chapters

Sl. No	Title	Author(s)	Publishers
1	Dynamics of Carbon fractions & their behavior in soil system as influenced by tillage & cropping sequence.' 2017. In	Rakesh S and A.K.Sinha.	*Innovative approach of Integrated Resource management.* Pg. 138-141.

DEPARTMENT OF SEED SCIENCE AND TECHNOLOGY

POST GRADUATION TEACHING

Field of specialization for M.Sc. and Ph.D.: Seed Science and Technology

Post Graduate courses

M. Sc.(Ag.) courses

Course No.	Course-Title	Credit Hour	Remarks
Core-Courses			
SST 501	Floral Biology, Seed Development and Maturation	1 + 1	1st
SST 502	Principles of Seed Production	2 + 0	1st
SST 503	Seed Production in Field Crops	2 + 1	1st
SST 506	Seed Legislation and Certification	2 + 1	1st
SST 507	Seed Processing and Storage	2 + 1	2nd
SST 591	Master Seminar	1 + 0	4th
Minor/Supporting Courses			
SST 504	Seed Production in Vegetable Crops	2 + 1	1st
SST 505	Seed Production in Flower, Medicinal, Fruits and Plantation Crops	2 + 1	1st
SST 508	Seed Quality Testing	2 + 1	2nd
SST 509	Seed Physiology	2 + 1	2nd
SST 510	Seed Pathology	2 + 1	2nd
SST 511	Seed Entomology	2 + 1	2nd
SST 512	Seed Production in Pasture, Forage and Green Manure Crops	2 + 1	3rd
SST 513	Seed Storage and Deterioration	1 + 1	3rd
SST 514	Seed Marketing and Management	1 + 1	3rd
SST 515	Emerging Trend in Seed Quality Enhancement	1 + 1	3rd
SST 516@	Data Base Management, Evaluation and Utilization of PGR	2 + 1	3rd

Ph. D. courses

Course No.	Course-Title	Credit Hour	Remarks
SST 601**	Hybrid Seed Production	1 + 1	1st
SST 602@@	*In situ* and *ex situ* Conservation of Germplasm	2 + 1	1st
SST 603	Testing for Genuineness and Purity of Cultivar	1 + 1	2nd
SST 604**	DUS testing for Plant Variety Protection	2 + 1	3rd
SST 605**	Advances in Seed Science Research	1 + 0	4th
SST 691**	Doctoral Seminar- I	1 + 0	2nd

SST 692**	Doctoral Seminar- II	1 + 0	6th

** Compulsory Courses; @ Course enlisted with GP 516; @@ Course enlisted with GP 609

Post graduate requirement

For **M.Sc.(Ag) Degree:**

4 years B. Sc. (Ag.) Hons/B.Sc(Hort.)Hons

For **Ph.D. Degree:**

M. Sc. (Ag.) in Seed Science and Technology or M. Sc. (Ag.) in Genetics and Plant Breeding/ Plant Breeding or M. Sc. (Ag.) Plant Physiology

Students completed degree

M. Sc. (Ag.) course

Sl No.	Name of the students	Registration No.	Title of the thesis	Chairman
1.	Murali H. A.	A-2015-13-M	Morphological Observation of Many Kernelled Rice (*Oryzasatyva* L.) Seed Variety-Jugal	Dr.Bidhan Roy
2.	Ranjeet Kumar	A-2015-20-M	Evaluation of Farmers' Varieties of Rice (*Oryzasatyva* L.) Seeds for Iron and Zinc Contents	Dr.Bidhan Roy
3.	GadgeSushantSundarrao	A-2016-11-M	Priming of Rice (*Oryzasativa* L.) Seeds with different Botanical Extracts to Enhance Seedling Vigour	Dr.Bidhan Roy
4.	KajalMogChoudhury	A-2016-13-M	Study of Brassinosteroids Induced Changes in Morpho-physiological Parameters vis-à-vis Quality of Produced Seeds in Wheat Cultivars	Dr.PuspenduDutta

Existing M.Sc(Ag) students

Sl No.	Name of the students	Registration No.	Title of the thesis	Chairman
1	Rajkumari Sarita Devi	A-2017-19-M	Study on Effect of Seed Enhancement on Early Seedling stage vis-à-vis field performance of rice (*Oryzasativa* L.)	Dr.Utpal Maity

Existing Ph.D students

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Sl No.	Name of the students	Registration No.	Title of the thesis	Chairman
1.	Priyanka Sharma	A-2017-12-D	Standardisation of Synthetic Seed Production Protocol of Endangered *Citrusjambhiri* Lush. and *Citrus aurantifolia*(Lime)	Dr.Bidhan Roy
2.	Monish Roy	A-2017-19-D	Effect of Photoperiodism on Seeds Setting of Some Farmers' Varieties of Rice (*Oryzasativa*L.)	Dr.Bidhan Roy

RESEARCH

Areas of research

- Isolation distance requirements in view of GM varieties
- Review of seed certification standards
- GOT –seasonal requirements
- Genetic purity vis-a-vis trait purity
- Enhancement of pollen viability, stigma receptivity and seed setting
- Reduction of processing losses
- Alternate areas / protected cultivation methods for hybrid seed production
- Standardizing processing needs in high value crops and forage grasses
- Protein and oil content in GM cotton seed and its effect on longevity
- Optimization of hybrid seed production technology in field crops, vegetables and flowers
- Pollen collection methods and viability testing
- Management of seed borne diseases with biocontrol agents
- Seed enhancement for unfavorable conditions
- Identification of markers for hybrid confirmation and genetic purity testing GM seed testing
- Seed testing protocols and seed standards for forage crops, medicinal species and spices
- Molecular control of seed viability, vigour and invigoration
- Standardizations of priming, coating and pelleting technologies
- Development of technologies for maintenance of parental lines of SI

and MS based hybrids

- Any other location specific problems

Ongoing research projects

Sl. No.	Name of the project	Name of the P.I.s/ Co P. I.s	Funding agency
1.	To evaluate the effect of Triacontanol 0.1% EW on yield and it"s phytotoxic effect in relation to health on tea bushes	Dr. Puspendu Dutta (P. I.)	Godrej Agrovet Ltd., Mumbai
2.	Retrieval of biophysical parameters in Buxa tiger reserve using GISAT	Dr. Puspendu Dutta (Co-P.I.)	SAC, Indian Space Research Organization
3.	Evaluation of the effect of ASL-Seaweed+ Humic GR on growth and yield of paddy	Dr. Puspendu Dutta (Co-P.I.)	Acandian Seaplants Limited, Canada
4.	*In vitro* mass- multiplication and conservation of some endangered *Citrus species* of NEH Region of India	Dr. Bidhan Roy (Co-P.I.)	DBT, GoI
5.	Tribal Sub Plan under MEEGA-SEED Project (dissemination seed production technology among the tribal farmers)	Dr. Bidhan Roy (Co-P.I.)	ICAR- IISS, Mau, UP
6.	All India Coordinated Rice Improvement Project (Volantary Centre)	Dr. Bidhan Roy (P.I.)	ICAR, IIRR, Hyderabad
7.	University Research Mandate on Rice	Dr. Bidhan Roy (P.I.)	Institutional

INFRASTRUCTURE

Classroom

- One PG classroom is available with capacity of 35 students

Laboratory

- Using the classroom of Department of Genetics and Plant Breeding for PG Classes

Instruments

- Double distillation Unit, Thermostatic water bath, Refrigerator, Bench top conductivity meter, Compound microscope, Weighing Balance, Seed Divider, Seed Germinator, seed Grinder, Illuminated Purity Work Board, Computerised Seed Counter, seed Blower, Digital Moisture Meter. Hot Air Oven, Seed Sampling Trier, Deep Freezer

EXTENSION ACTIVITIES

i. Seed Production through Farmers' Participatory mode
ii. Training on seed production technologies of major field crops of northern part of West Bengal
iii. Organizing trainings on Quality Seed Production of Field Crops under Tribal Sub Plant of MEGA-SEED Project, UBKV, Pundibari
iv. Formation of Self-help Group / Farmers' Society very involved in Quality Seed Production to develop the village based seed enterprises

PUBLICATIONS

Research papers

Sl. No	Title	Author (s)	Journals
1	Polyethyleneglycol mediated rapid *in vitro* screening of rice (*Oryza sativa* L.) genotypes for drought tolerance. (2018)	Sanjib Bhadra, Bidhan Roy, T. S. Ghimiray	*Indian Journal of Genetics and Plant Breeding*, **78(1)**: 142-146.
2	A Review on Potato (*Solanum tuberosum* L.) and its Genetic Diversity. (2018)	B. J. Reddy, Rupsanatan Mandal, Moumita Chakraborty, Laksmi Hijam and Puspendu Dutta	*International Journal of Genetics*, **10(2)**: 360-364. DOI: http://dx.doi.org/10.9735/0975-2862.10.2.360-364
3	Genetic Diversity of Farmers‟ Varieties of Rice (*Oryza sativa* L.) with Special Orientation to Lodging Characteristics. (2017)	Swarnajit Debbarma, Bidhan Roy. 2017.	*Journal of Rice Research*, **5:** 181. doi:10.4172/2375-4338.1000181
4	WINNER (Winter Nursery For Rice)- A Technology to Raise Winter Rice Nursery.	Bidhan Roy, M Ghosh, Mojahir Hussain.	*Journal of Agriculture and Technology*. 4(2): 49-51.

	(2017)		
5	Dwarf Genotype of Rice (*Oryza sativa* L.)- A Prospective Medium Duration Rice. (2017)	Bidhan Roy	*Journal of Agriculture and Technology*, **4(2)**:58-61.
6	Two Tier System of Cultivating Field Crops as Relay Cropping in Rice Field – A New Concept to Improve the Livelihood of Resource Poor Farmers. (2017)	Bidhan Roy and Ashamanjon Barman.	ICAR-IIRR News Letter. **15(1)**: 34
7	Seed P content: A potential marker of arsenic tolerance during early seedling growth of rice. 2017.	Puspendu Dutta, Pintoo Bandopadhyay and Subhasis Mondal	*Seed Science and Technology* **45 (1)**: 179-188. https://doi.org/10.15258/sst.2017.45.1.11.
8	Differential Aphid Colony Establishment in *Dolichos lablab* Varieties Correlated with Some Plant Specific Factors That Impact on Aphid Fecundity. 2017.	Hossain Ali Mondal, Suvendu Kumar Roy, Laksmi Hijam, Moumita Chakraborty, Puspendu Dutta, and Tapan Kumar Hath	*American Journal of Plant Sciences*, **8**: 754-769. https://doi.org/10.4236/ajps.2017.84053
9	Characterization of Some Aromatic Farmers‟ Varieties of Rice (*Oryza sativa* L.). 2017.	Shudhansu Mahato, Dinesh Tulsiram Surje, Swarnajit Debbarma, Bidhan Roy.	*Indian Journal of Plant Genetic Resources*, **30(2):** 120-129

Book chapters

Sl. No	Title	Author (s)	In
1	Waste water in Agriculture: Possibilities and Limitations. (2017).	Shovik Deb and Puspendu Dutta	A. Rakshit et al (Eds.) *Adaptive Soil Management: From Theory to Practices*. Springer Nature Singapore Pte. Ltd. DOI 10.1007/978-981-10-3638-5_10

Books

Sl. No	Title	Author (s)	Publishers
1	Biodiversity of Local Cultivars of Rice (*Oryza sativa* L.). 2017.	Bidhan Roy	LAP LAMBERT Academic Publishing AG & Co. KG, Theodor-Heuss-Ring 26, 50668 Köln, Germany. pp. 1-241. ISBN-NR: 978-620-2-05760-8

LIST OF ACTIVITIES UNDRTAKEN BY COLLEGE OF AGRICULTURE (EXTENDED CAMPUS), UBKV, MAJHIAN, DAKSHIN DINAJPUR

CULTURAL ACTIVITIES :

Farewell programme of 1st batch of B. Sc. (Ag.) Hons. Students of College of Agriculture (Extended Campus), UBKV (2014-18) was organized on 28th June, 2018 by august presence of Honorable Vice Chancellor, Registrar, Associate Dean (COA), ISW, In-charge (RRS), ADF, Senior Scientist and Head (DDKVK).

Celebration of World Environment Day on 5th June 2018 :

1. Poster/Model competition on the theme beat plastic pollution was held among students,
2. Afforestation programme was undertaken by active participation of teacher, students and non-teaching staffs of UBKV, Majhian campus. .
3. International Womens' Day was organised on 8th March, 2018.
4. Celebration of Republic Day,
5. Celebration of University Foundation day on 1st February2018.
6. Celebration of birthdays of eminent personalities, Saraswati Puja within the campus.

SPORTS ACTIVITIES:

1. Indoor as well as outdoor games are regularly organized.
2. Cricket tournament was organised among the teaching and non-teaching staffs on University Foundation day on 1st February2018.
3. Active participation and notable achievements by the students of College of Agriculture during annual athlete meet held at UBKV, Pundibari on 9th March 2018.

Achievements in Annual Athlete Meet – 2018

NOTABLE ACHIEVEMENTS BY COLLEGE OF AGRICULTURE :

- 1st batch of the college is successfully completing the B.Sc. (Ag.) Hons. degree.
- All the students are motivated to participate in the forthcoming JRF examination.
- 04 (four) students have ranked in the merit list of JNU CEEB examination. Among them one student, Mr. Samrat Das topped the merit list. Not only that, other two students ranked 14th and 39th whereas one student ranked 5th in the SC category.
- Md. Wasim Ansari, a student of outgoing 4th year student has cracked the campus interview and got high salaried job in private company.
- 17 nos. students and 02 nos. of teachers of this college got prize in the last Annual Athletic Meet, 2018 organized in the University of main Campus.

Faculty of Horticulture

History

The Faculty of Horticulture was established in the year 1997 under erstwhile North Bengal Campus of BCKV and this had been transferred to Uttar Banga Krishi Viswavidyalaya on 1st February, 2001. The Faculty was housed temporarily in a part of Faculty building of Agricultural since inception. However, a part of construction of new building for the Faculty was completed in the year 2010 and the Faculty was transferred to new building.

The Mandate

- Conduction of teaching programmes (Under Graduate, M.Sc., & Ph.D.)
- Conservation, development, management, display and undertake research on native flora. Promotion of use of the flora for horticulture.
- Development of appropriate horticultural based cropping systems for different agro-climatic zones.
- Identification of location specific agro-forestry and silvipasture system for wasteland development.
- Development of improved varieties and hybrids of fruits, vegetables, plantation crops, medicinal and aromatic plants with good quality high production potential, biotic and abiotic resistance and suitable for export.
- Development and field testing of integrated management of nutrients, diseases and pests of important horticultural crops to reduce input costs, environmental pollution and to avoid pesticide-residue problems.
- Post-harvest technology including value-addition and product diversification of important fruits, vegetables, spices, foliage plants, flowers and plantation crops and export promotion.
- Developing rapid tools, bio-techniques and technologies for genetic manipulations for introducing desirable traits of yield, quality and stress tolerance.
- Production of quality planting materials and micro-propagation of important horticultural crops.
- Protected cultivation of vegetables and flowers.
- Development of package of practices for production of organic horticultural produce.
- Transfer of technologies to farmers and entrepreneurs for increase in quality production of horticulture crops.

Departments under the Faculty

- Department of Pomology & Postharvest Technology
- Department of Vegetable and Spice Crops
- Department of Floriculture, Medicinal and Aromatic Plants
- Department of Plantation Crops and Processing
- Department of Forestry

An Overview

Academic activity of the faculty started in the year 1997, with 5 students in the four years B. Sc. (Hort.) Hons. degree programme as the North Bengal Campus of BCKV. The students intake was gradually increased to 10 (ten) after establishment of the University in 2001 and to fifteen in the year 2005. The current intake capacity in undergraduate programme is 20 (twenty) per year.

The faculty is offering Master and Ph.D. degree programmes under all the departments from 2001-02 academic sessions, except under Floricultural, Medicinal & Aromatic Plants. The Department of Floricultural, Medicinal & Aromatic Plants started Ph. D. programme from 2009-10 academic session and M. Sc. Programme in 2011-12. The main objective was to produce graduates and post graduate students including researchers for enhancing employability, employment potential, entrepreneurship and science–led transformation of our agri-horticulture system.

The Faculty is following recommendations of the ICAR's IVth and Vth Deans' Committee and BSMA Committee recommendations for degree nomenclature and syllabus for UG and PG (M. Sc. and Ph. D.) degree programmes.

List of Academic Programmes

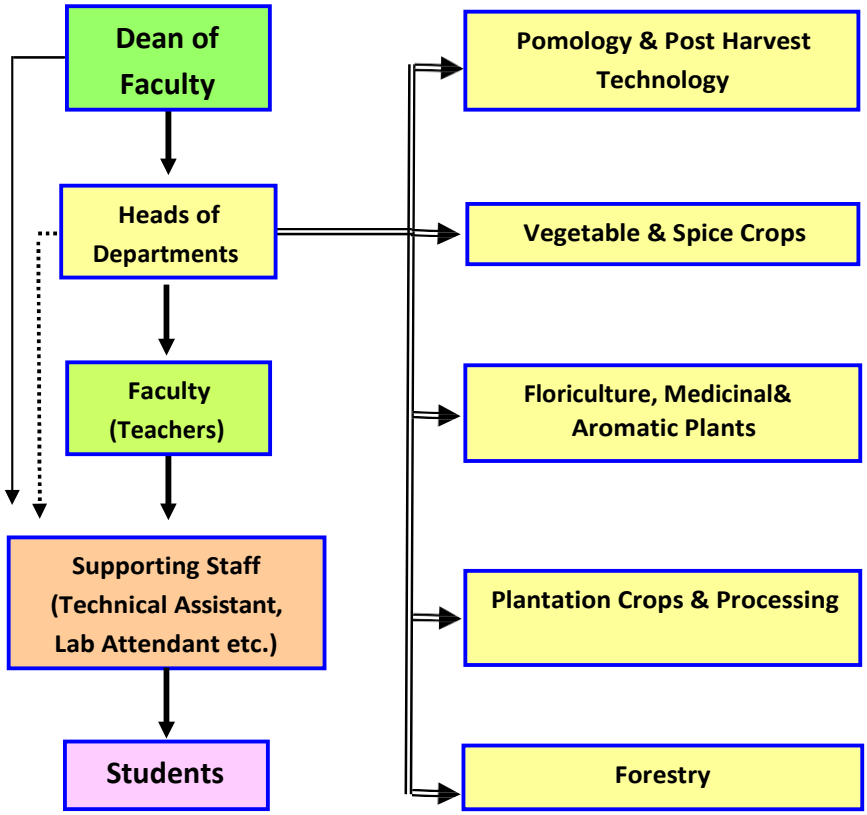
Sl. No.	Name of the Department	Bachelor's Programme	Master's Programme	Ph. D. Programme
1	Pomology and Postharvest Technology	**B. Sc. (Hort.) Hons.** before implementation of ICAR-V Deans' Committee Report **B. Sc. (Hons.) Horticulture** after implementation of ICAR-V Deans' Committee Reportfrom 2016 All departments of all Faculties are associated with UG course curriculums of the University	M. Sc. (Hort.) in Pomology and Postharvest Technology	Ph D. in Pomology and Postharvest Technology
			M. Sc. (Hort.) Fruit Science offering from 2017	**Ph D. (Hort.) Fruit Science** offering from 2017
			M. Sc. (Hort.) Postharvest Technology offering from 2017 (Newly Proposed)	Ph. D. (Hort.) Postharvest Technology offering from 2017 (Newly Proposed)
2	Vegetable and Spice Crops		M. Sc. (Hort.) in Vegetable and Spice Crops	Ph D. in Vegetable and Spice Crops
			M. Sc. (Hort.) Vegetable Science offering from 2017	**Ph D. (Hort.) Vegetable Science** offering from 2017
3	Floriculture, Medicinal and Aromatic Plants		M. Sc. (Hort.) in Floriculture, Medicinal and Aromatic Plants	Ph D. in Floriculture, Medicinal and Aromatic Plants
			M. Sc. (Hort.) Floriculture and Landscape Architecture offering from 2017	**Ph D. (Hort.) Floriculture and Landscape Architecture** offering from 2017
4	Plantation Crops		M. Sc. (Hort.) in Plantation	Ph. D. in Plantation

Sl. No.	Name of the Department	Bachelor's Programme	Master's Programme	Ph. D. Programme
	and Processing		Crops and Processing	Crops and Processing
			M. Sc. (Hort.) Plantation, Spice, Medicinal and Aromatic Crops offering from 2017	**Ph D. (Hort.) Plantation, Spice, Medicinal and Aromatic Crops** offering from 2017
5	Forestry		**M. Sc. Forestry**	**Ph D. Forestry**

The post graduate degrees offered from the Department of Forestry *i. e.* M. Sc. Forestry and Ph D. Forestry were accredited by the ICFRE up to 2020.

Administration

Faculty Administration



Organizational Chart

The staff position

Teaching Members of the Faculty

Name of the department	Sl. No.	Name of the Teacher	Designation	Mobile No.	E-mail address
POMOLOGY AND POST HARVEST TECHNOLOGY (T-5, R-2)	1.	Dr. Prodyut Kumar Paul	Professor	8016425515	prodyut24@yahoo.com
	2.	Dr. Nilesh Bhowmick	Assistant Professor	9433438982	nileshbhowmick@gmail.com
	3.	Dr. Sarad Gurung RRS, Hill Zone	Associate Professor	9434429066	sgurung_ubkv@yahoo.co.in
	4.	Dr.(Ms.)Mutum Preema Devi	Assistant Professor	7063102366	preema.horti@gmail.com
	5.	Dr. Aditi Chakraborty	Assistant Professor	9432842864	aditi.chatterjee10@gmail.com
	6.	*Dr. M. R. Bhanusree (Res) (on lien)	Assistant Professor	7501552351	bhanusree.horti@gmail.com
	7.	Ms.Prerna Baraily Agri. College, Majhian	Assistant Professor	9002374705	prernabaraily@gmail.com
VEGETABLE AND SPICE CROPS (T-5, R-3)	8.	Dr. Jagadish Chandra Jana	Professor	9475832372	janajc@rediffmail.com
	9.	Dr. Ranjit Chatterjee	Professor	9434197862	ranchat22@rediffmail.com
	10.	Dr. Suchand Datta (Res) RRS, Terai Zone	Professor	9434228494	suchanddatta@rediffmail.com
	11.	Dr. Partha Choudhury (on lien)	Assistant Professor	9434197827	partha2909@rediffmail.com
	12.	Dr. Dipak Kumar Murmu (Res) RRS, O A Z	Assistant Professor	9734452347	dipakmurmu1983@gmail.com
	13.	Ms. Sibnath Basfore	Assistant Professor	9641319674	shibnathbckv@gmail.com

	14.	Dr. R. K. Sarkar RRSS, Terai Zone	Assistant Professor	9851273027	sarkar_ram@rediffmail.com
	15.	Dr. Subhamoy Sikder	Assistant Professor	8436956667	subhamoy.sms@gmail.com
PLANTATION CROPS AND PROCESSING (T-4, R-0)	16.	Dr. Himadri Bhattacharjee	Professor	9434686285	drhbhatta@live.com
	17.	Dr. Partha Sarathi Medda	Professor	9474567593	psmedda@gmail.com
	18.	Dr. Babli Dutta	Assistant Professor	8296767044	babli.here@gmail.com
	19.	Dr. Shrilekha Das	Assistant Professor	9433774153	shri137@gmail.com
FLORICULTURE, MEDICINAL AND AROMATIC PLANTS (T-3, R-1)	20.	Dr. Soumen Maitra	Professor	9433365907	soumenmaitra@rediffmail.com, soummaitra@gmail.com
	21.	Dr. Indrajit Sarkar	Associate Professor	9434814181	indrajitsarkar_kpg@yahoo.co.in
	22.	Smt. Sumita Pradhan (Res) AICRP on Flori.	Assistant Professor	9564017005	ss_bajrachrya@yahoo.com
	23.	Smt. Swathi Kolukunde	Assistant Professor	8276871965	kswathi006@gmail.com
FORESTRY (T-5, R-0)	24.	Dr. Sumit Chakravorty ADR (Actg.) RRS, Hill Zone, Kalimpong	Professor	9434082687	c_drsumit@yahoo.com c.drsumit@gmail.com
	25.	Dr. Amarendra Nath Dey	Associate Professor	9434191333	amarendra_dey@rediffmail.com
	26.	Dr. Gopal Shukla	Assistant Professor	9851380707	gopalshukla12@gmail.com
	27.	Dr. Nazir Ahmed Pala	Assistant Professor	9932812631	nazirpaul@gmail.com
	28.	Smt. Vineeta	Assistant Professor	8477852011 9456762904	babra.vini@gmail.com

Non-Teaching (Technical and Supporting) Staff:

Name of the Office/Department	Name of the Staff	Designation	Phone No.
DEAN OFFICE	1. Smt. NirupamaSarkar	Jr. Store Keeper	9903302626
	2. Mr. Subir Nandi	Jr. Assistant	8759915086
	3.Subrata Das	Jr. Assistant	8759144059
	4. Mr. Rakhal Ch. Das	Cashier	9474425671
	5. Mr. Pradip Kr. Sen	Jr. Peon	9775464387
POMOLOGY AND PHT	1.Mr. NitishSaha	Technical Assistant Gr.-I	9475835338
	3. Mr. Dibyendu Das	Jr. Store Keeper	9733196969
	2.Mr. AnandaSarkar	Lab. Attendant	8927242990

VEGETABLE AND SPICE CROPS	1. Smt. SwapnaRava	Lab. Attendant	7602365628
	2.Mr. Bholaram Das	Sr. Peon	7679225637
PLANTATION CROPS AND PROCESSING	1.Mr. Pijush Saha	Technical Assistant Gr.-II	8388093298
	2.Mr. Goutam Dutta	Technical Assistant	
	3.Mr. Debasish Das	Jr. Peon	9547424966
FLORICULTURE, MEDICINAL AND AROMATIC PLANTS	1.Md. M.H. Khandekar	Technical Superintendent	9734942436
	2.Mr. SankarNeogi	O. A. Gr.-II	9593952277
FORESTRY	1.Smt. Anupama Das	Technical Assistant Gr.-II	9932799357
	2.Mr. Ajit Roy	Sr. Laboratory Attendant	8116377511
	3.Mr. Ranjit Kr. Anjoy	Laboratory Attendant Gr.-II	9593952271

Awards and Honours

- Louis Pasteur Research Award – 2016 offered by International Agency for Standards and Ratings. - Conferred to Dr. S. Maitra (Professor)
- Best Teacher Award (Adarsh Vidya Saraswati Rashtriya Puraskar) offered by Global Management Council, Glacier Journal Research Foundation, Ahmedabad, Gujarat on 5th September, 2016. - Conferred to Dr. S. Maitra (Professor)
- Fellow of Directorate of Floriculture, IASR – Conferred to Dr. S. Maitra (Professor)
- Member of Technical Expert Cum Screening Committee of WBSMPB - Dr. S. Maitra (Professor)

Members of the Faculty acted as Resource person in National, international, state and district level symposium / conference /seminar/ work shop

Event	Duration	Venue	Organizer	Resource Person
State Level Seminar on Horticulture Entrepreneurship Development in North Bengal *Lecture Topic:* Postharvest management of Spice Crops	03.03.2016-04.03.2016	Balurghat, Dakshin Dinajpur	UBKV, Funded by Directorate of Arecanut & Spices Development, Dept. of Agriculture, Cooperation & Farmers' Welfare, Govt. of India	Dr. P. K. Paul
State Level Seminar on Horticulture Entrepreneurship Development in North Bengal Topic: Postharvest management of Spice Crops	03.03.2016-04.03.2016	Balurghat, Dakshin Dinajpur	UBKV, Funded by Directorate of Arecanut & Spices Development, Dept. of Agriculture, Cooperation & Farmers' Welfare, Govt. of India	Dr. P. K. Paul and Mr. N. Bhowmick
International Conference on Agriculture, Food Science, Natural Resource Management and Environmental Dynamics: the technology, People and Sustainable Development	13.8.2016 - 14.8.2016	BCKV, Nadia	BCKV & Krishi Sanskriti, New Delhi	N. Bhowmick Co-Chairman of Tech Session-2
*Zonal Level Sem*inar on Agro Based Food Processing Industry	07.12.2016 – 08.12.2016	Mirik, Dist. Darjeeling	Raiganj Institute of Inspiration	Dr. P. K. Paul

Event	Duration	Venue	Organizer	Resource Person
(ABFPI)			and Empowerment for Livelihood Generation supported by Khadi & Village Commission (KVIC), Ministry of MSME, Govt. of India	
State Level seminar on Development of Spices, Medicinal and Aromatic Plants and Its Industries in North Bengal	December 16-17, 2016.	UBKV, RRSS, OAZ, Manichak	UBKV	Dr. S. Maitra, Dr. P.S. Medda Dr. Suchand Datta and Mr. S. Basfore
State Level seminar on Horticulture Entrepreneurship Development in North Bengal	March, 03-04, 2016	UBKV, RRS, OAZ Majhian	UBKV	Dr. Suchand Datta
Annual workshop/group meeting of AICRP on vegetable crops	10-13th May,2016	Division of Vegetable Science, IARI, New Delhi.	Division of Vegetable Science, IARI, New Delhi.	Dr. Ranjit Chatterjee
Workshop on Food security and climate change in india	5 Dec 2016	UBKV Pundibari	UBKV	Mr. S. Basfore and Dr. Sikder
Workshop on Fruit processing	15.12.2016	Bapuji Junior High School, Cooch Behar	Principal, University BT & Evening College, Cooch Behar	Dr. M. Preema Devi
Brainstorming Workshop of Coordinators (ELP) of SAUs/ DUs / CUs, organized	October 05-06, 2016	ICAR, New Delhi at NASC Complex	ICAR, New Delhi	Dr. S. Maitra

Members of the Faculty acted as Resource person in Training Programmes

Event	Duration	Venue	Organizer	Resource Person
Training on Preparation of squash, mixed pickle and ginger candy	09.04.2016	Dinhata II, Cooch Behar	Sabuj Biplab Producer Organization (SBPO), Dinhata	Dr. P. K. Paul Dr. M. Preema Devi
One day training programme on Food Processing	09.08.2016	Haldibari Cooch Behar	ADMD & Project Director on Management Unit (DMMU) & DRDC, Cooch Behar	Dr. M. Preema Devi
Training for women farmers under	18.01.2017	Department	Assistant Director of	Dr. M.

Event	Duration	Venue	Organizer	Resource Person
Capacity building and Food security Group 0n Preparation of guava jelly		of PPHT	Agriculture Cooch Behar II Block,	Preema Devi
Training on Banana cultivation	28.12.1016	ADO office Pundibari, Cooch Behar	Office of the Agriculture Division Officer Cooch Behar II Block,	Dr. A. Chakraborty
Farmers Training Programme on Fruit crop	21.01.2017	Alipurduar	Office of the Assistant Director of Agriculture, Alipurduar	Mr. N. Bhowmick
Farmers Scientist Stake holders Session in Awareness cum Farmers Training Programme on Development of spices, medicinal and aromatic plants and its industries in North Bengal" under MIDH Scheme	27.08.2016-28.08.2016	UBKV, Pundibari	UBKV, Pundibari, MIDH	Dr. Nazir A. Pala and Mr. N. Bhowmick
Farmers' training Programme	21.01.2017	United Club cum Library. Sahebpota, Alipurduar	O/O Assistant Director of Agriculture, Alipurduar-I Block, Dept. of Agriculture, GoWB	Mr. N. Bhowmick
Women Farmers' training Program on Improved cultivation technique of Banana, Under Capacity building and food security group	27.12.2016	Conference hall of Pundibari G.P.	Under Capacity building and food security group, ADA.,Cooch Behar-II Block ((Memo No. ATMA 93 dt 23.12.2016)	Dr. A Chakraborty
Training on Preparation of squash, mixed pickle and ginger candy	09.04.2016	Dinhata II, CoochBehar	Sabuj Biplab Producer Organization (SBPO), Dinhata	Dr. P. K. Paul Dr. M. Preema Devi
Awareness Cum Farmers' Training Programme on - Development of Spices, Medicinal and Aromatic Plants and Its Industries in North Bengal	27-28th August, 2016	UBKV, Pundibari	UBKV, Pundibari	Dr. S. Maitra

Members of the Faculty Attended National and international level symposium / conference/ seminar/workshops

Title of the Seminar/ Symposium/ Workshop/ Training	Duration	Organizing Institute	Attended by
International Conference on Agriculture, Food Science, Natural Resource Management and Environmental Dynamics: The Technology, People and Sustainable Development	13-14th August, 2016	CWSS, BCKV, Kalyani	Dr. Suchand Datta

Title of the Seminar/ Symposium/ Workshop/ Training	Duration	Organizing Institute	Attended by
National Conference on Planting Material Production on Spices	21-22 April, 2016	DASD, Calicut	Dr. Suchand Datta
State Level seminar on Development of Spices, Medicinal and Aromatic Plants and Its Industries in North Bengal	December 16-17, 2016.	UBKV, RRSS, OAZ, Manichak	Dr. Suchand Datta
State Level seminar on Horticulture Entrepreneurship Development in North Bengal	March, 03-04, 2016	UBKV, RRS, OAZMajhian	Dr. Suchand Datta
Annual workshop/group meeting of AICRP on vegetable crops (10-13th May,2016)./group meeting of AICRP on vegetable crops.	10-13th May, 2016	Division of Vegetable Science, IARI, New Delhi.	Dr. Ranjit Chatterjee
Sensitization workshop on Experiential learning, Entrepreneurship and Needs of Agro-Industries jointly organized by UBKV and ICAR-NAARM, Hyderabad.	(28th Feb to 01th March, 2017)	UBKV Pundibari	Dr. Ranjit Chatterjee
Capacity Building on e-Waste Management organized by NIELIT, Govt of India and Coochbehar Polytechnic college	(08th March, 2017)	Coochbehar Polytechnic college, Coochbehar	Dr. Ranjit Chatterjee
State Level seminar on Horticulture Entrepreneurship Development in North Bengal	December 16-17, 2016.	UBKV, RRSS, OAZ, Manichak	Mr. S. Basfore
Workshop on Food security and climate change in india	5th Dec 2016	UBKV Pundibari	Mr. S. Basfore
Workshop on Food security and climate change in india	5th Dec 2016	UBKV Pundibari	Dr. S. Sikder
National Workshop on Sustainable Mango Production: Challenges under Changing Climate in Tropics and Subtropics & Mango Diversity Show, Malda	18.6.2017-19.6.2016	ICAR-Central Institute for Sub-tropical Horticulture-RRS, Malda	N. Bhowmick
National Workshop on Sustainable Mango Production: Challenges under Changing Climate in Tropics and Subtropics & Mango Diversity Show, Malda	18.6.2017-19.6.2016	ICAR-Central Institute for Sub-tropical Horticulture-RRS, Malda	P. K. Paul

Title of the Seminar/ Symposium/ Workshop/ Training	Duration	Organizing Institute	Attended by
National Conference on Enhancing Nutritional Security through climate smart farming practices	17.3.2017-18.3.2017	COBACAS & UBKV	N. Bhowmick
International Conference on Agriculture, Food Science, Natural Resource Management and Environmental Dynamics: the technology, People and Sustainable Development	13.8.2017-14.8.2016	BCKV & Krishi Sanskriti, New Delhi	N. Bhowmick
Sensitizing Workshop on Experiential Learning, Entrepreneurship and needs of Agro-Industry	28.2.2017-01.3.2017	NAARM, the Bengal Chamber of Commerce, UBKV	Dr. P.S. Medda & N. Bhowmick
National Seminar on Integrating Agri-Horticultural and Allied Research for Food and Nutritional Security in the Era of Global Climate Disruption.	4.3.2017 - 6.3.2017	ICAR Research Station for North East Hill Region, Umium, Barapni, Meghalaya	Dr. M. P. Devi
National conference on Enhancing nutritional security through climate smart farming practices	16-17March, 2017	COBACAS and RRS, UBKV, Kalimpong	MissVineeta
International Conference on "Agriculture, Food Science, Natural Resource Management and Environmental Dynamics: The Technology, People and Sustainable Development"	13-14th August, 2016	Department of Ag. Extension, BCKV, Mohanpur, W.B and Krishi Sanskriti, New Delhi, India	Dr. B. Dutta
State level seminar on "Development of Spices, Medicinal & Aromatic Plants & Its Industries in North Bengal"	16 – 17th Dec,2016	UBKV, sponsored by MIDH	Dr. S. Maitra, Dr. P.S. Medda Dr. Suchand Datta and Mr. S. Basfore

Members of the Faculty Attended National and international level trainings

Title of the Seminar/ Symposium/ Workshop/ Training	Duration	Organizing Institute	Attended by
Model training course (MTC) on Recent Innovations in Organic Farming sponsored by Ministry of Agriculture and Farmers welfare, Govt. of.	2-9th January, 2017	Division of Agronomy, IARI, New Delhi.	Dr. Ranjit Chatterjee
Winter School on "Protected cultivation of Commercial flowers and Vegetables"	05.01.2017-25.01.2017	College of Horticulture, UHS, Bagalkot	Ms Swathi Kolukunde
CAFT Training on Advances in Experimental Data Analysis	6-26 Oct. 2016	IASRI, New Delhi	Mr. S. Basfore
Training on Livelihood and climate change mitigation and adaptation through agroforestry	3rd to 23rd August, 2016	ICAR-CAZRI, Jodhpur	Nazir A. Pala
Training on Assessing Resource Management, Climate Risk and environmental sustainability using simulation models	8th-28th November, 2016	ICAR-IISS, Bhopal	A. N. Dey
Training on Bioactive compounds from medicinal plant-a wealth of novelties and opportunities	01st -21st December, 2016	DMAPR, Gujrat	MissVineeta

National and institutional level symposium/ conference/ seminar/ work shop organised

Title	Period	Venue	Organizer	Resource Person
Jackfruit Exhibition- 2016	14.7.2016	Faculty of Horticulture	Faculty of Horticulture, UBKV	Dr. P. K. Paul Mr. N. Bhowmick
Member, Sub-Committee of Sensitizing Workshop on Experiential Learning, Entrepreneurship and needs of Agro-Industry	28 Feb to 1st March, 2017	UBKV	NAARM, the Bengal Chamber of Commerce, UBKV	Dr. P. K.Paul and Mr. N. Bhowmick
Member, Organizing Committee of National Workshop on Sustainable Mango Production: Challenges under Changing Climate in Tropics and Subtropics & Mango	18-19.6.2016	ICAR-Central Institute for Sub-tropical Horticulture-RRS, Malda	ICAR-Central Institute for Sub-tropical Horticulture-RRS, Malda	Dr. P. K.Paul and Mr. N. Bhowmick

Title	Period	Venue	Organizer	Resource Person
Diversity Show				
Spoken Tutorial Project of IIT Bombay at UBKV	08.12.2016	UBKV	UBKV	Chief Coordinator Dr. S. Maitra
State Level Seminar	16-17th Dec, 2016	Manikchalk, Malda	UBKV, Sponsored by MIDH	Dr. P.S. Medda
Training Organising on Two days Farmers' Training	04-05th March, 2017	Kisamat Dash Gram, Dinhata,	UBKV, Sponsored by MIDH	Dr. P.S. Medda
Improved production technology of Spice	06.03.2017	UBKV, Pundibari	UBKV	Dr. Suchand Datta

Teaching

Courses offered at UG level

Department of PPHT

Course No.	Course Title	Credit	Course Leader	Associated teachers
PPT 101	Fundamentals of Horticulture	2+1	Mr. N. Bhowmick	Dr. A. Chakraborty Teachers of VSC & FMAP
PPT 102	Plant Propagation & Nursery Management	1+1	Dr. A. Chakraborty	Prof. S. K. Ghosh Mr. N. Bhowmick
PPT 151	Tropical and Sub-tropical Fruits I	1+1	Dr. A. Chakraborty	Dr. S. K. Ghosh Mr. N. Bhowmick
PPT 151	Orchard and Estate Management (5th Dean Committee)	1+1	Mr. N. Bhowmick	Dr. A. Chakraborty Dr. P. K. Paul
PPT 152	Orchard Management	1+0	Mr. N. Bhowmick	Dr. A. Chakraborty
PPT 152	Orchard Management (4th Dean Committee, Year Back)	1+0	Dr. A. Chakraborty	Mr. N. Bhowmick
PPT 152	Dry land horticulture	1+1	Dr. A. Chakraborty	N. Bhowmick Dr. P. K. Paul
PPT 201	Temperate Fruits	1+1	Mr. N. Bhowmick	Prof. S. K. Ghosh Dr. A. Chakraborty
PPT 251	Tropical and Sub-tropical Fruits II	1+1	Mr. N. Bhowmick	Dr. S. K. Ghosh Dr. A. Chakraborty

Course No.	Course Title	Credit	Course Leader	Associated teachers
PPT 252	Breeding of Fruits & Plantation Crops	2+1	Dr. A. Chakraborty	Mr. N. Bhowmick Dept. of PCP
PPT 301	Post Harvest Management of Horticultural Crops	2+1	Dr. M. P. Devi	Dr. P. K. Paul
PPT 302	Post Harvest Management & Value Addition of Fruits & Vegetables	1+1	Dr. P. K. Paul	Dr. M. P. Devi
PPT 303	Fundamentals of Food Technology	1+1	Dr. P. K. Paul	Dr. M. P. Devi
PCP 351	Processing of Horticultural Crops (Offered from Plantation Crops & Processing)	1+2	Teachers of PCP	Dr. M. Preema Devi Dr. P. K. Paul
PCP 151	Growth and development of Horticultural Crops (Offered from Plantation Crops & Processing)	1+1	Teachers of PCP	Dr. A Chakraborty

Department of Vegetable sciences

Course code	Course title	Credit hour	Course instructor(s)
PPT-101	Fundamentals of Horticulture	2+1	Dr. Ranjit Chatterjee (under PPHT)
VSC-201	Temperate Vegetables	1+1	Dr. Subhamoy Sikder Dr. Ranjit Chatterjee Mr. Shibnath Basfore
VSC 202	Potato and Tuber Crops	1+1	Mr. Shibnath Basfore Dr. J.C.Jana Dr. Suchand Datta
VSC 203	Production Technology of Vegetables and Flowers	2+1	Mr. Shibnath Basfore Dr. Ranjit Chatterjee, Dr. Subhamoy Sikder
VSC 301	Breeding of Vegetable, Tuber and Spice Crops	2+1	Dr. Subhamoy Sikder Mr. Shibnath Basfore Dr. Ranjit Chatterjee
VSC-151	Tropical and subtropical vegetables	(2+1)	Dr.S. Sikder and Mr. S. Basfore
VSC 251	Spices and condiments	(1+1)	Dr. S Datta and Dr R Chatterjee
VSC 351	Seed production of vegetable, tuber and spice crops	(2+1)	Mr. S. Basfore Dr.S. Sikder, Dr R Chatterjee
VSC 352	Production technology of	(2+1)	Dr. S Datta

Course code	Course title	Credit hour	Course instructor(s)
	spices, medicinal, aromatic and plantation crops		
HOR 152 (B. Tech)	Principles of horticultural crops and plant protection	(1+1)	Prof. J. C. Jana,
VSC-151	**Tropical and subtropical vegetables**	**(2+1)**	Dr.S. Sikder and Mr. S. Basfore

Department of FMAP

Course No.	Course Title	Credit	Course Leader	Associated teachers
FAM-101	Principles of Landscape Architecture	1 (0+1)	Dr. S. Maitra	Ms. S. Kolukunde
FAM-201	Commercial Floriculture	3(2+1)	Dr. I Sarkar	Dr. S. Maitra
FAM-251	Ornamental Horticulture	3(2+1)	Dr. I Sarkar	Dr. S. Maitra
FAM-301	Medicinal and Aromatic Plants	3(2+1)	Dr. S. Maitra	
FAM-301 (IVthDean)	Breeding and Seed Production of Flower and Ornamental Crops	3(2+1)	Ms. S. Kolukunde	Dr. A. M. Khan

Department of PCP

Course No.	Course Title	Credit hours
PCP 151	Growth and Development of Horticultural crops	2(1+1)
PCP 251	Plantation Crops	3(2+1)
PCP 351	Processing of Horticultural Crops	3(1+2)

Forestry

Course No.	Title	Credit	Associated teachers
FOR-101	Introduction to Forestry (COA, Pundibari)	1+1	Miss Vineeta, Dr. A. N. Dey Dr. N. A. Pala
FOR-101	Introduction to Forestry (CoA, Majhian)	1+1	Dr. G. Shukla, Dr. A. N. Dey
HOR-151	Environmental Science (COB. Tech)	3+0	Dr. G. Shukla, Dr. G.C. Banik Miss Vineeta
FOR-301	Introductory Agroforestry (COH)	1+1	Dr. N. A. Pala, Miss Vineeta Dr. G. Shukla

Course No.	Title	Credit	Associated teachers
FOR-251	Environmental Science (COH)	2+1	Dr. N. A. Pala, Dr. G. Shukla Dr. G.C. Banik, Miss Vineeta
FOR-351	Environmental Science (COA, Pundibari)	1+1	Dr. G. Shukla, Dr. N. A. Pala Dr. G.C. Banik, Dr. A. N Dey
FOR-351	Environmental Science (CoA, Majhian)	1+1	Dr. G. Shukla, Dr. N. A. Pala Dr. G.C. Banik

Student enrolment for UG degree programmes during year 2016-17

Degree Programme	Intake capacity	Total Enrolment	
		Male	Female
B.Sc (Hons.) Horticulture	20	13	6

Student passed out for UG degree programmes during year 2016-17

Degree Programme	Enrolment of the batch		Total pass outs	
	Male	Female	Male	Female
B.Sc (Hons.) Horticulture			7	1

Post Graduate Degree Programmes

Courses offered at PG level

Department of PPHT

Course No	Course Title	Credit	Course Leader	Associated teachers
PPT 501	Tropical & Sub-tropical Fruit Production-I	2+1	Dr. A. Chakraborty	N. Bhowmick
PPT-502	Tropical & Sub-tropical Fruit Production-II	2+1	N. Bhowmick	Dr. S. K. Ghosh Dr. A. Chakraborty Dr. M. P. Devi
PPT-503	Temperate Fruit Production Technology	2+1	Mr. N. Bhowmick	Prof. S. K. Ghosh Dr. A. Chakraborty
PPT 504	Breeding of Fruit Crops	2+1	Dr. A. Chakraborty	N. Bhowmick Dr. M. P. Devi
PPT-505	Post Harvest Physiology & Handling of Horticultural Crops	2+1	Dr. M. P. Devi	Dr. P. K. Paul
PPT 506	Principle of preservation of horticultural crops	2+1	Dr. P. K. Paul	Dr. M. P. Devi
PPT-507	Propagation, nursery management and biotechnology	2+1	Dr. A. Chakraborty	Prof. S. K. Ghosh

Course No	Course Title	Credit	Course Leader	Associated teachers
	of fruit crops			Mr. N. Bhowmick
PPT- 601	Advances in Breeding in fruit crops	2+1	Dr. A. Chakraborty	Dr. S. K. Ghosh
PPT -607	Commercial fruit nursery	1+1	Dr. A. Chakraborty	Dr. S. K. Ghosh
PPT- 608	Advances in Post harvest physiology	2+0	Dr. P. K. Paul	Dr. M. P. Devi
PPT- 609	Advances in food preservation	2+0	Dr. M. P. Devi	Dr. P. K. Paul
PPT- 602	Advances in Production of Fruit Crops -I	2+1	Dr. A. Chakraborty	Dr. A. Chakraborty
PPT-603	Advances in Production of Fruit Crops –II	2+1	Dr. A. Chakraborty	Dr. A. Chakraborty

Department of Vegetable sciences

Course code	Course title	Credit hour	Course instructor(s)
VSC 501*	Production Technology of Cool season Vegetable Crops	2+1	Dr. Subhamoy Sikder Dr. Ranjit Chatterjee Mr. Shibnath Basfore
VSC 504*	Growth and Development of Vegetable Crops	2+1	Dr. Ranjit Chatterjee Mr. Shibnath Basfore
VSC 506	Systematics of Vegetable Crops	1+1	Dr. Ranjit Chatterjee Mr. Shibnath Basfore
VSC 510*	Production Technology of Spice Crops	2+1	Dr. Suchand Datta Mr. Shibnath Basfore
VSC 502	Production technology of warm season vegetable crops	(2+1)	Dr. R.Chatterjee , Dr.S. Sikder, Mr. S.Basfore
VSC 503*	Breeding of Vegetable Crops	2+1	Dr. Ranjit Chatterjee Mr. Shibnath Basfore Dr. Subhamoy Sikder
VSC 505	Seed production technology of vegetable crops	(2+1)	Mr. S. Basfore Dr.S. Sikder
VSC 507	Production Technology of Under exploited Vegetable Crops	1+1	Mr. Shibnath Basfore Dr. Ranjit Chatterjee Dr. Suchand Datta
VSC 508	Organic Vegetable Production Technology	1+1	Dr. Ranjit Chatterjee Mr. Shibnath Basfore
VSC 511	Breeding of spices	(2+1)	Dr. S Datta and Dr R Chatterjee
VSC 512	Processing of spices	(1+1)	Dr. S Datta and one teacher from PCP
VSC 601**	Advances in Vegetable Production	2+1	Dr. Ranjit Chatterjee Dr. Subhamoy Sikder
VSC 602	Advances in breeding of vegetable crops	(2+1)	Dr.S. Sikder and Dr. J.C. Jana
VSC 603**	Protected Cultivation of	1+1	Dr. Ranjit Chatterjee

Course code	Course title	Credit hour	Course instructor(s)
	Vegetable Crops		Dr. Subhamoy Sikder
VSC 605	Seed Certification, Processing and Storage of Vegetable Crops	1+1	Dr. Ranjit Chatterjee Dr. Subhamoy Sikder
VSC 607**	Advances in Spice Production	2+1	Dr. Suchand Datta Dr. Ranjit Chatterjee
VSC 608	Advances in breeding of spice crops	(2+1)	Dr. S Datta and Dr R Chatterjee

Department of FMAP department of vegetable sciences

Course No	Course Title	Credit	Course Leader	Associated teachers
FLA 501	Production technology of Cut Flowers	3 (2+1)	Dr. I Sarkar	Dr. S. Maitra Dr. A. M. Khan
FLA 502	Breeding of Flower crops and Ornamental Plants	3 (2+1)	Dr. S. Maitra	Dr. A. M. Khan Ms. S. Kolukunde
FLA 551	Production Technology of Loose Flowers	3 (2+1)	Dr. S. Maitra	
FLA552	Landscaping and Ornamental Horticulture	3 (2+1)	Dr. A. M. Khan	Dr. I Sarkar
FLA 601	Protected Floriculture	3 (2+1)	Dr. S. Maitra	Ms. S. Kolukunde Dr. I Sarkar
FLA 602	Value Addition in flowers	3 (2+1)	Ms. S. Kolukunde	Dr. A. M. Khan
FLA 701	Advances in Flower production Technology	3 (2+1)	Dr. I Sarkar	Dr. A. M. Khan
FLA 702	Advances in protected and precision floriculture	3 (2+1)	Dr. S. Maitra	Dr. A. M. Khan
FLA751	Advances in breeding of flower crops	3 (2+1)	Dr. S. Maitra	Dr. A. M. Khan
FLA 752	Advances in Landscape Architecture	3 (2+1)	Dr. I Sarkar	Dr. S. Maitra

Department of PCP

Course No.	Course Title	Credit hours
PCP 502	Production Technology of Plantation crops-II	3(2+1)
PCP 505	Processing of Plantation Crops Crops II	3(2+1)
PCP 504	Breeding of Plantation crops	3(2+1)

PCP 507	Organic Production Technology of Plantation Crops	3(2+1)
PSMA 501	Production Technology of Plantation Crops-I	3(2+1)
PSMA 502	Production Technology of Plantation (Beverage) Crops-II	2(1+1)
PSMA 504	Production Technology of Minor, Seed and Tree spice Crops	2(1+1)
PSMA 503	Production Technology of Major Spice Crops	2(1+1)
PSMA 505	Production Technology of Medicinal and Aromatic crops	1(1+1)
PSMA 506	Breeding of Plantation, Spices, Medicinal and Aromatic crops	3(2+1)
PSMA 507	Processing of Plantation Crops, Spices, Medicinal and Aromatic crops	3(2+1)
PSMA 508	Organic Spice and Plantation crop Production Technology	2(1+1)
PSMA591	Master's Seminar	1(0+1)
PSMA 599	Master's Research(non-credit)	20(0+20)
PCP 601	Advances in Production Technology of Plantation crops-I	3(2+1)
PCP602	Advances in Production Technology of Plantation Crops-II	3(2+1)
Course No.	**Course Title**	**Credit hours**
PCP603	Advances in Breeding of Plantation Crops.	3(2+1)
PCP604	Advances in Processing of Plantation Crops.	3(2+1)
PCP605	Advances in Processing of Plantation Crops-II	3(2+1)
PCP606	Bio-technology of Plantation Crops	3(2+1)
PCP691	Doctoral Seminar-I	1(1+0)
PCP692	Doctoral Seminar-II	1(1+0)
PCP699	Doctoral Research (Non-credit)	45(0+45)

Department of Forestry

Course No.	Title	Credit	Associated teachers
FOR-501	Silviculture	2+0	Dr. A. N. Dey Ms. Vineeta
FOR-502	Forest Biometry	1+1	Ms. Vineeta Dr. N.A. Pala
FOR-503	Forest management	2+0	Dr. A. N. Dey Ms. Vineeta
FOR-506	Forest Resources management and Economics	1+1	Dr. G. Shukla Dr. N.A. Pala
FOR-507	Forest protection	1+1	Dr. G. Shukla Dr. N.A. Pala
FOR-510	Forest and People	2+0	Dr. N.A. Pala

Course No.	Title	Credit	Associated teachers
			Dr. G. Shukla
FOR-504	Forest products - chemistry and industries	2+1	Dr. N.A. Pala Ms. Vineeta Dr. A. N. Dey
FOR-509	Tree Improvement	1+1	Dr. N.A. Pala Dr. G. Shukla
AF - 525	Economics of Agroforestry System	2+1	Dr. A. N. Dey Ms. Vineeta
AF – 526	Range Land and Pasture Management	2+0	Dr. N.A. Pala Ms. Vineeta
PT- 521	Seed Collection, storage and Testing	2+1	Dr. A. N. Dey Ms. Vineeta
EM – 522	Environmental Pollution	3+0	Dr. G. Shukla Dr. N.A. Pala Dr. A. N. Dey
FGR- 525	Forest Genetic Diversity and Conservation	3+0	Dr. G. Shukla Dr. A. N. Dey
FBM - 521	Forest Resource Analysis	3+0	Dr. N.A. Pala Dr. G. Shukla Ms. Vineeta

Students enrolment for post graduate degree programme during the year 2016-17

Degree Programme	**Department**	**Intake capacity**	**Total Enrolment**	
			Male	Female
M.Sc	Vegetable and Spice Crops	4	3	1
Ph.D.	Vegetable and Spice Crops	2	0	2
M.Sc.	Floriculture, Medicinal & Aromatic Plants	8	0	2
Ph.D.	Floriculture, Medicinal & Aromatic Plants	4	0	0
M.Sc.	Forestry		1	1
Ph.D.	Forestry		1	1
M.Sc.	Pomology & Post Harvest Technology	5	0	3
Ph.D.	Pomology & Post Harvest Technology	2	0	2
M.Sc.	Plantation Crops and Processing	4	1	1
Ph.D.	Plantation Crops and Processing	2	0	0

Convocation Report

Details of students awarded with gold medal in B.Sc. (Hons.) Hort. degree programme

Sl . No.	Name	No of gold medals	Medal title	Pass out year

1.	Shubhrajyoti Saha (H-2014-12-M)	M.Sc. (Hort.) degree programme	Faculty Topper	2016

The students who secured ICAR –NET during the academic year 2015-2016

Sl. No.	PG Degree Programme	Name of the student	Percentage of Marks
1.		Ravi kiran Thirumdasu (H-2014-3-D)	
2.		Bhaisare Pranali Tulshidas (H-2015-02-D)	
3.		Somashekar Gajjela (H-2015-4-D)	

Students other achievements:

Name of the student	Award received	Title of paper	Seminar / symposium title	Date
Riman Saha Chowdhury (H-2017-8-D)	Best Poster Presentation	Study the effect of boron, molybdenum and zinc and their combined treatments on growth and yield parameters of Broccoli in Terai agro-ecological region of West Bengal.	Enhancing Nutritional Security through Climate Smart Farming Practices	17th to 18th March, 2017 at UBKV , Pundibari

Research

Departmental Research Programme

POMOLOGY & POST HARVEST TECHNOLOGY

Sl. No.	Title	Associated Teacher	Status
1.	Nutritional management and pre-harvest treatments on growth, yield and quality of pineapple	Prof. S. K. Ghosh, Mr. N. Bhowmick	Continuing
2.	Value addition of jackfruit grown in Terai region of West Bengal and evaluation of its storage stability	Prof. S.K.Ghosh Mr. N. Bhowmik	Completed
3.	Studies on storage behavior of Indian Olive (*Elaecarpous floribundus* Blume)	Prof. S.K.Ghosh Dr. P. K. Paul	Completed

Sl. No.	Title	Associated Teacher	Status
4.	Evaluation of quality and stability of lemon based blended nectar	Dr. M. Preema Devi Dr. P. K. Paul	Continuing
5.	Studies on sodium substitution in pickle	Dr. P. K. Paul Dr. M. Preema Devi	Continuing
6.	Effect of Paclobutrazol in Guava var. L-49	Dr. A. Chakraborty Mr. N. Bhowmick	Continuing
7.	Effect of planting density and paclobutrazol on flowering and fruiting characteristics of Pineapple (*Ananas comosus* L. Merr) cv. Mauritius.	Mr. N. Bhowmick Dr. A. Chakraborty	Continuing
8.	Role of pollen on fruit characteristics of selected guava genotype.	Dr. Aditi Chakraborty Mr. Nilesh Bhowmick	Continuing
9.	Effect of Pre-harvest spray on shelf life quality of Strawberry.	Prof. P. K. Paul Dr. A. Chakraborty	Continuing
10.	Allelopathic effect of litchi leaf extract	N. Bhowmick	Completed
11.	Effect of planting density & paclobutrazol on pineapple	N. Bhowmick	Continuing
12.	Evaluation of physico-chemical characteristics of Jalpai (Indian olive) and Pummelo	N. Bhowmick	Continuing
13.	Flowering and fruiting characteristics of mango and litchi	N. Bhowmick A. Chakraborty	Continuing

Developmental Programme:

Sl. No.	Title	Associated Teacher	Status
1.	Development of pineapple varietal block	N. Bhowmick	Continuing
2.	Collection and maintenance of different strawberry cultivars	N. Bhowmick Dr. A. Chakraborty	Continuing
3.	Establishment of litchi orchard var Bedana	N. Bhowmick Dr. M. Preema Devi	Continuing
4.	Maintenance of mother block of litchi	N. Bhowmick Dr. A. Chakraborty	Continuing
5.	Maintenance of citrus rootstock, water apple orchard	Dr. M. Preema Devi	Continuing

FORESTRY

	Title of the research Project	Associated Teacher	Status
1	Rejuvenation, gap filling and intercropping in *Albizia lebbeck* agroforestry stand	PI- Dr Gopal Shukla Dr. SubhamoySikder	Running
2	Rejuvenation, gap filling and intercropping in *Terminalia arjuna* agroforestry stand	Dr. Nazir A. Pala Dr. SubhamoySikder	Running
3	Rejuvenation, gap filling and intercropping in Jarul agroforestry stand	Miss. Vineeta Mr.Shibnath Basfore	Running
4	Moringa based agroforestry system for terai zone of West Bengal	PI- Dr Gopal Shukla Dr. Nazir A. Pala Miss. Vineeta Mr. Shibnath Basfore Dr. Subhamoy Sikder	Running
5	Standardisation of nursery technology on *Mimusops elengi* and *Elaeocarpus floribundus*	Dr. A. N. Dey	Running
6	Standardisation of macropropagation of *Elaeocarpus floribundus* and *E. gannitrus*	Dr. A. N. Dey	Running

On-Going External Funded Projects

Department	Title of the Project	Funding Agency	Fund Amount (Lakh)	PI and CoPIs	Status – Completed / Continuing
POMOLOGY AND POST HARVEST	Quality Control Laboratory	MoFPI, GOI		Prof. P. K. Paul- Principal Investigator (PI)	
	Survey, documentation, collection & maintenance of	Institutional Project (UBKV)	2.54	PI: Dr. Nilesh Bhowmik. CoPI : Dr. Aditi Chakraborty, Dr.	Continuing

	Jackfruit (Artocarpus heterophyllus lorn) germplasm grown under the northern region of West Bengal			Mutum Preema Devi, Dr. Ramkrishna Sarkar, Dr. M. R. Bhanusree, Ms. P. Bariely.	
FLORICULTURE, MEDICINAL AND AROMATIC PLANTS	Technology standardization for lab to land of Asiatic lily for development of tribal community in Terai-Dooars region of North Bengal under phase-I	West Bengal State Department of Science and Technology	14.21	PI- Dr. Soumen Maitra	Continuing
	Improving water use for dry season agriculture by marginal and Tenant farmers in the Eastern Gangetic plains	ACIAR - Australia	80,000 Australian Dollar	PI: Dr. Rupak sarkar CoPI: Dr Soumen Maitra	Continuing
	Establishment of Model nursery (4 ha) in public sector at UBKV for medicinal plants.	State Mission on Medicinal Plants, Dept. of FPI & H, Govt of WB, under NMPB.	20.00	PI: Dr. S Maitra CoPI: Dr. S. S. Gantait	Completed on 31.03.2017
FORESTRY	Standardization of Agrotechnology and Mass multiplication for production of quality seedlings of *Woodfordia fruticosa*, *Sida cordifolia* and *Desmodium gangeticum*	National Medicinal Plant Board (NMPB), Govt. of India, New Delhi	23.985	PI: Miss Vineeta Co-PI: Dr. S. Chakravarty; Dr. G. Shukla; Dr. N. A. Pala; Miss Swathi Kolukunde	Continuing 29.12.2016
	Assessment of ecosystem services in home garden agroforestry in Sikkim and Sub-Himalayan region of West Bengal	Science and Engineering Research Board (SERB), DST, Govt. of India, New Delhi	36.14	PI: Dr. N. A. Pala Co-PI: Dr. S. Chakravarty; Dr. G. Shukla	Continuing 15.03.2017
	Tree planting programme in educational institutes of the state of West	Dept. Of Environment, Govt. f W.B/1.34		PI- Dr. A. N. Dey	Completed

	Bengal				
	Production of quality planting materials of some important medicinal plants through identification multiplication, supply of healthy elite genotype and capacity building programmes for improving rural livelihood in Northern part of West Bengal	NMPB- New Delhi, Govt. of India/40.34.00		PI- Dr Gopal Shukla Co-PI: Dr. Nazir A. Pala Miss. Vineeta Dr. S. Chakravarty	Running
VEGETABLE SCIENCES **VEGETABLE SCIENCES**	Centrally Sponsored Scheme -Mission for Integrated Development of Horticulture	Directorate of Arecanut and Spice Development, Govt. of India	Above 30 lacs (each financial year)	Dr. Ranjit Chatterjee, Acting as Co-P.I .	Continuing (2012 onward)
	AICRP on vegetable crops(as In-Charge)	ICAR-IIVR, Varanasi	-----	Dr. Ranjit Chatterjee, Acting as In-Charge, UBKV Centre	Continuing (2015 onward)
	Improving water use for dry season agriculture by marginal and tenant farmers in the Eastern Gangetic Plains (as Co-P.I.)	ACIAR, Australian Government	30 Lacs	Dr. Ranjit Chatterjee, Acting as Co-P.I .	Continuing (2015 onward)
	Molecular and morphological diversity analysis of cucurbits of Garo Hills, Meghalaya (as P.I. of Collaborative Institute)	DBT, Govt. of India	42.81 Lacs	Dr. Ranjit Chatterjee, Acted as P.I . of Collaborative Institute (UBKV)	Completed (2015-2017)
	Centrally Sponsored Scheme -Mission for Integrated Development of Horticulture	Directorate of Arecanut and Spice Development, Govt. of India	Above 30 lacs (each financial year)	Dr. Suchand Datta, Acting as PI and In-Charge since 03.06.2015 and before 03.06.2015 acted as Co-P.I .	Continuing (2012 onward)
	AICRP on Spices	Project Coordinator cell of ICAR-AICRP on Spices,	Above 22 lacs (each financial year)	Dr. Suchand Datta, Acting as In-Charge and Horticulturist since	Continuing (19.09.2014 onward)

		ICAR-IISR, Kozhikode		19.09.2014	
	A study on exploration, Characterization and conservation of Brinjal (*Solanum melongena*) germplasm in Eastern India	UBKV	Above 5.5 lacs	Mr. Shibnath Basfore, & Dr. Subhamoy Sikder, Acting as Co-P.I .	Continuing (2015 onward)
	AICRP on Vegetables at UBKV, Pundibari	AICRP	----	Mr. Shibnath Basfore, & Dr. Subhamoy Sikder, Acting as Co-P.I .	Continuing (2015 onward)
	Development of a PCR based Virus detection system for solanaceous vegetables in North Bengal.	UBKV	---------	Mr. Shibnath Basfore, Acting as Co-P.I .	Continuing (2016 onward)
	Innovative fish farming project.	Department of Agrl. Govt. of West Bengal		Dr. Subhamoy Sikder, Acting as Co-P.I .	Completed (2016-2017)
	Cropping System	UBKV, RRS Terrai Zone, Pundibari	7 lakh	Dr. Subhamoy Sikder, Acting as Co-P.I .	Continuing 2016 onwards

Extension Activities

The Faculty organized trainings, workshops and exhibitions for imparting technical knowledge to the farmers under its jurisdiction. Members of the faculty participated extensively in various extension activities organized by state and other institutes by acting as resource person. Following is the list of extension programmes organized by the faculty and its members acting in various capacities in other extension programmes.

Training Programmes, Seminars, Workshops and Exhibitions Organised

- Jackfruit Exhibition- 2016 on 14th July 2016 at Faculty of Horticulture, UBKV, Pundibari organized by the Faculty of Horticulture, UBKV,
- Awareness cum Farmers Training Programme on Development of spices, medicinal and aromatic plants and its industries in North Bengal" under MIDH Scheme, 27th to 28th August, 2016 at UBKV, Pundibari organized by the Faculty of Horticulture, UBKV
- Two days Farmers' Training, 04-05th March, 2017 at Kisamat Dash Gram, Dinhata, Cooch Behar, organized by the Faculty of Horticulture, UBKV

- State Level Seminar on Horticulture Entrepreneurship Development in North Bengal, 3rd -4th march 2016 at Balurghat, Dakshin Dinajpur, organized by UBKV, Funded by Directorate of Arecanut & Spices Development, Dept. of Agriculture, Cooperation & Farmers' Welfare, Govt. of India
- State Level seminar on Development of Spices, Medicinal and Aromatic Plants and Its Industries in North Bengal
- Training on Improved production technology of Spice, 6th March 201 at UBKV Pundibari, organized by the Faculty of Horticulture, UBKV
- State Level seminar on Development of Spices, Medicinal and Aromatic Plants and Its Industries in North Bengal on 16th -17th December, 2016 at UBKV, RRSS, OAZ, Manichak, UBKV.

The Faculty members also delivered radio talks and participated in live telephonic programmes of the mass media as an initiative to reach out to the farming community at large with the technical knowledge of Horticulture.

Radio Talks

Topic	*Resource Person*
Live phone in programme on All India Radio, Siliguri broadcasted on 30.6.2016 on the topic of "Kala chash ke lavjanak korte**" (How to make the banana cultivation profitable**	Mr. N. Bhowmick
"Strawberry Chash-Alochana in Grame Gange Programme" **recording programme on 17.03.17 at 12.30 pm to be broadcast over All India Radio programme, Siliguri, W.B on 18.03.17 at 7.00 pm.**	Dr. A Chakraborty
Participated as an expert on live phone-in programme of Akashbani, Siliguri on the topic of Uttarbange banigik vitite phool Chaser Sambhabana abong chas padhati. On 10.11.2016	Dr. Indrajit Sarkar

Publications

Papers Published In Scientific Journals

1. B. Das, S. Sikder, A. Debnath, R. Yonzone, S. Kundu, A. Das (2017). Genetic divergence in tomato under alluvial zone of West Bengal. Journal of Hill Agriculture 8(1): 21-25 (ISSN: 0976-7606)
2. Bandyopadhyay, S., Chakraborty, S., Datta, S., Debnath, A., Roy, M. K. Haque, S. (2016) Conservation and evaluation of turmeric germplasm in terai zone of West Bengal. *Ecology, Environment and Conservation*, 22(April suppl.): S299-S302. [ISSN0971-765X]
3. Chakraborty, S., Dutta S., Debnath A., Bandopadhya S., Roy M.K. and Haque S. (2016) Evaluation of turmeric germplams for tolerance to foliar diseases in terai region of West Bengal. *International Journal of Agricultural Science and Research* (IJASR) 6(4) : 2016, 61-68.

4. Chakraborty,S., Dutta S., Debnath A., Bandopadhya S., Roy M.K. and Haque S.(2017). Evaluation of some turmeric genotypes in terai Region of West Bengal *International Journal of Science, Environment and Technology*, 6(2) : 1065 – 1070 ISSN 2278-3687 (O) 2277-663X (P
5. Datta, S. and Jana, J. C. (2016) Growth, yield and important quality attributes of chilli (*Capsicum annuum* L.) under Sub Himalayan tracts of West Bengal. *Indian Journal of Horticulture,* 73 (1) : 66-73. [ISSN 0972-8538].
6. Dipika Mal and Ranjit Chatterjee. 2016. Residual effect of vermicompost and inorganic fertilizers of sprouting broccoli (*Brassica Oleracea* L. var. *italica* Plenck.) on succeeding cowpea (*Vigna unguiculata* L. Walp.) pod yield and soil fertility in eastern Himalayan region, *Green farming* 7 (1): 148-151.(ISSN 0974-0775).
7. Islam, S., Datta S. and Chatterjee, R. (2016) Influence of the planting date on the performance of cauliflower (*Brassica oleracea* var. *botrytis* L.) varieties under terai region of West Bengal, India. *International Journal of Bioresorce and Stress Management, 7*(3) : 426-431. [ISSN : 0976-3988].
8. Jana, J. C., Datta, S., Bhaisare, P. and Thapa, A. (2017) Effect of Organic, Inorganic Source of Nutrients and *Azospirillum* on Yield and Quality of Turmeric (*Curcuma longa* L.). *Int.J.Curr.Microbiol. App. Sci.,* 6(2) : 966-970.
9. Konar, S., Chatterjee, R and Datta, S. (2016) Impact of Microbial Inoculants on the Performance of Bell Pepper (*Capsicum annuum L.*) Varieties under Foot Hills of Eastern Himalayan Region. *Int.J.Curr.Microbiol.App.Sci., 5*(9): 131-138.
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Practical Manual

- Practical Manual on "Fundamentals of Horticulture" for undergraduate student

Leaflets

- Prepared and edited Bengali Leaflet on Jackfruit by N. Bhowmick (Published on 14.07.2016 during Jackfruit Exhibition)

Member of Editorial Board

Member of Editorial Board of Glacier Journal of Scientific Research from September, 2016

Editorial Board Member of the Bilingual Magazine 'Prajukti' published from BCKV from 24.08.2016

Faculty of Technology

A. Background:

In the year 2005, the Faculty of Technology started its journey as the third faculty of Uttar Banga Krishi Viswavidyalaya with the approval of All India Council of Technical Education (AICTE), New Delhi and Director of Technical Education, Govt. of West Bengal. The faculty offers four year B. Tech. degree in Agricultural Engineering. The curricula of Agricultural Engineering education integrate engineering and agricultural science to improve productivity of agricultural and horticultural crops through efficient utilization of natural resources and conserving the same for futureuse.

The syllabus of B.Tech in Agricultural Engineering course is based on the advances in the relevant field and guidelines framed by Indian Council of Agricultural Research (ICAR) and are approved by All India Council of Technical Education (AICTE). The U.G. course of Agricultural Engineering comprises of various disciplines like Agricultural Science, Basic Science and Humanities, Computer Science and Engineering, Civil Engineering, Mechanical Engineering, Electrical Engineering, Social Sciences, Farm Power and Machinery, Soil and Water Engineering, and Processing and Food Engineering. The Faculty has the provision of five academic departmentsnamely, (i) Department of Basic Science & Humanities, (ii) Department of Basic Engineering, (iii) Department of Farm Machinery and Power, (iv) Department of Process and Food Engineering, and (v) Department of Soil and Water Conservation Engineering.

B. Functions:

Our vision:

- To contribute to the northern region of West Bengal through excellence in education research and application in the fields of agricultural engineering and technology.
- To serve as a valuable resource for technologies involved in agriculture and to become a source of pride through valuable contributions to the people and the society.
- To create a strong and intelligent UBKV family with full of enthusiastic technocrats.

Our Mission:

- To mouldourselves into a learning community where we work, listen and respect eachother.
- To create an environment, where faculties, researchers and students can work synergistically across disciplinaryboundaries.
- To undertake several collaborative interdisciplinary research projects, which can provide long term benefits in the areas of academics, rural agriculture and several technological aspects of agriculture such as: Agricultural water management, Small scale food processing, and Farmmechanization.
- To develop a sustainable system with strong interactive connections among the faculty, researchers, students and farmers, by providing need based technological outputs to the agriculturalsociety.

- The faculty aims to serve as a technological hub for engineering applications in the fields of agriculture through academics, research andextension.

C. Teaching:

a) Undergraduate courses:

i) As per the guidelines of the 4th Dean'sCommittee:

Semester – I			
Sl. No.	**Subject**	**Course No.**	**Credit**
1.	Engineering Mathematics - I	MTH 101	3(2+1*)
2.	Engineering Physics	PHY 101	3(2+1)
3.	Engineering Chemistry	CHM 101	3(2+1)
4.	Workshop Practice	ME 101	1(0+1)
5.	Surveying and Leveling	CE 101	3(1+2)
6.	Engineering Drawing	CE 102	2(0+2)
7.	Environment Science	ES 101	3(3+0)
8.	Electrical Circuits	EE 101	3(2+1)
9.	English and Communication Skills	ENG 101	3(2+1)

Total24(14+10)

Semester – II			
Sl. No.	**Subject**	**Course No.**	**Credit**
1.	Engineering Mathematics – II	MTH 151	3(2+1*)
2.	Computer Programming and Data Structures	CSE 151	3(1+2)
3.	Applied Electronics and Instrumentation	EE 151	3(2+1)
4.	Agricultures for Engineers	AG 151	3(2+1)
5.	Workshop Technology	ME 151	3(1+2)
6.	Thermodynamics & Heat Engines	ME 152	4(3+1)
7.	Field operation and Maintenance of Tractors and Farm Machinery-I	FMP 151	1(0+1)
8.	Engineering Mechanics	CE 151	3(2+1)

Total23(13+10)

Semester – III			
Sl. No.	**Subject**	**Course No.**	**Credit**

1.	Engineering Properties of Biological Materials and Food Quality	PFE 201	3(2+1)
2.	Soil Mechanics	CE 201	3(2+1)
3.	Soil & Water Conservation Engineering	SWC 201	3(2+1)
4.	Farm Machinery and Equipment – I	FMP 201	3(2+1)
5.	Farm Power	FMP 202	3(2+1)
6.	Watershed Hydrology	SWC 202	3(2+1)
7.	Engineering Mathematics - III	MTH 201	3(2+1*)
8.	Agribusiness Management and Trade	ECO 201	3(3+0)

Total24(17+7)

Semester – IV			
Sl. No.	**Subject**	**Course No.**	**Credit**
1.	Farm Machinery and Equipment – II	FMP 251	3(2+1)
2.	Irrigation Engineering	SWC 251	4(3+1)
3..	Crop Process Engineering	PFE 251	3(2+1)
4.	Fluid Mechanics	CE 251	3(2+1)
5.	Theory of Machines	ME 251	3(2+1)
6.	Heat and Mass Transfer	ME 252	2(2+0)
7.	Field Operation and Maintenance of Tractors and Farm Machinery – II	FMP 252	2(1+1)
8.	Advance Computer Science & Engineering	CSE 251	2(0+2)
9.	Fundamentals of Probability and Statics	MTH 251	2(2+0)

Total24(16+8)

Semester – V			
Sl. No.	**Subject**	**Course No.**	**Credit**
1.	Machine Drawing and Computer Graphics	ME 301	3(2+1)
2.	Machine Design	ME 302	3(2+1)
3.	Dairy & Food Engineering	PFE 301	3(2+1)
4.	Tractor Systems and Controls	FMP 301	3(2+1)
5.	Electrical M/C's and Power Utilization	EE 301	3(2+1)
6.	Database Management and Internet Applications	CSE 301	2(0+2)
7.	Strength of Materials	CE 301	3(2+1)
8.	Ground Water, Wells and Pumps	SWC 301	3(2+1)

Total23(14+9)

Semester – VI			
Sl. No.	**Subject**	**Course No.**	**Credit**
1.	Agricultural Structures and Environmental Control	CE 351	3(2+1)
2.	Drying and Storage Engineering	PFE 351	4(3+1)
3.	Design of Structures	CE 352	3(2+1)
4.	Drainage Engineering	SWC 351	2(1+1)
5.	Soil & Water Conservation Structures	SWC 352	3(2+1)
6.	Refrigeration and Air conditioning	PFE 352	3(2+1)
7.	Entrepreneurship Development	EXT 351	1(1+0)
8.	Renewable Energy Sources	FMP 351	3(2+1)

Total 22(15+7)

Semester – VII

Sl. No.	**Subject**	**Course No.**	**Credit**
1.	PROJECT I	PRJ 401	3(0+3)
2.	SEMINER	SEM 401	1(0+1)
3.	In Plant/Industrial Training I	TRN 401	4(0+4)

Student will have to take minimum of **15 credits** courses from the following

Sl. No.	**Subject**	**Course No.**	**Credit**
1.	Food Packaging Technology	PFE 401	3(2+1)
2.	Design & Maintenance of Green House	PFE 402	3(2+1)
3.	Waste and By-Product Utilization	PFE 403	2(1+1)
4.	Development of Processed Products & Equipments	PFE 404	3(2+1)
5.	Food Processing Plant Design and Layout	PFE 405	2(1+1)
6.	Micro Irrigation Systems Design	SWC 401	3(2+1)
7.	Watershed Planning and Management	SWC 402	3(2+1)
8.	Minor Irrigation & Command Area Development	SWC 403	3(2+1)
9.	Environmental Engineering	CE 401	3(2+1)
10.	Gulley & Ravine Control Structures	SWC 404	3(2+1)
11.	Remote Sensing & GIS Applications	SWC 405	3(2+1)
12.	Reservoir & Farm Pond Design	SWC 406	3(2+1)
13.	Tractor Design & Testing	FMP 401	3(2+1)
14.	Hydraulic Drive & Controls	FMP 402	3(2+1)
15.	Farm Power & Machinery Management	FMP 403	3(2+1)
16.	Renewable Energy Technology	FMP 404	3(2+1)
17.	Human Engineering & Safety	FMP 405	3(2+1)
18.	Biomass Management for fodder & Energy	FMP 406	3(2+1)
19.	Production Technology of Agricultural Machinery	FMP 407	3(2+1)
20.	Mechanics of Tillage and Traction	FMP 408	3(2+1)
21.	System Engineering	MTH 401	3(3+0)

Total 23

Semester – VIII:

Sl. No.	Subject	Course No.	Credit
1.	PROJECT II	PRJ 451	3(0+3)
2.	Practical Training at institution/University	TRN 451	17 (0+17)
3.	In Plant/Industrial Training – II **	TRN 452	4 (0+4)

Total 24(0+24)

* Tutorial class of two periods

Grand Total = (24 + 23 + 24 + 24 + 23 + 22 + 23 + 24) = 187 Credits

ii) As per the guidelines of the 5th Dean's Committee (Started from AcademicYear 2016-17)

Semester I			
S. No.	**Title of the Course**	**Course No.**	**Credit Hour**
1.	Engineering Mathematics-I	MTH 101	3(2+1)
2.	Engineering Physics	PHY 101	3(2+1)
3.	Engineering Chemistry	CHM 101	3(2+1)
4.	Principles of Soil Science	AG 101	3(2+1)
5.	Surveying and Levelling	CE 101	3(1+2)
6.	Engineering Mechanics	CE 102	3(2+1)
7.	Engineering Drawing	ME 101	2(0+2)
8.	Auto CAD Applications	ME 102	2(0+2)
Total Credit Hours			**22(11+11)**

Semester II			
S. No.	**Title of the Course**	**Course No.**	**Credit Hour**
1.	Engineering Mathematics-II	MTH 151	3(2+1)
2.	Environmental Science and Disaster Management	HOR 151	3(2+1)
3.	Principles of Horticultural Crops and Plant Protection	HOR 152	2(1+1)
4.	Entrepreneurship Development and Business Management	AG 151	3(2+1)
5.	Principles of Agronomy	AG 152	3(2+1)
6.	Fluid Mechanics and Open Channel Hydraulics	CE 151	3(2+1)
7.	Workshop Technology and Practices	ME 151	3(1+2)
8.	Communication Skills and Personality Development	ENG 151	2(1+1)
Total Credit Hours			**22(13+9)**
Semester III			

Semester II			
S. No.	**Title of the Course**	**Course No.**	**Credit Hour**
S. No.	**Title of the Course**	**Course No.**	**Credit Hour**
1.	Soil and Water Conservation Engineering	SWC 201	3(2+1)
2.	Watershed Hydrology	SWC 202	2(1+1)
3.	Tractor and Automotive Engines	FMP 201	3(2+1)
4.	Fundamentals of Renewable Energy Sources	FMP 202	3(2+1)
5.	Web Designing and Internet Applications	CSE 201	2(1+1)
6.	Engineering Mathematics-III	MTH 201	3(2+1)
7.	Soil Mechanics	CE 201	2(1+1)
8.	Strength of Materials	CE 202	2(1+1)
9.	Electrical Machines and Power Utilization	EE 201	3(2+1)
Total Credit Hours			**23(14+9)**

Semester IV			
S. No.	**Title of the Course**	**Course No.**	**Credit Hour**
1.	Building Construction and Cost Estimation	CE 251	2(2+0)
2.	Theory of Machines	ME 251	2(2+0)
3.	Heat and Mass Transfer	ME 252	2(2+0)
4.	Agricultural Structures and Environmental Control	PFE 251	3(2+1)
5.	Farm Machinery and Equipment-I	FMP 251	3(2+1)
6.	Renewable Power Sources	FMP 252	3(2+1)
7.	Irrigation Engineering	SWC 251	3(2+1)
8.	Sprinkler and Micro Irrigation Systems	SWC 252	2(1+1)
Total Credit Hours			**20(15+5)**

Skill Development Training-I Summer break June-July after 4th Semester (Student READY)*

Semester V			
S. No.	**Title of the Course**	**Course No.**	**Credit Hour**
1.	Tractor Systems and Controls	FMP 301	3(2+1)
2.	Farm Machinery and Equipment-II	FMP 302	3(2+1)
3.	Tractor and Farm Machinery Operation and Maintenance	FMP 303	2(0+2)
4.	Engineering Properties of Agricultural Produce	PFE 301	2(1+1)
5.	Post Harvest Engineering of Cereals, Pulses and OilSeeds	PFE 302	3(2+1)
6.	Dairy and Food Engineering	PFE 303	3(2+1)
7.	Groundwater, Wells and Pumps	SWC 301	3(2+1)
8.	Watershed Planning and Management	SWC 302	2(1+1)
9.	Machine Design	ME 301	2(2+0)
10.	*Skill Development Training-I (Student READY) Registration and Evaluation only	TRN 301	5(0+5)
Total Credit Hours			**28(14+14)**

Semester VI			
S. No.	**Title of the Course**	**Course No.**	**Credit Hour**
1.	Design of Structures	CE 351	2(1+1)
2.	Computer Programming and Data Structures	CSE 351	3(1+2)
3.	Thermodynamics, Refrigeration and Air Conditioning	PFE 351	3(2+1)
4.	Post Harvest Engineering of Horticultural Crops	PFE 352	2(1+1)
5.	Drainage Engineering	SWC 351	2(1+1)
6.	Water Harvesting and Soil Conservation Structures	SWC 352	3(2+1)
7.	Bio-energy Systems: Designand Applications	FMP 351	3(2+1)
8.	Applied Electronics and Instrumentation	EE 351	3(2+1)
Total Credit Hours			**21(12+9)**

Skill Development Training-II in Summer break June-July after 6th Semester (Student READY)

VII Semester
Student READY (Rural and Entrepreneurship Awareness Development Yojana)

VII Semester
Student READY (Rural and Entrepreneurship Awareness Development Yojana)

Semester VII			
S. No.	**Title of the Course**	**Course No.**	**Credit Hour**
1.	10- weeks Industrial Attachment /Internship (Student READY)	TRN 401	10(0+10)
2.	10- weeks Experiential Learning On campus (Student READY)	TRN 402	10(0+10)
3.	Skill Development Training-II (Student READY) Registration and Evaluation only	TRN 403	5(0+5)
4.	#Educational Tour (Registration only)	EDT 401	2 (0+2)
Total Credit Hours			**27(0+27)**

#Educational tour during winter/January break

VIII Semester
Student READY (Rural and Entrepreneurship Awareness Development Yojana)

Semester VIII		
Title of the Course	**Course No.**	**Credit Hour**
Elective course	To be offered	3(2+1)
Elective course	To be offered	3(2+1)
Elective course	To be offered	3(2+1)
Project Planning and Report Writing (Student READY)	PRJ 499	10(0+10)
Total Credit Hours		**19(6+13)**

Grand Total = (22+22+23+20+28+21+27+19) = 182 Credit Hours

Elective Courses			
Sl. No.	**Title of the Course**	**Course No.**	**Credit Hour**
1.	Floods and Control Measures	(SWC 451)	3 (2+1)
2.	Wasteland Development	(SWC 452)	3(2+1)
3.	Information Technology for Land and Water Management	(SWC 453)	3 (2+1)
4.	Remote Sensing and GIS Applications	(SWC 454)	3 (2+1)
5.	Management of Canal Irrigation System	(SWC 455)	3 (2+1)
6.	Minor Irrigation and Command Area Development	(SWC 456)	3 (2+1)
7.	Precision Farming Techniques for Protected Cultivation	(HOR 451)	3 (2+1)
8.	Water Quality and Management Measures	(CE 451)	3 (2+1)
9.	Landscape Irrigation Design and Management	(SWC 457)	3 (2+1)
10.	Plastic Applications in Agriculture	(SWC 458)	3 (2+1)
11.	Mechanics of Tillage and Traction	(FMP 451)	3 (2+1)
12.	Farm Machinery Design and Production	(FMP 452)	3 (2+1)
13.	Human Engineering and Safety	(FMP 453)	3 (2+1)
14.	Tractor Design and Testing	(FMP 454)	3 (2+1)
15.	Hydraulic Drives and Controls	(FMP 455)	3 (2+1)
16.	Precision Agriculture and System Management	(FMP 456)	3 (2+1)
17.	Food Quality and Control	(PFE 451)	3 (2+1)
18.	Food Plant Design and Management	(PFE 452)	3 (2+1)
19.	Food Packaging Technology	(PFE 453)	3 (2+1)
20.	Development of Processed Products	(PFE 454)	3 (2+1)
21.	Process Equipment Design	(PFE 455)	3 (2+1)
22.	Photovoltaic Technology and Systems	(EE451)	3 (2+1)
23.	Waste and By-Products Utilization	(PFE 456)	3 (2+1)
24.	Artificial Intelligence	(CSE 451)	3 (3+0)
25.	Mechatronics	(ME 451)	3 (2+1)

b) Post graduate courses:NIL

ii) Students'Achievement:

GATE:

- 04 out of 08 passed out students(2015)
- 05 out of 14 passed out students(2016)
- 02 out of 18 passed out students(2017)

- 08 out of 16 passed out students(2018)

iv) Students' Placement:

Total 07 students placed in 2017-18.

D. ResearchActivity:

a) Areas of research : Irrigation water management, collective farmingpractice
b) Research reports submitted : NIL
c) Awards and gold medals :NIL
d) Scholarships, stipends and fellowships:

Year	**Name of the Scholarship**	**Number of Students Benefitted**
2015	University Free Studentship	07
	West Bengal Full Freeship	06
	West Bengal Half Freeship	01
	University Merit Scholarship	11
	Stipend	01
	NTS	02
2016	University Free Studentship	07
	West Bengal Full Freeship	10
	West Bengal Half Freeship	09
	University Merit Scholarship	06
	NTS	01

e) Ongoing research projects:

"Improving water use for dry season agriculture by marginal and tenant farmers in the Eastern Gangetic Plains"

- A multi-country (Nepal, India and Bangladesh) and multi-institutional project to be funded by the Australian Centre for International Agriculture Research (ACIAR) and the International Water Management Institute (IWMI) will be the implementing institution.

Principal Investigator (PI): Dr. Rupak Sarkar

E. Extensionactivities:

i) Promotion of collective farming practice among marginal and tenant farmer groups in dry season agriculture through efficient utilization of irrigationwater
ii) Interaction with the farmers and demonstration of farm equipments during '*krishi mela*'
iii) Providing skill development training to thefarmers

F. Infrastructural and Support Facilitiesavailable:

Specialization: Farm Machinery and Power

Farm machinery and power Laboratory lab has three numbers of modern tractor and two power tiller. Mechanical workshops with basic infrastructure facility are also associated with this lab for repair and maintenance of farm equipments. Farm machinery and power lab is well equipped with various farm implements and equipments.

- Various primary and secondary tillage implements, earth working equipment, land leveler, trencher, soil pulverizer, puddler,etc.
- Different types of sowing, planting, and transplanting equipments, eg, seed drills, Potato planters, sugarcane planteretc.
- Inter-cultivation equipment eg, hand hoes, wheel hoes, weeders, cultivators, sprayers, dustersetc.

- Harvesting tools and machines, like sickles, vertical conveyor reaper windrowers, threshers, winnowers, shellers, &decorticators
- Educational model of 4- stroke & 2-stroke cycle engines, Engine overhauling platform, tractor drive train, clutch – parts, gear box, differential & final drive, brake systems.
- Model of various tractor systems like, steering, hydraulic, hitching, PTO drive, ballasting, hydraulictrailer
- Solar energy gadgets & appliances; air heaters, water heating system, solar cookers, Solar PV systems, solar lantern, solar fan, and biogas(models).

Specialization: Process and Food Engineering

Processing and Food Engineering (PFE) laboratory is equipped with instruments like hot air oven, microwave oven, grain sheller & polisher, grain flour separator, etc. It serves as a unit for conducting practical classes of various courses. Students use the lab facilities for conducting experiments related to their project works and for developing several processed food products in hands on trainingprogram.

Some of the important facilities available in PFE laboratory:

1. Drying.
2. Grain shelling andpolishing.

3. Separation of wheat flour in differentgrades.
4. Preparation of bakery products, fruit juice,etc.
5. Preparation of carbonatedbeverages

Specialization: Soil and Water Conservation Engineering

- Field laboratory is available for practical demonstration of drip and sprinkler irrigation systems, centrifugal pump, submersible pump, current meter (model), hydraulic ram (model), weirs, flumes, venture, orifice, water meteretc.

- Hydrology and soil conservation laboratory has the instruments like pan evaporimeter, infiltrometer, rain gauge, EC meter, pH meter etc. There isa

meteorological observatory in the campus where the students are given practical exposure.

- There are other instruments like water level indicator, pressure plate apparatus, tensiometer, GPS etc. available in thefaculty

Specialization: Civil Engineering

Laboratory facilities available:

- Soil mechanicslaboratory
- Surveying and levelinglaboratory
- Engineering drawinglaboratory

Additionally the faculty has Autocad computation facility, equipments related to structural engineering, soil permeability apparatus, water quality testing kit, and equipments related to fluidmechanics.

Specialization: MechanicalEngineering

The mechanical workshop under Faculty of Technology undertakes various jobs related to the manufacturing, repairing, and up-gradation of mechanical systems existing in the University. The workshop is equipped with modern machineries like lathe, milling, and shaping machines. There are also units like carpentry, welding, and casting to assist in different manufacturing and repairingprocesses.

Some Facilities available in the Workshop:

1. Hands-on training for all the undergraduatestudents.
2. The engineering performed in the mechanical workshop focuses on manufacturing different tools, machine parts, and laboratoryequipments.
3. Practical demonstration of various manufacturing processes to enhancethe practical knowledge of thestudents.
4. Students hone their manufacturing skills through differentjobs
5. Assistance in design and manufacturing of customized tools /equipments /machines as may be required in various projects

Specialization: Computer Science and Engineering

The computational facilities available in the laboratory aim to give the students an opportunity for practical learning for better understanding of the basic concepts and constructs of computer programmes.

- Two dedicated computer laboratories are available exclusively for thestudents
- Twenty five computers are available in the basic computer laboratory and fifteen computers are present in the advanced computationlaboratory
- All computers are connected through the 1 GBPS LAN connectivity of the University. The laboratory also has access to the Wireless network. There are two separate computational laboratories dedicated to basic and advanced learning modules.

Specialization: Electrical Engineering

- Electrical Engineering laboratory is equipped with all the instruments required for the instruction of undergraduatestudents
- Electronics laboratory has the necessary instruments for conducting thepractical classes

Specialization: Basic Science and Humanities

Available facilities:

- Engineering chemistrylaboratory
- Engineering physicslaboratory
- Language and personality developmentlaboratory

EngineeringPhysics Lab

Engineering ChemistryLab

Language and personality development laboratory

G. Faculty andstaffs:

a) Faculty

Sl. No.	Name	Designation	Specialization	Contact address
1.	Dr. Rupak Sarkar	Assistant Professor	Soil and Water Conservation	Faculty of Technology, UBKV, P.O. Pundibari, Dist-Cooch Behar, Pin-736165, West Bengal
2.	SubinaySaha Roy	Assistant Professor	Civil Engineering	-DO-
3	Ashis Kumar Das	Assistant Professor	Electrical Engineering	-DO-
4.	Arindam Mandal	Assistant Professor	Mechanical Engineering	-DO-
5.	HimadriShekher Konar	Assistant Professor	Processing and Food Engineering	-DO-
6.	Dr. Om Prakash Chaturvedi	Assistant Professor	Farm Machinery and Power	-DO-
7.	Mr. Ashutosh Dutta	Guest Lecturer	Engineering Chemistry	-DO-
8.	Kousik Das	Guest Lecturer	Engineering Mathematics	-DO-
9.	Anuj Kumar Bal	Guest Lecturer	Engineering Physics	-DO-
10.	Subhrajyoti Roy	Guest Lecturer	English	-DO-
11.		Guest Lecturer	Computer science and Engineering	-DO-

b) Non-teachingstaffs

Sl. No.	Name	Designation	Contact address
1.	Gautam Kumar Basak	Surveyor	Vivekananda Street, P.O. &Dist-Cooch Behar, Pin-736101
2.	Santanu Dasgupta	Jr. Stenographer	C/o. S.R. Dasgupta, Netaji Road, P.O. &Dist-Alipurduar, Pin736121
3.	Samar Sutradhar	Jr. Storekeeper	Hoglabari, P.O.-Pundibari, Dist.-Cooch Behar, W.B-736165
4.	Samik Das	Technical Assistant	AndaranFulbari, P.O. ChhatFulbari, P.S. Tufanganj, Dist-Cooch Behar, Pin-736160
5.	Chandan Sarkar	Jr. Peon	Vill+P.O.-Sajerpar, Ghoramara, Dist-Cooch Behar, Pin-736165
6.	Jahar Kumar Rahut	Mechanic	C/o. Janokinath Chakraborty, Shiv Jagna Road, Khagrabari, P.O. &Dist-Cooch Behar, Pin-736101
7.	Pradip Barman	Mechanic	Vill+P.O. ChhotoKhairatibari, Dist-Cooch Behar, Pin-736165
8.	Swarup Dutta	Jr. Fitter	Vill-Madhya kalarayerKuthi, P.O. Pundibari, Dist. Cooch Behar, Pin-736165

H. Doctoral Thesis completed:NIL

I. Master Degree thesis completed:NIL

J. Undergraduate projects completed(2017-18):

Year	Name of the Guide	Name(s) of the students	Title of the Project
2017	Arindam Mandal	1) AjayMahatot 2) ArindamBala 3) SudiptaSome	"Casting and manufacturing of spur gear"
	Himadri Shekhar Konar	1) AnishGanguly 2) AmbujaRoy 3) Jagannath Narjinary	"Study of Drying of Parboiled Paddy"
	Dr. Omprakash Chaturvedi	1) PushprajGautam 2) ArupMondal	"Design and development of low cost medium size maize sheller"
	Er. SubinoySaharoy	1) Bhaskar Chdas 2) BibekIshore	'Effect of relative density on permeability of sand"
	Er. SubinoySaharoy	1) YogeshKumar 2) SwarupDutta	"Engineering properties and interface behavior of Torsa"
	Er. Akhil Kumar Das	1) ShubhamSankar 2) BapiBhowal	"Design and Implementation of hospital management"

Year	Name of the Guide	Name(s) of the students	Title of the Project
2018	SubinaySaha Roy	1) AnkanKheto 2) AvijitMondal 3) SoumenduRoy	"Effect of particle size of sand on friction angle"
	Himadri Shekhar Konar and Arindam Mandal	1) AbhijitPaul 2) AnaghMandal 3) MD Ehsanulhaque	"Design and fabrication of screw paneer press"
	Dr. Om Prakash Chaturvedi	1) Kingshuk Khaddar 2) Shubhajit Sarkhel	"Performance evaluation of a solar water pumping system"
	Akhil Kumar Das	1) DebabrataPaul 2) Kapil Deb Singha 3) Rustam Mahapatra	"Design and Implementation of Website (Horticulture Site)"
	Arindam Mandal	1) ManikBiswas 2) KamalDas 3) AbdulRasid	"Design and manufacturing of Spur Gear"

J. Paper & Books published(2005-2018)

Sl.No.	Title	Author	Journal
Paper (Research and Extension)			
1	An insight into the runoff generation processes in wet sub-tropics: Field evidences from a vegetated hillslope plot	**Rupak Sarkar**, Subashisa Dutta and Amit Kumar Dubey	Catena (Elsevier), 128, 31-43
2	Parametric study of a physically-based plot-scale hillslope hydrological model through virtual experiments	**Rupak Sarkar** and Subashisa Dutta	Hydrological Sciences Journal (Taylor and Francis), 60(3), 448-467
3	Field investigation and modeling of rapid subsurface stormflow through preferential pathways in a vegetated hillslope of northeast India	**Rupak Sarkar** and Subashisa Dutta	Journal of Hydrologic Engineering (ASCE), 17(2): 333-341
4	An experimental investigation to characterise soil macroporosity under different land use and land covers of northeastIndia	Sangeeta Shougrakpam, **Rupak Sarkar**, and Subashisa Dutta	Journal of Earth System Science (Springer), 119(5): 655-674
5	A physically based hydrological model for paddy agriculture dominated hilly watersheds in tropical region	Sudipta Kumar Mishra, **Rupak Sarkar**,Subashisa Dutta andSushma	Journal of Hydrology (Elsevier), 357(3-4): 389-404

		Panigrahy	
6	Characterizing overland flow on a preferential infiltration dominated hillslope: Case study	**Rupak Sarkar,** Subashisa Dutta and Sushma Panigrahy	Journal of Hydrologic Engineering (ASCE), 13(7): 563-569
7	Run-off generation from fields with different land use and land covers under extreme storm events	Rishabh Dev Sharma, **RupakSarkar**, and Subashisa Dutta	Current Science, 104(8):1046-1053
8	Effect of scale on infiltration in a macropore dominatedhillslope	**Rupak Sarkar**, Subashisa Dutta and Sushma Panigrahy	Current Science, 94(4):490-494
9	Groundwater modelling for prediction of water table depth in Ramganga-Bahgulinterbasin of Uttar Pradesh	**Rupak Sarkar**, Shiv Kumar, YogendraKumar and H.C.Sharma	Hydrology Journal, 30(1-2):123-133
10	A new statistical approachfor image fusiontechnique	**Akhil Kumar Das** and DebasisMandal	International Journal of Computer Science & Engineering Technology (IJCSET) 6(1): 5-9
11	Development of a problem solving support for an intelligent tutoring system	**Akhil Kumar Das** and Debasis Mandal	International Journal of Innovations &Advancement in ComputerScience, 4(2): 33-39
12	Effects of novel vacuum drying on orthodox and CTC teaprocessing,	Anand Kishore, **H. S. Konar**and A. K. Datta	International Journal of TeaScience, **10(3** &4):78 - 88
13	Optimizaion of process parameters for vacuum drying of CTC tea	**H. S. Konar**, Shrilekha Das, A. K. Data and B.C. Ghosh	Two and a bud 59(2): 84-88
14	Ethanolysis Of Jatropha Oil and Process Optimization	**Chaturvedi O. P.,** S Mande, Y P Abbi, K Kundu	International Journal of Recent Scientific Research Vol. 4, Issue,4, pp. 1005-1010. ISSN:0976-3031
15	Biodiesel Plant Design For Rural application	**Chaturvedi O P,** S Mande, P Rajan, K Kundu	ZENITH International Journal of Multidisciplinary Research. ZIJMMR, Vol.3 Issue 9, pp 46-52. ISSN2231-5780

16	Use of Esterified Soybean, Sunflower, Mustard, Karanja and Neem Oils in C.I. Engine	Anbumani K, **Chaturvedi O P**, Garg S K and Garg R	Journal of Fijian Studies. Vol. 9, No. , pp 111-126. ISSN1728-7456.
17	Evaluation of Different Biofuels for Power Generation in Villages through Genset	**Chaturvedi O P** and Lal B	Journal of Fijian Studies. Vol. 9, No. , pp 184-193. ISSN1728-7456.
18	Fuel Ethanol Prospect and Problem.	Kundu K, Bhattacharya T K and **Chaturvedi O P.**	Pantnagar Journal of Research. Vol 4 (1) pp 105-111. ISSN 0972-8813.
Book Chapter			
Book			
	Groundwater modelling: A comparison between multiple regression and artificial neural network approaches	**Rupak Sarkar**	LAP Lambert Academic Publishing, Germany, ISBN:978-3-659-25948-7, pp.1-137

K. Seminar, Symposium, Conference, Training andWinter/Summer/Refresher course/short courseattended/organised

Sl. No.	Seminar, Symposium, Conference, Training and Winter/Summer/Refresher course/short course	Faculty associated	Date	Venue	Attended/ Organised
1.	Exploring new horizons of translation	Subhrajyoti Roy	16TH& 17TH MARCH, 2012	ABN SEAL COLLEGE, Cooch Behar	Attended
2.	UGC Sponsored National Seminar & State Level Science Training.	Ashutosh Dutta	--	IIT Kanpur (Funded by NBHM)	Attended
3.	Mathematics Training and Talent Search Programme	Kousik Das	21st May to 16th June, 2012	Department of Mathematics, NBU	Attended
	Workshop on General Topology with Special Emphasis on Proximities, Compactifications and Rings of Continuous		21st February to 2nd March, 2013	Dept. of Geography, Cooch Behar College	
	Environmental Degradation and Disasters- A vision plan forsustainable development.		25th and 26th Aug., 2016	Cooch Behar College	
	3 Day Workshop on Latex		29th – 31st Aug., 2016	IIT Kanpur (Funded byNBHM)	

4.	Participated in 28 days Refresher Course of UGC	Dr. Rupak Sarkar	2-29th March, 2012	University of North Bengal.	Attended
	Participated in the two weeks NNRMS (ISRO) sponsored training programmeon "*Remote Sensing andGIS"*		5-16th May, 2008.	IIT Kharagpur	
	Attended the AICTE sponsored QIP short-term course on "*Hydroinformatics and Flood Management (HFM-2006)*"		16-20th October, 2006	IIT Guwahati	
	Participated in GIS training programmeon "*Geoinformatics and its Applications*" organized by *Coordinates*, GITDelhi,		18-20th September, 2006	IIT Guwahati	
	Estimation of runoff curve numbers using a physically-based approach of preferential flowmodelling		October, 2014	International FRIEND WATER Conference held at Montpellier, France	
	An insight into the hydrological extremities in a vegetated hillslope of Northeast India. In 'Holistic Scientific Approach using Integrated Geophysical Studies for the Management of Natural Hazards'		22-23 April, 2013	Umiam, Meghalaya, India.	
	Hydrological response of hillslopes in the Brahmaputra Basin: An experimental and modeling investigation. In 'An International Perspective on Environmental and WaterResources'		December 18-20, 2006	Organized by EWRI of ASCE and IIT Kanpur, New Delhi, India.	
	Subsurface stormflow study for hydrological extremities management in North-Eastern India. In 'NEGeo-2006 – Developing North East Geospatially'		September 21-22, 2006	Guwahati, India	
5.	Orientation Programme	Subinay Saha Roy	2nd-29th March, 2012	University of North Bengal	Attended
	Earthquake Risk Management		11th to 18th June, 2012	Jalpaiguri Govt. Engg. College	
	Numerical and Experimental Modeling in GeotechnicalEngineering		4th to 9th Feb, 2009	IIT Kanpur	
	International Conference on Soft Ground Engineering (ICSGE2015)		3rd - 4th December, 2015	Singapore	

6.	2nd Internatiional Conference on "Bioenergy, Environment and Sustainable Technologies (BEST 2015)"	Om Prakash Chaturvedi	28-31 January, 2015	Tiruvannamalai, Tamilnadu	Attended
	International conference and expo on Biofuels		2012	IHC, New Delhi	
	International congress on Renewable Energy (ICORE)		2006	Solar Energy Society India, ICC, Hyderabad	
	The 2nd Symposium on Renewable Energy Technologies (SoRET),		October, 2011	Raiwai, Fiji Island	
	National Symposium on biodiesel – a sustainable renewable fuel for India,		2004	CTE, MPUA&T, Udaipur	
	National Convention and Symposium of Indian Society of Agricultural Engineering		2004	ANGRAU, Hyderabad	
	National Seminar on Producing and Use of Bio-diesel for Energy Appliction		2006	NTPC, Noida	
	22nd National Convocation of Mechanical engineers, Institute of Engineers India, IIT, Guwahati. Biofuel Production Methodologies, Utilization Technique and Challenge Ahead"		22-23 March, 2007	Ludhiana	

L. Any other(Achievement)

i) Technology/ImplementsDeveloped:

The students of the faculty developed a power operated maize sheller, a pedal cum power operated paddy thresher, hydraulic operated tractor rear mounted load carrier, paneer press and grass shredder as part of their hands on training and project work at the institution.

Pedal cum power operatedpaddythresher

Tractor rear mounted loadcarrier

Grass shredder

Working ofMaizesheller

Assembled Maize sheller

Paneer press

ii) In PlantTrainings:

The Faculty organizes two compulsory trainings of one month duration each; one at the end of 4th Semester and the other at the end of 6th Semester with a view to expose the students to the modern and newly landed machineries and equipments. These trainings are organized in various reputed institutes like Farm Machinery Training & Testing Institutes (Norther, Southern, North Eastern, and Central Region); Central Institute of Agricultural Engineering (CIAE), Bhopal; Himul Dairy, Siliguri; Central Dairy, Kolkata; Britannia Industries, Amul industries, Kolkata; Damodar Valley Corporation (DVC), Hazaribag etc.

iii) Performance under students READYprogram

1. Processing and Bottling of Sweetened carbonatedBeverages

Students have learned the method of production and bottling of sweetened carbonated beverage using manual batch carbonation unit installed under ELP unit (skill mode) of faculty of technology. This product has a huge potential to gain profit in business mode.

Production of sweetened carbonated beverage.

2. Study of different processing operations of a bakeryindustry

3. Study of different components of a coldstorage

Directorate of Research

Introduction

In the research front, the university is marching ahead in case of developing the new agricultural technologies and refining the old technologies for making them situation specific in nature. TheUniversityhasbeenrunningseveralprojectsfromleadingorganizationsofGovernmentofIndia like ICAR, DBT, DST, AYUSH etc. International organisation like CIMMYT, ICARDA, ACIAR also sanctioned several projects which were being implemented successfully. Directorate of Research is constituted by three Regional Research Stations (RRS)along with three sub-stations (RRSS) distributed over three agro-climatic zones namely hill zone, terai zone and old alluvial zone.Six All India Co-ordinated Research Projects (AICRPs) viz. AINP on Jute and Allied Fibres, AICRP on Spices, AICRP on Wheat& Barley, AINP on Medicinal and Aromatic Plants, AICRP on Floriculture and AICRP on Potential Crops are presently running in the university. In addition, the UBKV serves as a voluntary centre of AICRN on Underutilised Crops, AICRP on Pigeon Pea, MULLARP and Rice. One AICRP on Vegetables, AICRP on Fruits and AICRP on Biological Control under this university was sanctioned very recently to fulfil need based location specific research needs of the people.

Research Council

As per the University Act (U/S 16/5), Uttar Banga Krishi Viswavidyalaya has well defined Research Council with following compositions:

a) the Vice Chancellor- Chairman
b) the Registrar
c) the Director of Research- Secretary
d) the Director of Extension Education
e) the Director of Farms
f) the Deans of the Faculties
g) the Associate Director of research or the In-Charge of Regional research Stations
h) five Teacher representatives of the University with at least one from each faculty
i) the Director of Agriculture, Govt. of West Bengal or his nominee
j) the Director of Horticulture, Govt. of West Bengal or his nominee
k) the Chief Environment Officer, Govt. of West Bengal or his nominee
l) the Principal Chief Conservator of Forest, Govt. of West Bengal or his nominee
m) the Director of Sericulture, Govt. of West Bengal or his nominee
n) the Chief Scientific Officer, Department of Science & Technology, Govt. of West Bengal or his nominee
o) one nominee from Indian Council of Agricultural research
p) one nominee from Tea Research Association

q) two eminent scientists, nominated by the state govt.
r) one scientist from each Regional Research Stations nominated by the Director of Research

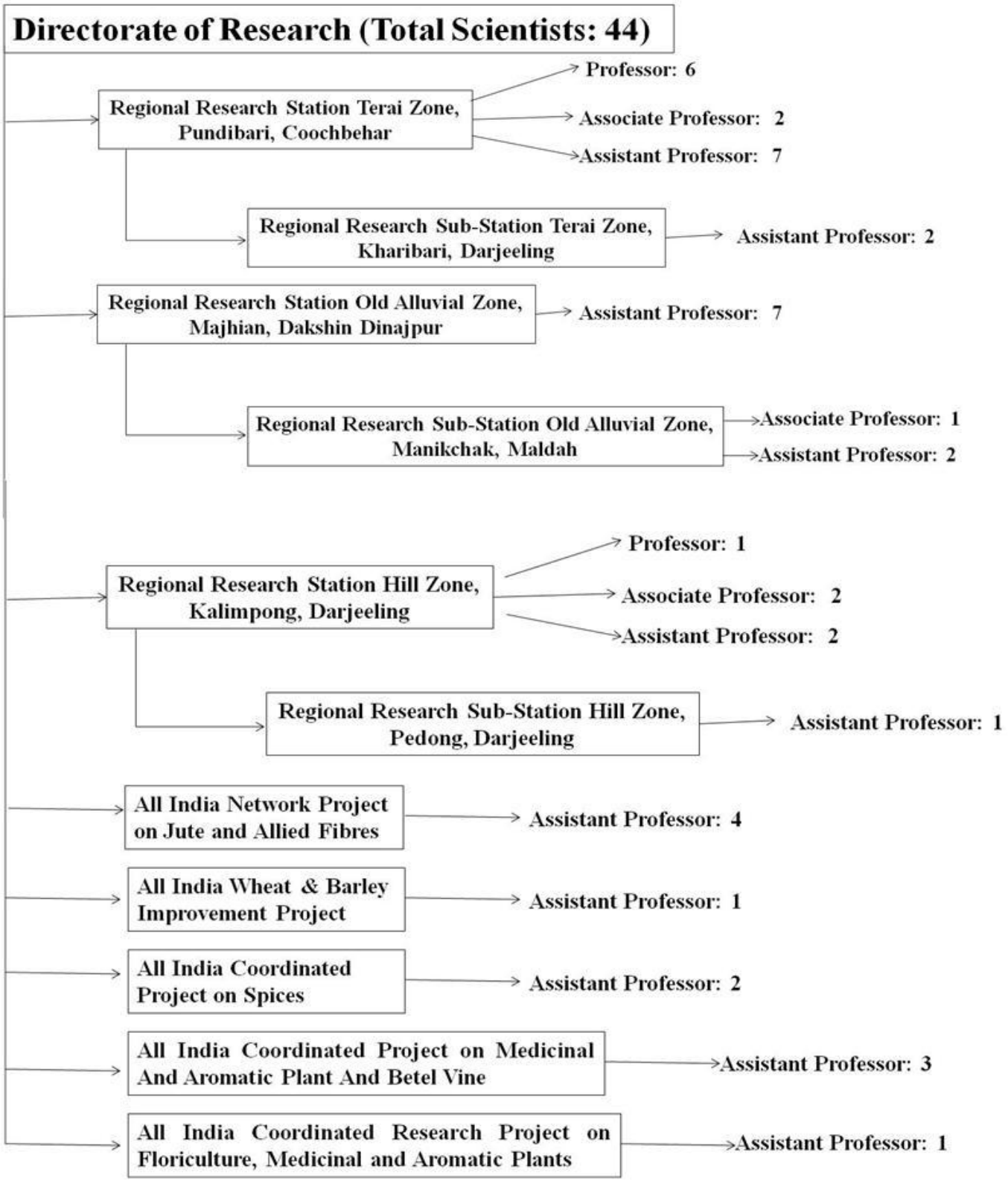
With this composition, University held its first Research Council meeting on **14.03.2012** in the last five year tenure.

The meeting was attended by following members:

1. Prof. Asit Kumar Das- Vice Chancellor & Chairman
2. Prof. Sabitakumar Senapati- Director of Research & Secretary
3. Dr. P. Mukhopadhyay, Director of Extension Education, UBKV
4. Dr. H. Bhattacharya, Dean, Faculty of Horticulture, UBKV
5. Prof. B. C. Saha, Department of Genetics & Plant Breeding, UBKV
6. Dr. Mrs. D. Sarkar, Regional Research Station, Terai Zone
7. Dr. Suvendukumar Roy, AINP on JAF, UBKV
8. Dr. A. Singh, Regional Research Station, Old Alluvial Zone
9. Dr. T. S. Ghimiray, Regional Research Station, Hill Zone
10. Dr. G.K. Mandal, Regional Research Station, Old Alluvial Zone
11. Dr. Pradip Sen, Joint Director of Agriculture (Research), Writers Building, Kolkata
12. Dr. Chinmay Kundu, Joint Director of Agriculture (Rice), Chinsura, Hooghly
13. Dr. Khurshid Alam, District Horticulture Officer, Cooch Behara
14. Dr. A. Mondal, Joint Director of Textiles(Sericulture), North Zone, Siliguri

In the 1st meeting of Research Council, the research programmes executed under RRS/RRSS since inception was approved. Adhoc research project implemented so far, technologies generated was also approved by the council. The Zonal Research Extension Advisory Committee (ZREAC) was found in vogue and proposal was taken to revive those committees in future. Research council also recommends filing up of all vacant posts under RRS/RRSS/AINPs/AICRPs and increasing contingency grant by the state govt. and ICAR.

Staff pattern of Scientists under Directorate of Research



CONTRIBUTION TO THE RESEARCH

List of approved Technologies developed in last 5 years

Four genotypes of paddy, three genotypes of Jute and disease tolerant, high yielding, high curcumin content turmeric variety have been identified/released by the University.One high yielding high oleoresin content Ginger variety has been recommended for release in the national level in the workshop. A sizable number of wheat varieties tolerant to terminal heat, late sown, boron deficiency, and foliar blight of wheat in collaboration with CIMMYT have also been selected. The System of Rice Intensification (SRI) has been widely demonstrated and adopted by the farmers. The steady increase in the production and productivity of major crops in the region excepting a few, massive area expansion of the pulse crops particularly that of lentil, lathyrus and black gram in the region, adoption of conservation agricultural practices for rice-wheat cropping system in a large scale, standardization and adoption of improved varieties and plantation practices for mango, mandarin orange and pineapple, elimination of banana hard lump through standardization of nutrient system, development, improvisation and standardization of a pedal cum power-operated paddy thresher, low-cost metallic tea-plucking blade pair for drudgery reduction of farmers and farm women are the distinct examples of the research achievements in this University. The climate resilient farming system intensification and improvement of dry season agriculture for marginal and tenant farmers are also taken into consideration by the University scientists to derive an intense climate resilient farming system and improve the socio-economic condition of marginal and tenant farmers through enhancement of water productivity in dry season agriculture. The resource conservation and generation through zero tillage in three different seasons' crop, intercropping and managing the whole agricultural system through improved value chain and dissemination of new farming system information through Innovation Platform, cooperative farming and cooperative leasing of water are the key research issues of several internationally funded projects. The scientist of UBKV are working tirelessly for Biodiversity study of fishes, quality seed production of important carps and dissemination of them to farmers, conservation of indigenous ornamental but high value fishes like 'Borali' and 'Puti' and other areas of integrated farming system.

AINP on Jute and Allied fibres

- Few of elite entries viz. UBC-1, UBC-5, UBC-6, UBO-1 etc. were submitted earlier for Initial Evaluation Trial (IET) time to time and one of the *C. olitorius* entry viz. UBO-1 was promoted to AVT-I in 2015.
- Recently, a wildly grown *C. aestuans* accession has been collected from Kaliachak region, Maldah district of West Bengal. As we know that cultivated *Corchorus* sp. are of narrow genetic base and wild species are of broad genetic base with some resistant capacity towards insects and diseases and also having better bastfibre quality. Considering the aforesaid situation, wide-hybridization has been initiated to improve the fibre quality, water logging resistance and disease resistance.
- Molecular divergence of the germplasm pool and germplasm exploration for wild *Corchorus* sp. and Ramie has been initiated in the northern plane and hilly region of West Bengal.
- Soil solarization by polythene reduced weed biomass by 40-50% as a result of higher soil temperature, which does not affect jute fibre yield, but not cost effective.
- Application of Butachlor 50% EC @ 1 to 1.5 kg ai/ha during jute sowing or within 48 hrs of jute sowing followed by one hand weeding/wheel hoeing has been found effective for weed control in jute and mesta.
- Application of Pretilachlor 50% EC @ 0.8 to 0.9 kg ai/ha during jute sowing or within 48 hrs of jute sowing followed by one hand weeding/wheel hoeing was found effective for weed control in jute.
- Nail weeder operation (along the rope/in between the line) in jute field (broad cast/ line sowing) at early stage i.e. 4 to 5 days after the emergence of jute crop (on field capacity soil) reduces 50-60% weeds.
- Application of post emergence, selective herbicide, Quizalofop ethyl 5% EC @ 1.5 to 2.0 ml/l at 15-21 DAE coupled with one hand weeding, was found very effective for the control of grassy woods in jute/mesta field.

- Vegetables intercropped using jute gunny bags in rice with 4:1 and 8:1 sowing proportions found most profitable.
- Among the new acaricides, Fenazaquin 10 EC @ 1.5ml/ l (new generation acaricide with novel mode of action) or fenpyroximate 5 EC @ 2 ml/l may be recommended for the management of yellow mite in jute. Among the new fungicides, application of Tebuconazole 25.9 EC @ 1ml/l (0.1 % a.i.) as seed treatment and foliar spray at 45 DAS was most effective against stem rot of jute.

AICRP on Wheat & Barley:

- Four new entries of wheat has been tested Viz. **UBW 5, UBW 8, UBW 9** and **UBW 14** has been tested at National level and performed well under both normal and late sown conditions.
- Three new testing centres viz, Kharibari, Manikchakand Majhian have been established in addition to Kalimpong and Coochbehar for testing AICW&BIP entreis.
- Coochbehar is hot spot location for screening against spot blotch disease which is most prominent disease after rust. This centre is being used for by many breeder of repute to screen several entries against the disease including NBPGR.
- 1485 entries of NBPGR has been screened against foliar blight disease in 2014 and 2015.
- Wheat aphid which is another important pest, is being screened against in Kharibari station and most entries of our country was found susceptible against this pest.
- Zero tillage technology has been refined under this centre and varietal evaluation under this technology has been initiated.
- Site specific nutrient management revealed increased agronomic nitrogen use efficiency (NUE) vis a vis increased yield under both zero and conventional tillage.
- Seed production of important varieties like DBW 39, HD 2967, HD 2733, K 0307 has been done under participatory mode.
- Front line demonstration of recent varieties like HD 2967, K 1006, DBW 107 has been done over 23 hectare in farmers field of Coochbehar and Malda district.
- With the outbreak of new disease like wheat blast in Bangladesh in 2015, the centre got actively engaged in monitoring the spread of the disease around Bangladesh border areas. Trap nurseries along with various national and international nurseries were planted in the border for monitoring the disease outbreak.

- Studies on soil and micronutrient management (boron and zinc), control /management of wheat aphid, diseases like spot blotch and weed management of wheat are also going on.

AICRP on Spices

- **GCP-49 (UBKV AADA-1) Mohini** was recommended in Varietal Release Committee in the XXVII Workshop in NRCSS in Ajmeer for Variety release nationwide in ginger growing areas.

Salient features of GCP-49 (UBKV AADA-1) Mohini:

(i) It has high dry recovery percentage (21.7%), which is very much usuful for commercial cultivation and further processing.

(ii) Very high yield throughout Indian ginger growing states and better than local check and national check varieties(14t/ha) .

(iii) high essential oil content (1.316%).

(iv) High oleoresin content (4.1%) which are the essential quality parameters for evaluation of good quality ginger.

- **TCP 129 (IC-0615165)[Unique Registration Number- INGR16033]** has been registered in NBPGR for its leaf spot and leaf blotch resistant properties. **.**
- **212 genotypes of Turmeric germplasm** is as of now which are characterized, documented and IC numbers assigned from NBPGR GeneBANK, New Delhi in turmeric genotypes.
- **70 genotypes of Ginger germplasm** is under maintenance where of now among which 63 are characterized, documented and IC numbers assigned from NBPGR GeneBANK, New Delhi in 63 ginger genotypes.
- **31 germplasms** of Black pepper are being maintained in UBKV pundibari field gene bank.
- Standardization of water requirement for turmeric through drip irrigation has been worked out and results revealed that application surface irrigation, 5cm, and 0.90 IW/CPE ratios gave the highest yield of 20.91 t/ha followed by drip once in 2 days at 40% PE (18.59 t/ha)
- Micronutrients study on turmeric variety Suranjanarevealed that soil application of boron (as borax) @ 25Kg ha^{-1}) gave the highest yield (11.13kg/3 m^2 and 22.45 t/ha).
- Rhizome rot of ginger was controlled by bio-control agent, *Trichoderma harzianum*which proved to be the best treatment when applied in soil with neem cake

after hot water treatment at 51°C for 10 minutes. The treatment reduced the disease up to 36% in comparison to control.

- Integrated management of *Pythium*, *Fusarium* and *Ralstonia* of ginger revealed that seed treatment with *Trichoderma harzianum* was the best which reduced the disease over control 68.49 % (pooled data for five years).

- Application of inorganic N 100% + *Azospirillum* 50g + FYM 5 kg per 3 sq.m. plot produced highest yield compared to controls (recommended dose of fertilizer @ 80:80:120 NPK per hectare) in ginger.
- In leaf blotch experiment, seed treatment as well as spraying with Mancozeb + Carbendazim (0.2% + 0.2%) showed lowest disease incidence and highest yield too, seed treatment as well as spraying with Carbendazim (0.2%) showed lowest disease incidence and good yield.
- Management of rhizome rot of turmeric revealed seed treatment as well as soil application of *Trichoderma viride*and *Pseudomonas fluorescens* @ 12.5 kg /ha and 25.0 kg /ha as basal and top dressing respectivelywith application of recommended NPK and FYM was proved to be the best treatment.
- Biofumigation with cabbage and mustard was found effective for reducing soft rot disease of turmeric along with bacterial wilt of ginger.

AICRP on MAP

- In *Swertiachirayita* like endangered plant, IC-0613949, IC-0613950 IC numbers received from NBPGR and documented in the university website(www.ubkv.ac.in)On the basis of morphological and qualitative characteristics 5 morphotypes and 24 lines.
- 9 lines of *Valerianajatamansi* (A highly endangered IUCN listed high value medicinal Plant) were developed and IC numbers received for each line from NBPGR (IC-0613939 , IC-0613940, IC- 0613941, IC-0613942, IC-0613943, IC-0613944, IC-0613945, IC-0613946, IC-0613947) and documented in university website.
- IC numbers were received for individual accessions after characterization from NBPGR in *Centellaasiatica*medicinal plant Germplasm. They are:**IC-0613919, IC-0613920, IC-0613921, IC-0613922, IC-0613923, IC-0613924, IC-0613925, IC-0613926, IC-0613927, IC-0613928.**

- Agrotechniques of Swertiachirata and Valerianajatamansi has been standardized for Hill Zone and yield has been improved.

AICRP on Floriculture:

- UHFS-Gla-Hb 1-8, Jester, Candiman, American Beauty, White Prosperity and Red Ginger germplasm of gladiolus has been tested and found promising.
- Varieties like Red Explosion, Flaurance, Foskeand Balance of gerbera and Alstroemeria varieties namely Pluto, Aladin& Pink Panther are recommended for commercial cultivation in Hill Zone.
- Plant types for pot cultivation as indoor decoration purpose, hybrid orchids and orchids for cut flower production have been identified and fertilizer (NPK) requirements has been standardised.
- The matured crossed seed pods of UBKV-Pdn/1112 have been given to NRC Orchid, Pakyong, Sikkim for multiplication as well as hardening of the plantlets.
- Pulsing and holding solution for orchids and cut flowers have been identified for extended vase life.

INNOVATIVE EFFORTS FOR EXCELLENCE IN RESEARCH

In the research wing, the university has been undertaking whole hearted initiatives for taking up innovative and excellent research programmes.Towards the achievement of this goal the University has adopted 9 (nine) flagship research programmes in a holistic and multi locational focus strategically from central authority (i.e. Directorate of Research forum) with ground level execution by respective Regional Research Stations (RRS). In addition to this, theUniversityhasbeenreceivingseveralprojectsfromleadinginternational organizations, various agencies of theGovernmentofIndia, stateGovernments and different private companies topromoteitsresearchactivities.

- A study has been undertaken on exploration, characterization and conservation of brinjal (*Solanummelongena* L.) germplasm. The main objective of the programme is
  (a) To evaluate, characterize and document the genetic diversity for identification of suitable germplasm for future crop improvement programme.

(b) Moreover, other objectives are construction of genetic map and identification of trait specific QTL linked markers for Marker Assisted Selection.

- A case study of germplasm exploration, collection, characterization and conservation has been initiated towards plant genetic resource management of *Dolichoslablab* in North-East India.
- Research programme has been taken up for the development of DUS standards utilizing morphometrics and molecular markers in local cultivars of potato for creation of morphological, biochemical and molecular data base for the local cultivars of potato in West Bengal and establishment of a 'varietal gene bank' with DUS standards of potato and to develop a computerized data base.
- University research mandate on rice is collection, characterization, *in situ* and *ex situ* conservation of rice of North and North-Eastern India for higher yield and quality as well as resistant/tolerant breeding against biotic and abiotic stresses.
- The advances line of rice [IET 24173 (UBKVR- 15)], a cross of MTU 7029 and Annada developed at RRS, Terai Zone, UBKV, Pundibari ranked first in Initial Variety Trial- Boro (IVT- *Boro*) 2013-14. It was significantly superior to national, regional and local checks at a number of locations all over India. UBKVR-1, another advanced line [IET 24171 (UBKVR-1)], a cross between MTU 7029 and GontraBidhan ranked third in Initial Variety Trial-Boro (IVT-*Boro*) 2013-2014.
- In 2016 crop season, characterization of spectral signature of wheat disease infestation using hyperspectral and multispectral data with the help of ISRO, Ahmedabad Centre was undertaken and assessment of degree of wheat disease infested area at spatial scale is under process.
- A collaborative project entitled 'Retrieval of Biophysical Parameters in Buxa Tiger Reserve using GISAT', with SAC, ISRO has been started at University in 2017. This project aims on simulation modeling of forest biophysical parameters based on satellite data.
- ICAR has sanctioned one project entitled Use of Hyperspectral Diffuse Reflectance Spectroscopy Sensors for Rapid Assessment of Soil Quality' dedicated to proximal sensing of soils for understanding soil quality parameters."
- Standardization of biological interventions for plant health management through nutrient management (biofertilizers and mycorrhiza) has been successfully going on in the University

for biotic stress management (bio-inoculants), remediation of pollutants (Trichoderma) and development of methodology for screening.

- The experiments for efficacy enhancement of bio-inoculants have been carried out. Based on the observations, a common minimum programme for the farmers to popularize biological management of crops has been developed**.**
- A study has been initiated for the exploration of the soil microbial diversity of different agro-ecological zones of North Bengal for agricultural use. The principal objectives of this programme is to study the structural and functional diversity of representative groups of microbes (PSB, Nitrogen Fixers and PGPR) as well as mapping, cataloguing and preservation of isolated and identified microbes.
- A programme has been taken up for the development of a PCR based virus detection system for solanaceous vegetable in North Bengal. The prime objectives of the programme are standardization of PCR based detection system for different viruses from Solanaceous crops along with the development of a fully equipped lab based diagnostic kit for these viruses.
- Research initiatives have been undertaken to study the bio-diversity of predatory and parasitic fauna in the rice based cropping system of sub-Himalayan Terai region for proper documentation and cataloguing of this important group of arthropods towards their conservation for better pest management. As a part of this project more than twenty species of predaceous ladybird beetles (coccinellidae: coleoptera) have been catalogued on different crop ecosystems and their detailed taxonomical studies are being pursued at the University towards development of a key for their easy identification.
- Studies are being carried out on natural parasitization of pests in the rice based cropping system and recently, *Cotesiaruficrus* (Haliday) has been recorded as a primary parasitoid on green semilooper, *Narangaaenescens* Moore along with two hyperparasitoids *Trichomalopsisapanteloctena* (Crawford) and *Mesochorus* sp. for the first time from this part of the country.
- The scientist of UBKV are working tirelessly for Biodiversity study of fishes, quality seed production of important carps and dissemination of them to farmers, conservation of indigenous ornamental but high value fishes like ‘Borali’ and ‘Puti’ and other areas of integrated farming system.

- A multi-locational programme has been undertaken for the identification of suitable cropping system for Terai and Old Alluvial zone of West Bengal under up and medium land situation with an objective to identify the profitable cropping system for the region with a view to increase resource utilization efficiency.
- A programme of collection, characterization and improvement of pulse crop has also been undertaken as a flagship institutional programme.
- An institutional project has been undertaken for the survey, documentation, collection and maintenance of jackfruit germplasm grown under the Northern region of West Bengal.

IPR CELL AND ITMU CELL

University has well developed IPR cell and ITMU cell with the following composition:

a) Prof. Asutosh Sarkar, Deptt. of Agril. Economics- Chairman
b) Prof. Ayon Roy, Deptt. Of Plant Pathology- Convenor
c) Prof. Arup Sarkar, Deptt. of Genetics & Plant Breeding- Member
d) Prof. Pradyut kr. Paul, Deptt. Of PPHT, Faculty of Hort.- Member
e) Dr. Hossain ali Mondal, Deptt. of Genetics & Plant Breeding- Member

The committee has made following recommendations for resoling IPR issues

1. Technology duplication issue between state department and University regarding mushroom cultivation in Dakshin Dinajpur district of west Bengal has been resolved on 03.10.16.
2. MoU has been signed between University and CNG Agrochem Pvt. Ltd. In 12.09.16 on long term collaborative research using organic inputs for livelihood improvements of local farmers.
3. MoU has been signed between UBKV and Petrolium Conservation Research Association (PCRA) on 05.08.16 for conducting research on bio fuel.
4. Liaison has been formed with Patent Information Centre, West Bengal State Council of Science & Technology for filing patents for different indigenous technologies developed by the University.

CENTRAL INSTRUMENTATION UNIT

A good number of instruments are available under Central Instrumentation Unit, UBKV. Following is the list of some of them with their activity status:

Sl. No	Instrument Name	Status (as on 07 Dec.2016)
1	Atomic Absorption Spectrophotometer	working
2	Autoclave	working
3	Automatic Solvent Extraction System. Model: SOCS Plus	working
4	Autotitrator	Not working
5	Bio-Flo Fermentor 110	Not working
6	Bio-photometer Plus	Not working
7	Can pressure Tester	working
8	CHNOS Analyzer	working
9	Centrifuge(Refrigerated), Model: 3K30	working
10	Cold Room, Established in the 2nd Floor	Not working
11	Colour Quest XE. Model: CQXE/SAV-2	Not working
12	Conductivity Meter	Not working
13	Digestion Unit	Not working
14	Dissolve O2 Meter	Not working
15	Electrophoresis Unit	Not working
16	Electroporator 2510	Not working
17	Flame Photometer128 with FPM Compressor126	Not working
18	Fruit Pressure Tester	working
19	Gel air Dryer	Not working
20	Gel Documentation System	Not working
21	Halogen Moisture Meter	working
22	High Performance Liquid Chromatography	Not working
23	High Precision Balance	working
24	Hybrilinker Model-HL2000	Not working
25	Ice Flaking Machine	working
26	Infra Red Gas Analyzer	working
27	Lab Oven	working
28	Lyophilizer Micro Modulo	Not working
29	Micro palate Reader	Not working
30	Microtome	working
31	Nitrogen Analyser	Not working
32	Particle Delivery System, PDS 1000/He	Not working
33	PCR (i cycler Thermal Cycler)	Not working
34	pH Meter	Not working
35	Platinum Crucible with Lid	Good condition
36	Rectangular Water Bath	working
37	Refrigerated Incubator Shaker, Model: C24KC	working
38	Rheometer	working

39	Rocker	Not working
40	Rotary Vacuum Evaporator	Not working
41	Rotary Vacuum Evaporator, IKA	Not working
42	SDS-PAGE unit	Not working
43	Sonicator	working
44	Spectrophotometer (Visi Scan)	Not working
45	Texture Analyzer	Not working
46	Thermal Property Analyzer. Model: KD2Pro	Not working
47	Thin Layer Chromatography Applicator (TLC)	Not working
48	Ultra Centrifuge	Not working
49	Ultra low Temperature Freeze (-86 ^{O}C)	Not working
50	Ultra Quartz double Distiller	Not working
51	Ultra sound homogenizer	working
52	Ultrasonic Homogeniser	working
53	UV-Vis Spectrophotometer, Model: Lambda 25	Working/ Not working
54	UV2 Sterilizing PCR Work Station	working
55	Vacuum Blotter	Not working
56	Vacuum Regulator	working
57	Viscometer	working
58	Water Activity Meter	working

GLOBAL SUPPORT

Sl. No	Grant agency	Title of the project	Duration	Amount in lakh
1.	Australian Centre for International Agricultural Research	Sustainable and resilient farming systems intensification in Gangetic Plains. (PI: Prof. A.K. Chowdhury)	7 years (2012-18)	AUD 463732

Salient outcome:

The resource conservation through zero tillage in three different cropping seasons, intercropping and managing the whole agricultural system through improved value chain and dissemination of new farming system information through Innovation Platform, cooperative farming, leasing of water are the key research outcomes. The technology has been validated in more than 6500 farm families with 19.5% women headed households within three years in Coochbehar and Malda districts.

The salient outcomes of the participatory trials are as follows:

- Increased crop productivity (4-6 %)
- Increased profitability (15-40%)
- Technological Edge (50%)
- High water productivity
- Varietal Shifts
- Better Nutrient Efficiency
- Higher Energy/Fuel Efficiency (0.83-0.96 q/l diesel)
- Low environmental footprints (70-80%)
- Lower nutrient loss
- Lower effect of climate change and vagaries (20%)

Publication :

i) Chowdhury,A.K., Bhattacharya,P.M, Santra,A and T.Dhar (2017).Effect of Conservation agriculture based rice-wheat cropping system on sheath blight and spot blotch diseases in Eastern India. J Mycopathol Res.54:543-545.

ii) Das, K. K., Bhattacharya, P. M., Ghosh, A, Dhar, T., Pradhan, K., Chowdhury, A. K., Joshi, P. K., Gathala, M. K. (2016). Characterization of research nodes: an integrative approach through indexing. *International Journal of Bio-resource and Stress Management* 7:1083-1092.

iii) Chowdhury,A.K., Bhattacharya,P.M., Mukherjee,P.K, Dhar,T and Sinha,A (2014). Conservation agriculture packages in subsistence farming system of eastern India. CASH Conference, Bangladesh 152-54.

iv) PK Mukherjee, PM Bhattacharya and AK Chowdhury (2012).Weed control in Wheat (*Tritium aestivum*L.) under *terai-agro ecological* region of West Bengal. *Journal of Wheat Research*, 4: 45-49. (Cited 2)

2.	CRP, CGIAR	Spot blotch of wheat: delivering resistant wheat lines and diagnostics and molecular markers for resistance. Co.PI: Prof. A.K. Chowdhury &Dr.P.M.Bhattacharya	4 years (2012-2017)	15000 USD/year

Salient outcome:

- The researches on deciphering phytohormone signalling in modulation of resistance to spot blotch disease of wheat have been carried.
- Epidemiology of spot blotch in wheat was worked out which indicated that delayed sowing changes the physiology and microclimate of the crop. A positive relationship with canopy temperature and negative relationship with stay green property was found.
- Linear correlation between spot blotch severity with maximum temperature, minimum temperature, sunshine hours and evapo-transpiration was established.

Publication:

i) Saxesena, R.R, Mishra,V, Chand,R, Kuravadi,N, Chowdhury,A.K.,Bhattacharya,P.M., Kumar,U and Joshi,A.K. (2017). SNPs discovery using RNA-seq approach and development of diagnostic markers for spot blotch resistance in bread wheat (Triticum aestivum L.) Frontiers in Genetics (Accepted).

ii) Sahu, Ranabir; Sharaff, Murali; Pradhan, Maitree; Sethi, Avinash; Bandopadhyay, Tirthankar; Mishra, Vinod; Chand, Ramesh; Chowdhury, Apurba; Joshi, Arun; Pandey, Shree(2016). Elucidation of defense-related signaling responses to spot blotch infection in bread wheat (Triticum aestivum L.) *The Plant Journal* 86:35-49.

3.	ICARDA	Increasing food legumes production by small farmers to strengthen food and nutritional security through adoption of improved technologies and governance within south-south cooperation. (PI: Prof. A.K. Chowdhury)	5 years (2012-17)	42 lakhs

Salient outcome:

- After going through *in vitro* and *in vivo* selection for lentil specific phosphate solubilizers, two strains were identified.
- Under Teraiagro-climatic region, optimum nitrogen requirement is 30 kg/ha and bioinoculation can substitute 10 kg N/ha.
- In lentil, if the incremental dry matter due to any nutritional supplement is translocated towards shoot, the yield penalty is observed and highest yield may be achieved when partitioning is around 50%..
- Differential response of lentil genotypes generates a scope for selection of bioinoculation responsive varieties for different agro-climatic regions. In northern parts of West Bengal, two genotypes namely BM6 and K75 may be utilized for higher productivity.
- Zero tillage and surface seeding in lentil recorded 26% higher yield and 14% less cost of production as compared to conventional tillage.
- Integrated crop management on ZT lentil has been standardized.

Publication:

i) Developed 5 technical bulletins

4.	CIMMYT, USAID AND BMGF	Cereal system Initiative for South Asia (CSISA) objective 4 as CC P.I.: Prof. A.K. Chowdhury	6 years (2009-15)	15000 USD

Salient outcome:

- Out of 15 entries, 8 entries have been cleared by IPPSN and 2 entries ranked 2nd and 6th in NIVT, 2016

Publication:

- Pawan K. Singh, Yong Zhang, Xinyao He, Ravi P. Singh, Ramesh Chand, Vinod Mishra, Paritosh K. Malaker, Mostofa A. Reza, Mokhlesur Rahman, Rabiul Islam, Apurba K. Chowdhury, Prateek M. Bhattacharya, Ishwar K. Kalappanavar, and Arun K. Joshi (2015). Development and characterization of the 4th CSISA-spot blotch nursery of bread wheat, *European Journal of Plant Pathology*. DOI 10.1007/s10658-015-0712-x.
- Ramesh Chand, Vinod Kumar Mishra, Om Prakah Yadav, Himanshu Tiwari, ShiwarttanGupt, Apurba Kumar Choudhary, Prateek Madhav Bhattacharya, Rajiv Kumar, Paritosh Kumar Malaker and Arun Kumar Joshi (2017). Differential reaction of wheat spot blotch pathogen *Bipolarissorokiniana* in south Asia. *European J of Plant Pathology*.

5.	CIMMYT, USAID AND BMGF	Improving water use for dry season agriculture by marginal and tenant farmers in the Eastern Gangetic Plains P.I.: Dr.Rupak Sarkar	Project code: LWR/2012/079

Activity report:

- Assessment of the performance of irrigation management practices at intervention sites including monitoring of groundwater and pond resources, water balance assessments, efficiency tests of pumping and irrigation infrastructure.
- Analysis of land tenure, gender and institutions and policies including analysis and reporting from focus group and community discussions, surveys and questionnaires.
- Comparative research on institutional aspects of water use in Bangladesh, investigating innovations in groundwater management.
- Planning and assessment of social and biophysical interventions at 30 pilot sites across 10 villages in Saptari (Nepal), Madhubani and Cooch Behar (India) and NW Bangladesh including establishment and operation of collective farming groups, evaluation of gender impacts and assessment of economic performance of cropping systems and practices for irrigation and water management.
- Planning and piloting irrigation and water resource management options in collaboration with farming communities and evaluation in terms of technical performance and social and institutional engagement.
- Development of interactive tools to support farmer and advisor engagement and, in particular, data collection and evaluation.
- Engagement, capacity development and training to drive participatory action research for community development.
- Evaluation of collective farming groups and sites in terms of social and institutional impacts and technical performance (water and irrigation management and crop production and economics).

LIST OF SPONSORED PROJECTS FOR TESTING/CERTIFICATIONS/CONSULTANCIES:

Sl.No	Title of the project	Principle Investigator	Sponsored by	Total Fund
01.	Bio Efficacy Phytotoxicity and Residue analysis of some Herbicides & Chemical in different crops.	Dr.Parthendu Poddar	Willow Wood Chemicals Pvt. Ltd	22 ,75, 000.00
02.	To evaluate the bio-efficacy of Monocrotophos 36% SL against insects pests of Tea.	Dr.BiplabTudu	UPL	2, 34, 000.00
03.	To evaluate the bio-efficacy of Monocrotophos 36% SL against insects pests of Chilli	Dr.BiplabTudu	UPL	2, 34, 000.00
04.	Study on Bio –Efficacy, Pytotoxicity and residue analysis of Tolfenpyrad 15% EC in vegetable crops.	Mr. Biswajit Patra	Coromondal International Pvt.Ltd.	1, 89, 000.00
05.	To evaluate the bio efficacy and phytotoxcity of GlufosinateAmonium 13.5% SL against weed flora of Tea.	Dr.ParthaSarathi Patra	UPL	1, 10, 500.00
06.	Evaluated on Bio-efficacy and phytotoxicity of flubendiamide 480 SC against looper in tea.	Mr. Biswajit Patra	Bayer Crop Science Ltd	3, 00000.00
07.	To evaluate the bio efficacy and Phytotoxicity of new fungicide “juniper” against disease on Paddy.	Dr. Satyajit Hembram	SwalCoporation Ltd. Mumbai	2, 34, 000.00
08.	To evaluate the bio efficacy and Phytotoxicity of new fungicide “juniper” against disease on Chilli.	Dr. Satyajit Hembram	Swal Corporation Ltd. Mumbai	2, 34, 000.00
09.	Bio-efficacy data generation of clethodin 25% EC on Soybean crop.	Dr. Shyamal Kheroar	M/S- Krishi Rasayan Exports	3, 90, 000.00
10.	Study on Efficacy of Some Herbicides in Rice.	Dr.Parthendu Poddar	DOW Agro Science India Pvt. Ltd	8, 32, 000.00
12.	Bio –efficacy and phytotoxicity analysis of Emamectin Benzoate 1.9% EC AGAINST Boll Warms (*Helicoverpaarmigera*) in Cotton Crops.	Dr.Joydeb Ghosh	Willow Wood Chemicals Pvt. Ltd.	
13.	Evaluation of the bio-efficacy of phoskill (Monocrotophos36% SL) against insect pests of Brinjal and Onion	Dr.Suprakash Paul	UPL Pvt.	4, 68, 000.00

14.	Evaluation of the Bio-efficacy of Phoskill (Monocrotophos 36% SL) against insects pests of okra	Mr. Debanjan Chakraborty	UPL Pvt.	11, 86, 000.00
15.	Evaluation of Bio-efficacy and phytotoxicity of monocrotophos 36% SL against Mosquito bug Thrips and Jassids on Tea	Mr. Biswajit Patra	UPL Pvt.	2, 50, 000.00
16.	To evaluate the bio-efficacy and phytotoxicity of UPF 115 against disease complex in Chilli.	Mr. Rakesh Yonzone	UPL Pvt.	3, 12, 000.00
17.	To evaluate the bio-efficacy and phytotoxicity of UPF 115 against disease complex in paddy.	Mr. Ali Azgar	UPL Pvt.	3, 12, 000.00
18.	Evaluation of Insecticides again Insect pests of Brinjal and Okra	Dr.NripendraLaskar	FMC India Pvt.	4, 69, 000.00
19.	Study on Bio-Efficacy, phytoxcity and residue analysis of herbicides in crop and non-cropped area.	Dr.Parthendu Poddar	Coromondal International Limited	2, 60, 000.00
20.	Residue Analysis of Buprofezin 20% + Acetamiprid 2% WP on Rice	Dr. Somnath Mandal	M/S- Krishi Rasayan Exports Pvt.Ltd	7, 48, 800.00
21.	Residue Studies of some Pesticides in different crops.	Dr. Goutam Kumar Pandit	Willowood Chemicals Pvt. Ltd.	10, 29, 000.00
22.	Residue Analysis of Cyhalofopbuty 10% EC in direct seeded Rice	Dr. Somnath Mandal	M/S- Krishi Rasayan Exports Pvt.Ltd	3, 74, 400.00
23.	Study on Efficacy of some Insecticides	Dr. Md. Wasim Reza	Dow AgrosPvt. Ltd	10, 50, 000.00
24.	To evaluate the bio efficacy and phytotoxcity of glufosionate Ammonium 13.5% SL against weed flora of Tea.	Dr. Shyamal Kheroar	M/S- Krishi Rasayan Export	5, 00000.00
25.	To evaluate the bio-efficacy and phytotoxicity of Buprofezin 20% + Acetamiprid 2% WP against BPH, GLH and WBPH on rice.	Mr. Prahlad Sarkar	M/S- Krishi Rasayan Exports Pvt.Ltd.	3, 90, 000.00
26.	To evaluate the effect of Triacontanol 0.1% EW on Yield and its phytotoxic effect in relation to health on tea bushes.	Dr.Puspendu Dutta	M/S Godrej Agrovet. Mumbai	4, 55, 000.00
27.	To evaluate the bio efficacy and Phytotoxicity of cyhalofop-butyle 10% EC against weed flora in direct seed rice.	Dr.ParthaSarathi Patra	M/S- Krishi Rasayan Exports Pvt.Ltd.	3, 90, 000.00

28.	To evaluate the bio-efficacy of gluphosinate ammonium 13.5% SL against weed flora in Tea	Dr.ParthaSarathi Patra	United Phosphorus Limited	1, 30, 000.00
29.	Bio –Efficacy, phototoxicity and residue studies of some fungicides on different crops.	Dr. Sekhar Bandhyapadhyay	Willow Wood Chemicals Pvt. Ltd	4, 50, 000.00
30.	Bioefficacy, Phytotoxcity and residue study of Copper Oxychloride 47% + Metalaxyl 8% WP in Potato.	Dr.SurajitKhalko	Agro Life Science Corporation	2, 34, 000.00
31.	Evaluation of Bio- efficacy, Phyto-toxicity and residue of Cyazafamid 34.5% SC on Potato and tomato Crops.	Dr. Satyajit Hembram	M/S- Krishi Rasayan Exports Pvt.Ltd.	3, 90, 000.00
32.	Bio-efficacy phyto-toxcity of Dichlorvos 76% EC on Paddy & Wheat	Mr.Prahlad Sarkar	Agro Life Science Corporation	1, 95, 000.00
33.	To evaluate the bio-efficacy and phytotoxicity of Butachlor 50% EC against weed flora in transplanted rice.	Dr.ParthaSarathi Patra	M/S Krishi Rasayan Export Pvt. Ltd.	97, 500.00
34.	To evaluate the bio-efficacy and phytotoxicity of Pyrazosulfuran Ethyl 70% WDG against weed flora in transplanted rice	Dr.ParthaSarathi Patra	M/S Krishi Rasayan Export Pvt. Ltd.	1, 95, 000.00
35.	To evaluate the Bio-efficacy and phytotoxicity and Residue analysis of Tricyclazole 75% WP on paddy	Dr.SurajitKhalko	M/S Agro Life Science Corporation	97, 500.00
36.	Study on Efficacy of some Herbicides in Wheat	Dr.Parthendu Poddar	Dow Agro Sciences India Pvt. Ltd.	8, 32, 000.00

Photo Gallery

Certificate
Plant Germplasm Registration

It is certified that germplasm TCP-129 of Turmeric (INGR16033) developed by

Soumendra Chakroborty, JC Jana, S Bandopadhaya, Anamika Debnath, Suchand Datta, MK Roy and Samsul Haque

Uttar Banga Krishi Viswavidyalaya (UBKV), Pundibari, Cooch Behar, West Bengal

has been registered by Plant Germplasm Registration Committee (PGRC) of Indian Council of Agricultural Research on September 1, 2016

Member-Secretary
PGRC

Chairman
PGRC & DDG (CS), ICAR

Visit of Dr. Ms. Indu Sharma,Project Director, ICAR-IIWBR, 2015

Visit of Project Dr. S.K. Dutta, DDG-Crop Science, 2015

Visit of Dr. A.K. Joshi, CIMMYIT, Nepal, 2016

Visit of Prof. P.K. Gupta, Chairman, QRT Team, 2015


NP(JA) 7.10 (Modified) Integrated Weed Management in jute


08/07/2016


08/07/2016


NP(JB)5.31+AVT-II with capsularis Jute
08/07/2016


08/07/2016


ALL INDIA NETWORK PROJECT
ON

Pictorial representation of Success stories. A) Nutritional pond; B) Plot of floating rice; C) Double trier (lentil and mustard) system of growing of relay crop in rice field; D) WINNER- Winter nursery for rice; E) Spin gourd developed by farmer.

Directorate of Extension Education

BACKGROUND :

Northern region in the state of West Bengal endowed with three distinctly pronounced agro-climatic zone namely, Terai, Old Alluvial and Hill, is comprised of eight districts i.e., Cooch Behar, Jalpaiguri, Alipurduar, Darjeeling, Kalimpong, Uttar Dinajpur, Dakshin Dinajpur and Malda. The region is better known for its historical background, cultural & language ethnicity and socio-political back up. Agriculture in general is said to be backward and benefits of improved package of practices of agriculture and allied sectors have percolated very slowly down to the ground level resulting in overall retarded growth rate in the sector. The erstwhile satellite campus of only State-aided Agricultural University, Bidhan Chandra Krishi Viswavidyalaya with its Headquarter at Mohanpur, Nadia that had emerged as North Bengal Campus with location at Cooch Behar was established at 1979. The Campus had tried its level best to play an active role in changing the attitude of farming folk towards adapting them to the modern diversified and market driven agriculture. Later, the said campus is upgraded to a full-fledged University in the year 2001 sensing the need and gravity of dissemination of technology down to the ground level. The University had owned the privilege to activate its extension function through one Remandated Krishi Vigyan Kendra supported by the ICAR at main campus at Pundibari, Cooch Behar since its very inception. As the periphery of work by the Remandated ZARS-KVK was confined only for one districts, the Cooch Behar, the University made an effort to establish an Extension Education Organization in accordance with the provision of its Uttar Banga Krishi Viswavidyalaya Act, 2000 in order to facilitate its extension activities in all the Northern districts under its geographic jurisdiction utilizing the available manpower & manpower in RRS system. Accordingly, the Directorate of Extension Education was established since its inception in 2001 to cater the 'research & extension' need of the entire state with special emphasis on its Northern districts. The functioning of the directorate is administered by University Extension Education Council.

Uttar Banga Krishi Viswavidyalaya with full support of ICAR is running five KVKs for the districts of Cooch Behar, Darjeeling, Dakshin Dinajpur, Uttar Dinajpur and Malda. These five KVKs one each for the northern districts of West Bengal under the jurisdiction of the university have been engaged in transfer of technologies for boosting up the present productivity level of food grains and other commercial crops/ livestocks as well as improve and sustain the contribution of agriculture to GDP, continuous efforts to take newer and tested technologies to the farming communities of the northern part of West Bengal.

1. Functions (from Act and Statute) :

After contemplating the need of the technology dissemination and socialization, the Directorate of Extension Education had been

established with a mandate for undertaking extension work of the research findings generated from the scientific niche of the University which would complement and extrapolate the existing extension efforts of the various line departments of the State.

The Krishi Vigyan Kendras under the Directorate of Extension Education were established with main objective is technology assessment, demonstration for its application, and capacity development. Krishi Vigyan Kendra is to be need-based, problem-oriented and skill- oriented training programme through ***work experience*** to transfer sufficient skill to the farmers to bridge the gaps between the technologies produced by the research scientists at the research stations to increase agricultural production.

2. Infrastructure and facilities :

(a) Agricultural Technology Information Centre (ATIC) including a 360 seated Air-conditioned Auditorium and a Museum.
(b) Another Air-conditioned Auditorium (Vivekananda Auditorium) with 120 seats
(c) Central Farmers' Hostel with rooms for VIPs and a Air-conditioned Conference Hall (100 accommodations)
(d) A Mobile diagnostic Van with soil and water analysis facility.

3. Policy making on Extension activities :

University extension education policies are drawn by the Extension Education Council of the University and KVK level technical programmes are drawn by the Scientific Advisory Committee (SAC) of each KVK.

3.1 About Extension Education Council :

A) Formation and Function of the University Extension Education Council

In order to administer the overall extension function, there remains a provision of forming a University Extension Education Council by the University. The Extension Education Council of the University is a Statutory and policy making body on agricultural extension education in the University consisting of the Vice Chancellor as Chairman, the Director of Extension Education as Secretary with a good number of external and internal members. The Extension Education Council is to meet at least twice in a year to review the extension activities, discuss and finalize the policy issues on extension.

B) Functions :

- To supervise, direct and control all extension activities of the University
- To draw and approve the extension education and training programmes for execution through extension wings and Krisihi Vigyan Kendras and to review and monitor the extension activities of the University
- To compile annual reports of extension wings and Krishi Vigyan Kendras and to prepare each year annual report on extension activities of the University and submit it to the Executive Council.
- To consider and review the financial requirements for extension programmes and prepare annual budget for extension activities of the University approved by the Executive Council.
- To make proposal to the Executive Council on different plans and measures for improvement and promotion of extension education and training programnes maintained by the University.
- To make provisions for the publication of extension news-letters, bulletins, and periodicals from time to time for providing updated knowledge on technology development in agriculture and allied sciences to the farmer community.

3.2 About SAC meeting, Number date etc. no. of SAC meeting held in the year 2016-17 and 2017-18 :

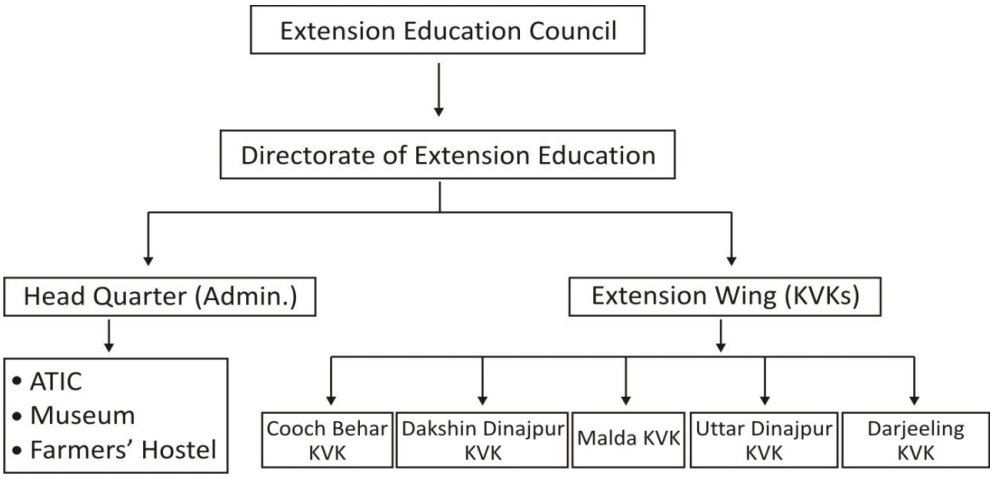
Scientific Advisory Committee is the highest level technical committee in Krishi Vigyan Kendra which is composed of the following members.

Vice-Chancellor	Chairman
Director of Extension Education	Member
Director of Research	Member
Director/ Representative, ICAR-ATARI	Member
Heads of the districts of the line departments	Members
Manager, Lead Banka and DDM, NABARD	Member
Representative of Doordarshan and AIR	Members
General Manager, District Industries Centre	Member
District Project Officer, ICDS	Member
Representative of local ICAR Institute	Member
Two Farmers Representative	Member
Two Farm Women Representative	Member
Representative of the lead NGO of the district	Member
Senior Scientist and Head of KVK	Member-Convener
Deans, Directors, HODs of University and Senior Scientist and Head of other KVKs under the University	Invitee Member

SAC Meeting held in the year 2016-17 and 2017-18

Name of KVK	Year	No.	Date
Cooch Behar	2016-17	-	-
	2017-18	1	22.12.17
Dakshin Dinajpur	2016-17	--	-
	2017-18	-	-
Darjeeling	2016-17	--	-
	2017-18	-	-
Malda	2016-17	1	17.12.16
	2017-18	1	04.08.17
Uttar Dinajpur	2016-17	1	14.12.16
	2017-18	1	23.08.17

4. Organisational structure and staff structure:



Staff Structure of Directorate of Extension Education at Head-quarter :

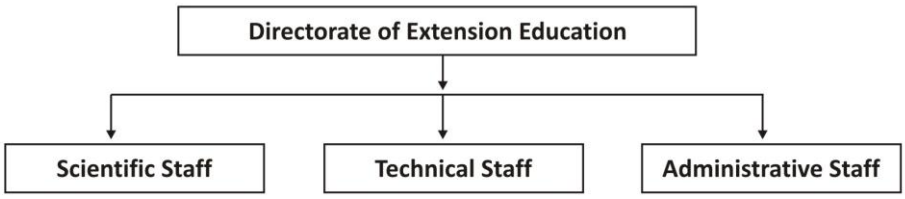
- Director of Extension Education
- Deputy Director of Extension Education
- Subject Matter Specialist/Assistant Director of Extension Education (04)
- Assistant Journalist cum Editor
- Assistant Information Officer
- Artist-cum-Audio Visual Technician
- Visual Technician
- Extension Assistant
- Junior Assistant
- Junior Store Keeper
- Junior Peon
- Cook
- Village Worker
- Junior Stenographer
- Junior Superintendent
- Junior Darwan

5. Krishi Vigyan Kendras (Mention only Name, Address, organisational pattern, staff positions and mandate of KVK :

5.1 Name of the KVKs and Address :

Name of the KVK	Address
Cooch Behar KVK	Pundibari, Distt. -Coochbehar-736 165
Darjeeling KVK	Kalimpong Distt.- Darjeeling-734 301
Malda KVK	Block Seed Farm PO.-Ratua (Manik Chowk),Distt.-Malda-732 205
Uttar Dinajpur KVK	Block Seed Farm Chopra, Distt.-Uttar Dinajpur-733 216
Dakshin Dinajpur KVK	Regional Research Station, Old Alluvial Zone Majhian, PatiramDistt. Dakshin Dinajpur-733 133

6.3 Organisational of KVKs :



6.4 Staff position of KVKs :

Sl. No.	Name of the post	Number of Sanctioned Post	Present	Vacant
1.	Senior Scientist cum Head	5	3	2
2.	Subject Matter Specialist	30	22	8
3.	Farm Manager	5	3	2
4.	Programme Assistant (Computer)	5	5	-
5.	Programme Assistant (LabTechnician)	5	4	1
6.	Assistant	5	5	-
7.	Stenographer	5	3	2
8.	Driver	10	9	1
9.	Skill Support staff	10	9	1
	Total	**80**	**63**	**17**

Mandate of KVKs :

Single window knowledge resource centre for providing one stops technological soultions to farmers and other stake holders for faster technology dissemination in the district.

Activities of KVK :

- To conduct ON Farm Testing (OFT) to identify agricultural technologies in term of location specific sustatible land use system under various farming situation.
- To organize short and long term vocational training in agriculture and other vocations for the practising farmers, farm womens & rural youths for higher production & generating self-employment.
- To organize Front Line Demonstration on various crops to generate production data and feedback information.
- To organize training to update extension personnel on frontiers in agricultural research & development on regular basis.
- To produce and supply quality seeds and planting materials for farming community along with organization of various extension activities to disseminate technology across the system
- Beside these KVK works as a knowledge and resource centre of agriculture technologies for supporting farmers in improving their agricultural production and livelihood.

1. Extension Activities undertaken (2016-17 to 17-18) :

Extension activities

Nature of Extension Activity	No. of activities	Farmers			Extension Officials			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total

Field Day	157	3032	481	3513	50	20	70	3082	551	3633
Kisan Mela	13	32513	11155	43668	370	55	425	32883	11210	44093
Kisan Ghosthi	16	442	41	488	50	10	60	497	51	548
Exhibition	33	17278	4302	21580	150	25	175	17428	4327	21755
Farmers Seminar	22	2605	702	3307	44	10	54	2649	712	3361
Workshop	12	183	72	255	40	10	50	223	82	305
Group meetings	230	8054	402	8456	80	10	90	8134	412	8546
Lectures delivered as resource persons	190	4008	754	4762	50	10	60	4058	764	4822
Scientific visit to farmers field	2360	2228	251	2479	0	0	0	2228	251	2479
Farmers visit to KVK	28520	24054	4442	28526	0	0	0	24054	4472	28526
Diagnostic visits	1667	1600	114	1714	40	8	48	1640	197	1837
Exposure visits	80	1925	325	2250	80	10	90	2005	335	2340
Ex-trainees Sammelan	10	224	60	284	12	4	16	236	64	300
Soil health Camp	15	3000	150	3150	35	4	39	3035	159	3189
Animal Health Camp	10	2060	150	2210	10	2	12	2070	152	2222
Agri mobile clinic	30	870	244	1114	35	7	42	905	251	1156
Soil test campaigns	10	215	60	275	15	6	21	230	66	296
Farm Science Club Conveners meet	30	750	150	900	14	02	16	764	152	916
Self Help Group Conveners meetings	25	00	250	250	04	02	06	04	256	260
Celebration of important days (World Environment Day, World Soil Day, Mahila Kisan Diwas, Framers Day, Fish Farmers Day, World coconut Day World Food Day, International Nutritional Week etc.)	80	16040	4500	20540	120	24	144	16160	4524	20684
Rabi kishan Sammelan	10	7253	2402	9655	75	27	102	7328	2429	9757
Swaccha Bharat Aviyan	95	2728	223	2951	143	17	160	2871	240	3111
Any Other (Specify)										
Total	33,615	1,31,062	31,230	1,62327	1417	263	1680	1,32,484	31,657	1,64,136

Other Extension activities :

Nature of Extension Activity	**No. of activities**
Newspaper coverage	10
Radio talks	04
TV talks	07
Popular articles	10
Extension Literature	20
Total :	**51**

7.1 Training 2016 -17 & 2017-18 :

Year	Number of training	SC	ST	Others	Total	Total		
						M	F	T
2016-17	508	4892	2042	8612	15546	10390	5156	15546
2017-18	541	5689	2360	9654	17703	11709	5994	17703

7.2 OFT :

Cooch Behar KVK (2017-18) :

Title of OFT	Problem addressed

Assessing the efficacy of water productivity under different system of *Boro* paddy cultivation	Low productivity of irrigation water in boro paddy, high irrigation cost and excessive lifting of underground water
Effect of source and mode of NPK application on maize	Poor and imbalance use of major nutrient
Evaluation of suitable variety of jute under zero tillage condition in Terai Region of West Bengal	Low/stagnant productivity of jute
Evaluation of suitable module against *Exserohilum turcicum* causing northern corn leaf blight disease	Northern corn leaf blight infestation (*Exserohilum turcicum*)
Assessment of suitable strategy against melon fruit fly	Low productivity of bottle gourd
Assessment of suitable method of turmeric cultivation	Large requirement of planting material, moderate crop stand and delayed rhizome development (five months after planting)
Assessment of suitable method of cultivation of Lentil in North Bengal Region of W.B	Low productivity of Lentil
Effect of surfactant on irrigation requirement of *boro* paddy in *Terai* flood plains	High or excessive irrigation requirement for cultivation of *boro* paddy
Effect of balanced NPK application on maize	Poor growth and grain formation in maize
Effect of modified technology on profitable production of early cabbage in Terai flood plains	High rainfall and high water table coupled with hot humid weather is congenial for infestation of several rotting pathogen that leads to poor yield performance
Impact of different extension mechanisms for the selection of beneficiaries on technology dissemination process among the women farmers of Terai Zone	Low percentage of adoption of new technology through existing extension mechanism of beneficiaries selection

2016-17 :

Title of OFT	Problem addressed
Effect of N application through alternative sources on kharif rice	Low recovery of N by rice applied through chemical fertilizer
Effect of balanced NPK application on maize	Poor growth and grain formation in maize
Effect of improved protection technology on productivity of lentil	Low productivity of lentil due to infestation of soil borne pathogens
Assessment of efficacy of different Plant Protection chemicals against late blight of potato	Instable production due to high infestation of disease
Assessment of efficacy of different Plant Protection chemicals against late blight of potato	Instable production due to high infestation of disease
Effect of surfactant on irrigation requirement of *boro* paddy in *Terai* flood plains	High or excessive irrigation requirement for cultivation of *boro* paddy
Effect of surfactant on irrigation requirement of *boro* paddy in *Terai* flood plains	High or excessive irrigation requirement for cultivation of *boro* paddy
Assessment of suitable improved variety of	Low yield potential of age old local

Title of OFT	Problem addressed
garlic against local check	cultivar
Effect of modified technology on profitable production of early cabbage in Terai flood plains.	High rainfall and high water table coupled with hot humid weather is congenial for infestation of several rotting pathogen that leads to poor yield performance.
Impact of different extension mechanisms for the selection of beneficiaries on technology dissemination process among the women farmers of Terai Zone	Low percentage of adoption of new technology through existing extension mechanism of beneficiaries selection
Impact of different extension mechanisms for the selection of beneficiaries on technology dissemination process among the women farmers of Terai Zone	Low percentage of adoption of new technology through existing extension mechanism of beneficiaries selection

DAKSHIN DINAJPUR :

Title of OFT	Problem addressed
Evaluation of suitable herbicide for controlling weeds in kharif transplanted rice in OAZ	Poor production of kharif rice due to heavy infestation of various kinds of weeds during kharif season due to favourable weather condition.
Assessment of effect of vermicompost and farm yard manure on performance of cauliflower	Indiscriminate use of chemical fertilizer reduces the taste as well as yield of cauliflower. Moreover this practice also reduces the soil fertility. For increasing soil fertility status as well as yield and taste of cauliflower use of organic manure like FYM and vermicompost may have some great role.
Effect of planting dates on performance of onion in old alluvial zone of West Bengal.	High Yield and good quality bulb production of onion depends upon various factor, dates of sowing is one of the most important parameter which directly affect it. Most of the farmer gets very low yield and quality due to improper selection of planting dates. They get confused about the planting dates to produce maximum yield and quality bulb.
Assessment of Effect of different feed management of earthworms to improve the nutritional quality of vermicompost	Vermicomposting is a useful venture for rural livelihood. The quality of the vermicompost is a matter of concern as the organic matter vary in composition and the raw material especially the cow dung is not much available to farmers. Besides the nutritional quality especially for P_2O_5 and K_2O percentage doesn't meet the standards of Fertilizer Control Order 2013, i.e. $N:P_2O_5:K_2O$ :: 1:0.8:0.8 % which might be problem for commercial production.
Assessment of Integrated plant nutrient supply system (IPNS) in Aman rice using different organic sources of plant nutrients	Indiscriminate use of fertilizers ignoring the fertility status of the soil

Title of OFT	Problem addressed
Assessment of eco-friendly techniques to reduce fruit and shoot borer of brinjal for higher production	Fruit and shoot borer of brinjal is the major problem of Dakshin Dinajpur District and it causes heavy losses of yield of brinjal (Average 50% yield loss)
Bee keeing with mustard cultivation for increasing productivity, income and perception of farmers in D Dinajpur district	Farmers have wrong notion that bee keeing may reduce the production of crop and they use pesticides and insecticide in day time that may causes mortality of honey bee and reduce the pollination activity.
Assessment of productivity of rice by controlling sheath blight of paddy in kharif season	Paddy cultivation area 70 thousand. Extent of disease infestation 40 %
Assessment of Magur (Clarias batrachus) culture with Indian major carps in pond	Pisciculture is a common practice of the farmers of Dakshin Dinajpur district belonging to the Old Alluvial Zone. But they do not follow any scientific management practice which gives them a very small return of about 8.5 q of fish/ha. Magur (Clarias batrachus) along with IMC may give more profit as compared to Culture of IMC alone
Assessment of effect of combination of commercial bleaching powder and urea as pesticide for killing unwanted fish in ponds	Use of highly toxic piscicide to kill the fish that is detrimental to human being
Assessment of Efficacy of Organic Fish Farming For Sustainability	Pisciculture is a common practice of the farmers of Dakshin Dinajpur district belonging to the Old Alluvial Zone. Commercial Fish culture of the district is characterized by high stocking density of fish, heavy use of commercial formulated feed containing synthetic product, antibiotic and other harmful pharmaceuticals products. This has led to imbalance in pond ecosystem, resulting in degradation of aquatic environment, leading to increased risk to human health. Organic fish production has been the current trend for maintaining sustainability in fish production
Evaluation of varietal adoptability of improved Duck breed in Dakshin Dinajpur district of W.B	Low productivity of indigenous duck with backyard farming practices
Assessment of cost effective measures for strategic control of Ecto-Endo-parasite in Bengal Goat for better productive performance	Poor productive performance of indigenous Bengal Goat in rural extensive farming practices

DARJEELING :

Title of OFT	Problem addressed
Cultivation and study of growth of oyster mushroom on different agricultural waste	Reduced yield of mushroom through traditional practices

Title of OFT	Problem addressed
substrate	
Varietal assessment of potato under Hill Agro-climatic situation	Poor quality potato tuber, low yields.
Assessment of Integrated management of rhizome rot in Ginger (*Zingiber officinale*) grown in Darjeeling Hills.	Decline in yield.
Production performance of Srinidhi poultry breed under backyard poultry farming system in hills.	Low production of local poultry under backyard farming
Preparation of low cost feed using local feed ingredients for pig	Low growth rate of pig and high mortality of piglet when fed with kitchen waste only under backyard farming system
Assessment of different system of housing for poultry under backyard farming in hills	Low production and high mortality rate of poultry under backyard farming system in hills.
Assessment of right heat sources for new born piglets during winter months to reduce mortality	High mortality of piglet during winters months under backyard farming system
Eco-friendly management of diamond back moth in cauliflower grown in Darjeeling Hills	Poor yield
Varietal assessment of potato under Hill Agro-climatic situation	Poor quality potato tubers , low tuber yields
Assessment of Integrated Nutrient Management of cauliflower (*Brassica oleraceae var botrytis*) in Darjeeling Hills	Decline in yield and poor quality curds
An assessment on various Dehydration Technologies for preservation of flowers and foliage	Traditional method of preservation of flowers and foliages

MALDA :

Title of OFT	Problem addressed
Assessment of growth and yield of Lentil (No till condition) with application of nutrients from different sources and different application methods	Low productivity of lentil
Assessment of productivity of Lentil by different Methods of Sowing in low-medium land situation of Malda	Low productivity and profit
Assessment of productivity and profit of different cropping system through Resource conservation Technology (RCT)	Low system productivity and profit
Assessment of productivity of tomato by controlling root knot nematode problem	Control of nematode problem
Efficacy of bio-products to increase the productivity of solanaceous vegetables by reducing the mortality of seedlings	Low productivity due to seedling mortality
Assessment by productivity of paddy through brownmanuring in low-medium land situation of Malda.	Low productivity and soil fertility
Varietal Evaluation of garlic to assess the productivity	Varietal replacement to increase productivity
Effect of foliar nutrient application on inflorescence development and fruit setting of mango	Low inflorescence development causing low production
Assessment of performance of Turmeric and Lime mixture in control of ulcer disease of Fish	Low Yield due to disease infestation
Assessment of performance of fibre enzyme as a growth promoter in composite fish culture to a profitable extent	Low fish production
Assessment of performance of probiotics in water quality & growth of Indian Major Carps (IMC	Control mortality and increase production
Assessment and effect of herbicide application on the maize crop productivity and profitability.	Low productivity and profitability
Effect of Arka Mango Special application on inflorescence development , fruit setting and fruit quality of mango	Low inflorescence development and fruit setting
To assess the productivity increase by using proper package of practices against fungal diseases (die back & anthracnose) of mango	Low fish productivity due to fungal disease

UTTAR DINAJPUR :

Title of OFT	Problem addressed
Integrated disease management of seedling blight of wheat	Seedling blight observed after 1st irrigation and plant mortality observed. After 1st irrigation yellowing colour symptoms appeared in wheat seedling and ultimately plant die due to heavy moisture in the soil.
Assessment of Integrated pest management of fruit fly in Cucurbitaceous crop (Cucumber/Gourd)	Fruit fly causes serious damage in Cucurbitaceous crops for last few years and yield reduces due to pest infestation specially in Cucumber, Gourd and bitter gourd

Title of OFT	Problem addressed
Assessment of nutritional supplement to enhance the production of oyster mushroom.	Average yield obtained by farmers is low compared as to potential yield as cited in literature and obtained by commercial growers.
Assessment of improved parboiling technology for quality enhancement of rice grain to increase consumer acceptability of scented and non-scented rice varieties of Uttar Dinajpur district.	Quality of parboiled rice grains is not up to the mark of consumer preference
Assessment of different management practices of weed control in pineapple	Vigorous weed growth, inadequate labour availability and huge expenditure due to manual weeding
Assessment of the turmeric processing techniques for better quality	Lack of knowledge of suitable curing techniques of turmeric for better color of turmeric powder upto the mark as per consumer choice.
Assessment of boron application to enhance the productivity of chilli	Lack of knowledge of proper scheduling of Boron application
Assessment of Integrated pest management of fruit fly in Cucurbitaceous crop (Cucumber/Gourd)	Fruit fly causes serious damage in Cucurbitaceous crops for last few years and yield reduces due to pest infestation specially in Cucumber, Gourd and bitter gourd
Assessment of nutritional supplement to enhance the production of oyster mushroom.	Average yield obtained by farmers is low compared as to potential yield as cited in literature and obtained by commercial growers.
Assessment of improved parboiling technology for quality enhancement of rice grain to increase consumer acceptability of scented and non scented rice varieties of Uttar Dinajpur district.	Quality of parboiled rice grains is not up to the mark of consumer preference
Assessment of different weed management practices in pineapple	Vigorous weed growth, inadequate labour availability and huge expenditure due to manual weeding
Assessment of the turmeric processing techniques for better quality	Lack of knowledge of suitable curing techniques of turmeric for better color of turmeric powder upto the mark as per consumer choice.
Assessment of boron application to enhance the productivity of chilli	Lack of knowledge of proper scheduling of Boron application
Assessment the efficacy of different organic manures on growth performance of IMC	Poor fish productivity in domestic pond under Mahananda Flood Plain farming situation of *Terai* zone
Assessment of Raikhar Bata (*C. reba*) as bottom dweller fish in polyculture system from conservation point of view	*Cirrhinus reba* is considered as minor carp of high market value and is often cultivated in ponds at very small scale. In many areas, however, the species is still exploited

Title of OFT	Problem addressed
	heavily from its wild populations. As a result the wild populations of this species is suspected to be a threatened

6.5 Front Line Demonstration (FLD) :

COOCH BEHAR KVK :

Title of FLD	Crop	Area Ha/Nos.	No.
Brown manuring (Dhaincha co-culture with rice + killing dhaincha at 25 DAS with 2,4 D @ 0.5 kg ha^{-1} + incorporation with paddy weeder at 35 DAS	Paddy	6	40
GB-I with 2/3 rd of STBR + 2 spraying of 2% urea, SSP and MOP at 20 & 40 DAT	Paddy	10	70
Replacement of existing variety with Swarna Sub-I	Paddy	10	70
Replacement of existing variety with Pratiksha	Paddy	10	50
Use of Zero tillage technology and replacing existing variety with DBW-39	Wheat	12	96
Variety, boron soil application + spray, yellow sticky trap	Rapeseed- Mustard (Toria B-54)	12	84
Variety, boron soil application + spray, yellow sticky trap	Rapeseed- Mustard (NC-1)	4	30
Varietal replacement, rhizobium inoculation, DAP & boron spray	Black gram (WBU 109)	8	60
Varietal replacement, rhizobium inoculation, DAP, boron spray & Zero tillage	Lentil (WBL 58)	8	60
Suitable variety, soil amelioration and bio-agent	Jute	24	180
Retting using black plastic and microbial consortia	Jute	30 nos.	30
Spraying with Dimethomorph 50% + Mancozeb 75% (superkat) @1.5 g /lit at 7-10 days interval	Potato	0.4	12
Use of *Kufri himalini* instead of *Kufri jyoti*	Potato	0.4	12
Application of VAM- 7 kg /ha + PSB - 5.5 kg / ha + RP – 60 kg / ha	Potato	4.6	28
Variety (J-1006) + nutrient management	Maize	2	12
Early cauliflower on raised bed under transparent polytunnel	Cauliflower	0.26	24
Introduction of HYV Elephant Foot Yam –Kavur and Amaranthus intercropping	EFY+ Amaranthus	0.24	16
Raising seedlings in pro-tray, soil correction (pH 6 to 6.5) and cultivation of organic manure (Dhaincha) before transplanting in the main field	Brinjal	1.44	16
Method of cultivation	Gladiolus	0.26	16

2016-17 :

Title of CFLD	Crop	Area Ha/Nos.	No.
Cluster frontline demonstration of kharif pulse Blackgram	Blackgram	20	102
Clustered frontline demonstration on rabi pulse Lentil	Lentil (Rabi)	20	70
Clustered frontline demonstration on rabi Field Pea	Fieldpea (Rabi)	20	42

Clustered frontline demonstration on summer pulse green gram	Green gram (Summer)	10	25
Clustered frontline demonstration on rabi oilseed mustard	Rapeseed & Mustard	30	70

2017-18 :

Title of CFLD	Crop	Area Ha/Nos.	No.
Clustered frontline demonstration of rabi and summer oilseed	Mustard	50.04	135
Cluster frontline demonstration of kharif pulse Blackgram	Blackgram	30	72
Clustered frontline demonstration on summer pulse green gram	Green gram (Summer)	20	39
Clustered frontline demonstration on rabi pulse Lentil	Lentil (Rabi)	50	167
	Rapeseed & Mustard	30	70

Category	Name of the technology demonstrated	No. of Farmer	No.of units	Major parameters		% change in major parameter	Other parameter		*Economics of demonstration (Rs.) or Rs./unit				*Economics of check (Rs.) or Rs./unit			
				Demonstration	Check		Demonstration	Check	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
Vermicompost	Low cost Production techniques of vermicompost	25(SC-12, ST-0, Oth-13)	25	5.68 q/yr	-	-	pH-7.01 OC-18.36% N-1.01% P_2O_5-0.61 % K_2O-0.70%	-	1740	3976	2236	2.29	-	-	-	-
Vermicompost	Production in concrete chamber	5 (SC-3, Oth-2)	5	7.60 q/yr	-	-	pH-7.12 OC-18.50% N-1.16% P_2O_5-0.64 % K_2O-0.72%	-	1960	5320	3360	2.71	-	-	-	-
NADEP compost	Production in concrete chamber	5 (SC-3, Oth-2)	5	8.54 q/yr	-	-	pH-6.80 OC-20.10% N-1.06% P_2O_5-0.64 % K_2O-0.72%	-					-	-	-	-
Azolla	Low cost Azolla production	29 (SC-16, ST-02, Oth-11)	29	35 kg / pit/ month	-	-	-	-	200	1250/ mon/ unit	1050	6.25	-	-	-	-

DAKSHIN DINAJPUR KVK :

Title of FLD	Crop	Area Ha/Nos.	No.
Zero tillage in paddy	Paddy	8.0	45
IPM in paddy	Paddy	20.0	70
Zero tillage in wheat	Wheat	18.0	135
SRI & Drum Seeder in paddy	Paddy	14.0	90
Use of LCC for optimizing rice yield & reduce nitrogen application.	Paddy	5.0	22
Improved variety of jute	Jute	14.0	80
Use of lime for soil amendment in jute	Jute	4	20
Use of pheromone trap in pointed gourd	Pointed gourd	6.0	67
Improved variety and cultivation techniques of broccoli	Broccoli	1.647	33
Improved variety and cultivation techniques of gladiolus	Gladiolus	0.074	6
Improved cultivation technique summer squash	Summer Squash	1.026	40
Improved variety and cultivation techniques of turmeric	Turmeric	1.184	22
Scientific Bee Keeping	Apis mellifera	25 boxes	10
Mushroom Cultivation	Oyester Mushroom	5000 spawn pckt.	70
Local available waste materials composting with earth warm (*Eisenia foetida*) for preparation of vermicompost	Vermicompost	16 unit	26
Breed upgradation of local poultry breed through cross breeding with RIR cock	Piggery	10 nos.	10
Improvement duckery practices	Duckery	28 nos.	28
Scientific poultry management practices	Poultry	05 nos.	05
Deworming and vaccination practices	Dairy Animals	376 nos.	376
Azolla cultivation for dairy & Poultry feed	Dairy feed mgmt	05 nos	05
Cultural management practice (liming)	IMC	0.849	07
Air breathing fish culture	Air breathing fish	0.579	12
Regular feeding with mustard oilcake & rice bran mixture(1:1) @ 3% of total stock	IMC	0.592	7
Culture of Raikhor Bata, C reba	Raikhor Bata, C reba	0.399	4
Air breathing fish culture	Culture of Singhi Fish (TSP)	0.133	04
Improved variety of lentil	Lentil	12.0	85
Boron application, cultivation practices &Improved variety of mustard	Mustard	28.0	100
Improved variety, cultivation practices of maize	Maize	5.0	36
Improved variety and cultivation techniques of zinger	Zinger	0.14	10
Azolla cultivation for nitrogen fixation & compost preparation	Azolla	10 unit	10

DARJEELING KVK :

Title of FLD	Crop	Area Ha/Nos.	No.
Nutritional Management of Darjeeling Mandarin NPK 300:250:300 g/pt B(250g), 50% FYM, 25% PM	Mandarin Orange	1	2
Disease management in ginger with Hot water treatment and application of bio agent	Ginger	0.14	2
Management of blight disease of Large Cardamom with 1% Bordeaux mixture	Large Cardamom	0.14	4
Formulation of low cost nutrition rich supplements	Nutrition	--	40
Production performance of Vanaraja	Vanaraja	--	30
Production performance of Hampshire	Hampshire	--	30
Area specific mineral mixture	Dairy	--	30
Grading up of local poultry breeds by RIR cock	Poultry	--	30
Grading up of local pig breeds by Hampshire breed	Piggery	--	30
Supplementation of iron to newborn piglet to check mortality due to piglet anaemia	Piggery	--	30
Disease management in ginger with Hot water treatment and application of bio agent	Ginger	0.6	14
Application of micronutrient and PGPR strain of *Bacillus amyloliquifaciens* (GRB 35) for growth promotion and disease control in ginger	Ginger	0.6	6
Application of micronutrient and PGPR strain of *Bacillus amyloliquifaciens* (GRB 35) for growth promotion and disease control in Turmeric	Turmeric	0.6	6
Nutritional Management of Darjeeling Mandarin (*Citrus reticulata*)	Mandarin orange	1	5
Varietal management of Gladiolus – Variety Candiman	Gladiolus	1	5
Nutritional management of Alstromeria	Alstromeria	0.10	3
Kitchen gardening for nutrition & food security	Season based vegetables	0.10	25
Cultivation of oyster mushroom on hot water treated substrate (straw)	Mushroom	--	6
Improved variety PS-28 compared with check B9	Mustard	1	30
Improved variety Piloo NG compared with check B9	Mustard	1	30
Varietal performance of IARI released improved variety PS-5	Paddy	0.50	20

MALDA KVK :

Title of FLD	Crop	Area Ha/Nos.	No.
Rice cultivation with green manuring (Dhaincha) in situ.	Rice	16.0	90
Zero Tillage Method as Resource conservation practices	Wheat	10	75
Jute sowing by Zero Till drill and herbicide use for weed control.	Jute	4.0	30
Hy. Variety and ZT Sowing (ZT Drill)	Maize	4.0	30
Improved cultivar Mohini	Ginger	0.5	15
Optimum sowing time	Black cumin	2.0	15
Package of practice	Blackgram	12.8	96
Variety (Sukhsagar)	Onion	0.40	10
Foliar application of Macro nutrients KNO3 & CaNO3.	Mango	2.0	10
Alkathene sheet and applying grease for mealy bug	Mango	1.3	10
Yellow trap against white fly in solanaceous vegetables	Brinjal	1.3	10
Seeding root treatment and soil application of OM and bio-products	Tomato	1.3	10
Vermi- bag	Vermi-composting	4.0	10
Fruit (Mango/Litchi/Lemon/Guava)	Orchard Development	1.0	30
Vegetables and fruits	Nutritional Garden	0.50	15
Honey Bee	Honey production	10	10
Low-cost Technology	Mushroom	04	14
Rice bran , Mustard Oil Cake, Mineral mixture, Fish meal,	Low cost fish feed	0.266	02
Magur, Singhi	Air breathing fish culture	0.233	02
RIR Birds	Introduction of RIR bird	04	20
Fodder demonstration for live stocks	Hybrid Napier, Cow pea, Barseem, Fodder maize	0.266	10
CFLD demonstration on Pulses	Black gram	20	40
CFLD demonstration on Pulses	Lentil	10	40
CFLD demonstration on Pulses	Bengal Gram	10	60
CFLD demonstration on oilseeds	Mustard	20	51
CFLD demonstration on oilseeds	Linseed	10	39

UTTAR DINAJPUR KVK :

Title of FLD	Crop	Area Ha/Nos.	No.
Use of bio-pesticide & Bio-fertilizer for disease management of rice. (*Trichoderma viride, Azotobactor,* PSB, *Azospirallium*)	Paddy	5	40
Varietal replacement of short duration of rice (from var. IET 4094 to var. Sahabhagi and var. MTU - 1010)	Paddy	30	120
Varietal replacement of long duration of rice (From var. 7029 to var. Pratikshya and var. Swarna Sub – 1)	Paddy	40	96
Zero tillage cultivation of Rice	Paddy	10	60
Establishment of permanent lime orchard	Lime	0.9	7
Establishment of permanent Guava orchard	Guava	1	8
Introduction of summer squash	Summer squash	0.7	25
Introduction of Broccoli	Broccoli	0.7	30
Varietal replacement of Mustard with special reference to IPM	Mustard	10	48
IPM of Brinjal fruit shoot borer	Brinjal	5	42
Varietal Replacement of Garden Pee	Garden Pee	0.2	11
Introduction of Strawberry	Strawberry	0.03	4
IPM of Brinjal fruit shoot borer	Brinjal	0.8	10
Improve cultivation of greengram	Greengram	10	30
IMP on fruit fly	Winter & summer vegetables	1	17

7.4 Other Programmes :

COOCH BEHAR KVK (2017-18) :

Name of the programme/scheme	Purpose of programme	Month of initiation	Funding agency	Amount (Rs.)
ATMA	Short term research	January, 2018	ATMA, Cooch Behar	2,20,000
	Demonstration	January, 2018	-do-	1,20,000
	Training	June, 2017	-do-	80,000
	F-S Interaction	November, 2017	-do-	80,000
	Strengthening of WFSG	December, 2017	-do-	40,000
	Farm School	August, 2017	-do-	88,242
	Communication	-	-do-	24,000
DAESI Programme	1 Yr. Diploma Course	November, 2017	SAMETI	8,00,000
MIDH (NHM)	Workshop-cum-seminar	March, 2018	Office of the DHO	2,00,000
FOCT	Training	December, 2017	Coconut Dev. Board	52,000
FOCT	Workshop	February, 2017	Coconut Dev. Board	40,000
DEE HRD Workshop	Review of KVK activities and knowledge uplift men of KVK staff	February, 2018	UBKV	2,60,000

Name of the programme/scheme	Purpose of programme	Month of initiation	Funding agency	Amount (Rs.)
Skill training for rural youth	Training programme	March, 2018	SAMETI, Narendrapur	84,000
Petroleum conservation	Awareness	November, 2017	Govt. of India	20,000
National Mission for Oil Seed and Oil Palm Promotion	Training and demo.	February, 2018	Govt. of India	1,59,000

COOCH BEHAR KVK (2016-17) :

Name of the programme/scheme	Purpose of programme	Date/ Month of initiation	Funding agency	Amount (Rs.)
ATMA	FFS, DC, Training, WFSG, F-F interaction	April, 2016	ATMA, CoochBehar	9,17,484
FOCT	Training	November, 2016	CDB	4,02,000
Technology Week, Training and project	Celebration of technology week, training and running project	April, 2016	NABARD	3,89,000
Skill training for rural youth	Training programme	December, 2016	SAMETI, Narendrapur	84,000
Seed production	Producing seed of fodder maize	December, 2016	ARD, GoWB	10,55,000
Petrollium conservation	Awareness			20,000
Capacity building of school drop out children	Training	May, 2016	LANDSEA	30,000
Capacity building of extension functionaries	Training	May, 2016	Loka Kalyan Parishad	36,000
Capacity building of extension functionaries	Training	May, 2016	Tata Chemicals	Nil

DAKSHIN DINAJPUR KVK (2016-17) :

Name of the programme /scheme	Purpose of programme	Date/ Month of initiation	Funding agency	Amount (Rs.)
Pradhan Mantri Fasal Bima Yojona	Mela /Awareness	11-04-2016	ICAR-ATARI	1,85,497.00
Pre Robi Krishi Mela & World Soil Day	Mela/Awareness	10/01/2017	ICAR-ATARI	80,000.00
PPV&FR	Awareness Program	23/02/2017	ICAR-ATARI	80,000.00
NFDB	Training & Demo	25/08/2016	ICAR-ATARI	72,000.00
Petroliem Conservation Technique in Agriculture	Awareness	10/03/2017	Uttar Banga Krishi Viswavidlaya	10,000.00
Improvd package of agricultural Machinery for field crop under SMAM	Skill Development of Practicing farmers	31/03/2017	State Agriculture Department	3,00,000.00
Farmers' Field School	Training	09/03/2016	State Agriculture Department	58,828.00

Name of the programme /scheme	Purpose of programme	Date/ Month of initiation	Funding agency	Amount (Rs.)
Farmers Scientist Interaction	Meeting	04/05/2016	State Agriculture Department	20,000.00
ATMA-IFS	Training and Demonstration Unit	11/04/2016	State Agriculture Department	3,75,000.00
NABARD-Master Trainer Training	Training	15/02/2017	NABARD	4,32,710.00
Skill Training on Rural Youth (STRY)	Training	27/12/2016	SAMETI-Narendrapur, Kolkata	84,000.00
Soil Test Kit	Material	30/03/2017	ICAR-ATARI	90,000.00
CFLD-Pigeon Pea	Demonstration/Training	17/02/2017	ICAR-ATARI	2,10,000.00
CFLD-Field Pea	Demonstration/Training	13/02/2017	ICAR-ATARI	1,50,000.00
CFLD-Lentil	Demonstration/Training	13/02/2017	ICAR-ATARI	75,000.00
CFLD-Seasem	Demonstration/Training	27/03/2017	ICAR-ATARI	60,000.00
CFLD-Mustard	Demonstration/Training	14/03/2017	ICAR-ATARI	1,50,000.00
Advance on SRI Technology & Bio fertilizer	Training	06/06/2017	Loke Kolyan Parishad	87,470.00
			Total :	**25,20,505.00**

DAKSHIN DINAJPUR KVK (2017-18) :

Name of the programme /scheme	Purpose of programme	Date/ Month of initiation	Funding agency	Amount (Rs.)
Pre Robi Krishi Mela & World Soil Day	Mela/Awareness	Dec-2017	ICAR-ATARI	80,000.00
ATMA-Research Project	Training and Demonstration Unit	Nov-2017	State Agriculture Department	252000.00
NABARD-Master Trainer Training	Training	Oct 2017	NABARD	624170.00
Skill Training on Rural Youth (STRY)	Training	Feb 2018	SAMETI-Narendrapur, Kolkata	84,000.00
CFLD Kharif Pulse	Demonstration/Training	June 17	ICAR-ATARI	3,00,000.00
CFLD Kharif Pulse Technology Agent	Demonstration/Training	June 17	ICAR-ATARI	60,000.00
CFLD Robi Pulse	Demonstration/Training	Nov-17	ICAR-ATARI	3,00,000.00
CFLD Summer Pulse	Demonstration/Training	Feb-18	ICAR-ATARI	74,810.00
CFLD Robi Oil Seed	Demonstration/Training	Nov-17	ICAR-ATARI	1,20,000.00
CFLD Summer Oil Seed	Demonstration/Training	Feb-18	ICAR-ATARI	60,000.00
Sankalp Se Siddhi	Mela/Awareness	Sept-2017	ICAR-ATARI	80,000.00

Name of the programme /scheme	Purpose of programme	Date/ Month of initiation	Funding agency	Amount (Rs.)
DAESI	Training	Nov-2017	SAMETI-Narendrapur, Kolkata	8,00,000.00
Student Ready Program	Training Cum Awareness	Feb-2018	UBKV	15,000.00
ATMA Exposure Visit	Demonstration/Training	Dec-2017	State Agriculture Department	1,00,000.00
NMOOP	Demonstration/Training	Jan 2018	ICAR	65,000.00
Review Cum Workshop	Workshop	Feb-2018	ICAR	1,25,000.00
			Total :	**31,39,980.00**

DARJEELING KVK (2016-17) :

Sponsored Training Programmes

Sl. No	Title	Thematic area	No. of Participants									Sponsoring Agency
			Male			Female			Total			
			Oth	SC	ST	Oth	SC	ST	Oth	SC	ST	Total
1.	Training Programme on capacity building	Animal Science	16	0	12	19	1	6	35	1	18	54	MLDB
2.	Workshop on Petroleum Conservation	Horticulture	20	1	8	16	0	9	36	1	17	54	UBKV
3.	IPM on vegetable cultivation	Plant Protection	10	11	0	0	0	0	10	11	0	21	NABARD
4	Integrated diseases management on ginger	Plant Protection	10	11	0	0	0	0	10	11	0	21	NABARD
5	Capacity Building in Animal Science techniques	Animal Science	0	0	0	0	0	30	0	0	30	30	MLDB
6	Capacity Building on Floriculture	Horticulture	0	0	0	0	0	63	0	0	63	63	MLDB
7	Entrepreneurship development through pig farming	Animal Science	0	0	27	0	0	0	0	0	27	27	SSB
8	Post Harvest management & value addition of fruits & vegetables	Horticulture	0	0	0	5	1	1	5	1	1	7	NABARD
9	Preparation of Jam, Marmalade of mandarin orange	Home Science	0	0	0	5	1	1	5	1	1	7	NABARD
10	Preparation of Jam, Marmalade of mandarin orange	Home Science	0	0	0	5	1	1	5	1	1	7	NABARD
11	Cultivation of Oyster Mushroom	Home Science	2	5	2	3	9	3	5	14	5	24	NABARD

Sl. No	Title	Thematic area	No. of Participants									Sponsoring Agency
			Male			Female			Total			
			Oth	SC	ST	Oth	SC	ST	Oth	SC	ST	Total
12	Cultivation of Oyster Mushroom	Home Science	9	11	25	0	0	11	9	11	36	56	NABARD
13	Cultivation of Large Cardamom	Horticulture	20	0	8	11	0	5	31	0	13	44	NABARD
14	IPM on vegetable cultivation	Plant Protection	0	1	2	3	11	2	3	12	4	19	NABARD
15	Broiler Poultry farm worker	Animal Science	16	3	0	0	0	0	16	3	0	19	NSDC
16	Breeding & Commercialization of goatery	Animal Science	17	5	8	0	0	0	17	5	8	30	NABARD
17	Preservation and Value addition of fruits and vegetables	Home Science	0	0	0	9	1	16	0	0	0	0	NABARD
18	Preservation and Value addition of fruits and vegetables	Home Science	0	0	0	8	2	10	0	0	0	0	NABARD
19	Skill Development Training on Bee Keeping	Plant Protection	7	1	6	0	0	0	0	0	0	0	NSDC
20	Introduction of Bio Based Pest and Diseases Management	Plant Protection	20	26	1	0	13	0	0	0	0	0	NABARD
21	Package and Practices of Peach Pear and Plum	Horticulture	9	0	3	25	0	1	0	0	0	0	NABARD
22	Scientific Diary Management Practices	Animal Science	9	8	5	3	3	2	0	0	0	0	NABARD

Sponsored Training Programmes : 2017-18

Sl. No	Title	Thematic area	No. of Participants									Sponsoring Agency
			Male			Female			Total			
			Oth	SC	ST	Oth	SC	ST	Oth	SC	ST	Total
1.	Entrepreneurship development through Poultry farming	Animal Science	1	26	3	0	0	0	1	26	3	30	SSB
2.	Entrepreneurship development through Goatery	Animal Science	0	0	0	3	22	5	3	22	5	30	SSB
3.	Entrepreneurship development through Goatery	Animal Science	1	26	3	0	0	0	1	26	3	30	SSB
4	Animal Science Technologies of Prani Mitra	Animal Science	0	0	0	18	2	11	18	2	11	31	MLDB
5	Scientific Pig Farming Practices	Animal Science	6	2	9	5	5	11	11	7	20	38	MLDB
6	IPM on Mandarin Orange	Plant protection	0	0	0	4	0	7	4	0	7	11	MLDB
7	IPM on Mandarin Orange Cultivation	Plant protection	0	0	0	3	7	0	3	7	0	10	MLDB

Sl. No	Title	Thematic area	No. of Participants									Sponsoring Agency
			Male			Female			Total			
			Oth	SC	ST	Oth	SC	ST	Oth	SC	ST	Total
8	Insect pest disease management of Maize	Plant protection	8	2	8	4	0	0	12	2	8	22	MLDB
9	Package and Practices of Cabbage and Cauliflower	Horticulture	17	2	0	0	0	1	17	2	1	20	MLDB
10	Off Season Vegetable Cultivation Under PlasticHouse	Horticulture	0	0	9	2	6	9	2	6	18	26	MLDB
11	sustainable development of farm women through toy making under BDAP	Home Science	0	0	3	22	5	3	22	5	6	33	SSB

MALDA KVK :

1) Conducted One year diploma course(DAESI) during 2017 to 2018
2) During 2017-18 , Malda KVK produced 874 quintal seeds & fruits of Wheat, Blackgram, Lentil, Moong, Turmeric, Til, Mango & Litchi 82000 sapling materials of fruits (Mango, Litchi) and Vegetables seedlings (Tomato, Brinjal, Chilli, Gerbera, etc)
3) Organised 30 nos.of Exposure visit form other district

UTTAR DINAJPUR KVK :

7.5. Collaboration and Convergence with other organisations :

COOCH BEHAR KVK (2016-17) :

Name of activity	Number of activity	Season	With line department	With ATMA	Both (Rs.)
Farmers Training	9	Kharif		Cooch Behar District	90,000
FFS(Farmers Field School)	3	Kharif & Rabi		Cooch Behar District	88,242
Demonstration Centre	30	Round the yr.		Cooch Behar District	1,20,000
Food Security Group	4	-do-		Cooch Behar District	40,000
Training	3	-do-		Cooch Behar-II	30,000
Demonstration Centre	4	-do-		Cooch Behar-II	16,000
FFS (Farmers Field School)	1	-do-		Cooch Behar-II	29,414
Capacity building	1	-do-		Cooch Behar-II	5,000
Exposure visit-cum-training	1	Rabi		ATMA, Karandighi Block, Uttar Dinajpur	1,00,000
Exposure visit	6	Rabi		ATMA, New Bongaigaon, Itahar, Hemtabad, Chopra, Mathabhanga, Dinhata	3,00,000
Fodder seed production programme	40 ha	Rabi	Dept. of ARD, Govt. of W.B.	-	10,55,000
Training (FOCT)	6	Round the yr.	Coconut Development Board	-	4,02,000
Skill training for rural youth	2	-	SAMETI, Narendrapur	-	84,000
Petrollium conservation	4	Round the yr.	PCRA	-	20,000
				Total :	**23,79,656**

COOCH BEHAR KVK (2017-18) :

Sl. No.	Name of organization	Nature of linkage
1.	CRIJAF, Barrackpore	Jute seed and seed drill procured
2.	CTRIRS, Dinhata	Technical support
3.	WBCADC, Balarampur Project, Cooch Behar	Technical support, participation in meeting and training programmes
4.	WBCADC, Matigara	Supply of inputs
5.	Dept. of Agriculture, Govt. of West Bengal, Cooch Behar	Technical support, participation in meeting and training programmes
6.	Dept. of Animal Resource Development, Govt. of West	Technical support, participation in meeting and training programmes, fodder grass

Sl. No.	Name of organization	Nature of linkage
	Bengal, Cooch Behar	planting material supply
7.	Dept. of Fishery, Govt. of West Bengal, Cooch Behar	Technical support, participation in meeting and training programmes
8.	Dept. of Horticulture, Govt. of West Bengal, Cooch Behar	Technical support, fund support, participation in meeting and training programmes
9.	Dept. of Sericulture, Govt. of West Bengal, Cooch Behar	Technical support, participation in meeting and training programmes
10.	DRDC, Cooch Behar	Technical support
11.	NABARD, Cooch Behar	Technical support, funding for technology week, training programme and project
12.	Office of the ADA (Seed certification), Jalpaiguri	Seed certification activities in KVK seed production
13.	District Industrial Cell, Cooch Behar	Participation in meeting, project preparation for interested entrepreneur
14.	MIDH (Mission for Development of Horticulture)- Spices	Fund support for training
15.	Coconut Development Board	Fund support for training
16.	CPCRIRS, Mohitnagar, Jalpaiguri	Technical help, seed material procurement
17.	PCRA, Govt. of India	Awareness programme on energy conservation
18.	NAARM, Hyderabad	Field Experience Training of ARS scientist
19.	MANAGE, Hyderabad	DAESI course
20.	SAMETI, Narendrapur	Fund support for training
21.	CRIDA, Hyderabad	NICRA
22.	State Bank of India	Resource person for financial literacy
23.	Central Bank of India	Resource person for financial literacy
24.	Union Bank of India	Resource person for financial literacy
25.	ATMA	Fund support for field based activities, short term research, joint field visit, participation in meeting
26.	Satmile Satish Club o Pathagar, Cooch Behar	Technical support, demonstration, training, krishi mela, resource person, hiring of farm machine
27.	Tufanganj Anwesha Welfare Society	Technical support, demonstration, training, resource person, hiring of farm machine
28.	Gotra SKUS, Ghetugachhi, Chakdaha	Procurement of foundation seed
29.	Chinsurah RRS	Procurement of foundation seed

DAKSHIN DINAJPUR KVK :

S. No.	Name of organization	Collaboration and Convergence
1.	Office of the Deputy Director of Agriculture, D. Dinajpur	Training Programme, Organizing Agril Fair. conducting demonstration prog. & execution of ATMA prog.
2.	Agricultural Training Centre, Balurghat, D.Dinajpur	Training Programme
3.	Office of the DDM, NABARD, Dakshin Dinajpur	Organizing Farmers' Club, Transfer of Technology
4.	District Food Processing Industries and Horticulture Department, Govt. of West Bengal, Dakshin Dinajpur District	Training Programme
5.	Dakshin Dinajpur Zilla Parishad, Balurghat	Exchange of ideas
6.	7 No. Patiram Gram Panchayat, Balurghat, D. Dinajpur	Implementing schemes of NREGS in the KVK instructional farm
7.	District Rural Development Cell, D. Dinajpur	Training Programme for SHG members, member of district level SGSY monitoring committee
8.	Office of the Assistant Director of Fisheries, D. Dinajpur	Exchange of ideas, social fishery scheme, organizing training programme
9.	Office of the Dy. Director of Ani. Res. Dev. Deptt., D. Dinajpur	Exchange of ideas and Training Programme
10.	Central Research Institute for Jute & Allied Fibres (CRIJAF), Barrackpore	Conducting collaborative research project on Jute
11.	Directorate of Jute Development, Kolkata	Organizing demonstration under jute mini mission project
12.	TSRD, Tapan, D. Dinajpur, Noapara Teor Samaj Kalyan Samiti, Naopara,Teor, Hili Molladighi Rural Dev Society, Kumarganj	Training Programme, Transfer of Technology
13.	Strengthening Rural Decentralization Cell, D. Dinajpur	Member of the Zilla Parishad Facilitators' team
14.	Coconut Development Board, Salt Lake, Kolkata, Govt. of India	Training programme, awareness programme
15.	Department of Khadi and Village Industry, Dakshin Dinajpur	Exchange of ideas and transfer of technology
16.	Min. of Petroleum and conservation	Awareness programme
17.	ADMI	Training
18.	SAMETI	Training
19.	NFDB, Hyderabad	Training

DARJEELING KVK (2016-17) :

Name of organization	Nature of linkage

State Agriculture Dept., Govt. of West Bengal	Training
Regional Research Station (Hill Zone), Uttar Banga Krishi Viswavidyalaya, Kalimpong	
Dept. of Animal Recourses Development, Govt. of West Bengal	
Sasastra Seema Bal (SSB), Siliguri Frontier	
Regional Station, Indian Agricultural Research Institute, Kalimpong	
Regional Research Station (Hill Zone), Uttar Banga Krishi Viswavidyalaya, Kalimpong	Demonstration
State Agriculture Dept., Govt. of West Bengal	
Regional Research Station (Hill Zone), Uttar Banga Krishi Viswavidyalaya, Kalimpong	Joint Survey
State Agriculture Dept., Govt. of West Bengal	
State Agriculture Dept., Govt. of West Bengal	Technical Support
Regional Research Station (Hill Zone), Uttar Banga Krishi Viswavidyalaya, Kalimpong	
Dept. of Animal Recourses Development, Govt. of West Bengal	
Spices Board, Kalimpong, Govt. of India	
Regional Station, Indian Agricultural Research Institute, Kalimpong	

DARJEELING KVK (2017-18) :

Name of organization	Nature of linkage
State Agriculture Dept., Govt. of West Bengal	Training
Regional Research Station (Hill Zone), Uttar Banga Krishi Viswavidyalaya, Kalimpong	
Dept. of Animal Recourses Development, Govt. of West Bengal	
Sasastra Seema Bal (SSB), Siliguri Frontier	
Regional Station, Indian Agricultural Research Institute, Kalimpong	
Regional Research Station (Hill Zone), Uttar Banga Krishi Viswavidyalaya, Kalimpong	Demonstration
State Agriculture Dept., Govt. of West Bengal	
Regional Research Station (Hill Zone), Uttar Banga Krishi Viswavidyalaya, Kalimpong	Joint Survey
State Agriculture Dept., Govt. of West Bengal	
State Agriculture Dept., Govt. of West Bengal	Technical Support
Regional Research Station (Hill Zone), Uttar Banga Krishi Viswavidyalaya, Kalimpong	
Dept. of Animal Recourses Development, Govt. of West Bengal	
Spices Board, Kalimpong, Govt. of India	
Regional Station, Indian Agricultural Research Institute, Kalimpong	

MALDA KVK :

1. In 2016-17, Malda KVK conducted 04 nos of sponsored training programme of total 196 farmers (136) & farm women (60) from NFDB, Hyderabad; ICDS cell of Malda and different blocks of different districts of west Bengal.

2. In 2017-18, Malda KVK conducted 05 nos of sponsored training programme of total 135 farmers (85) & farm women (50) from different blocks of different districts of west Bengal.

UTTAR DINAJPUR KVK :

Name of organization	Nature of linkage
NABARD	Funding for training, projects, technology week etc.
Department of Agriculture, Govt. of W.B.	Preparation of SREP and Joint implementation of programme, participation in meeting, conducting training programme and demonstration
ATMA	Preparation of SREP and Joint implementation of programme, participation in meeting, conducting training programme and demonstration
IFFCO	Collaborative demonstration, training and funding
Department of Horticulture, Govt. of W.B.	Joint implementation of programme, participation in meeting, conducting training programme and demonstration
Office of the Deputy Director, Animal Resource Development, Raiganj, Uttar Dinajpur	Joint Diagnostic Survey, joint implementation of programme, participation in meeting, conducting training programme, demonstration, and organizing village level vaccination camps, clinics.
Office of the Asst. Director of Fisheries, Raiganj, Uttar Dinajpur	Training of the fish farmers and Fisheries in Uttar Dinajpur; formation and registration of fish production groups.
Office of the Panchayat Samity, Chopra.	Training of Block Officials elected members of Panchayat Samities on Agriculture Development.
Rice Research Station, Chinsurah	Supply of seed materials and research information.
Pulses & Oil Seeds Research, Berhampore	Supply of seed materials and research information.
Chopra Gram Panchyet	Infrastructural Development
Office of the Block Livestock Development Officer, Chopra, Uttar Dinajpur	Trainings, health camp, vaccination camp and procurement of vaccines for livestocks
District Rural Development Cell, Raiganj.	Collaborative training programme and funding
Rastriya Krishi Vikas Yoyona	Research and infrastructural development
Uttar Dinajpur Zilla Parishad	Infrastructural development
Uttar Banga Unnayan Parshad	Infrastructural development
State Bank of India	Formation of Farm Science Club
AIR, Siliguri	Broadcasting and wide scale circulation
Doordarshan, Jalpaiguri	Broadcasting KVK programme farmers-scientist interaction etc.
SAMETI, Narendrapur	Programme formulation, training etc.
CIAE, Bhopal	Fabrication of tools
CFTRI, Mysore	Assessment of nutritive value of weaning foods
CRRI, Orissa	Supply of Implements
NRCSS, Ajmer, Rajasthan	Supply of seed materials and research information.

Name of organization	Nature of linkage
National cooperative Union of india	Training, Seed Production
SSB, Darjeeling Range	Training, Krishi Mela
NIRJAFT	Training
PPV&FRA	Orientation programme & crop registration
CRRIJAF, Barrackpore	Supplying of jute seed
CADC, Arangghata	Supply of seed materials and research information.
RRS, Malda	Supply of seed materials and research information.
RRS (OAZ), Majhian, Patiram, Dakshin Dinajpur	Supply of seed materials and research information.
PCRA	For awareness generation programme

List of special programmes undertaken during 2017-18 by the KVK, which have been financed by ATMA/ Central Govt/ State Govt./NABARD/NHM/NFDB/Other Agencies **(information of previous years should not be provided)**

Programmes for infrastructure development

Name of the programme/ scheme	Purpose of programme	Date/ Month of initiation	Funding agency	Amount (Rs.)
Tribal Sub Plan	To improve the livelihood of Tribal Farmers	October 2017	ICAR, Education and Home Science Planning Division	11, 41, 000.00
Short Term Research	To improve income generation through diversification of Agriculture practices.	January, 2018	ATMA, Uttar Dinajpur district	5,00,000.00

2. Human Resource Development Programmes

a) Participation in Seminar, Symposium, Skill training etc. as stated above

COOCH BEHAR (2016-17) :

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
1.	Training	Advance in training method and training management	Mr. Ganesh Das, SMS (Agril. Extension)	14-17.02.17, 4 days	EEI, Assam
2.	Workshop	Sensitization workshop on experimental learning entrepreneurship and needs of agro-industry	Dr. Surajit Sarkar, SMS (Horticulture)	28.02-01.03.17, 2 days	UBKV and NAARM
3.	Workshop	State level Workshop on clustered frontline Demonstration	Mr. Suraj Sarkar, SMS (Plant Protection)	20.12.16, 1 day	ATARI, Kolkata
4.	Workshop	Imparting training on mushroom cultivation technology through digital content	Mr. Ganesh Das, SMS (Agril. Extension)	22-24.03.17, 3 days	ICAR-DMR, Solan
5.	Summer School	New age extension Strategy for	Mr. Ganesh Das, SMS (Agril.	07-27.09.16,	BCKV

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
		communication proficiency and managerial skill for extension professionals: concept, approach, methodology and application	Extension)	20 days	
6.	Workshop	Initiative for sustaining soil health	Dr. Sujan Biswas, SMS (Soil Science)	19.08.16, 1 days	Fertilizer Association of India
7.	Workshop	Zonal workshop-cum-review meeting on cluster demonstration on pulses & oilseeds	Mr. Suraj Sarkar, SMS (Plant Protection)	19.07.16, 1 days	ATARI, Kolkata
8.	National Conference	Enhancing Nutritional security through climate smart farming practices	Mr. Suraj Sarkar, SMS (Plant Protection)	17-18.03.17, 2 days	COBACAS & RRS, UBKV
9.	HRD	HRD programme cum review meeting for KVK Staffs	All staffs of Cooch Behar KVK	20-21.03.17, 2 days	DEE, UBKV
10.	International Conference	Agriculture, food science, natural resource management and environmental dynamics: the technology, people and sustainable development	Mr. Ganesh Das, SMS (Agril. Extension)	14-15.08.16, 2 days	BCKV & Krishi Sanskriti
11.	Review meeting	Performance of the KVKs of West Bengal	Dr. Surajit Sarkar, SMS (Horticulture)	20.06.16, 1 day	ATARI, Kolkata
12.	Workshop	NICRA Annual workshop	Dr. Sujan Biswas, SMS (Soil Science)	09-10.12.16	NICRA cell, ATARI, Kol.
13.	National Seminar	Fertilizer use efficiency….perspective	Dr. Sujan Biswas, SMS (Soil Science)	08.03.16, 1 day	Society for fertilizer and environment

COOCH BEHAR KVK (2017-18) :

Sl. No.	Name of programme	Name of Course	Name of KVK personnel	Date and Duration	Organised by
1	Workshop	NICRA Zonal Workshop	All KVK staffs	May 30-31, 2017	ICAR-ATARI , Kolkata
2	Workshop	State level review workshop for KVKs of West Bengal (CFLD on Pulse and oilseed crops)	Dr. Sankar Saha	July 11, 2017	ICAR-ATARI Kolkata
3	Workshop	Workshop on Pulse cultivation and crop	Dr. Bikash Roy	July 20-21, 2017	UBKV and Paschimbanga

Sl. No.	Name of programme	Name of Course	Name of KVK personnel	Date and Duration	Organised by
		diversification			Vigyan Mancha, West Benagl
4	CAFT	Use of ICT in Agricultural education for accelerated learning	Mr. Suraj Sarkar	04-24 July, 2017, 21 days	Bihar Agriculture University, Bihar
5	Workshop	Review Workshop of ATMA	Dr. Bikash Roy	14.09.2017	SAMETI, West Bengal
6	Training	Training on Public Finance Management System	Mr. Harekrishna Basunia	20.09.2017	WBUAFS, Kolkata
7	HRD training	HRD programme for Driver and Skill supporting staff	Mr. Madan mohan De, Mr. Pritesh Biswas, Mr. Prasenjit Das, Mr. Biswajit Roy	November 28-29, 2017	Directorate of Extension Education, UBKV, West Bengal
8	HRD Training	Development and management of digital environment for extension services and financial aspects	Mr. Apurba Kumar Das, Mrs. Joyeeta Chanda, Mr. Harekrishna Basunia	12-13 Feb, 2018	Directorate of Extension Education, UBKV, West Bengal
9	Workshop	NICRA Review Workshop	Dr. Sujan Biswas	January 13-15, 2018	ICAR-ATARI Kolkata
10	Refresher course	Refresher Course for KVK Personnel	Dr. Bikash Roy, Mr. Ganesh Das, Dr. Surajit Sarkar, Dr. Sujan Biswas, Dr. Sankar Saha	30th January, 2017 to 6th February, 2017, 4 days	ICAR-ATARI Kolkata
11	HRD training	Workshop cum Review Meeting for KVK staffs	Dr. Bikash Roy, Mr. Ganesh Das, Mr. Suraj Sarkar, Mr. Sushen Kumar Das	Feb. 19-20, 2018	Directorate of Extension Education, UBKV, West Bengal
12	HRD Training	Persuasive communication and soft skill development	Dr. Bikash Roy, Dr. Surajit Sarkar, Dr. Sujan Biswas, Dr. Sankar Saha Mr. Ganesh Das, Mr. Suraj Sarkar, Mr. Sushen Kumar Das	08-09 March, 2017	Directorate of Extension Education, UBKV, West Bengal

DAKSHIN DINAJPUR KVK (2016-17) :

Sl. No.	Name of programme	Name of KVK personnel and designation	Date and Duration	Organized by
1.	Organic farming	Mr. Nakul Mandal	27.02.17-01.03.2017	WBUAFS
2.	State Level Review Workshop	Dr. S. Biswas, Programme Coordinator (In-charge)	28.05.16	ICAR-ATARI, Kolkata

Sl. No.	Name of programme	Name of KVK personnel and designation	Date and Duration	Organized by
3.	Summer School on New Age Extension Strategy for Communication Proficiency and Management Skill for Extension Personnel Concept Approach and Methodology	Dr. B. Goswami	07-27.09.16	BCKV, Mohanpur
4.	Presentation of Fishery Project on Capacity Building Programme of Fish Farmers submitted to NFDB	Dr. B. Goswami	08.06.2016	ICAR-ATARI, Kolkata
5.	HRD for KVK Personnel on Food and Nutrition Securrity	Dr. S. Biswas	25-27.01.17	WBUAFS
6.	Sensitization Workshop on Technology Application in Animal & Fishery Science	Dr. B. Goswami Dr. S. Biswas	16-17.03.17	ICAR-ATARI, Kolkata
7.	HRD and Workshop for KVK Personnal	Dr. P. Gangopadhyay Dr. B. Goswami Mr. S. Singha Mr. B. Paramanik Mr. S. Islam Mr. N. Mandal Mr. I. Haque	20-21.03.17	UBKV, Pundibari

DAKSHIN DINAJPUR KVK (2017-18) :

Sl. No.	Name of programme	Name of KVK personnel	Designation	Date and Duration	Organized by
1.	HRD programme related to maintenance of official works	Mr. N. Sarkar Mr. P. Sarkar Mr. I. Hoque Mr. A. Roy	Driver Driver Skill Support Staff Skill Support Staff	November 28-29, 2017	D.E.E., UBKV
2.	Meeting related to Revised Estimate	Dr. P.K. Gangopadhyay	Sr. Scientist & Head	November 06, 2017	ATARI-ICAR, Zone-V, Kolkata
3.	Knowledge pursuation method	Dr. P.K. Gangopadhyay Dr. B. Goswami Mr. S. Singha Mr. S. Islam Mr. B. Paramanik Mr. N. Mandal	Sr. Scientist & Head SMS (Fishery Sc.) SMS (Pl. Protection) SMS (Horticulture) SMS (Soil Sc.) Prog. Asstt. (Lab Tech.)	March 08-09, 2018	D.E.E., UBKV
4.	HRD programme for Assistant, Prog. Assistant (computer) and Stenographer of KVK staff	Mr. S. Santra	Assistant	February 12-13, 2018	D.E.E., UBKV
5.	HRD cum Review Workshop of KVKs under UBKV	All staff of DDKVK		February 19-20, 2018	D.E.E., UBKV
6.	HRD cum training programme on effective extension methodology in dessimination of technology through KVK system	Dr. B. Goswami	SMS (Fishery Sc.)	September 13-15, 2017	DREF, WBUAFS, Kol
7.	Winter school on understanding flowering mechanism and management of bearing in sub-tropical fruits	Mr. IS. Islam	SMS (Horticulture)	December 01-21, 2017	NRC on Litchi, Bihar
8.	Review workshop on DAESI	Mr. S. Singha	SMS (Pl. Protection)	February 19-20, 2018	SAMETI, Narendrapur
9.	Refresher cum orientation programme	Mr. S. Singha	SMS (Pl. Protection)	February 01, 2018	DREF, WBUAFS, Kol

Sl. No.	Name of programme	Name of KVK personnel	Designation	Date and Duration	Organized by
10.	Meeting on mini lab of soil	Dr. P.K. Gangopadhyay Dr. B. Paramanik	Sr. Scientist & Head SMS (Soil Sc.)		ATARI-ICAR, Zone-V, Kolkata
11.	Refresher cum orientation programme on fishery science	Dr. B. Goswami	SMS (Fishery Sc.)	February 03, 2018	ATARI-ICAR, Zone-V, Kolkata

DARJEELING KVK (2016-17) :

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
1.	Gender budgeting for main streaming women in agriculture	Gender budgeting for main streaming women in agriculture	Akriti Pradhan, SMS Home Science	6-11th June 2016	MANAGE
2.	Training of Trainers of KVK trainers at NIRD	Training of Trainers of KVK trainers at NIRD	Dr. Rakesh Roy Dr. Pranab Barma Mr. Subrata Manna	10-12 November 2016	ASCI
3.	Short Course	Empowerment of farm women through livestock and poultry intervention	Dr. Rakesh Roy	21-30 November 2016	ICAR-CIWA, Bhubaneswar
4.	National Conference on Enhancing Nutritional Security through climate smart farming practices	National Conference on Enhancing Nutritional Security through climate smart farming practices	Dr. M W Moktan Dr. Rakesh Roy Dr. Pranab Barma Miss Akriti Pradhan Mrs. Snehlata Lama Mr. Subrata Manna Dr. Basu Deo Kharga	17-18th March 2017	COBACAS
5.	HRD & Review Workshop for KVK staff under UBKV		Dr. M W Moktan Miss Akriti Pradhan Mr. Subrata Manna Mr. Akash Deep Thapa	20-21st March 2017	UBKV
6.	Sensitization Workshop	"Technology Application in Animal and Fishery Sciences"	Dr. Rakesh Roy	16-17th March	ICAR-ATARI, Zone II

DARJEELING KVK (2017-18) :

Sl.	Name of	Name of course	Name of KVK	Date and	Organized

No.	programme		personnel and designation	Duration	by
1.	HRD Programme	Persuasive communication & Soft Skills Development for SMS, Farm Manager & Prog. Asst (Lab. Tech)	Dr. M. W Moktan Dr. Rakesh Roy Dr. Pranab Barma Miss Akriti Pradhan Dr. Basu Deo Kharga Mr. Akash Deep Thapa	08-09/03/2018	DEE, UBKV
2.	Workshop	"Workshop on Quality seed production" - a step towards food security	Dr. M. W Moktan Dr. Rakesh Roy Dr. Pranab Barma Miss Akriti Pradhan Dr. Basu Deo Kharga Mr. Akash Deep Thapa	19/02/2018	DEE, UBKV
3.	HRD Programme	HRD for Programme Assistant (Computer)	Mr. Subrata Manna	12/02/2018	DEE, UBKV

MALDA KVK (2016-17) :

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
1.	HRD	Production protocol for Bio-pesticides and Bio-fertilier	Dr.B.C.Rudra	Nov. 1-10, 2016	NIPHM, Hyderbad
2.	HRD	HRD programmes for KVK staffs	Mr. Bhabani Das Mr. Adwaita Mondal Ms. Samima Sultana Mr. Kausik Saha Mr JaminiKanta Barman Mr. Pravat Sarkar	20-21 march, 2017	Directorate of Extension Education, UBKV

MALDA KVK (2017-18) :

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
1.	HRD	HRD programmes for SMSs	Md. Shajahan	January 30, 2018	ICAR-ATARI
2.	HRD	HRD programmes for SMSs	Dr. Paramita Bhowmik Ms. Samima Sultana	Feb, 02, 2018	ICAR-ATARI
3	HRD	HRD programmes for SMSs	Mr. Adwaita Mondal	Feb, 04, 2018	ICAR-ATARI
4	HRD	HRD programmes for KVK staffs	Mr. Bhabani Das Mr. Adwaita Mondal Dr. Paramita Bhowmik Ms. Samima Sultana Dr. B.C. Rudra	March 8-9, 2018	Directorate of Extension Education, UBKV, Cooch Behar

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
5.	HRD	HRD programmes for KVK staffs	Mr. Bhabani Das Dr. B.C. Rudra	Feb, 19-20, 2018	Directorate of Extension Education, UBKV, at DD KVK, Majhian.
6.	HRD	HRD programmes for KVK staffs	Mr JaminiKanta Barman Mr. Pravat Sarkar Mamun Rasid Sk. Saiful Alam	Nov 28-29, 2017	Directorate of Extension Education, UBKV, Cooch Behar
6.	HRD	HRD programmes for KVK staffs	Mr. Kausik Saha Mr. Subrata Majumder	Feb, 12-13, 2018	Directorate of Extension Education, UBKV, Cooch Behar
7.	HRD	HRD programmes for KVK staffs	Dr. B.C. Rudra	March, 19-28, 2018	NIPHM, Hyderabad

UTTAR DINAJPUR KVK (2016-17) :

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
1.	State Level Workshop	State Level Workshop	Dr. Bikash Roy, Senior Scientist and Head	April 28-30, 2016	ICAR-ATARI, Zone – II, Saltlake , Kolkata
2.	Workshop on "Women empowerment and poverty reduction through effective use of secure right to land- experiences " held at UBKV sponsored by Landesa on 5th June 2016.	Women empowerment and poverty reduction through effective use of secure right to land-experiences	Dr. Anjali Sharma, SMS, Home Science	05.06.2016	Held at UBKV sponsored by Landesa
3.	NFDB meeting at ATARY, Kolkata on 8th June, 2016.		Mr. Debdas Sekhar, SMS, Fishery Science	8th June, 2016. 1 day	ICAR, ATARY, Kolkata
4.	Meeting of CFLD	Meeting of CFLD	Dr. Bikash Roy, Senior Scientist and Head	July 18-19, 2016	ICAR-ATARI, Kolkata

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
5.	National Conference on "Bringing self sufficiency in Pulses for Eastern India	Attended National Conference on "Bringing self sufficiency in Pulses for Eastern India	Dr. Anjali Sharma, SMS, Home Science	5^{th} – 6^{th} August 2016	ICAR- ATARI, BAU, Sabour, Bhagalpur
6.	Preparation of training module for skill development on agricultural rechnology	Preparation of training module for skill development on agricultural rechnology	Mr. Debdas Sekhar, SMS (Fishery Science)	November 8-11, 2016	SAMETI, Narendrapur, Ramakrishna Mission
7.	Review Workshop of Cluster Frontline Demonstration	Review Workshop of Cluster Frontline Demonstration	Dr. Dhananjoy Mandal, Senior Scientist and Head	December 20, 2016	ICAR-ATARI, Zone – II, Kolkata
8.	Orentation programme on Submission of Din Dayal Updhyay Krishi Protsahan Puruskar	Orentation programme on Submission of Din Dayal Updhyay Krishi Protsahan Puruskar	Dr. Dhananjoy Mandal, Senior Scientist and Head	December 26, 2016	ICAR-ATARI, Zone – II, Kolkata
9.	Review workshop of NABARD in different aspects of agriculture	Review workshop of NABARD in different aspects of agriculture	Dr. Soumen Mahapatra, Farm Manager	January 11, 2017	NABARD, Kolkata
10.	Attending Sensitization Workshop for SMS (Fishery & Animal Sc.) at	Sensitization Workshop	Mr. Debdas Sekhar, SMS, Fishery Science	16-17^{th} March 2017	ATARI, Kolkata,
11.	All staff of Uttar Dinahpur KVK, Chopra attending HRD Programme & Review Workshop	HRD Programme & Review Workshop	Dr.Dhananjay Mandal, (Incharge & Head) SMS, Pl. Protection, Mr. Debdas Sekhar, SMS, Fishery Science, Dr. Moutusi Dey, SMS, Horticulture, Dr. Anjali Sharma, SMS, Home Science, Dr. Soumen Mahapatra, Farm manager,	21^{st}-22^{nd} March 2017	Uttar Banga Krishi Viswavidyalaya, Pundabari

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
			Suprta Debnath,		

UTTAR DINAJPUR KVK (2017-18) :

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
1.	Zonal Work Shop	Zonal Work Shop	Dr. Dhananjoy Mandal, Senior Scientist and Head (Actg.) & SMS(Plant Protection)	14th -16th April, 2017, 3 days, Port Blare, Anandaman	ICAR, Pusa, Delhi
2.	Skill Development	Ramkrishna Mission, Goal Park, Kolkata	Dr. Dhananjoy Mandal, Senior Scientist and Head (Actg.) & SMS(Plant Protection)	22thMay, 2017 1 day	Ramkrishna Mission
3.	Workshop on Review meeting of CFLD on Pulse &Oil Seed	Review meeting of CFLD on Pulse & Oil Seed	Dr. Dhananjoy Mandal, Senior Scientist and Head (Actg.) & SMS(Plant Protection)	11thJuly, 2017 1 day	ATARI-Kolkata
4.	ICAR Foundation Day & Award Ceremony	Foundation Day & Award Ceremony	Dr. Dhananjoy Mandal, Senior Scientist and Head (Actg.) & SMS(Plant Protection)	16thJuly, 2017 1 day	NASC complex, New Delhi
5.	Review Meeting of Tribal Sub Plan	Review Meeting of Tribal Sub Plan	Dr. Anjali Sharma, SMS, Home Science	12th-13th September, 2017, 2 days	ICAR, ATARI, New Delhi
6.	PFMS	PFMS	Dr. Dhananjoy Mandal, Senior Scientist and Head (Actg.) & SMS(Plant Protection) Mr. Ayanul Haque, Assistant	20th September, 2017 1 day	ICAR, ATARI, Kolkata
7.	National conference	Improving income of farmers through agriculture and aquaculture	Dr. Anjali Sharma, SMS, Home Science	5th-7th/01/2018 3 days	CIFA, Bhubaneswar

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
8.	National conference	"Young scientist award" for contribution towards rural upliftment and women empowerment.	Dr. Anjali Sharma, SMS, Home Science	5th-7th/01/2018 3 days	CIFA, Bhubaneswar
9.	Orientation training cum refresher course for KVK personnel of different disciplines	Refreshers Course	Dr. Soumen Mahapatra, Farm Manager	30th January 2018	
10.	Orientation training cum refresher course for KVK personnel of different disciplines	Refreshers Course	Mr. Debdas Sekhar, SMS (Fishery Science)	February 3, 2018	WBUAFSS,Kolkata
11.	Orientation training cum refresher course for KVK personnel of different disciplines	Refreshers Course	Dr. Moutusi Dey, SMS, Horticulture	1st February 2018	WBUAFS,Kolkata
12	Workshop	Workshop on DAESI Program	Dr. Moutusi Dey, SMS, Horticulture	19th-20th February, 2018	SAMETI, Narendrapur
13	Orientation training cum refresher course for KVK personnel of different disciplines	Refreshers Course	Dr. Anjali Sharma, SMS, Home Science	6th February, 2018	WBUAFS, Kokata
14	HRD programme	Workshop	All SMS, Plant Protection, Horticulture, Home Science, Fisheries Sc	19th-20th February, 2018	Dakhin Dinajpur KVK,
15	HRD programme	Human Resource Development	Kalyan Tarafdar, Skill staff	28-29th November, 2017	UBKV, Pundibari, Cooch Behar
16	HRD programme	Human Resource Development	Palash Das, Sr. steno., Sudipta Debnath	12th-29th February, 2018	UBKV, Pundibari, Cooch Behar

S. No.	Name of programme	Name of course	Name of KVK personnel and designation	Date and Duration	Organized by
			(Computer Programmer)		
17	HRD programme	Human Resource Development	All SMS, Plant Protection, Horticulture, Home Science, Fisheries Sc	8-9th March 2018	UBKV, Pundibari, Cooch Behar
18	National Workshop of KVK and Kirishi Unnati Mela	National Seminar	Dr. Moutusi Dey, SMS, Horticulture	16-17th March 2018	IARI, Pusa, New Delhi

3. Monitoring and evaluation of Extension Programmes :

a) Review workshop/meeting

COOCH BEHAR KVK (2017-18) : NICRA Zonal Workshop for Zone V and Zone II during 29th-31st May, 2017

DAKSHIN DINAJPUR KVK (2016-17) :

Sl. No.	Name of programme	Name of KVK personnel and designation	Date and Duration	Organized by
1.	State Level Review Workshop	Dr. S. Biswas, Programme Coordinator (In-charge)	28.05.16	ICAR-ATARI, Kolkata
2.	Sensitization Workshop on Technology Application in Animal & Fishery Science	Dr. B. Goswami Dr. S. Biswas	16-17.03.17	ICAR-ATARI, Kolkata
3.	HRD and Workshop for KVK Personnal	Dr. P. Gangopadhyay Dr. B. Goswami Mr. S. Singha Mr. B. Paramanik Mr. S. Islam Mr. N. Mandal Mr. I. Haque	20-21.03.17	UBKV, Pundibari

DAKSHIN DINAJPUR KVK (2017-18) :

Training programme/ Seminar/ Symposia/ Workshop etc attended	Duration	Name of the participants	Designation	Organizer of the training Programme
HRD cum Review Workshop of KVKs under UBKV	2 day	All staff of DDKVK	-	D.E.E., UBKV
Review workshop on DAESI	2 days	Mr. S. Singha	SMS (Pl. Protection)	SAMETI, Narendrapur

DARJEELING KVK (2016-17) : Title : NICRA Zonal Workshop
Place : Darjeeling KVK **Number :** 1

MALDA KVK : 2 days' workshop on DAESI course at SAMETI, Narendrapur

UTTAR DINAJPUR KVK : Nil

9.2 Monitoring Team Visit :

COOCH BEHAR KVK : Nil **DARJEELING KVK :** Nil

DAKSHIN DINAJPUR KVK : Nil **MALDA KVK** : Nil **UTTAR DINAJPUR KVK :** Nil

10. Special Occasions :

10.1. Visit by Dignitaries & Committees :

COOCH BEHAR KVK (2016-17) :

Date	Name of the person	Purpose of visit
05.04.16	Prof. Chirantan Chattapadhyay, Vice-Chancellor, UBKV	Pradhan Mantri Fasal Bima Yojana
25.07.16	Prof. Chirantan Chattapadhyay, Vice-Chancellor, UBKV	Monitoring KVK activities
05.12.16	Prof. Chirantan Chattapadhyay, Vice-Chancellor, UBKV	Rabi Kisan Sammelan
05.04.16	Dr. Subhendu Bandopadhyay, Registrar, UBKV	Pradhan Mantri Fasal Bima Yojana
05.12.16	Dr. Subhendu Bandopadhyay, Registrar, UBKV	Rabi Kisan Sammelan
21.02.17	Dr. Subhendu Bandopadhyay, Registrar, UBKV	Monitoring KVK instructional farm
05.04.16	Prof. S.C. Sarkar, DEE, UBKV	Pradhan Mantri Fasal Bima Yojana
05.12.16	Prof. S.C. Sarkar, DEE, UBKV	Rabi Kisan Sammelan
05.12.16	Prof. T.K. Hath, Dean, F/Ag., UBKV	Rabi Kisan Sammelan
05.12.16	Prof. J.C. Jana, Dean, F/Hort., UBKV	Rabi Kisan Sammelan
23-24.11.16	Dr. K. Monoharon, Director, DJD, Govt. of India	Monitoring CFLD activities
05.04.16	Mr. Asish Das, DDM, NABARD. Cooch Behar	Pradhan Mantri Fasal Bima Yojana
05.12.16	Mr. Asish Das, DDM, NABARD. Cooch Behar	Rabi Kisan Sammelan
16.01.17	Mr. Asish Das, DDM, NABARD. Cooch Behar	Consultation with KVK head for progress of NABARD sponsored programme
16.03.17	Mr. Asish Das, DDM, NABARD, Cooch Behar	Consultation with KVK head for progress of NABARD sponsored programme
20.03.17	Dr. F.H. Rahaman, Principal Scientist, ATARI, Zone-II	HRD Programme organized by DEE, UBKV
09.11.16	Mr. Arin Dey, ADA, Seed Certification, Malda	Monitoring Village seed production progn.
23.11.16	MR. Manik Das, ADA Seed Certification, NB Region	Monitoring seed production programme
05.04.16	Mr. U.K. Roy Hazra Chowdhury, Regional Manager, SBI	Pradhan Mantri Fasal Bima Yojana
17.03.17	Mrs. Paramita Chakraborty, Branch Manager, SBI, Pundibari	Guest speaker in training programme
24.03.17	Mrs. Paramita Chakraborty, Branch Manager, SBI, Pundibari	Guest speaker in training programme

Date	Name of the person	Purpose of visit
21.04.16	Dr. Anish Das, SMS, Dinhata-II, GoWB	Official visit
21.04.16	Mr. Jadav Kumar Mandal, Asstt. DA (Admin), Dinhata Sub-Division	Official visit
24.08.16	Dr. Tanushree Biswas, Associate Professor, Deptt. of Zoology, Siliguri College	Exposure visit of students
30.11.16	Dr. Samuel Rai, Director, Cinchona & other medicinal plants, W.B.	Official visit
10.01.17	Mr. Sekhar Chandra Haldar, Dy. Director, ARD & PO, Cooch Behar	Monitoring seed production programme at KVK farm and also in farmers field

COOCH BEHAR KVK (2017-18) :

Date	Name of the person	Purpose of visit
External VIPs :		
20.05.2017	Mr. Asish Das, DDM, NABARD, Cooch Behar	World Honeybee Celebration
29.05.2017	Prof. Jitendra Chauhan, Dept. of Agril. & Farmers welfare, Govt. of India	To see the activity of KVK
29.05.2017	Dr. S.S. Singh, Director, ICAR-ATARI, Kolkata	NICRA Zonal Workshop of Zone-V & Zone-II
29.05.2017	Dr. F.H. Rahaman, Principal Scientist, ICAR-ATARI, Kolkata	NICRA Zonal Workshop of Zone-V & Zone-II
01.06.2017	Dr. Brajesh Shahi, Nodal officer (KVKs) Dr. R.P.C.A.U., Pusa, Bihar	NICRA Zonal Workshop of Zone-V & Zone-II
16.06.2017	Prof. S K Sharma, EX VC, HPAU, Palampur, H.P.	To observe KVK activity
16.06.2017	Dr. PS Pandey, ADG (EP&HS), Educational Division, ICAR	To observe KVK activity
16.06.2017	Dr. H.S. Nainanda, Former ADG (Edu), ICAR, New Delhi	To observe KVK activity
17.06.2017	Dr. S. Bandyopadhyay, SIC, ICAR-IVRI, ERS, Kolkata	Monitoring KVK activity
22.08.2017	Dr. F.H. Rahman, Principle Scientist, ICAR-ATARI, Kolkata	Monitoring KVK activity
29.08.2017	Pradip Kr. DE, Advisor, Dept. of Agril. & Farmers welfare, Govt. of India	Monitoring KVK activity
28.10.2017	Dr. Manash Ghosh, Director, SAMETI, R.K.M. Ashrama, Narendrapur	Inauguration of DAESI programme
05.12.2017	Mr. Asish Das, DDM, NABARD, Cooch Behar	World Soil Health Day Celebration
29.01.2018	Dr. Bimal Kumar Bhattacharya, Ex-	Exposure visit of students from

Date	Name of the person	Purpose of visit
	Director of Research, UBKV	West Bengal University, Barasat
22.02.2018	K. Debnath, Deputy Director, Coconut Development Board	FOCT workshop
08.03.2018	Dr. R.K. Sohane, Director of Extension Education, BAU, Bihar	DEE HRD Programme, Guest lecture
09.03.2018	Swami Shivapurnananda, Asst. Admin. Head, School of Rural Development, IRDM, RKMVERI, Kolkata	DEE HRD Programme, Guest lecture
09.03.2018	Mr. Asish Das, DDM, NABARD, Cooch Behar	HRD Programme for KVK staff and convergence with KVK
09.03.2018	Dr. V. K.J. Rao, Director, FOCARS programme, and Principal Scientist, NAARM, Hyderabad	Village level and institutional workshop of ARS trainee scientist under FOCARS
09.03.2018	Dr. K.K. Das, Principal Scientist, ICAR-ATARI, Kolkata	Monitoring progress of CFLD activities
24.07.2017 & 25.11.2017	Mr. Manik Das, ADA Seed Certification, NB Region	Monitoring seed production programme
09.12.2017	Mrs. Paramita Chakraborty, Branch Manager, SBI, Pundibari	Guest speaker in training programme
Internal VIPs :		
28.10.2017 05.12.2017, 22.12.2017,	Prof. Chirantan Chattapadhyay, Vice-Chancellor, UBKV	DAESI Programme inauguration, World Soil Health Day Celebration, World Honeybee Day Celebration
28.10.2017 05.12.2017, 22.12.2017,	Dr. Subhendu Bandopadhyay, Registrar, UBKV	DAESI Programme inauguration, World Soil Health Day Celebration, World Honeybee Day Celebration
12.04.2017, 18.06.2017, 02.11.2017, 05.12.2017, 22.12.2017, 09.03.2018	Prof. S.C. Sarkar, DEE, UBKV and Prof. P. Pal, DEE, UBKV	DAESI Programme inauguration, World Soil Health Day Celebration, World Honeybee Day Celebration Monitoring KVK activity, DEE HRD Workshop
28.10.2017 05.12.2017, 22.12.2017, 08.03.2018	Prof. T.K. Hath, Dean, F/Ag., UBKV	DAESI Programme inauguration, World Soil Health Day Celebration, World Honeybee Day Celebration, DEE HRD Workshop Inauguration
28.10.2017 05.12.2017, 22.12.2017,	Prof. J.C. Jana, Dean, F/Hort., UBKV	DAESI Programme inauguration, World Soil Health Day Celebration, World Honeybee Day Celebration

DAKSHIN DINAJPUR KVK (2016-17) :

Date	Name of the person	Purpose of visit
17.05.2016	Shri Amal kr. Roybarman	To visit the KVK and demonstration unit
13.06.2016	Sri Rabindranath Ghosh, MIC, Deptt.	To visit the KVK and College of

Date	Name of the person	Purpose of visit
	of North Bengal Development BoardGovt. of WB	Agriculture
13.06.2016	Sri Bachhu Hansda, Mins. of state, Dept. of North Bengal Development Board	To visit the KVK and College of Agriculture
13.06.2016	Sri Sankar Chakraborty, Chairman, Mackintosh Burn Ltd.	To visit the KVK and College of Agriculture
13.06.2016	Dr. Chirantan Chattopadhyay, V C, UBKV	To visit the KVK and College of Agriculture
13.06.2016	Shri Sanjoy Bose, DM, D. Dinajpur	To visit the KVK and College of Agriculture
13.06.2016	Prof(Dr.) Ashok Choudhury, DR, UBKV	To visit the DDKVK, UBKV
13.06.2016	Dr. Subhendu Bandopadhyay, Registrar, UBKV	To visit the DDKVK, UBKV
05.12.2016	Sri Sankar Chakraborty, Chairman, Mackintosh Burn Ltd.	Celebration of soil day by DDKVK, UBKV
05.12.2016	Sri Asish Chakraborty, DDM, NABARD, D. Dinajpur	Celebration of soil day by DDKVK, UBKV
05.12.2016	Sri Abhay Kumar Sinha, LDM, D. Dinajpur	Celebration of soil day by DDKVK, UBKV
05.01.2017	Dr. Sitangshu Sarkar, Pr. Scientist, ICAR- CRIJAF, Barrackpur	Collaborative Scientific Activity

DAKSHIN DINAJPUR KVK (2017-18) :

Date	Name of the person	Purpose of visit
14.05.2017	Shri Bachchu Hansda, Minister of State, North Bengal Development (Govt.of W.B)	To visit the KVK and demonstration unit
05.06.2017	Sri Rabindranath Ghosh, MIC, Deptt. of North Bengal Development BoardGovt. of WB	To visit the KVK and College of Agriculture
08.08.2017	Prof. C. Chattopadhyay, Vice-Chancellor, UBKV	SAC meeting and visit to demonstration unit
08.08.2017	Dr. Kalyan Sundar Das, Principal Scientist, ICAR-ATARI, Kolkata	SAC meeting and visit to demonstration unit
08.08.2017	Dr. H. Bhattacharjee, Ex-DEE (Actg.), UBKV	SAC meeting and visit to demonstration unit
14.06.2017	Sri Sankar Chakraborty, Chairman, Mackintosh Burn Ltd.	To visit the KVK and College of Agriculture
04.01.2018	Shri Mrinmay Biswas, ADM (Development), Dakshin Dinajpur	Visit to KVK and attend the DAESI programme
19.07.2017	Prof(Dr.) Ashok Choudhury, DR, UBKV	To visit the DDKVK, UBKV
19.07.2017	Dr. Subhendu Bandopadhyay, Registrar, UBKV	To visit the DDKVK, UBKV
05.12.2017	Shri Sankar Chakraborty, Chairman, Mackintosh Burn Ltd.	Celebration of soil day by DDKVK, UBKV

Date	Name of the person	Purpose of visit
05.12.2017	Shri Asish Chakraborty, DDM, NABARD, D. Dinajpur	Celebration of soil day by DDKVK, UBKV
05.12.2017	Shri Sanjay Kumar Gour, LDM, D. Dinajpur	Celebration of soil day by DDKVK, UBKV
05.12.2017	Shri Jyotirmay Biswas, DDA (Admn.), Dakshin Dinajpur	Celebration of soil day by DDKVK, UBKV
09.02.2018	Prof. Biswanath Bandopadhyay, Ex. VC, UBKV	To visit the KVK
09.02.2018	Prof. Pabitra Mani, Dept. of Soil Science, BCKV	To visit the KVK
19.02.2018	Dr. Subhendu Bandopadhyay, Registrar, UBKV	To attend the review workshop
19.02.2018	Dr. Prabhat Paul, DEE, UBKV	To attend the review workshop
19.02.2018	Dr. Sukanta Dasgupta, ADA, Seed Certification	To attend the review workshop
19.02.2018	Dr. Chandan Sourav Kar, Pr. Scientist, ICAR- CRIJAF, Barrackpur	To attend the review workshop

DARJEELING KVK (2016-17) :

Name of the person	Purpose of visit
MLA, Kalimpong	Mela Inauguration
VC, UBKV	NICRA zonal workshop
Director, NICRA	NICRA zonal workshop
ZPD, ICAR, Zone II	NICRA zonal workshop

DARJEELING KVK (2017-18) :

Name of the person	Purpose of visit
Mrs. Sarita Rai	Observation of World Soil Day
Mrs. Sarita Rai	Live Telecast of National Conference on KVKs
Dr. Viswanathan, IAS, DM – Kalimpong	Women empowerment programme

MALDA KVK :

- Mr. Sumanta Kundu (Scientist , CRIDA, Hydrabad),
- Dr. Yishnu Das (Joint director, NIRJAFT),
- Dr. Anil Kumar(Scientist, BAU) Dr. Manas Ghosh(Director SAMETI).
- Dr. K. Pradheep (Principle Scientist, ICAR-NBPGR, New Dellhi),
- Dr. Satish Kumar Yadav(Principle Scientist, ICAR-NBPGR, New Dellhi)

UTTAR DINAJPUR KVK :

10.2 Special year : International year of pulse (2016-17) for all the KVKs.

10.3 Special programmes : for all the KVKs.

1. Swachh Bharat Pakhoda
2. Technology week & krishimela
3. International Soil Day celebration
4. Rabi Kishan Sammelon
5. Celebration of different Special days in both years (26 nos)

6. Prime Minister's Interactions live telecast
7. World Soil Health Day
8. International Yoga Day
9. National Farmers' Day
10. Vigilance awareness Week
11. Aranya Saptha
12. World Environment Day
13. World Nutritional Week
14. National Science day

11. Achievements :

11.1 Adoption of Technology/Technology outscaled :

COOCH BEHAR KVK :

DAKSHIN DINAJPUR KVK :

(1) Paddy cultivation through Drum seeder
(2) SRI technology of paddy cultivation
(3) Zero tillage wheat cultivation
(4) Soil test based fertiliser recommendation
(5) Introduction of new crops like Brocolli and summer squash
(6) Low cost feed formulation for fishes
(7) Breeding and culture of Deshi Magur
(8) Scientific method of bee-keeping as a part of entrepreneurship
(9) Mushroom spawn production
(10) Low cost IPM technology.

DARJEELING KVK :

Black gram cultivation using improved variety	
Major Achievement	To increase area under kharif pulse and encourage farmers of the areas
Variety	WBU – 108, PU-31
Physical Achievement	30 ha
Total Benefits	230
Green gram cultivation using improved variety	
Major Achievement	To increase area under Summer pulse and encourage farmers of the areas
Variety	Samrat
Physical Achievement	10 ha
Total Benefits	124
Field pea cultivation using improved variety	
Major Achievement	To increase area under Rabi pulse and encourage farmers of the areas
Variety	Pusa Pragati
Physical Achievement	10 ha
Total Benefits	146
Mustard cultivation using improved variety	
Major Achievement	To increase area under oilseed and encourage farmers of the areas
Variety	PS-28, Pillow NG

Physical Achievement	40 ha
Total Benefits	230
Paddy cultivation using improved IARI released variety	
Major Achievement	To increase area under short duration scented rice and encourage farmers of the areas
Variety	PS-5
Physical Achievement	25 ha
Total Benefits	140
Maize cultivation using hybrid variety	
Major Achievement	To increase area under maize and encourage farmers of the areas
Variety	DEKLAB 9144
Physical Achievement	30 ha
Total Benefits	130
Vanaraja poultry farming in backyard system	
No. of block covered	6
Total Benefits	300
RIR poultry farming in backyard system	
No. of village covered	6
Total Benefits	350
Hampshire pig farming in backyard system	
No. of village covered	4
Total Benefits	115
Ghungroo pig farming in backyard system	
No. of village covered	3
Total Benefits	90
Adoption of mushroom cultivation for household nutritional security	
Variety	Oyster Mushroom
No. of Village covered	13
Total beneficiary	321

MALDA KVK :

- Varietal replacement of major field crops,
- Introduction of remunerative crops like elephant foot yam and Turmeric,
- Water saving paddy cultivation through SRI Technique,
- Resource Conservation Technology for wheat, jute, lentil, maize, rice cultivation,
- Low cost vermicompost preparation using vermibag,
- In situ moisture conservation using organic mulch in vegetable,
- Multi-tier horticulture,
- Crop diversification through intercropping ,
- composite fish culture,
- IFS

UTTAR DINAJPUR KVK :

1. Herbal Gulal/Eco Holi colours preparation as an entrepreneurial activity by SHGs of Chopra block of Uttar Dinajpur district
2. Mushroom cultivation for income generation
3. Mushroom production for household nutritional security and as an employment avenue for tribal families
4. Low cost nutritional weaning food

5. Organic Cultivation of BAU kul BER (*Ziziphus mauritiana)*
6. Herbal Gulal/Eco Holi colours preparation as an entrepreneurial activity by SHGs of Uttar Dinajpur district
7. Fabrication of Tubular maize Shellar

11.2 Awards and recognition :

COOCH BEHAR KVK (2016-17) :

Award received by Farmers from the KVK district :

Sl. No.	Name of the Award	Name of the Farmer	Year	Conferring Authority	Amount	Purpose
1	Krishak Ratna	Dipak Nandi, Gopalpur	2016	Govt. of West Bengal	10,000	
2	Krishak Ratna	Bablu Modak, Batasurkuthi	2016	Govt. of West Bengal	10,000	
3	Krishak Ratna	Dhiren Kar, Kisamatdashgram	2016	Govt. of West Bengal	10,000	
4.	Krishak Ratna	Kamal Roy, Joygopalganj	2016	Govt. of West Bengal	10,000	
6.	Krishak Ratna	Santosh Deb, Dakshin Barasakdal	2016	Govt. of West Bengal	10,000	
7.	Krishak Sanmman	Chandan Roy, Satmile	2017	Govt. of West Bengal	25,000	
8.		Laxmikanta Barman				

COOCH BEHAR KVK (2017-18) :

Sl. No.	Name of the Award	Name of the farmer	Year	Conferring authority	Amount	Purpose
1	Krishak Sanman (State Level)	Ekramul Haque	2017	Deptt. of Agriculture, Govt. of West Bengal	25,000.00	Farm mechanization
2	Krishak Sanman (State Level)	Chandan Roy	2017	Deptt. of Agriculture, Govt. of West Bengal	25,000.00	Farm mechanization
3	Krishak Sanman (State Level)	Mridul Ghosh	2017	Deptt. of Agriculture, Govt. of West Bengal	25,000.00	Entrepreneurship development
4	Krishak Ratna (Block Level)	Santosh Deb	2017	Deptt. of Agriculture, Govt. of West Bengal	10,000.00	Hi-tech horticulture
5	Krishak Ratna (Block Level)	Madhusudan Roy	2017	Deptt. of Agriculture, Govt. of West Bengal	10,000.00	Hi-tech horticulture

6	Krishak Ratna (Block Level)	Bhanu Singha	2017	Deptt. of Agriculture, Govt. of West Bengal	10,000.00	Farm mechanization

DAKSHIN DINAJPUR KVK :

Name of awardee	Name of Honours, Fellowships and awards	Awarding Agency	Year
Dr. Biswajit Goswami, SMS (Fisheries Science)	National Teaching Excellence Award	International Benevolent Research Foundation	2017
Dr. Biswajit Goswami, SMS (Fisheries Science)	Honorable Mention Award (Scientist Category) in 5th Faculty Branding Awards-17	EET CRS	2017
Dr. Biswajit Goswami, SMS (Fisheries Science)	Swami Vivekananda Excellence Award in the field of Agricultural Education	World Achievers Foundation, Kolkata in association with Confederation of Indian Universities (CIU), New Delhi	2017
Dr. Biswajit Goswami, SMS (Fisheries Science)	Life time membership certificate (membership id F3140900322) for fellow of professional society	International society for research and development (ISRD)	2016

DARJEELING KVK :

- Mr. Subrara Manna of Darjeeling KVK received best paper presentation award in the National Seminar of COBACAS "Climate Smart Agriculture" at Kalimpong for presenting paper on "Effects of mobile radiation on Agriculture" during 2017.
- Mr. Subrara Manna of Darjeeling KVK received best paper presentation award in the National Seminar on "Water and Soil Management Approaches for Climate Smart Agriculture" at Banaras Hindu University for presenting paper on "Soil Expert System-is an effective tool for Climate Smart Agriculture" during March 23-24, 2018.
- Akriti Pradhan, SMS (Home Science) of Darjeeling KVK received the best paper presentation award in the International Seminar on "Specialised, Ayurvedic & Innovative Foods & Nutrition" at Sri Sathya Sai Institute of Higher Learning, Anantapur, Andhra Pradesh for presenting paper on "Nutrition Expert System – An effective software tool for nutrition extension functionaries" during 2018.

MALDA KVK : Nil

UTTAR DINAJPUR KVK : Received Pandit Deen Dayal Rashtriya Krishi Vigyan Protsahan Puraskar for the year 2016-17

11.3 Publications :

COOCH BEHAR KVK :

Item	Title	Authors Name	Number	Circulation
Research Paper	1. Perception of Seed treatment of fertilizer and pesticide dealer with respect their socio	Ganesh Das, Surajit Sarkar, Sujan Biswas	International journal of research in Applied Natural and Social Sciences, 4 (4),	

Item	Title	Authors Name	Number	Circulation
	economic variable : A study in Cooch Behar district	and Sanjoy Kumar Das	2016	
	2. Adoption of vermicompost production with respect some socio economic variable	Ganesh Das, Surajit Sarkar, Sujan Biswas and Sanjoy Kumar Das	International journal of Agriculture Sciences, 8 (24), 2016	
	3. Adoption percentage of Azolla Production; A post training evaluation	Ganesh Das, Suraj Sarkar, Sanjoy Kumar Das	Asian journal of Agricultural Extension, Economics and Sociology, 11 (1), 2016	
Research Paper	4. Influence of date of sowing on growth and yield dynamics of fenugreek (Trigonella foenum-graecum L.)	Samima Sultana, Ganesh Das, Bhabani Das, Suraj Sarkar	International Journal of Green Pharmacy, 10 (4), 2016	
	5. Study on different levels of Chlorantraniliprole 10% + Thiamethoxam 20% mixture against major insects pests of tomato	Sandip Patra, B.C. Das, Suraj Sarkar, P.P. Dhar and A. Samanta	International Journal of Bioresource and Stress Management, December, 2016	
	6. Comparative bio efficacy of different insecticide against fruit and shoot borer of brinjal and their effect on natural enemies	Gobinda Roy, Roshna Gazmer, Suraj Sarkar, Nripendra Laskar, Ganesh Das and Arka Samanta	International Journal of Green Pharmacy, 10 (4), 2016	
	7. Evaluation of various plant growth regulators in flower and fruit setting of litchi	Samima Sultana, Ganesh Das, Bhabani Das, B.C. Rudra	International Journal of Green Pharmacy, 10 (4), 2016	
	8. Constraints perceived by officials of Dairy union in Sothern Rajasthan	Naban Singh, F.L. Sharma, B. Singh, P.Seth, V.K Basunathe and Ganesh Das	International Journal of Science, Environment and Technology, 5 (6), 2016	
	9. Dooars India: A potential place of farm or rural tourism: A review	Ganesh Das, Avishek Saha, V.K. Basunathe, Samima Sultana, P.Seth, N.Singh, A.Roy and N.K. Singh, S. Borah and H.C. Kalita	International Journal of Agriculture Sciences, 8 (53), 2016	
	10. Demand of organic manure with respect some socio economic variable of fertilizer dealer: A study in Cooch Behar district	Ganesh Das, Suraj Sarkar, Sankar Saha and Sujan Biswas	International Journal of Science, Environment and Technology, 5 (3), 2016	
	11. Perception of Kisan Call Centre by the farming community with their socio economic variable: A study on	Ganesh Das	IRACHT-International Journal of Advanced Computing, Engineering and Application, 5 (3), 2016	

Item	Title	Authors Name	Number	Circulation
	Cooch Behar district			
	12. Harnessing the indigenous technological knowledge base regarding post harvest management of agricultural products	K.Pradhan, Zigme Yolme, Avishek Saha, Sabita Mondal, Ganesh Das	International Journal of Green Pharmacy, 10 (4), 2016	
	13. Frontline Demonstration on effect of bunch cover in banana for quality production of banana fruit	Surajit Sarkar, Ganesh Das, Suraj Sarkar, Sankar Saha and Sujan Biswas	International Journal of Green Pharmacy, 10 (4), 2016	
	14. Cast and Societal movement towards adoption of cross-breeding technology in piggery: A case study of T & D pig breed in eastern India	P.Seth, M.Chander, N.Singh, R.Kumari, V.K.Basunathe and Ganesh Das	International Journal of Science, Environment and Technology, 5 (6), 2016	
	15. Farmers perception on fungicide use for developing sustainable environment and conservation of bio-diversity: A study in Cooch Behar district	Ganesh Das	International Journal of Horticulture and Agriculture, Symbiosis publication, 2016	
	16. Climate change perception and response strategies of forest fringe communities in Indian Eastern Himalaya	Tanusri Dey, N.A. Pala, G. Shukla, P.K. Pal, Ganesh Das and S. Chakarvarty	Environment Development and Sustainability, Springer, 2017	
	17. Screening of resistance of piper betle landraces against *Singhiella pallida*(Hemiptera: Aleyrodidae)	T. Dhar, P.M. Bhattacharya, Sujan Biswas and S. Bhattacharya	The Bioscan, 11 (2), 2016	
Seminar/conference	1. Farmers perception on pesticide use with respect to their socio economic variable	Ganesh Das	International conference on Agriculture, Food Science, Natural Resource Management and Environmental Dynamics: The technology, people and sustainable development	
	2. Validation of Integrated disease management schedule of Macrophomina sp. Causing stem rot in jute	Suraj Sarkar, Bikash Roy, Sujan Biswas, Sankar Saha, Surajit Sarkar, Ganesh Das	National conference on enhancing nutritional security through climate smart farming practices	
	3. Rain water harvesting and recycling	Sujan Biswas, Surajit Sarkar	NICRA Annual Workshop	
	4. Natural resource management through solid waste management	Sujan Biswas, Surajit Sarkar	NICRA Annual Workshop	
	5. Effect of enrich compost on carbon sequestration, physical, chemical and biological attributes of soil quality for rice-potato cropping system	Sujan Biswas, Surajit Sarkar, Bikash Roy and F.H. Rahaman	National Seminar on maximizing Fertilizer use Efficiency and Environmental Health for posterity	

Item	Title	Authors Name	Number	Circulation
	under Terai agro-climatic zone of West Bengal			
	6. Effect of different phosphatic sources on potato yield and soil quality	Sujan Biswas, Bikash Roy and F.H. Rahaman	National Seminar on maximizing Fertilizer use Efficiency and Environmental Health for posterity	
Symposia papers				
Books	Ful Fal o Sabjor chara tairi	Surajit Sarkar		
	Bivinna phasaler bij utpadan padhyati	Sujan Biswas, Sankar Saha and Surajit Sarkar		
	Phasaler rog poka ebong tar protikar	Suraj Sarkar		
	Jaiba o jibanu sar tairi ebong tar padhyati	Sujan Biswas		
Bulletins	Bhabisyat prakritik biporjay mokabilay krishak bandhuder jonno abasya palanio agrim surakhya byabastha	Sujan Biswas, Sankar Saha, Surajit Sarkar, Ganesh Das, SUraj Sarkar		
News Letter				
Popular Articles	Sahaj upaye swalpo kharache kencho sar tairi	Sujan Biswas	Sabuj Sona	
	Aman Dhaner bijtala paricharjya	Sankar Saha and Suraj Sarkar	Ananda Bajar Patrika	
Book Chapter	Farmers perception on pesticide use with respect to their socio economic variable	Ganesh Das	International Conference Proceeding on Agriculture, Food Science, Natural Resource Management and Environmental Dynamics: The technology, people and sustainable development, ISBN-978-93-85-822-28-5	
Extension Pamphlets/Literature	Unnata prothay moumachhi palan sankranto kichhu katha	Suraj Sarkar		
	Unnata Prathay musur chas	Sankar Saha, Suraj Sarkar and Sujan Biswas		
	Bigyan sammata upaye jhinuk mushroom chas	Ganesh Das		
	Bigyan Sammata upaye jaiba sar tairi	Sujan Biswas		
	Sahaj upaye kencho sar tairi	Sujan Biswas		
Technical Reports	Monthly report		12	
	Quarterly report		4	
	Annual Report		1	
	NICRA at a glance (2011-2016)		1	
	KVK Achievement (2006-07 to 2015-16)		1	
	Documentary for the Award Pandit Deen Dayal Upadhyay Krishi Vigyan Prottshahan Puraskar (National/Zonal) 2016-		1	

Item	Title	Authors Name	Number	Circulation
	17			
	Technical report on Pulse and Oilseed		4	
Electronic Publication (CD/DVD etc)			3	

DAKSHIN DINAJPUR KVK (2016-17) :

Title	Authors Name
Factors influencing the adoption behaviour of fish farmers towards scientific fish culture Journal of the Inland Fisheries Society of India. 48(1):84-92	Dr. B. Goswami
Extent of Knowledge of Fish Farmers About Scientific Fish Culture Practices in North 24 Parganas of West Bengal, India Indian Journal of Extension Education52 (1and2): (52) - (55)	. B. Goswami Mukhopadhyay S. B.[2], Dana S.S.[3]
Studies on In situ Net N Mineralization in Soils from Mathura Tea Garden and Cultivated Land of North Bengal International Journal of Agriculture, Environment and Biotechnology Citation: IJAEB: 9(6): 1023-1029, December 2016	B Mahato, P Panda, B Paramanik*, P De, R Panda, A Hoque, A Choudhury, N K Mahato, A Kundu, R Karmakar, l Das and A Mahato
Screening of phosphorus solubilizing bacteria from tea rhizosphere soil based on growth performances under different stress conditions. International Journal of Bioresource Science Citation: IJBS: 3(1): 39-56 June 2016	P Panda, S Chakraborty, D.P. Ray, B Mahato, B Paramanik* and A Choudhury
Atmospheric Nitrogen Fixing Capacity of Azotobacter Isolate from Cooch Behar and Jalpaiguri Districts Soil of West Bengal, India Int.J.Curr.Microbiol.App.Sci (2017) 6(3): 1775-1788	P Bikash Bag, P Panda, B Paramanik*, B Mahato and A Choudhury
State level seminar on Horticulture entrepreneurship development Org. by RRS (OAZ), UBKV from Dec,16-17, 2017	B. Goswami, B. Paramanik,

DAKSHIN DINAJPUR KVK (2017-18) :

Title	Authors Name
Controlling fish diseases through the use of ITK by fish farmers of W.B., India (Indian Research Journal of Extension Education 17(2), April, 2017)	Dr. B. Goswami and Dr. P.K. Gangopadhyay
Distribution of different forms of potassium in some coastal soils of W.B. (International Journal of Bio-resource Science 4(1) : 35-45, June, 2017).	R. Panda, S.K. Patra, S. Chakraborty, D.P. Roy, P. Panda and B. Paramanik
Evaluation of chemical and biological indices for carbon and nitrogen mineralization of various organic matters used in tea garden (International Journal of Bio-resource Science 4(1) : 47-56, June, 2017).	B. Mahato, S. Chakraborty, D.P. Roy, P. Panda, B. Paramanik, N.K. Mahato, A. Kundu, A. Hoque and A. Choudhury
Success point, outcome and impact analysis of azolla (A. pinnata) cultivation through institutional involvement. (International Journal of Research in Applied, Natural and Social Sciences, Special Edition, Aug. 2017, 1-4).	G. Das, V. Sarkar, B. Paramanik, B. Roy, S.K. Das and A. Maji

DARJEELING KVK :

Item	Title	Authors name	Number

Item	Title	Authors name	Number
Research paper	Interactive ICT tools for goat management. Knowledge level and adoption of scientific kid health management among goat owners under field conditions.	Roy Rakesh and Tiwari Rupasi(2016). Roy Rakesh, Tiwari Rupasi, Bharti PK and DuttTriveni (2017).	*Journal of communication studies.* **34**(1): 42-49. *Indian Journal of Animal Science.* **87**(1):78-79.
	Productive and reproduction performance of dairy animal in Karnal district of Haryana.	ManjushaJyoti, **Roy Rakesh,** Kumar Vijay and Gupta Jancy (2016).	*Indian Veterinary Journal.* **93**(6):38-40
	Contract goat farming: an emerging model for livelihood generation among resource poor farmers of western Odisha.	ChinmayaSahoo, Rupasi Tiwari,**Rakesh Roy**,Bharti P.K.and TriveniDutt(2016)	*Indian Journal of Animal Science.* **86** (5):609–611
	Adoption level of recommended buffalo husbandry practices by dairy farmers in Uttar Pradesh.	SachanRanjana, Sankhala Gopal, Roy Rakesh and ManjushaJyoti (2016).	*Indian Journal of Dairy Science***69**(5): 613-617
Seminar/conference/ symposia papers	Effect of mobile radiation in hill agriculture	Subrata Manna Kaushik Saha	
Book Chapter	Trichogramma: An Egg Parasitoid in Insect-Pest Management	*Tarak Nath Goswami, Anil, Tarak Brambha Maji, Pranab Barma, and Shree Niwas Ray*	
	Coccinellids in Insect Pest Management: Problems and Prospects	*Pranab Barma, Suprakash Pal, and Tarak Nath Goswami*	
Extension Pamphlets/ literature	Importance of Breast feeding	Akriti Pradhan Subrata Manna	
Technical reports	6 Reports of UBKV & ICAR	Dr. M W Moktan Subrata Manna Dr. Basu Deo Kharga	
Electronic Publication (CD/DVD etc)	Cultivation of Oyster Mushroom	Akriti Pradhan Subrata Manna Basu Deo Kharga	

MALDA KVK :

Item	Title	Authors name	Number
Research paper	Assessment of Infestation by *Sesamia inferens* on Wheat varieties under different Tillage conditions	Paramita Bhowmik and Bankim Chandra Rudra	Journal of Krishi Vigyan 5(2): 5-7, 2017
	Evaluation of Suranjana Variety of Turmeric for increasing productivity among farmers of Malda district of West Bengal	Singh, D. K.; Rudra, B.C., Bhowmik, Nilesh. and Gangopadhyay, P.K.	Jr. of *Interacademicia* 20 (4): 437-441, 2016
	Evaluation of various Plant Growth Regulators in flower and fruit setting of litchi	Sultana, Samima., Das Ganesh, Das, Bhabani and Rudra, B.C.	International Journal of Green Farmacy 10 (4): Oct-Dec 2016(suppl.)
	Evaluation of Gajendra Variety of Elephant Foot Yam for increasing productivity among	Singh, D. K.; Rudra, B.C., Das, B. and Gangopadhyay, P.K.	Jr. of *Interacademicia* 21 (2): 208-210, 2016

Item	Title	Authors name	Number
	farmers of Malda district of West Bengal		
	Influence of dates of sowing on growth and yield dynamics of Fenugreek (Trigonella foenum-graecum L.)	Samima Sultana Ganesh Das, Bhabani Das, Suraj Sarkar	International Journal of Green Farmacy Oct.-Dec. 2016 10(4) s 234
	Doors India: a Potential place farmor Rural Tourism-A Review.	Ganesh Das, Sayyanika Borah, N K Sigh, Amitava Roy, Navab Singh, Pankaj Seth, Samima Sultana, V K Basunathe, Avishek Saha, H C Kalita.	International Journal of Agricultural Sciences Vol. 8, Issue 53, pp 2715-2717, Nov. 2016.
Seminar/conference/ symposia papers	Assessment of Infestation by Sesamia inferens Walker (Noctuidae: Lepidoptera) at different Tillage conditions and its impact on some morphological and economical characters of wheat	Paramita Bhowmik and Bankim Chandra Rudra.	National Symposium on Impact of Climate Change, Biodiversity and Good Plant Protection Practices on Crop Productivity, AAPP, BCKV, Kalyani, Nadia, W.B., 22nd – 23rd December, 11p
Books	Gramin Arthonitir Bikashe Upajukta Prajukti (Appropriate Technology for Rural Financial Prosperity)	Bhabani Das Adwaita Monda Dr. Paramita Bhowmik Samima Sultana Dr. B.C. Rudra	
Popular Articles	10	Bhabani Das Adwaita Monda Dr. Paramita Bhowmik Samima Sultana Dr. B.C. Rudra	

Item	Title	Authors name	Number
Research paper	Effect of date of sowing on productivity of black cumin	Samima Sultana, Bhabani das, ganesh das and Bankim Chandra Rudra	International Journal Current Microbiology and applied Science, **7**(01): 1796-1800, 2018
	Assessment of Infestation by *Sesamia inferens* on Wheat varieties under different Tillage conditions	Paramita Bhowmik and Bankim Chandra Rudra	Journal of Krishi Vigyan **5**(2): 5-7, 2017
Popular Articles	10	Bhabani Das Adwaita Monda Dr. Paramita Bhowmik Samima Sultana Dr. B.C. Rudra	500

UTTAR DINAJPUR KVK (2016-17) :

Item	Title	Authors name	Number	Circulation
Research paper				
Seminar/conference/ symposia papers	1. Pulse based low cost food supplement for mal nourished children 2. Environment friendly fish amino acid based organic manure to enhance the productivity of homestead garden 3. Evaluation of different planting techniques of rice under changing	Dr. Anjali Sharma and Dr. Bikash Roy Dr. Anjali Sharma and Dr. Dhananjoy Mandal and Dr. F.H. Rahaman Dr. Surujit Kundu, Dr. Dhananjoy Mandal, Mr. R.		Extended summery Abstract

Item	Title	Authors name	Number	Circulation
	climate scenario	Yonzone & Mr. B. Das		
Booklets	1. Phasaler Smpuritoa Pratikar Byabostha 2. Beguner Phal Phuto Kara Pokar Pratikar Byabostha 3. Beguner Bhibhinna Poka O tar Daman 4. Beguner Phal Photo kara Pokar Patikare Pheromone Phander Byabohar 5. Mati Parikhar Gurutta O Tar Padhyuti 6. Kechu Sar Tairi O Tar Krishite Byabohar 7. Mushroom Chas : Gramin Mahilader Swarnirbhortar Ek Natun Disha 8. Unnata Prathai (Swachha Polithine Achhadone) Boro Dhaner Beejtola	1. Dr. Dhananjoy Mandal 2. Dr. Dhananjoy Mandal 3. Dr. Dhananjoy Mandal 4. Dr. Dhananjoy Mandal 5. Dr. Dhananjoy Mandal& Dr. Surijit Kundu 6. Dr. Anjali Sharma 7. Dr. Anjali Sharma 8. Dr. Dhananjoy Mandal, Dr. Surujit Kundu, Dr. Bikash Roy, Dr. Prabir Mukhopadhyay	08	
Bulletins				
News letter				
Popular Articles			05	
Book Chapter				
Extension Pamphlets/ literature/Leaflets	1. Brocoli chas 2. Narikel ghacher paricharya 3. Anaras Chas 4. Kala Chas 5. Mati Parikshar Guruta O Tar Padhuti 6. Matir Susasthe Matir Jibanur Bhumika 7. Bhaighanik padhyatite kalo kolaier chas O rog-pokar sampurita pratikar bhabasthya 8. Bhaighanik padhyatite kalo kolaier chas O rog-pokar sampurita pratikar bhabasthya 9. Beguner doga O phal phuto kora pokar akraman theke bancher upai 10. Azolla: Ekti utkrishta griyapalita pasu khadya 11. Susanghata Mach-Hans-Sabjichas 12. Atur Pukure Dimponer Chash	1. Dr Moutusi Dey 2. Dr Moutusi Dey 3. Dr Moutusi Dey 4. Dr Moutusi Dey 5. Dr. Dhananjoy Mandal & Dr. Surujit Kundu 6. Dr. Dhananjoy Mandal & Dr. Surujit Kundu 7. Dr. Dhananjoy Mandal 8. Dr. Dhananjoy Mandal 9. Dr. Dhananjoy Mandal 10. Dr. Anjali Sharma 11. Mr. Debdas Sekhar 12. Mr. Debdas Sekhar	12	
Technical reports				
Electronic Publication (CD/DVD etc)				
			13	

UTTAR DINAJPUR KVK (2017-18) :

Publication by KVK		
Item	**Number**	**No. Circulation**
Research paper	1	1
Seminar/conference/ symposia papers	**1**	1
Booklets		

Publication by KVK		
Item	**Number**	**No. Circulation**
Bulletins	3	60
News letter		
Popular Articles		
Book Chapter		
Extension Pamphlets/ literature/Leaflets	15	3560
Technical reports		
Electronic Publication (CD/DVD etc)	3	12
TOTAL	**23**	**3634**

(A) Literature Developed/Published (with full title, author & reference)

Item	Title	Authors name	Number	Circul-ation
Research paper	Growt h and yield of rice as influenced by different planting techniques	Dr. Dhananjoy Mandal, SMS (Plant Protection)	1	
Seminar/conference/ symposia papers	Market linked technology of mushroom cultivation for subsidiary income and nutritional security of farm families of Uttar Dinajpur district.	Dr. Anjali Sharma, SMS (Home Science)	1	
Booklets				
Bulletins	1. Phasaler Sampurito Pratikar Byabostha (Integrated Pest Management of Crops) 2. Mushroom Chas : Gramin Mahilader Swarnirbhortar Ek Natun Disha (Mushroom Cultivation: Employment opportunities of Farm Women)	Dr. Dhananjoy Mandal, SMS (Plant Protection) & Dr. Anjali Sharma, SMS (Home Science)		
News letter				
Popular Articles				
Book Chapter				
Extension Pamphlets/ literature/Leaflets	1. Broccoli chas (*Cultivation of Brocolli*) 2. Narikel ghacher aricharya(*Management of Coconut tree*) 3. Anaras Chas (*Cultivation of Pineapple*) 4. Beguner doga o phal phuto kora pokar akraman theke baneher upai (*IPM of BFSB*) 5. Azolla: Ekti utkrishta griyapalita pasu khadya (*Azalia:* A *high quality of fodder*) 6. Kala Chas (*Cultivation of Banana*) 7. Susanghata Maeh-Hans-Sabjichas (*Integrated Farming systems*) 8. Mati Parikshar Guruta o	1. Dr. Moutusi Dey, SMS (Horticulture) 2. Dr. Dhananjoy Mandal, SMS (Plant Protection) 3. Dr. Anjali Sharma, SMS (Home Science) 4. Mr. Debdas Sekhar, SMS (Fishery Science)		

Item	Title	Authors name	Number	Circul-ation
	Tar Padhuti (*Importance of Soil Testing and its Process*) 9. Matir Susasthe Matir Jibanur Bhumika (*Importance of Soil Bacteria for Healthy Soil*) 10. Sabjir Charar Adarsha 11. Beejtala Tairi (*Importance of Soil Bacteria for Healthy Soil*) 12. Atur Pukure Dimponer Chash (*Nursery Pond Management*) 13. Bhaighanik padhyatite kalo kolaier ehas o rog-pokar sampurita pratikar Bhabasthya (*Scientific cultivation of Black gram and IPM*) 14. Gharowa Sabji Bagan (*Kitchen Garden*) 15. Ghare Tairi Pustikar Sishu Khadyo (*Home Made Nutritional Baby Food*)			
Technical reports	1. Annual Reports 2016-17 2. Pandit Deen Dayal Updhyay Rastriya Krishi Protsahan Puraskar 3. Comprehensive District Agriculture Plan for Uttar Dinajpur District, West Bengal 4. SREP for Uttar Dinajpur district 5. Comprehensive Five years Report of KVK 6. Compresensive Report of KVK since inception i.e. 2005	1. Dr. Dhananjoy Mandal, SMS (Plant Protection) 2. Dr. Moutusi Dey, SMS (Horticulture) 3. Dr. Anjali Sharma, SMS (Home Science) 4. Mr. Debdas Sekhar, SMS (Fishery Science) 5. Dr. Soumen Mahapatra, Farm Manager 6. Mr. Sudipta Debnath, Programme Assistant		
Electronic Publication (CD/DVD etc)	1. Mushroom cultivation by Tribal Farm Women 2. Vermicompost Production 3. Backyard Azolla cultivation	Dr. Anjali Sharma, SMS (Home Science)		

13. Salient Case Studies :

COOCH BEHAR KVK :

CULTIVATION OF LENTIL IN FALLOW LAND

Name of farmer	Chandmohan Sarkar
Address	Village Uttar Kheti, block Mathabhanga-II, Coochbehar, West Bengal
Contact details	
Landholding (ha)	0.53 ha
Name and description of the farm/enterprise	Cultivation of lentil in fallow land
Economic impact	Income level of the farmers was increases 33% from Bench marks (BM)
Environmental impact	Soil fertility status increased, use of fallow land
Horizontal/vertical spread	Horizontal spread: Farmers were convinced to the performance of the new technology. Gradually more numbers of farmers were adopted this technique for increasing their farm income. Vertical spread: Different government and private organisation opening new pulse processing machinery which may generate additional employment among rural youth and farmers may get better price.

Fig. 1 & 2 : Cultivation of lentil in fallow land

IMPROVED METHOD OF MUSTARD CULTIVATION

Name of farmer	Satish Ch. Roy
Address	village- Gopalpur, block: Coochbehar-II, PIN-736133, Coochbehar, West Bengal
Contact details	
Landholding (ha)	3 ha
Name and description of the farm/enterprise	Improved method of mustard cultivation. Use of improved variety- YSBNC-1 replacing the local variety- Kajoli
Economic impact	Income level of the farmers was increases 40% from Bench marks (BM)
Environmental impact	Soil fertility status increased due to optimum dose of fertilizer used. Used of environmentally friendly technology for control of pest. (used of Foliar spraying with *Verticillium lecanii* @ 5ml/litre water and yellow sticky trap @ 3/ bigha)
Horizontal/vertical spread	Horizontal spread: Farmers were convinced to the performance of the new technology. Gradually more numbers

	of farmers were adopted this technique for increasing their farm income.

Fig. 3 & 4 : Improved method of mustard cultivation. Use of improved variety- YSBNC-1replacing the local variety- Kajoli

Farmers' Club Mobilization : One of the biggest achievements of Cooch Behar KVK in 2015-16 has been the Farmers' Club empowering farmers from "Producer Organization" (P.O.). The objective of P.O. formation was to utilize expertise of the group and location specific for producing the product, collective marketing and adoption of appropriate technology supported by credit. The motive is to promote farming as commercial activitiy, Cooch Behar KVK has placed role of catalyst for formation of the following P.O. mentioned below:-

Sl No.	Name	Specific Crop
1.	Sabuj Biplab Producer Organization	Maize processing for animal feed
2.	Amulya Krishi Producer Organization	Fisheries and hatcharies
3.	Kishamat Dashgram Vivekananda Producer Organization	Fisheries
4.	Alor Dishari Producer Organization	Fisheries
5.	Adriti Rural Development	Integrated dairy farming
6.	Pandula Welfare Society	Vermicompost, mushroom and mushroom processing
7.	Chamta Welfare Society	Mushroom

DAKSHIN DINAJPUR KVK :

Name of the farmer : Mr. Krishna Karmakar

Address : Muktar Para, Provabati Lane, Balurghat, D. Dinajpur

Contact details : Mobile : 9775881795

Landholding (in ha) : Nil

Name and description of the farm/ enterprise : A 34 years' old rural youth belongs to a very poor and land less family. He has five members in his family. He has no income source. He could not be able to support his family. He came in contact with DDKVK, in 2008. The KVK suggested him to take the training on beekeeping. He underwent training on bee-keeping. After completion of training he went to Malda and Nadia district for getting field based experience He was in constant touch with the KVK for two years. Then he was being provided with 06 Bee-boxes from KVK and he purchased some colony from his own source. He started his journey in the year 2009-10 and got a profit of Rs. 30000.00 from 20 boxes. He

achieved the confidence and there was no look-back. Now, he is an established entrepreneur with a net annual income of about Rs. 267500.00 with 95 bee-boxes. He is an example to the unemployed youths and landless farmers.

Economic impact : Economic Return of Mr. Krishna Karmakar :

Year	No. of Boxes	Yield (Kg)	Rate (Rs.)	Gross Return (Rs.)	Rearing Cost (Rs.)	Net return (Rs.)	B:C ratio
2014-15	82	2870	110.00	303700.00	80000.00	225700.00	3.5 : 1
2015-16	87	3045	100.00	304500.00	93000.00	215000.00	3.2 : 1
2016-17	95	3325	110.00	365750.00	100000.00	265750.00	3.6 : 1

Social impact : Agriculture is an age old practice in India. But present day Agriculture should be sustainable as well as commercial and scientific based. Bee-Keeping is a need based alternative sustainable agriculture and vertical agriculture practice to fulfill the over growing employment problem of rural youths of India. Considering this, Dakshin Dinajpur Krishi Vigyan Kendra identified Bee-Keeping as one of the practices by rural youths as an entrepreneurship venture through skill development training. Bee-Keeping is a very profitable entrepreneurship. Dakshin Dinajpur District is an agriculture based district. Mustard is cultivated in about 25-30 thousand ha area which is a potential crop for Bee-Keeping. Besides, fruits and vegetables are also cultivated in considerable area. Thus, this district is a potential district for bee-keeping. There is a taboo among common people of this district that bee-keeping reduces yield of mustard. Initially, KVK tried hard to persuade the farmers to break the taboo and succeeded in driving out this wrong idea from the mind of a large no. of farmers. Rather, it enhances pollination and increases yield of mustard. Now, many farmers and rural youths are coming forward and opting bee-keeping.

KVK has provided about 12 nos. of trainings to 350 rural youths during the last 10 years from 2008 to 2017. Following is the details of training programmes conducted by the KVK on bee-keeping.

Environmental impact : Scientific method of bee-keeping play a vital role in pollination in field crops as well as horticultural crops. It has been observed that due to bee-keeping, the yield of crops like mustard has been increased remarkably.

Horizontal/Vertical Spread : The technology of bee-keeping has been adopted by 28 nos. of rural youth in 05 different villages of the district. The technology has been disseminated through relatives, friends and neighbours.

Name of the farmer : Rafikul Mia

Address : Panchagram, P.O. Pancharam, Gangarampur, Dakshin Dinajpur, 733140

Contact details : Mobile – 9635829958 **Landholding (in ha) :** 0.52 ha and leased pond : 3 ha

Name and description of the farm/ enterprise : Desi magur culture in small ponds.

The Asian catfish locally known as Magur fish (*Clarias batrachus)* is an important air-breathing cat fish with good market especially in West Bengal where it fetches a higher price than the major carps (Avg. Rs. 150.00 per kg). In most of the places this catfish is sold at more than Rs. 450.00 per kg. The fish is very nutritious and also consumed for therapeutic purposes during sickness. It is generally cultured in ponds along with carps, but rearing in shades and deserted ponds is not uncommon to be seen. Culture of air breathing fishes especially magur can be taken as a profitable, commercially viable enterprise by the rural youth. Cat fishes normally inhabit in adverse ecosystems like pits, ponds, marshes and derelict water bodies with low dissolved oxygen and high organic matter.A large part of the population West Bengal is poor. The poorest of these poor find themselves in a vicious circle, because they don't have collateral to prime income-generating activities. Many attempts have been made to break this circle. The main idea is to give people access to resources with which they can generate an income, with which they can acquire more resources to generate more income. Instead of providing money or other means to acquire resources to generate income, another approach to the poverty-problem is to try to find a way to generate income with resources available to these poorest people. Most poor people can work, have access to land on which their shack is built, what the area (or fields) around it can provide, and water. The area is enriched with huge aquatic resources. An income-generating activity making optimal use of these resources is homestead catfish culture. Requirements for this activity are feed for fish, a small pond, water, and catfish fry. Desi magur fry is produced by Rafikul Mia himself. After a rearing period of six months each magur fry will be about 100 g which costs about Rs. 50.00 per piece. On KVK's initiative another fish farmer Mr. Surajit Bhumali of Panchagram, Gangarampur district has also started magur culture in his ponds.

The concept of Desi magur fish culture : The basic concept of a homestead catfish culture programme is that the poorest people in an area are introduced to an easy method to culture fish in small ponds or pits in the ground on the homestead. The catfish (*Clarias batrachus*) in addition to breathing by gills, take in atmospheric oxygen through respiratory organs. Among the cat fishes, magur is one of the important species owing to its taste, medicinal and high market value. The species possesses tremendous potential for farming.Experience shows that as soon as people are introduced to this method, they adapt it to the possibilities around their homesteads. During and after successfully raising first batch of fish, the people on and around the involved homesteads develop initiatives for continuation of the activity, such as contacting local fry traders and trying out different food sources locally available. In the programme, initiatives like these are stimulated and form the core of the success of it.

Dissemination of Technology : and demonstration programmes were organised for the interested farmers. Field days were also organised for larger dissemination of the technology.All the training programmes on magur culture for participants were organised on site, at the homestead level. To ensure selection of the poorest of the poor, a general review of the participants' situation was made. To be selected for the programme the potential participants had to comply with the following criteria- (a) They had to be landless (people owning less than 0.02 ha of land are considered landless and (b) their general situation had to be poor

Based on the above criteria potential participants were asked about their interest in taking part in the programme. Those are interested, got fry in free of cost. Distribution of magur fry in free cost helps to encourage the farmer to culture. So that it was possible to visit the farmers' pond at certain intervals, and asked questions about their experiences. During the stocking of the fry, three basic rules for catfish culture were explained to the farmers:

- The fish need to be fed every day, preferably until they do not want to eat anymore.
- The food can be anything, except grass and plastic. The best food being protein rich food.
- As soon as the water in the small ponds starts smelling bad it needs to be changed.

Magur fishwere cultivated in 03 number of ponds of Rafikul Mia. The demonstration was conducted by KVK during 2015-16.Ten farmers participated in the homestead catfish culture programme. The average size of Rafikul Mia households was around five. He had an income-earning job with which they earned on an average Rs. 100.00 per day. On the other hand, woman stayed on the homestead and was not earning money. Rafikul Mia had two to three meals per day, mainly consisting of rice and vegetables. The vegetables included pulses (dhal), containing high levels of protein only thrice in a week. Twice a week the meals were supplemented with fish, once every two weeks with meat. Eggs and milk were consumed less than four times per week.

Grow out culture and Management : The earthen ponds were prepared for grow-out culture of magur. For culture of this species 50,000 number /ha of fish was stocked. The size of ponds were different varying from 0.0133 ha-0.0665 ha. 10 gm weight fish showed good survival and growth during culture. The fishes were fed at the rate of 3-5% of their body weight with homemade feed in the feeding basket placed in different places of the pond. This feed were collected from around the homestead, because the catfish eats almost anything. The supplied feed consisted mainly of snails (46 percent), rice (18 percent), wheat bran (9 percent), rice bran (9 percent), bivalves (5 percent), or slaughter waste (5 percent). In other cases termites, earthworms, wheat powder, cow dung, fish, bread and duckweed were used. The average time spent on the fish was one hour per day. Since they are air breather, they normally come up to the water surface for atmospheric oxygen. This kind of habit attracts birds for predation. Therefore, it is required to cover the ponds with net to protect the fishes.

Economic impact : The fish attained a marketable size of 100 g in six months period. Harvesting of magur was done by dewatering the pond completely and picking them manually from the culture ponds. Production of 3 tonnes was achieved from one hectare of water area. Result of the study showed that Net income/0.133 ha and B:C ratio from cat fish culture was about Rs. 83,500 and 3.87, respectively.

Economic Analysis of magur (*Clarias batrachus*) production in a 0.133 ha pond

Parameters	Input (Rs.)	Parameters	Output (Rs.)
Manure and lime	1000.00	Total production (kg)	450 kg
Price of fingerlings	19500.00	Market rate(Rs. / kg)	250.00
Feed cost	3000.00	**Gross income**	**112500.00**
Net Fencing	5000.00	**Net profit**	**83500.00**
Miscellaneous	500.00	**B:C Ratio**	**3.87:1**
Total cost	**29000.00**		

Social impact : Cat fish can grow in the derelict water bodies. They are hardy in nature and can withstand in derelict water bodies.The total area of the derelict water bodies which can be effectively utilised for cat fish cultivation in the district is about 1294.00 ha (source http://www.crida.in/cp-2012/statewiseplans/West Bengal). If this total area could be utilised for cat fish cultivation an additional annual income (1294 ha x 3375 kg cat fish/ ha x Rs. 250.00/kg) of Rs. 109,18,12,500.00 will be possible in the district. For this a total of (1294 ha

x 48750 nos. of cat fish fry per ha =) 63082500 nos. of cat fish fry will be necessary which will again open a vista of income generation for rural youth through cat fish breeding entrepreneurship development. The derelict water bodies, thus, can be effectively transformed into valuable resources.

Environmental impact : Desi Magur is being usedin the homestead fish culture programme. The main reason for the preference for the local catfish (*Clarias batrachus*) over the African catfish is its less carnivorous nature, better taste, environmental friendliness. Besides, the fear exists there that the African catfish will wipe out local fish populations.

Horizontal/ vertical spread :

Name of the cultivator	Name of village	Name of block	Horizontal spread of technology	
			No. of farmers received the technology	No of viilage covered
Rafikul Mia	Panchagram	Gangarampur	18	5

Farmers learning on magur fish feed preparation at KVK

Fish farmer applying magur fish feed in the pond

Magur fry to be released

Farmers shows growth of magur

Harvested desi magur fish

A haul of desi magur fish

DARJEELING KVK :

Entrepreneurship development through Tulsi cultivation and processing :

Mr Krishna Bhattarai and his wife Bheema Bhattarai are young farmer of village Kagey, Block Algarah which is situated almost 40 kms from Kalimpong district headquarter. He belongs from a farmer's family he wanted to be a successful agro-entrepreneur. After listening about Krishi Vigyan Kendra activities, he went there, interacted with the scientist and programme assistant invited them to visit his village. He was very interested to grow tulsi plant in his field. The KVK scientist visited his field and found it suitable for growing such crop. After that KVK organized different training programme of scientific cultivation practices, value addition and marketing.KVK mobilized the farmers of that village for the cultivation of tulsi and formed a SHG group named Tulsi Growers SHG.

The KVK provided technical knowhow, bottling, packaging and labeling and even marketing of the produce. Darjeeling KVK plays pivotal role for setting up of manufacturing unit. He had managed to set up a cottage manufacturing unit under the guidance of Darjeeling KVK called the **TULSI** which was registered under West Bengal Khadi & Village Industries Board in the year 2014. The enterprise has 2 premium quality Ayurvedic herbal formulations like "Tulsi Ark and Tulsi Tea". This unit cultivates collects, processes, manufactures certified and ***fssai*** licensed "Tulsi Ark and Tulsi Tea".

Darjeeling KVK and West Bengal Khadi & Village Industries Board jointly market the products of Tulsi in different district of West Bengal. Now he is a happy young man and developed a spirit that a man can be self employed from agriculture if he has interest and will power.

Before Intervention of KVK					**After Intervention of KVK**				
Crop	**Production q/ acre**	**Rate/kg**	**GrossReturn**	**Net Return**	**Crop**	**Production q/ acre**	**Rate/kg**	**Gross Return**	**Net Profit**
Maize	20	15	30000	21000	Tulsi 5 harvest/ year (264 kg at one plucking X 5)Vegetables	13.2 8	30 20	39600 16000	34600 12000
Paddy	5	25	12500	3500	Vegetables	6	30	18000	14000
Winter vegetables	15	20	30000	23000	Winter Vegetables	12	20	24000	17000
Total Income			72500	47500				97600	77600
BC Ratio : 2.9:1					BC Ratio : 4.8:1				

Harvesting of Tulsi leaves

Traditional distillation system

Packaging of Tulsi Tea

Bottling of Tulsi Ark

Livestock Business Farming in hills: A sustainable employment for youth

Premkit Simick Lepcha, an enthusiastic tribal lady also an ex-army at the age of more than 60 years had shown a way of livestock business farming in the low hills. In her service life she had serve the nation with her dedication, sincerity and hard work. After her retirement she always had a zeal to do somethings which itself will be an example. She had started trying out backyard livestock farming. Now, she is one of the leading livestock farmers in the region. She is living in one of the remote village in the district where there was no approach road few years back. She is one of the successful pig breeders in the area. She had a breeder stock of three Hampshire and two Duroc pig. She had more than 250 numbers of poultry birds comprising Vanaraja, Australop, cross breed of Vanaraja and Autralop and desi poultry birds. She also had 4 Siri type dairy cattle.

Inspiteof poor connectivity to the town she is in regular contact with Krishi Vigyan Kendra for the scientific techniques of livestock farming. Krishi Vigyan Kendra, Kalimpong always use to provide her scientific knowledge which enhanced the production performance of her livestock. She is deworming in her livestock on regular basis. She always supplements iron to her piglet to check mortality due to piglet anaemia. She vaccinate her pig against swine fever; poultry against Ranikhet disease and Gumboro and cattle against foot and mouth disease, haemorrhagic septicaemia and black quarter by which she reduces the disease incidence in her livestock and check morbidity and mortality. Thereby reduces the economic losses due to livestock diseases.

She had a significant income from different livestock species. She sells piglet as well as pig for meat purpose. She sells poultry egg and live chicken for meat purpose. Egg and meat of Vanaraja, Australop, cross breed of Vanaraja and Autralop and desi poultry birds always have a high demand in the market. Selling of milk is also a significant source of income to her total income. Due to poor connectivity to the town she had to sell her product in comparatively low rate, even though she had an annual income of more than 3 lakhs from different livestock species.

She use to inspire the youth in livestock farming by donating piglets to those who are in need of employment and use migrate to big cities of their livelihood. Now, she is a role model for many and a source of inspiration of young generation. She used to tell if at the age of more than 60 years she can earn from livestock farming then why youth couldn't earn from it. She always used to tell that nobody should lose hope and never give up.

MALDA KVK :

A) Mushroom Production: An Excellent Opportunity for Self Employment

Sri Dilip Rabidas, **Age:** 38 years, **Contact no.:** 7797855602

Address : Vill- Rashiladaha, Post- Nageswarpur, Block-Old Malda, Dist-Malda, WB.

Educational Qualification : HS Pass **Experience in farming :** 7 years

Brief Description : Sri Dilip Rabidas is a young and educated man with good habits. He faced a lot of struggle and difficulties in life after the death of his father. After his HS degree he opted for several business opportunities in manufacturing sector with production of locally used articles. But he was not successful in these avenues. He suffered a lot of economic problems to maintain his household expenditure for four members. He has a small jewellery shop near his house and earns Rs.3000-4000 per month which is sufficient enough to meet his household needs. Hearing the story of mushroom cultivation from his relatives and friends he first started this new venture in 2012 for additional income generation, but he could not

succeed due to lack of proper knowledge in this particular field. Finally, he came in contact with Malda KVK after seeing a video of mushroom cultivation at You Tube in 2014. He was motivated by the scientists of the KVK to produce protein rich mushroom after undergoing a 4-days training on low-cost mushroom cultivation from Malda Krishi Vigyan Kendra. He developed confidence and self determination to start mushroom production with low input costs. Thereafter, he constructed a low-cost structure made up of bamboo and paddy straw as per suggestions of the KVK scientists and started oyster mushroom production. Presently, he has been producing mushroom and is also selling at Chittaranjan market, Gour road market, Maheshmati govt. housing of Malda town at the rate of Rs.150-200 per kg. of fresh mushroom. He also supplies mushroom over telephone call to the flying customers. He is also preparing mushroom pickles and dry mushroom. He is fully satisfied with mushroom cultivation and has planned to start spawn production. Considering his interest and confidence he was given spawn production training in January, 2018. Presently his average monthly income from mushroom is Rs.7100. Thus, he has proved himself as a role model for other unemployed rural youths in his village.

Remark of the Grower : "Unemployed rural youths can start mushroom production for sustainable income towards self sufficiency in life".

Economics of the Farm :

Crop/Livestock/ Fish/Enterprise	Cost of Production (Rs. per unit)	Return (Rs. per unit)	Net Income (Rs. per unit)
Mushroom Unit	Rs. 2250 (Rs. 45 per cylinder)	Rs. 9350 (Rs.187 per cylinder)	Rs.7100 per month (Rs.142 per cylinder)

1 unit = 50 cylinders; Size of cylinder = 14" x 22"; Rate-Rs.150/kg. of fresh mushroom

B) Mushroom Cultivation: A Better Income Opportunity for Farm Woman

Smt. Mithu Chowdhury, **Age :** 32 years, **Contact no.:** 9609843944
Address : Vill-Bayaspur, Post-Madhughat, GP.Jadupur I, Block-English Bazar, Dist-Malda, WB.

Educational Qualification : HS pass **Experience in farming :** 5 months

Brief Description : Smt. Mithu Chowdhury is an innovative farm woman in the field of Mushroom production. She came in contact with Malda Krishi Vigyan Kendra and participated in a 4-days training programme on Mushroom cultivation. She got interested in Mushroom production and other members of her SHG group joined with her. She trained her SHG members consisting of rural farm women on Mushroom cultivation. She is now a renowned woman for Mushroom production. She has prepared a low-cost room (14' x 16') with her 12 SHG female members (Mithu Chowdhury, Jaba Mandal, Laksmi Mandal, Rekha Mandal, Sampa Mandal, Jhuma Mandal, Unnati Mandal, Mallika Mandal, Sefali Mandal, Malati Mandal, Rama Rakshit and Janaki Saha) with the financial assistance from MGNREGA, Englishbazar block, Malda. Presently, she has been selling mushroom to Mid Day Meal of Jadupur Anchal High School, Madhughat Nimna Buniadi Primary School, Jadupur Manage Primary School, Sonatala MSK School, Sonatala Primary School, Gabgachi Primary School, Govt. Offices of BDO-English Bazar, Collectorate building, Sadar Hospital Canteen of malda district @ Rs.120-150 per kilogram of fresh mushroom. She has established herself as an example of women empowerment among the rural women who are involved in utilization of their free time in earning Rs.3738 per month from mushroom production leading to a better life. She has also taken spawn production training from Malda

KVK and is interested to start spawn production from September, 2018. She is now a role model for other mushroom growers in Malda district.

Remark of the Grower: "Mushroom Farming is Profitable Enterprise for Rural Women and thanks to Malda KVK and BDO, English Bazar block"

Economics of the Farm :

Crop/Livestock/ Fish/Enterprise	Cost of Production (Rs. per unit)	Return (Rs. per unit)	Net Income (Rs. per unit)
Mushroom Unit	Rs. 672 (Rs. 32 per cylinder)	Rs. 4410 (Rs.210 per cylinder)	Rs.3738 per month (Rs.178 per cylinder)

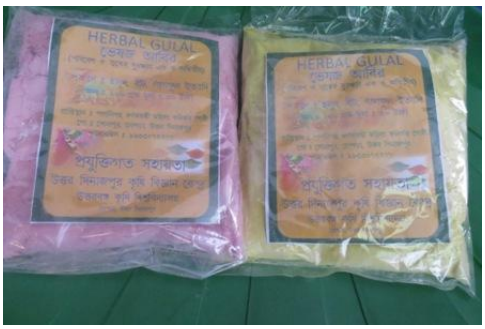
1 unit = 21 cylinders; Size of cylinder = 14" x 22"; Rate-Rs.140/kg. of fresh mushroom

UTTAR DINAJPUR KVK :

A) Herbal Gulal/Eco Holi colours preparation as an entrepreneurial activity by SHGs of Chopra block of Uttar Dinajpur district

Environmental safety is core concern of the world now. Our environment is degraded day by day mostly because of lack of awareness regarding its protection and safety. Uttar Dinajpur KVK has showed its interest in environmental safety and made farming community aware about the hazards of chemicals in our life.

Herbal Gulal preparation is also a step towards our health and environmental safety. In the month of January, February 2017 we have conducted four awareness camps for school children of different blocks of Uttar Dinajpur and in the same camps KVK has initiated a step on eco-Holi colours and its importance and made them aware of biodegradable products and safe chemicals. As the festival of colours Holi was coming so we had made them aware and requested them to use eco-holi colours and explained them the process of making Herbal Gulal at their home. Many of them were quite interested and very happy with this step. Few teachers who reside in urban localities has also showed their interest in purchasing the colours if available. Thereafter, KVK has imparted training to 3 Nos. SHGs viz., Mahaprabhu SHG, Dolua and Paglilgacch, Swarnayanti Mahila dal (2 Nos.), Sonapur to start Gulal preparation as entrepreneurial activity. After taking training SHGs has immediately started working on this project with technical support from KVK, Chopra. In the process of making herbal Gulals main base ingredient is arrowroot which is coloured with different natural colours extracted from Turmeric, petals of marigold flowers, beetroot, leaves of different plants and petals of different flowers etc., to get particular shade. Specific colouring material extract has to be added like for yellow colour we need turmeric extract and to get pink colour we need beetroot extract.



In the mean time SHGs have given a stall on Herbal Gulals in Technology Week and Krishi Mela 2017 organized by Uttar Dinajpur KVK at Chopra, Uttar Dinajpur. This is the main turning point for them. Delegates as well as my participants has praised their move and till

the last day of the mela they have already sold their whole stock and has orders in tjheir hands for further preparation. They were profited and got lift for further task.

Preparation of Herbal Gulal as entrepreneurial activity by SHGs is published by 4 Nos. Local papers and process documentation of Herbal Gulal preparation is done by Doordarshan, Jalpaiguri as well as private channels is News Time, Kolkata TV and CCN.

Uttar Dinajpur Krishi Vigyan Kendra acknowledge the effort of SHG members who were wholeheartedly involved in this activity and in a very short span worked hand to hand with KVK to make this endeavor a success. It is noteworthy that without any proper working place and modern equipment these women showed their presence in the society and made their own path for future business with technical support from KVK.

B) Mushroom cultivation for income generation

Name : Hakimul Islam, **Mob no. :** 9609192916
Address : Village **:** Diwanjagee PO : Asaru Basti, Daspara, U/D

A young entrepreneur and source of inspiration to many others'. Hakimul Islam has established a 500 sq mtr. Mushroom cultivation farm with an average production of 320 kg per day where as average production of last year was 200 kg/day. He has started mushroom cultivation in the year 2011 and has been expanding his enterprise day by day. He has also motivated youths of near by villages and six of them have already started their own farms in their respective villages. Hakimul Islam came in contact with Uttar Dinajpur KVK and got capacity developed through rural youth training programme. Further he was sent to Ramkrishan Mission Ashram at Belur Math, Kolkata for exposure visit and training. Uttar Dinajpur KVK arranged one training programme for mushroom spawn production for him and other fellows at Uttar Banga Krishi Viswavidyalaya, CoochBehar. Resent serge in tourism development in the adjoining Himalayan and Dooars regions of the district subsequently mushrooming growth of hotels, restaurants has paved the way for consumption of their produce readily. At present Hakimul and their producer group (Pragati Mushroom Grower Association) produces on an average 500 kg fresh mushroom and market it to near by Siliguri market. Presently Hakimul has been earning a net profit of 75,000/- to 80,000/- per month and has become an idol to other youths of the locality. Now, other youths are also came to KVK for training and other technical support for self employment.

C) Success Story on oyster mushroom Cultivation

Name : Amrish Biswas **Mob :** 8942990477
Address : Vill: Dakhin Aliganj, Post: Islampur, Uttar Dinajpur

Amrish Biswas is budding entrepreneur. He had taken rural youth training on mushroom cultivation from Uttar Dinajpur Krishi Vigyan Kendra and primarily started oyster mushroom cultivation at household level with KVK inputs and technical support. Gradually he got interested in commercial cultivation of oyster mushroom and had started small scale units in the area of 200sq. mtr. KVK has helped them in setting market linkages to sell their produce. Small grower like Amrish Biswas was linked with large growers at local level for selling their produce and to earn a definite income.

Now, other two farmers had set up their own units in the same village and collectively selling their produce to the larger producers group. They are also selling their produce at local market and getting better price than retail selling. They are in close contact with KVK for different technological support and flourishing with their small scale enterprise. Now they are planning to expand their business and even eager to try new varieties of mushrooms. Presently, on an average 140-150 kg of mushroom is being produced everyday at their farm

and they sale the produce @Rs. 50/- per kg with a net profit of Rs.54,000- 58,000/- per month.

Case studies

Case Study 1: Mushroom production for household nutritional security and as an employment avenue for tribal families

Mushroom picking for food with the onset of monsoon showers have been customary in many parts of the country especially amongst the tribal communities. The wild edible mushrooms collected from different places are in good demand and is an item of trade for a few in the remote areas. Hence, sound knowledge and skill developed to identify the wild edible mushrooms collected from different places are in good demand and is an item of trade for in the remote areas. Hence, sound knowledge and skill developed to identify the wild edible mushrooms can provide opportunity for consultancy services on payment basis.

Mushroom production is still in its infancy and only a small fraction of the farming community is engaged in small scale seasonal production of mushrooms. Tourism is gaining impetus in almost all the Tarai regions these days which opens up to high demand for mushroom delicacies in the hotel business. Mushroom processing and value addition is another big avenue, which can be more profitable and also employment generating. Organic cultivation of some common mushrooms can be done with less effort and organic mushrooms can fetch premium price. Keeping in view, the increasing demand of fresh mushroom in the tourist spots of Dooars , Terai and Himalayan region. Uttar Dinajpur KVK initiated imparting skill development training on mushroom production to the rural youth and SHG members which in turned resulted development of 15 commercial mushroom producing entrepreneurs producing on an average 150 kg fresh mushroom per day per unit. Initially each producers used to sale their produce individually in local markets and at Siliguri. Seeing the difficulties in individual marketing, KVK intervene into the matter to establish one producers organization with the help of NABARD which is on the way to be established as a registered Producers Organization. Meanwhile KVK initiated the process of collecting fresh mushroom from each entrepreneur and supplying to the Siliguri and Nepal market collectively. Presently an average monthly income by each mushroom grower ranges between Rs. 50,000- 70,000 per month.

Tribal Case Study -I	
Name of the enterprise	Oyster and Milky Mushroom Cultivation
Name & complete address of the entrepreneur	Sumita Tudu, Member of Gulamigach Sidhukano SHG mob no. 9614562492 Vill.: Gulamigach, PO: Ghorugach, Chopra, U. Dinajpur
Intervention of KVK with quantitative data support:	Technological backstopping and critical input

Time line of the entrepreneurship development	Sumita Tudu and her SHG members were participant of 8 days rural youth training on "Oyster mushroom production technology" from Uttar Dinajpur KVK and started a small scale unit after training. All members are very hard working and earning well from mushroom production.
Technical Components of the Enterprise	Mushroom production
Status of entrepreneur before and after the enterprise	Before the establishment of mushroom unit, Sumita was tea garden labourer and during slack period she stay at home, no source of regular income.
Present working condition of enterprise in terms of raw materials availability, labour availability, consumer preference, marketing the product etc. (Economic viability of the enterprise)	Selling fresh mushroom @Rs. 80-100/kg in local haats and also selling mushrooms in near by villages. She is also creating awareness among SHGs and farmers clubs to take this avenue for income generation. She is selling about 15-20 Kg produce per day and getting net profit of Rs.4,000 to 5,000 per month.
Horizontal spread of enterprise	3 individual farmer and 2 other SHGs of nearby village also started the same venture

Case Study-2 : Low cost nutritional weaning food :

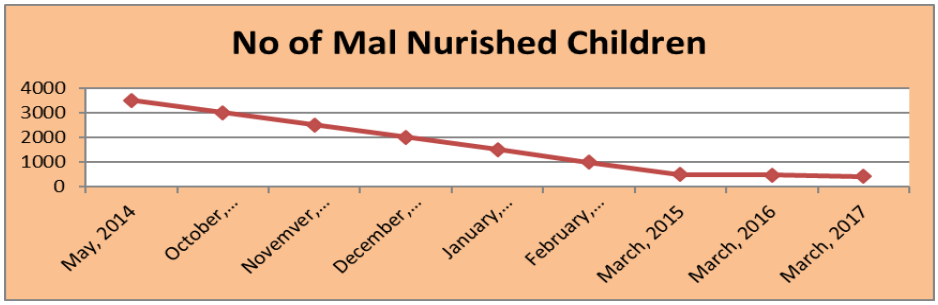
Malnourishment amongst the pre-school children (0-5yrs age group) in Uttar Dinajpur district is alarming. As data reveals from District Project Office, ICDS, Uttar Dinajpur that around 10 percent children enrolled with 3737 numbers of Anganwari centres of the district are severely under weight and defined as **"Red-Children".** The Integrated Child Development Service (ICDS) Uttar Dinajpur project through its 3737 service centre although provides different services including **"supplementary nutrition"** to the children. Keeping this alarming situation in view and considering the poor economic condition of a large section of community, Uttar Dinajpur Krishi Vigyan Kendra since its inception has taken rigorous activities for protocol development (Standardization) of various low cost nutritious weaning food utilizing locally available ingredients (Wheat, maize buckwheat, green gram, peanut, drumstick leaves etc.) through its mandated activities of On Farm Trials. After rigorous trials through several years Uttar Dinajpur Krishi Vigyan Kendra has been able to develop and standardize several formulations of low cost weaning foods. The calorie measurement and nutritive value of the feed formulations has been tested at CFTRI, Mysore. All the feed formulations passed the criteria on calorie measurement and nutritive value as per national standards.

Up Scaling of Technology : After standardization of feed formulation through On Farm Trials Uttar Dinajpur KVK started wide scale adoption of the technology through training of the SHG members and anganwari workers for capacity building and sensitization, Frontline demonstrations, case studies, awareness campaigns, field days etc. Three SHGs after getting trained from KVK, started producing low cost weaning food under direct supervision of KVK and selling it in the name of ***SHISHU AAHAR*** in the local Mela, rural haats, Krishi Mela, Swanirbhar Mela, Kanyashree Mela, Sabala Mela etc. As a result of which the brand name of ***SHISHU AAHAR*** got a wide spread popularity and preference amongst the resource poor farm families.

Wide Scale Adoption : Revealing the results of different low cost nutritious weaning food formulations developed by KVK in child health development in different forums and meetings, the Uttar Dinajpur District Administration decided to incorporate the low cost

nutritious weaning food **developed by Uttar Dinajpur Krishi Vigyan Kendra** in a project called **"PUSHTI" –** An initiative for providing additional nutritional supplements to the malnourished pre-school children through SHG networks of the district. Skill development training on preparation and quality control of low cost nutritional food was imparted to the selected SHG members by the KVK. DRDC was in need to supply 3007 packets of food supplement for the children and 2054 packets for the pregnant mothers in the district per week. DRDC negotiated the matter with 10 SHGs one each from ICDS block of the district to produce and supply required numbers of food packets to the concerned ICDS centre of the block. On the other hand DRDC remitted the fund for the cost of the food packets in the account of the concerned SHGs. The process has been established and running smoothly since October, 2014 to combat malnourishment among children and pregnant mothers. The positive impact of the food supplements provided to the malnourished children is revealed from the chart (Fig.1).

Fig 1. Monthly tracking of severely malnourished children in Uttar Dinajpur District after supplimenting with low cost weaning food developed by KVK



Source : District ICDS Cell, Uttar Dinajpur, WB

Though Pusthi project is going in whole district, but Uttar Dinajpur Krishi Vigyan Kenda selectively worked in Tribal villages for eradication of malnutrition among children under its Frontline Demonstration programme. Details are following

Sr. No.	Name of Village	No. of Children	Adoption rate of technology
1.	Dhuliagacch	16	65%
2.	Gulamigacch	18	58%
3.	Jhitka Tutikata	23	45%
4.	Kadamtala	14	72%
5.	Dhonogacch	21	75%

Case study of Parbati Murmu who was born on 31st July, 2012 in a tribal family, middle child among three siblings at village Dhanoygacch of Chopra block of Uttar Dinajpur district of West Bengal. Unfortunately, she was a case of malnutrition and was residing with her parents and grandparents. Her father and mother was tea garden labourer. Family was scantily able to survive on hand to mouth income.

Plate 1. Parbati with her mother and young sister

Uttar Dinajpur Krishi Vigyan Kendra came into contact with Parvati Murmu while conducting an on farm trial entitled 'Assessment of nutritional weaning food on children health'. Her birth weight was 2 Kg and 150 grams which was below Indian standard birth weight. She was depicting the clear signs of protein energy malnutrition viz. oedema, dispigmentation of the hair, thin sparse hair, moon face and diffuse dispigmentation of skin along with below standard of reference of anthropometric measurements due to growth

retardation and low body weight for height etc.) Supplementary food 1 (Wheat: Green gram: Ground nut: Jaggery 30:20:8:20) was provided to girl who was just 9.5 kg at the age of three years. Per day 200 gm weaning food was given thrice a day in milk/water according to availability. After 20 days tremendous change in Parvati's condition was revealed and she had showed 200gm increase in body weight with little healthier body. Supplementary foods which were rich in essential dietary elements i.e. carbohydrates, protein and minerals etc. contributed to child's good health and significant increase in weight. Within six months of trial Parvati has gained 2.50 kg extra weight to her earlier weight along with no signs of oedema, no sparse hairs and gradually regained good health. Now she is 12.2Kg at the age of three years and eight months and was upgraded to normal grade. Training on homemade low cost weaning food was imparted in the village itself to Parvati's mother and other SHG members so that farm women would able to make low cost weaning food own their own and would able to fight malnutrition to some extent. Her mother now at least able to manage and make weaning food at her home using locally available ingredients which cost only rupees 60.00 per kg.

Case Study 3 : Organic Cultivation of BAU kul BER (*Ziziphus mauritiana)*

Sri Narayan Sarker, village Betbari, Aliganj, Islampur, Uttar Dinajpur, West Bengal an innovative farmer for horticultural (Fruits) and other crops and cultivating the BAU kul (Ber) *Ziziphus mauritiana* Round shaped for last 2 years through organic cultivation and which gave the huge productivity and profitability. Minimum infestation of pest and diseases and gave more yield.

- ✓ **Crop :** Kul/BER Variety : BAU KUL;
- ✓ **Plant spacing : 11 ftx11 ft;**
- ✓ **No. Plants in acre : 300 Nos**
- ✓ **Pit Treatment :** *Trichoderma viride* @ 20 gm/ pit
- ✓ **Cow dung Treatment :** 3 Kg/ 300 kg cow dung
- ✓ **Planting time:** First week of April
- ✓ **Organic manure and Fertilizer :** Cow dung 40 kg /plant + Vermicompost 5 kg/ plant two times before and after rainy season
- ✓ **Foliar spray : *KUNAPAJALA*** spray at weekly interval (***KUNAPAJALA a*** fermentation product of easily available Cow dung, Cow urine and ingredients as per availability like the fat, marrow, and the flesh of fish, goat, and other horned animals collected and stored in a clay pot for 20-25 days with water and mixed with extra water and spray.)
- ✓ **Irrigation :** As per requirement of the crop.
- ✓ **Pest Management :**
  1. Spray of Neem oil 10000 ppm @ 2 ml/L as per pest infestation
  2. Spray of Rishav as bio Acaricide (Miticide) when mite observed in the plants or

fruits (**Content:** Oil of Wild plant seeds, Lactoiies, Terpiieids, Aqueous-Media and Alkaloids

Cost of Cultivation : For 1 acre area

Sl. No	Particulars	Items	Amount (Rs.)
1	Plant Material	@ Rs.40/pc	12000.00
2	Organic manure		48000.00
3	Foliar Material	***KUNAPAJALA***	15000.00
4	Bio Pestiicde		2000.00
5	Labour Cost	Intercultural operation	10000.00
6		Spraying, weeding, irrigation etc	10000.00
10		Harvesting	15000.00
11	Irrigation		5000.00
12	Marketing		15000.00
13	Rent of Land		20000.00
14	Miscellaneous cost		10000.00
		Total cost of cultivation :	**1,62,000.00**

Production : Average production 150 q/acre/ during second year and the production will be increased in subsequent year

Price : Average price round the year Rs. 3500/ q

Economics : Total Production : 15 q/ acre and the production value @ Rs. 3500/q
= 150 x 3500.00 = Rs. 5,25,000.00

Cost of Production : Rs. 1,62,000.00

Net Profit : Rs. (5,25,000.00 -1,62,000.00) = Rs. 3,63,000.00/acre/year

UTTAR DINAJPUR KVK (2017-18) :

Success stories/Case studies, if any (two or three pages write-up on 1-2 best case(s) with suitable action photographs)

Success Story-I :

Name of farmer	**Shushila Tudu**
Address	Sardi- Sabon SHG, Gulamigachh, P.O Ghorugach, Uttar Dinajpur
Contact details (Phone, mobile, email Id)	Mob. No. 8116666073
Landholding (in ha.)	1.0
Name and description of the farm/ enterprise	**Oyster mushroom Cultivation :** Since last 3 years Smt. Shushila Tudu is englossed in this enterprise. By running two small units continuously she is able to give unintrupped supply in market. Mushroom Production unit was constructed under asset creation in Tribal Sub Plan Project.
Economic impact	From tea garden labourer to an enterprenurer, Shushila Tudu is earning net profit of Rs.7,000-9,000 per month by selling mushrooms. This year in the month of January she has been nominated for Mahindra Samrridhi Awards 2017-18 and has been selected National nominee under youth category on march 6th, 2018, she has been awarded by honourable Union Agri minister, Shri Radha Mohan Singh ji at new Delhi and remunerated with

	2.16 Lakhs. This was a pride moment for Shushila Tudu her family members, whole locality as well as pride moment for Uttar Dinajpur KVK. She is now stepping towards better livelihood.
Social impact	Shushila Tudu is source of inspiration for so many other farmers not only in chopra block but in whole district. People know her and after getting National award from Mahindra Samridhi she has been interviewed by many TV channels and local newspaper now, She is role model for many other farms women especially among tribal farm families. Farmers form distant placs visit KVK for different training purpose and many of them were interested in mushroom cultivation always interested in visiting her mushroom unit in gulamigachh village. Shushila's family gained a prestigeous position in the village. Her husband always helped her in her work, morally supports her and encouraged her in difficult times. She has been acting as catalyst for mushroom cultivation promotion program of KVK.
Environmental impact	During training mushroom cultivation, farmers and farm women were instructed and made cautions about proper use of chemical and its impact on environment if it is unjudiciously used. As per instructions, Shushila Tudu is also making judicial use of chemical when and where it is required and above all she is not dumping the spent here and there, but making quality vermicompost along with her fellow SHG members in a vermicompost production unit provided by KVK under Tribal sub plan in the year 2016-17 in her village.
Horizontal/ Vertical spread	Shushila Tudu is contracted by many farmers of near by village for her expertise in the field of mushroom cultivation. So, far 5 near by villages SHGs in 18 individual farmers has started this venture after learning from her.

Success story-II :

Name of farmer	**Shakti Roy**
Address	Ravindera Nagar Colony P.O Chopra, Uttar Dinajpur
Contact details (Phone, mobile, email Id)	Mob. No. 9932700177
Landholding (in ha.)	Landless
Name and description of the farm/ enterprise	**Fabrication of Tubular maize Shellar :** Mr. Shakti Barman runs a weilding workshop at Tista more. Chopra. Now, he is master in fabricating Tubular hand maize shellars. In the year 2012-13 he has been contacted for making maize shellars of iron and trained in making them in different sizes under OFT program on refinement of tubular maize shellar. As area under maize in Uttar Dinajpur district is increasing day by day and KVK Uttar Dinajpur since 2009 conducting FLD an tubular maize shellars as a drudgery reduciing and time saving tool and is very useful for small maize growers. Gradually it catched the attention of large growers also as in North Bengal rains are very frequent during the time of maize harvesting and sun drying is the only solution for maize cobs drying so, it is very useful for shelling of small stocks and farmers need no further of seeds cleaning once there shelled with this shellar. Actually, tubular maize shellars of falcon company are available in market and KVK use to procure it from siliguri market but from the year 2011-12 and2012-13 many farmers and farm women came to KVK and complained about the size of shellar and it is no more useful due to bigger size cobs I many cases. Then we conducted one OFT on refinement of this tool in which inner girth in standardize accordingly. Finally, we made it available to farmers through Shakti Barman as he worked on this tool and it came out very well. Since 2014-2015 KVK is procuring tubular maize shellars for its FLD programmes from this fellow, named Shakti Barman. FLDs under tribal sub plans we are providing maize shellars from him only till now he has provided 2630 pieces of maize shellars @ Rs.100/per piece under FLDs of KVK as well as to the farmers clubs and SHGs according to there demand.

	Surprisingly, this tool has also worked very well in our fodder seed prodution programme,as KVK produced 80 tonnes seeds through Farmer clubs of different villages and 250 maize shellars has been provided to FCs for seed shelling as shelling seeds with big vibrating machines resulted in reduction in germination percentage.
Economic impact	It is revealed that one can save in shelling cost upto 100 rupees per quitintal and 3mandays can be saved after shelling with tubular maize shellar.
Social impact	For small maize grower, tubular maize shellar is a boon. As it saves time and energy so farm women is able to shell cobs with less efforts and able to spend more time with their family members. After introduction of this tool many small growers started cultivation of maize as shelling with big machines is not an economic affair for them. Moreover tool is so small and handy and in any time of the day or evening whenever it is conveinent for them they just able to shell their maize cobs.
Environmental impact	There is no any adverse impact an environment as it is a manual tool made up of iron so, there is no chances of plastic waste or smoke etc.
Horizontal/ Vertical spread	Tubular maize shellar is popular throughout the district, as KVK is conducting frontline demonstration since 2008-09 on this tool. So far this tool is provided to 65 SHG and 14 farmers club and more then 500 individual farmers.Even many SHGs and FCs after completion of their work they provide the tool on hire basis to other farmers.

Success Story-III :

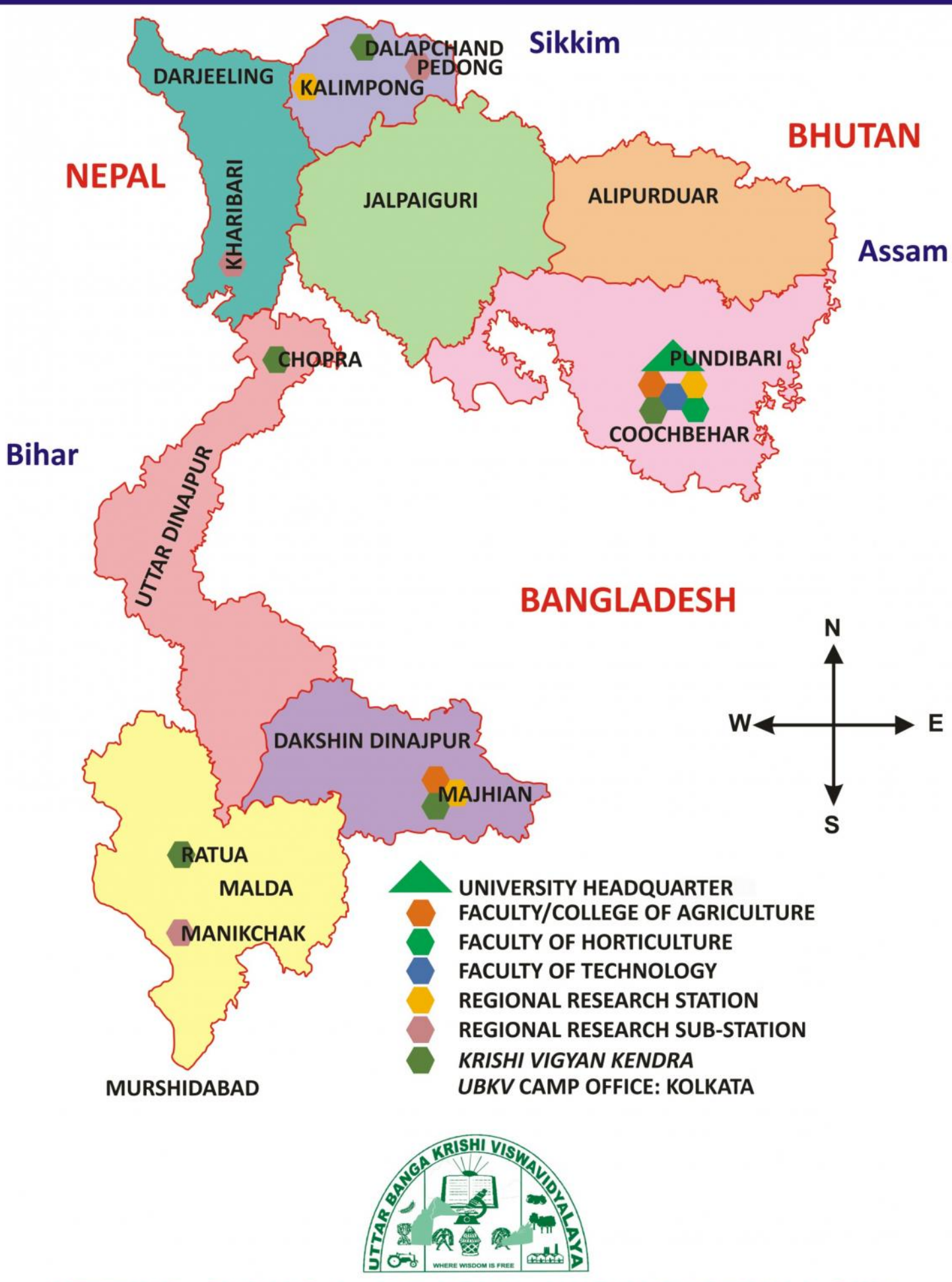
Name of farmer	**Avijit Ghosh**
Address	C/O Smar Chandra Ghosh

	Behind Samadhi School, Halder Para Vill. And PO Debinagar, Uttar Dinajpur-733123
Contact details (Phone, mobile, email Id)	Mob. No. 7001243100
Landholding (in ha.)	0.4
Name and description of the farm/ enterprise	**Mushroom Cultivation :** Avijit Ghosh is one of the trainee of Rural Youth training conducted by Uttar Dinajpur KVK in the in year 2017-18.After getting training in the month of May,2017 Avijit Started one small unit at Raiganj, his home town. He was very much interested in this cultivation and little support from KVK he has started this cultivation. He has used ICT tools for popularizing his product, with KVK support he called upon localprint media.Participated in different local fairs and as Raiganj is district headquarter and opportunities are more than in an interior villages. He supplied has product to BSF mess. In Railway station, nearby bus stands he managed to sell with his friends. Nowadays his unit is model for farmers who are trainees of different line departments like agriculture and horticulture. Avijit is source of inspiration for many others, though his place is 175Km away from KVK but he has always in contact with KVK for various suggestions and promotions.
Economic impact	Earlier Avijit Ghosh was an unemployed graduate but, now he is a successful agri-preneurer and with his wisdom and approaches he has attained very good place within 8 month which really appreciable. Avijit is earning 30,000 to 35,000 per month which include net profit of 10,000 to 12,000.
Social impact	In society, Avijit has set his name as young mushroom grower. He use to give his stall in every local mala, fair and exhibition and popularized mushroom as a source of nutrients and fiber in daily diets of the local people.
Environmental impact	There is no adverse impact on environment in relation to mushroom cultivation. As per suggestions of KVK Avijit is using chemicals of standard grade and using them judiciously. He is also converting mushroom spent into compost for its further use.
Horizontal/ Vertical spread	Though Raiganj is quite far from siliguri and Nepal market so he is selling fresh product in local market it is getting popular day by day as a small scale enterprise it has been adopted by 8 more youth, School teachers and 3 SHG come forward for it.

Success Story IV :

Name of farmer	**Pagligachh Swarnirbhar Group**
Address	Pagligachh, Chopra, Uttar Dinajpur
Contact details (Phone, mobile, email Id)	udpkvk@gmail.com
Landholding (in ha.)	1.2 ha
Name and description of the farm/ enterprise	**Herbal Gulal/Eco Holi colours preparation as an entrepreneurial activity by SHGs of Uttar Dinajpur district :** In the month of January, February 2017 and continued this year also with more number of SHGs at other parts of district. We have conducted four awareness camps for school children of different blocks of Uttar Dinajpur and in the same camps KVK has initiated a step on eco-Holi colours and its importance and made them aware of biodegradable products and safe chemicals. As the festival of colours Holi was coming so we had made them aware and requested them to use eco-holi colours and explained them the process of making Herbal Gulal at their home. Many of them were quite interested and very happy with this step. Few teachers who reside in urban localities has also showed their interest in purchasing the colours if available. Thereafter, KVK has imparted training to 3 Nos. SHGs viz., Mahaprabhu SHG, Dolua and Paglilgacch, Swarnayanti Mahila dal (2 Nos.), Sonapur to start Gulal preparation as entrepreneurial activity. After taking training SHGs has immediately started working on this project with technical support from KVK, Chopra. In the process of making herbal Gulals main base ingredient is arrowroot which is coloured with different natural colours extracted from Turmeric, petals of marigold flowers, beetroot, leaves of different plants and petals of different flowers etc., to get particular shade. Specific colouring material extract has to be added like for yellow colour we need turmeric extract and to get pink colour we need beetroot extract.
Economic impact	SHGs engaged in herbal gulal preparation are earning good profit.After selling herbal gulal SHG members are earning net profit of Rs. 8000-9000 per quintal. As SHG members are cultivating vegetables own there own which are used in preparation of herbal gulal so, it is more profitable venture for them. Now, branding is need to reap more economic benefits from their product.
Social impact	In the mean time SHGs have given a stall on Herbal Gulals in Technology Week and Krishi Mela 2017 organized by Uttar Dinajpur KVK at Chopra, Uttar Dinajpur. This is the main turning point for them. Delegates as well as my participants has praised their move and till the last day of the mela they have already sold their whole stock and has orders in their hands for further preparation. They were profited and got lift for further task. Preparation of Herbal Gulal as entrepreneurial activity by SHGs is published by 4 Nos. Local papers and process documentation of Herbal Gulal preparation is done by Doordarshan, Jalpaiguri as well as private channels is News Time, Kolkata TV and CCN.

Environmental impact	Herbal Gulal preparation is also a step towards our health and environmental safety. Environmental safety is core concern of the world now. Our environment is degraded day by day mostly because of lack of awareness regarding its protection and safety. Uttar Dinajpur KVK has showed its interest in environmental safety and made farming community aware about the hazards of chemicals in our life.
Horizontal/ Vertical spread	In the year 2018 Herbal gulal was more in demand than last year our SHGs has supplied it in local schools, Panchayat office, local shops and even in UBKV Campus and everyone has showed enthusiasm in this new venture. Last year trained SHGs also acted as mater trainer in KVK organized workshops for herbal Gulals. Uttar Dinajpur Krishi Vigyan Kendra acknowledge the effort of SHG members who were wholeheartedly involved in this activity and in a very short span worked hand to hand with KVK to make this endeavor a success. It is noteworthy that without any proper working place and modern equipment these women showed their presence in the society and made their own path for future business with technical support from KVK.

UTTAR BANGA KRISHI VISWAVIDYALAYA

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