



ANNUAL

REPORT

2019-20



**POMOLOGY AND POSTHARVEST TECHNOLOGY
FACULTY OF HORTICULTURE**

Uttar Banga Karishi Viswavidyalaya

Pundibari : Cooch Behar

Annual Report

2019-20



Pomology and Post Harvest Technology
Uttar Banga Krishi Viswavidyalaya
Pundibari : Cooch Behar

PREFACE

With great pleasure, I introduce the Annual Report for the year 2019-20 from the Department of Pomology and Postharvest Technology. This report serves as a window into our educational, research, and operational activities. The northern region of West Bengal is a treasure trove for horticulture, blessed with expansive arable lands and a diverse range of agro-climatic conditions ideal for cultivating various subtropical fruit crops. Despite these advantages, the production landscape for most fruits remains disappointingly limited, with only a handful enjoying commercial success, largely due to issues such as nutrient deficiencies, pest invasions, diseases, and suboptimal management practices.

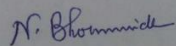


In response to these challenges, our department has embarked on a proactive journey to expand the horizons of subtropical fruit cultivation. Our primary objectives encompass the widespread dissemination of advanced production techniques, the implementation of integrated nutrient management strategies, the introduction and evaluation of novel fruit varieties, the reduction of postharvest losses, and the standardization of innovative postharvest technologies. These collective efforts aim to amplify both production and productivity while extending the shelf life of harvested fruits.

Recognizing the promising returns per unit area in fruit cultivation and effective postharvest handling, our department is poised to make substantial contributions to food security, nutritional well-being, employment opportunities, and poverty alleviation. Over our seventeen-year journey, we have established a legacy of excellence in horticultural education, research, and extension activities.

Nurturing an environment conducive to academic rigor, research excellence, and efficient technology dissemination within our department is pivotal for steering us toward the realization of our ambitious goals. While I acknowledge the challenges ahead, particularly the resource constraints in the current landscape, I remain confident that, collectively, we can surmount these hurdles and propel the department toward even greater heights of achievement.

In the midst of the unprecedented challenges posed by the COVID-19 pandemic, I extend heartfelt gratitude to our dedicated teachers, diligent staff, and resilient students whose unwavering commitment played a pivotal role in the timely completion of academic and research endeavors. I express sincere appreciation for their collective efforts and wish each member of our academic family and their loved ones continued good health and well-being.



N. Bhowmick
Head
Dept. of Pomology & Postharvest Technology
Faculty of Horticulture
Uttar Banga Krishi Viswavidyalaya
Pundarik, Cooch Behar, WB-736165

(NILESH BHOWMICK)

A. TEACHING AND NON- TEACHING STAFFS OF THE DEPARTMENT

1) TEACHING STAFF

a) **Cadre Posts:** Professor – 1, Associate Professor –2, Assistant Professor –3,

b) **Present Strength :**

Sl. No.	Name	Designation	Date of joining	Contact number	Email ID	Remark
1	Prof. P. K. Paul	Professor & Dean	10.12.2001	8016425515	prodyut24@yahoo.com	Joined as Dean from 02.1.2020
2	Dr. N. Bhowmick	Associate Professor & Head	27.11.2007	9433438982	nileshbhowmick@gmail.com	Joined as Head from 02.1.2020
3	Dr. M. Preema Devi	Assistant Professor (Stage-2)	07.07.2014	7063102366	preema.horti@gmail.com	Continuing
4	Dr. A. Chakraborty	Assistant Professor (Stage-2)	20.10.2014	9432842864	aditi.chatterjee10@gmail.com	Continuing
5	Dr. Binayak Chakraborty	Assistant Professor (Regional Research Station)	16.01.2020	9426922718	binayak.horti@gmail.com binayak@ubkv.ac.in	Joined at Regional Research Station
Guest Teacher						
6	Mr. Ashok Chhetri	Guest Lecturer (Fruit Science)	10.09.2018	7085857595	chhetriash@gmail.com	Left on November, 2019

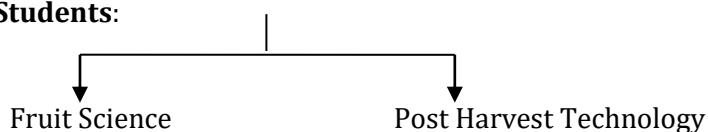
2) NON-TEACHING STAFF

Sl. No.	Name	Designation	Date of joining	Contact number	Remark
1.	Mr. Nitish Ch. Saha	Technical Assistant, Grade-I	03.7.1989	9475835338	Continuing
2.	Mr. Ananda Sarkar	Laboratory Attendant, Grade-II	01.09.2008	8927242990	Continuing

3) STUDENT STRENGTH

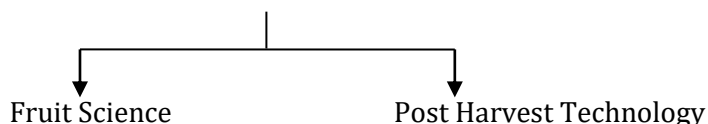
a) **B.Sc. (Hort.) Hons:-**20 in each Academic Session under the Faculty of Horticulture

b) **M. Sc. Students:**



- 5 in each academic session
- 5 in each academic session

c) Ph.D. Students:



- 2 University Research Scholar in each academic session
- 2 University Research Scholar in each academic session

4) DEPARTMENTAL ACTIVITIES

(i) Teaching Programme

(a) Courses Offered in UG level

Sl. No.	Course No.	Course Title	Credit	Course Leader	Associated teachers
1.	PPT 101	Fundamentals of Horticulture	1+1	Dr. N. Bhowmick	Dr. A. Chakraborty Dr. S. Sikder (Dept. of VSC)
2.	PPT 102	Plant Propagation & Nursery Management	1+1	Dr. A. Chakraborty	Mr. Ashok Chhetri (Guest Teacher)
3.	PPT 151	Orchard & Estate Management	1+1	Dr. N. Bhowmick	Dr. A. Chakraborty
4.	PPT 152	Dry Land Horticulture	1+1	Dr. A. Chakraborty	Dr. B. Chakraborty
5.	PPT 201	Temperate Fruit Crops	1+1	Dr. N. Bhowmick	Mr. Ashok Chhetri (Guest Teacher)
6.	PPT 251	Tropical & Sub-Tropical Fruits	3+1	Dr. A. Chakraborty	Dr. N. Bhowmick and Dr. B. Chakraborty
7.	PPT 252	Production Technology of Fruit & Plantation Crops	1+1	Dr. B. Chakraborty	Dept. of PCP
8.	PPT 301	Post Harvest Management of Horticultural Crops	2+1	Dr. M. Preema Devi	Dr. P. K. Paul
9.	PPT 351	Breeding of fruits and Plantation Crops	2+1	Dr. N. Bhowmick	Dr. A. Chakraborty Dept. of PCP
10.	PPT 352	Principles of Food Science and Nutrition	2+0	Dr. P. K. Paul	Dr. M. Preema Devi
11.	PPT 353	Post Harvest Management & Value Addition of Fruits & Vegetables	1+1	Dr. M. Preema Devi	Dr. P. K. Paul
12.	ELC 352	Food Safety and Standards (Elective Course)	2+1	Dr. M. Preema Devi	Dr. H. S. Konar (F/Tech) Dr. Ayon Roy (Plant Pathology)
13.	PCP 351	Processing of Horticultural Crops (Offered from Plantation Crops & Processing)	1+2	Teachers of PCP	Dr. M. Preema Devi
14.	PCP 151	Growth and development of Horticultural Crops (Offered from Plantation	1+1	Teachers of PCP	Dr. A Chakraborty

		Crops & Processing)			
15.	HORT 152	Principles of Horticultural Crops and Plant protection (Offered from Faculty of Technology)	1+1	Offer Dept. VSC	Dr. M. Preema Devi

(b) Courses Offered in PG level

Sl. No	Course No	Course Title	Credit	Course Leader	Associated teachers
1.	FSC 501	Tropical & Subtropical Fruit Production I	2+1	Dr. N. Bhowmick	Mr. Ashok Chhetri
2.	FSC 502	Tropical & Subtropical Fruit Production II	2+1	Dr. A. Chakraborty	Mr. Ashok Chhetri
3.	FSC 503	Temperate Fruit Production Technology	2+1	Dr. N. Bhowmick	Dr. A. Chakraborty Mr. Ashok Chhetri
4.	FSC 504	Breeding of Fruit Crops	2+1	Dr. A. Chakraborty	Dr. N. Bhowmick Mr. Ashok Chhetri
5.	FSC 505	Propagation and Nursery management of Fruit Crops	2+1	Dr. A. Chakraborty	Dr. B. Chakraborty
6.	FSC 506	Growth & Development of Fruit Crops	2+1	Dr. A. Chakraborty	Dr. N. Bhowmick
7.	FSC 591	Masters' Seminar-I	1+0	Dr. A. Chakraborty (Seminar Leader)	***
8.	FSC 592	Masters' Seminar-II	0	Dr. N. Bhowmick (Seminar Leader)	***
9.	PHT 501	Post Harvest Physiology and Biochemistry of Fruits and Vegetables	2+1	Dr. M. P. Devi	Dr. P. K. Paul
10.	PHT 502	Post Harvest Management of Fruits & Vegetables	2+1	Dr. P. K. Paul	Dr. M. Preema Devi
11.	PHT 505	Packaging of fresh and processed Horticultural Produce	1+1	Dr. M. Preema Devi	Dr. H. S. Koner
12.	PHT 506	Post Harvest Technology of ornamentals	1+1	Dr. M. Preema Devi	Dr. A. M. Khan (FLA)
13.	PHT 507	Processing of Plantation, Spices, Medicinal and Aromatic Plants	1+1	Dr. P. K. Paul	Dr. M. Preema Devi Dr. S. Das (PSMA)
14.	PHT 508	Spoilage of fruits, vegetables and processed products	2+1	Dr. P. K. Paul	Dr. M. Preema Devi, Dr. Anamika Debnath (PPA)
15.	PHT 509	Drying and Dehydration Technology	1+1	Dr. M. P. Devi	Dr. H. S. Koner

16.	PHT 591	Credit Seminar	0	Dr. A. Chakraborty (Seminar Leader)	***
17.	PHT 592	Master's Seminar	0	Dr. N. Bhowmick (Seminar Leader)	***
18.	FSC 601	Breeding of Fruit Crops	2+1	Dr. N. Bhowmick	Dr. A. Chakraborty
19.	FSC 602	Advances in production of fruit crops - I	2+1	Dr. A. Chakraborty	Dr. N. Bhowmick
20.	FSC 603	Advances in production of fruit crops - II		Dr. N. Bhowmick	Dr. A. Chakraborty
21.	FSC 605	Commercial Fruit Nursery	2+1	Dr. A. Chakraborty	Dr. N. Bhowmick
22.	FSC 691	Doctoral Seminar-I	0	Dr. N. Bhowmick (Seminar Leader)	***
23.	FSC 692	Doctoral Seminar-II	0	Dr. N. Bhowmick (Seminar Leader)	***
24.	FSC 693	Doctoral Seminar-III	0	Dr. N. Bhowmick (Seminar Leader)	***
25.	PHT 601	Advances in Postharvest handling of perishables	2+1	Dr. M. Preema Devi	Dr. P. K. Paul
26.	PHT 602	Advances in Postharvest physiology	2+0	Dr. M. Preema Devi	Dr. P. K. Paul
27.	PHT 604	Fruits and Vegetables Waste Management	2+0	Dr. M. Preema Devi	Dr. P. K. Paul
28.	PHT 605	Bioactive compounds in Horticultural Produce	2+1	Dr. P. K. Paul	Dr. M. Preema Devi
29.	PHT 691	Doctoral Seminar-I	0	Dr. N. Bhowmick (Seminar Leader)	***

(ii) Students of the Department:

a) Master Degree

Sl. No.	Name of the students	Semester	Thesis title	Advisory committee
1.	Binita Baidya (H-2017-04-M)	Completed	Quality assessment of dried chrysanthemum flower as affected by pre drying and storage condition.	Dr. M. Preema Devi (Chairman) Prof. P. K. Paul Dr. A. Mondal Khan Dr. S. Khalko
2	Nim Tshering Sherpa (H-2017-08-M)	Completed	Standardization of seed germination and stem cutting of <i>Baccaurea sapida</i> Muell. Arg.	Dr. A. Chakraborty(Chairman) Dr. Nilesh Bhowmick Dr. A. N. Dey Dr. Nandita Sahana

3.	Novin Chamling (H-2017-09-M)	Completed	Effect of Secondary Hardening media on field performance of banana (<i>Musa AAB</i>) cv. Malbhog.	Dr. Nilesh Bhowmick(Chairman) Dr. A. Chakraborty Dr. Soumen Maitra Dr. Hossain Ali Mondal Dr. Surajit Khalko
4.	Santosh Kumar G.M. (H-2017-14-M)	Completed	Response of shoot pruning on growth, flowering and fruiting characteristics of guava (<i>Psidium guajava</i> L.) under Sub - Himalayan Terai Region of WB	Dr. Nilesh Bhowmick (Chairman) Dr. A. Chakraborty Dr. A. N. Dey Dr. Puspendu Dutta
5.	Jinnamu Aresh (H-2017-02-M)	Completed	Effect of microbial isolates in removing ethylene for delayed ripening.	Prof. P. K. Paul(Chairman) Prof. A. Choudhury Dr. M. Preema Devi Dr. Surajit Khalko
6.	Deep Ghosh (H-2018-006-M)	3 rd and 4 th Semester	Study in plant morphology, floral biology, fruiting behavior of ber	Dr. A. Chakraborty (Chairman) Dr. Nilesh Bhowmick Dr. A.N. Dey Dr. P.S. Medda Dr. Moumita Chakraborty
7.	Deepak S. Kore (H-2018-007-M)	3 rd and 4 th Semester	Effect of mutagen on seed germination and seedling growth behavior of acid <i>Citrus aurantifolia</i>	Dr. A. Chakraborty(Chairman) Dr. Nilesh Bhowmick Prof. P. K. Paul Dr. Avijit Kundu Dr. A. Ghosh
8.	R. Sumasree (H-2018-017-M)	3 rd and 4 th Semester	Effect of polyamines on postharvest quality of banana	Prof. P. K. Paul (Chairman) Dr. M. Preema Devi Dr. Nilesh Bhowmick Dr. Ranjit Chatterjee Dr. Sankalpa Ojha
9.	Saidiksha Subba (H-2018-020-M)	3 rd and 4 th Semester	Flowering, Fruiting characteristics and response of girdling on yield attributes of Litchi	Dr. Nilesh Bhowmick(Chairman) Dr. A. Chakraborty Dr. Puspendu Datta Prof. P.S. Medda
10.	Sweta Malakar (H-2019-016M)	1 st and 2 nd Semester	Standardization and quality evaluation of blended pummelo squash [<i>Citrus grandis</i> (L.) Osbeck]	Dr. Mutum Preema Devi (Chairman) Prof. Prodyut Kumar Paul Prof. Indrajit Sarkar Dr. Subhamoy Sikdar
11.	Damonhi Phyllei (H-2019-005-M)	1 st and 2 nd Semester	Pulsed temperature treatment for uniform ripening and shelf life improvement of banana	Prof. Prodyut Kumar Paul(Chairman) Dr. Mutum Preema Devi Dr. Nilesh Bhowmick Dr. Nandita Sahana
12.	Zigme Wangchuk Sherpa (H-2019-018M)	1 st and 2 nd Semester	Comparative study on morphology and biotic stress in F ₁ hybrid and their parent of guava	Dr. Aditi Chakraborty (Chairman) Dr. Nilesh Bhowmick Prof. Amarendra Nath Dey Prof. Arup Sarkar Dr. Surajit Khalko

13.	Viswanatha.K.E (H-2019-017M)	1 st and 2 nd Semester	Effect of foliar spray of Zinc nano particle on guava (<i>Psidium guajava</i> L.)	Dr. Nilesh Bhowmick (Chairman) Dr. Aditi Chakraborty Prof. Dibyendu Mukhopadhyay Prof. Arunava Ghosh Dr. Somnath Mandal
14.	Swadesh Gurung (H-2019-015M)	1 st and 2 nd Semester	Standardization of kiwifruit (<i>Actinidia deliciosa</i>) propagation techniques through cuttings	Dr. Nilesh Bhowmick (Chairman) Prof. Prodyut Kumar Paul Prof. Amarendra Nath Dey Prof. Arunava Ghosh Dr. Somnath Mandal

b) Doctoral Degree

Sl. No.	Name of the students	Semester	Thesis title	Advisory committee
1.	Bidyarani Devi Senjam (H-2018-04-D)	3 rd and 4 th Semester	Studies on Mopho-Genetic Variability and In-Vitro Clonal Propagation of pummel [<i>Citrus grandis</i> (L). Osbeck.]	Dr. Nilesh Bhowmick (Chairman) Dr. Prodyut Kr. Paul Dr. Sarad Gurung Dr. Hossain Ali Mondal Dr. Amarendra Nath Dey
2.	Polu Parameshwar (H-2018-12-D)	3 rd and 4 th Semester	Impact of Rejuvenation, shoot pruning on vegetative, flowering, fruiting characteristics and pest incidence of Mango	Dr. Nilesh Bhowmick (Chairman) Dr. Prodyut Kr. Paul Prof. Partha Sarathi Medda Dr. Shyamul Kr Sahoo Dr. Surajit Khalko
3.	Md Shamsher Ahmed (H-2018-11-D)	3 rd and 4 th Semester	Process optimization for preparation and evaluation of debittered juice from pummel fruit	Dr. Mutum Preema Devi (Chairman) Dr. Prodyut Kr. Paul Dr. Nilesh Bhowmick Dr. M. K. Debnath Dr. Nandita Sahana
4.	Srujana Eda (H-2018-17-D)	3 rd and 4 th Semester	Evaluation of ambient temperature dryer for dehydration of perishables	Dr. Prodyut Kr. Paul (Chairman) Dr. Mutum Preema Devi Dr. Shrilekha Das Dr. Somnath Mandal Dr. Nandita Sahana
5.	Kondle Ravi (H-2017-04-D)	5 th and 6 th Semester	Effect of pruning and nutrient management on the performance of acid lime (<i>Citrus aurantifolia</i> Swingle) cv. Balaji under Sub-Himalaya Terai Region of WB	Dr. Sharad Gurung (Chairman) Dr. Nilesh Bhowmick Prof. P. K. Paul Dr. D. Mukhopadhyay
6.	Sukanya Misra (H-2016-05-D)	7 th and 8 th Semester	Effect of plant population and mulching on strawberry (<i>Fragaria ananassa</i>) cultivation under Terai Region of West Bengal.	Dr. Sharad Gurung (Chairman) Prof. P. K. Paul Dr. A. Chakraborty Dr. P. S. Medda Dr. M. K. Debnath

7.	Nim Tshering Sherpa (H-2019-003-D)	1 st and 2 nd Semester	Mass multiplication and creation of variability of strawberry by tissue culture.	Dr. A. Chakraborty(Chairman) Dr. Nilesh Bhowmick Dr. B. Chakraborty Dr. Nandita Sahana Dr. S. Ojha
8.	Novin Chamling (H-2019-004-D)	1 st and 2 nd Semester	Effect of Boron on morpho-physiological and biochemical changes in Darjeeling mandarin (<i>Citrus reticulata</i> Blanco.) under aluminum stress condition.	Dr. Nilesh Bhowmick(Chairman) Dr. B. Chakraborty Prof. A. K. Sinha Dr. P. Dutta Dr. S. Mondal
9.	Santosh Kumar G.M. (H-2019-007-D)	1 st and 2 nd Semester	Influence of plant growth promoting micro-organisms on the performance of strawberry (<i>Fragaria × ananassa</i> Dutch) under the influence of abiotic stresses.	Dr. Nilesh Bhowmick (Chairman) Dr. A. Chakraborty Dr. A. Roy Prof. A. K. Sinha Dr. S. Mondal
11.	Jinnamu Aresh (H-2019-001-D)	1 st and 2 nd Semester	Potency of multifarious pretreatments for minimal processing of garlic.	Prof. P. K. Paul (Chairman) Dr. M. Preema Devi Dr. N. Bhowmick Dr. R. Chatterjee Dr. S. Mondal

(iii) Research Programme

(a) Departmental Research programme:

Sl. No.	Title	Associated Teacher	Status
1.	Response of shoot pruning on growth, flowering and fruiting characteristics of guava	Dr. Nilesh Bhowmick Dr. A. Chakraborty	Completed
2.	Standardization of seed germination and stem cutting Burmese grape	Dr. A. Chakraborty Dr. Nilesh Bhowmick	Completed
3.	Effect of Secondary Hardening media on field performance of banana (<i>Musa AAB</i>) cv. Malbhog.	Dr. Nilesh Bhowmick Dr. A. Chakraborty	Completed
4.	Efficacy of microbial isolates in removing ethylene for delayed ripening	Prof. P. K. Paul Dr. M. Preema Devi	Completed
5.	Quality assessment of dried chrysanthemum flower as affected by pre-drying and storage condition.	Dr. M. Preema Devi Prof. P. K. Paul	Completed
6.	Study in plant morphology, floral biology, fruiting behavior of ber	Dr. A. Chakraborty Dr. Nilesh Bhowmick	Continuing
7.	Effect of mutagen on seed germination and seedling growth behavior of acid <i>Citrus aurantifolia</i>	Dr. A. Chakraborty Dr. Nilesh Bhowmick	Continuing
8.	Effect of polyamines on postharvest quality of banana	Prof. P. K. Paul Dr. M. Preema Devi	Continuing
9.	Flowering, Fruiting characteristics and response of girdling on yield attributes of Litchi	Dr. Nilesh Bhowmick Dr. A. Chakraborty	Continuing
10.	Effect of plant population and mulching on strawberry cultivation under Terai Region of West Bengal.	Dr. Sarad Gurung Prof. P. K. Paul	Continuing

11.	Effect of pruning and nutrient management on the performance of acid lime (<i>Citrus aurantifolia</i> Swingle) cv. Balaji under Sub-Himalaya Terai Region of WB.	Dr. S. Gurung Dr. N. Bhowmick	Continuing
12.	Studies on Mopho-Genetic Variability of pummelo	Dr. Nilesh Bhowmick	Continuing
13.	Impact of rejuvenation, pruning on mango	Dr. Nilesh Bhowmick	Continuing
14.	Process optimization for preparation and evaluation of debittered juice from pummel fruit	Dr. M. Preema Devi	Continuing
15.	Evaluation of ambient temperature dryer for dehydration of perishables	Dr. Prodyut Kr. Paul	Continuing
16.	Tissue culture of strawberry	Dr. A. Chakraborty Dr. Nilesh Bhowmick Dr. B. Chakraborty	Continuing
17.	Stress physiology of citrus	Dr. Nilesh Bhowmick Dr. B. Chakraborty	Continuing
18.	Biotic and abiotic stress on strawberry	Dr. Nilesh Bhowmick Dr. A. Chakraborty	Continuing
19.	Minimal processing of garlic.	Prof. P. K. Paul Dr. M. Preema Devi	Continuing

(b) Project Handled

<i>Sl. No.</i>	<i>Project Title</i>	<i>Sponsoring Authority</i>	<i>Associate Teacher</i>
1.	Quality Control Laboratory	Mo FPI, GOI	Prof. P. K. Paul- Principal Investigator (PI)
2.	Performance of Intercropping for Profitability in Juvenile Orchard & Standardization of Vegetative Propagation Methods of Jackfruit for Quality Planting Materials	Dept. of Science & Technology and Biotechnology, GoWB [Memo no. 163 (Sanc) /ST/P/S&T/1 G-8/2018 dt 14.02.2019]	Dr. Nilesh Bhowmick Principal Investigator- (PI)
3.	Smart Curricula Delivery through Virtual Classrooms as Communication Linked Interface for Cultivating Knowledge and Online Courses	ICAR-National Agricultural Higher Education Project (NAHEP)-1C Innovation Grant (NAHEP/ IG-2014 /2019-20 dt 15.07.2019 & Ref No.: UBKV/DR/1004 dt 07.11.2019) Total Project Cost-Rs. 4,70,58,000/-	Prof. P. K. Paul- Principal Investigator (PI) Dr. Nilesh Bhowmick (Team Member)

iv) Research findings

Assam Lemon

To study the effect of different pruning and nutritional level on Assam Lemon an experiment was conducted at the Instructional Farm, Dept. of Pomology & Post Harvest Technology, Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar. Seven different levels of nutrient, consisting recommended dose of fertilizers (RDF) and different combinations of organic manure (Vermicompost), inorganic fertilizer, biofertilizer (Azotobacter), Mycorrhiza (VAM) and their interaction was studied on plant reproductive behaviour of 9-year-old lemon plants. The investigation revealed that the number of flowers per plant, fruit set percentage and

fruit yield, were found highest in lightly pruned plants fed with 75% RDF+Vermicompost+Azotobacter+Vesicular Arbuscular Mycorrhiza at Ambe, Mrig and Hasth bahar, respectively. Among the three seasons of cropping, Ambe bahar recorded the best result in respect to yield followed by Mrig and Hasth bahar.

Another study on Assam lemon was conducted in the laboratory of Dept. of Pomology & Post Harvest Technology, Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar. In the present experiment lemon juice was blended with ginger, at a mixture ratio of 50:50, 60:40, 70:30, 80:20, and 90:10. Lemon based blended nectar was highly acceptable up to 3 months under ambient condition. Among different treatments, blending of 80% lemon juice with 20% ginger extract was considered to be the most appropriate for manufacturing nectar as potential nutritional drink.

Mango

The population fluctuation of mango hopper species on different cultivars of mango was recorded at the Instructional Farm of Dept. of Pomology & Post Harvest Technology, Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar. The Mango cultivars selected for screening against the mango hopper were Himsagar, B.N. Chatterjee, Peyaraphuli, Meghlanthan, Langra, Bombai, Dashehari, Banganpalli and Bangalora. Population dynamics of mango hoppers were studied during flowering to harvesting stages on different cultivars. The maximum and minimum population of mango hopper were observed on Peyaraphuli (5.5, 11.67 hoppers/ inflorescence) and B.N. Chatterjee (4.83, 6.48 hoppers/ inflorescence), respectively in the months of February-March (flowering time). Based on suitability of different mango cultivars as host plant for hoppers, the mango cultivars are ranked as Peyaraphuli (9.56 hoppers/ inflorescence) > Bangalora (6.07) > Banganpalli (5.86) > Langra (5.81) > Dashehari (5.81) > Bombai (5.20) > Himsagar (5.05) > B. N. Chatterjee (4.91) > Meghlanthan (4.71)

Banana

From research paper:

To understand the role of secondary hardening media on *in vitro* raised banana plantlets, an experiment was conducted at Uttar Banga Krishi Vishwavidyalaya, Pundibari, Cooch Behar West Bengal with seven treatments. The secondary hardening process was maintained for a period of 21 days prior to field transplanting. Among all the different secondary hardening media treated the treatment Soil+ Sand + Vermicompost (1:1:1) provided maximum survivability percentage of plantlets (97.43%) followed by Sand + Vermiculite + Vermicompost (1:1:1), whereas, maximum plant height (8.93cm), plantlet diameter (4.68cm), number of leaves (3.96), chlorophyll content of leaf (1.63mg), length of leaves (13.11 cm), width of leaves (6.68 cm) was recorded with the treatment Sand + Vermiculite + Vermicompost (1:1:1) on secondary hardening condition.

From thesis:

Banana

To study the influence of media on the primary acclimatization and to evaluate the performances of secondary hardening media on in-vitro raised banana plantlets for better vegetative growth and survivability in the Secondary hardening and field conditions. The results revealed that, Soil+ Sand + Vermicompost (1:1:1) observed maximum survivability (94.46%, 93.33%), whereas, treatment with Sand + Vermiculite + Vermicompost (1:1:1) recorded maximum in plant height (210.37 cm), pseudostem girth (67.13 cm), chlorophyll contents (1.63 mg), number of leaves (14.51), leaf length (96.39 cm), leaf breadth (43.09 cm), number of

suckers (4.47), flowering duration (311 days), number of days required to fruit set from flowering (41 days), number of hands (12.00) per bunch, number of fingers per hand (14.38), total number of fingers per bunch (172.66) over other treatments in the field condition.

Another research was carried out in green mature banana to understand the biological evacuation of the ethylene for delay ripening by using microbial isolates i.e., *Pseudomonas sp.* The results from the study corroborates that the use of *Pseudomonas sp.* in storage facilities can reduce the ethylene concentration and can be used as a post-harvest tool for delayed ripening.

Burmese grape

Seeds were treated with thiourea 100 ppm for 12 hours showed highest germination percentage (68.13%), germination value (6.46) and minimum germination time (26.99 days) respectively. Seed treated with KNO_3 @100 ppm for 12 hrs also thrive good result on seed germination and germination value. Softwood, semi-hardwood and hardwood cuttings of Burmese grape were evaluated but the success was nil because the degree of lignifications in the primary phloem affects the rooting ability of cuttings from trees by hindering the root primordial tissue to develop root initials. It might be due to the carbohydrate and nitrogen levels in soft and semi hard wood cutting which play an important role in rooting.

Guava:

It may be concluded from this present study that, in guava cv. Dudh Khaja showed better response for days taken to emergence of vegetative buds (53.83 days), carbohydrate content of new shoots (56.81g), number of flowering bud (132.67), number of flowers (107.17) and cultivar Baruipur were recorded effective in number of primary shoots (58.17), length of primary shoots (135.82cm) at twelve months after pruning and flowering percentage (66.11%). In the differential pruning height of guava cv. L-49 were recorded that heading back at the level of 120 cm and no pinching were found most effective in increasing the parameters particularly number of flowering bud (179.33), number of flowers (139.83), number of fruit set (95.33), total number of fruits (64.66), ascorbic acid (190.35 mg/100g), titratable acidity (0.28%) and heading back at the level of 120 cm and one pinching were effective in increasing number of primary shoots (39.50), days taken to emergence of vegetative buds (45.00 days), flowering percentage (80.18%), fruit weight (172.00g) over other treatments.

Chrysanthemum:

A laboratory experiment was conducted in the Department of Pomology and Post Harvest Technology, Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar, W.B., India, to investigate the storage life of dried chrysanthemum flowers using pre-drying fungicidal treatments with Mancozeb, Copper Hydroxide, Hexaconazole, Azoxystrobin and without any fungicide after embedding in silica gel and drying at 45 ± 5 °C with 80% humidity. Stage of harvesting of the flower was taken at 80-100% mature and of the same size. Dried flowers were stored in different packaging materials i.e. without packaging, Polyethylene Pouch, Vacuum Packing, Air tight plastic box with silica gel and Air tight plastic Box. The study revealed that the shelf life of the flowers stored in air tight plastic jar with silica gel treated with Azoxystrobin was extended upto 105 days with acceptable and marketable quality.

c) Developmental Programme:

Sl. No.	Title	Associated Teacher	Status
1.	Maintenance of Fruit Nursery for production of quality planting materials	Dr.N. Bhowmick	Continuing
2.	Development and maintenance of different pineapple varietal block	Dr.N. Bhowmick	Continuing
3.	Maintenance of Assam Lemon block and propagation practices for raising of saplings	Dr.N. Bhowmick	Continuing
4.	Maintenance of Litchi Varietal block and propagation practices for raising of saplings	Dr.N. Bhowmick	Continuing
5.	Collection of different banana germplasm and establishment of banana block	Dr.N. Bhowmick	Completed
6.	Maintenance of guava varietal block and propagation practices for raising of saplings	Dr.N. Bhowmick	Continuing
7.	Maintenance of mango mother block	Dr.N. Bhowmick	Continuing
8.	Maintenance of mango varietal block	Dr.N. Bhowmick Dr. A. Chakraborty	Continuing
9.	Maintenance of mother block of litchi and guava for raising of saplings	Dr.N. Bhowmick Dr. A. Chakraborty	Continuing
10.	Maintenance of citrus rootstock, water apple orchard	Dr. M. Preema Devi	Continuing
11.	Development and maintenance of jackfruit genotypes block	Dr. N. Bhowmick	Continuing

5) PUBLICATIONS

a) Research Paper

1. Parameshwar, P., Sahoo, S. K. and Bhowmick, N. (2020). Year round incidence and preference of *Cicadellid* hoppers on different mango cultivars in sub-Himalayan Terai region of West Bengal. *Journal of Entomology and Zoology Studies*, **8**(2):1543-1545, ISSN:2349-6800 [NAAS Rating -5.53]
2. Ghosh, A., Dey, K., Bhowmick, N., Medda, P. S., Dey, A. N. and Ghosh, A. (2020). Reproductive behaviour of Lemon (*Citrus limon* Burm.) affected by different pruning intensities and integrated nutrient management under various growing season. *National Academy Science Letters - India*, **43**(1):81-84, ISSN: 0250-541X [NAAS Rating -6.33]
3. Chamling, N., Bhowmick, N., Khalko, S., Chakraborty, A., Mondal, H. A. (2019). Effect of secondary hardening media on in-vitro raised banana plantlets cv. Grand Naine. *International Journal of Tropical Agriculture*, **37** (3):441-446, ISSN: 0254-8755 [NAAS Rating-3.49]
4. Bhowmick, N and Pal, R. (2019). Effect of canopy position on quality of sapota fruits grown under sub-Himalayan Terai region of West Bengal. *Trends in Biosciences*, **12**(20):1302-1304, ISSN: 0974-8431 [NAAS Rating-3.94]
5. A. Hayat, M. Preema. Devi and S. Chakraborty. (2019). Quality of lemon nectar blended with ginger: a study. *International Journal of Chemical Studies*. **7**(5): 3008-3015 [NAAS Rating-5.31]

b) Book Chapter

Mani, A., M. Preema Devi and Sujayasree, O.J. (2019). Utilization of fruit and vegetable waste in food industries. *In: Trends and prospects in processing of horticultural crops. I.* Chakraborty, P. K. Paul, A. Mani, A. K. Tiwary and K. Prasad (eds.). Today and Tomorrow's Printers and Publishers, New Delhi, pp: 549-578

6) EXTENSION PROGRAMME**(a) Radio Talk/Newspaper article**

Sl. No.	Topic	Resource Person
1.	<i>Uttarer Matite Brazil-er fal-er chash</i> , published on 18 th March 2020 at Anandabazar Patrika	Dr. M. Preema Devi

(b) Training/Demonstration Programme

Sl. No.	Title of Programme/ Sess./ Lecture/ Demo	Organizer	Associated Teacher
1.	Field Demonstration at UBKV for Residential Training of Horticultural Farmers under ATMA 2019-20 on 10.09.2019	District Horticulture Officer, Dakshin Dinajpur, Dept. of FP I & Horticulture (Memo 401/DHO/2019 dt 05.09.19)	Dr. Nilesh Bhowmick
2.	Diploma in Agricultural Extension Services for Input Dealers (DAESI) training programme (02.05.2019) on <i>i. Improved package of practices for pineapple cultivation and Management of different disease and pest in pineapple</i> <i>ii. Processing-Value addition and marketing of different pineapple by-products</i>	Jalpaiguri KVK, West Bengal University of Animal & Fishery Sciences, Ramsai, Jalpaiguri (Ref No. Jalpaiguri KVK:81 dt 23.04.2019)	Dr. Nilesh Bhowmick
3.	Vermicompost utilization in fruit crops on Skill Development Training on Vermicompost Producer on 10.02.2020	Dept. of Vegetable and Spice Crops, UBKV & Agriculture Skill Council of India (ASCI), GoI supported Skill Development Training programme (Ref No Nil dt 22.01.2020)	Dr. Nilesh Bhowmick
4.	Banana cultivation on Farm School on 14.02.2020	ATMA, FIAC, Mathabhanga-I, O/O Assistant Director of Agriculture, Mathabhanga-I, Dept. of Agriculture, GoWB (Memo No. 16 dt 07.02.2020)	Dr. Nilesh Bhowmick

5.	Topic: Post Harvest Management of Pineapple Training: Post Harvest Technology of Horticultural Crops on 06.03.2020	ICAR SC-SP, 2019-20, UBKV (Ref No. UBKV/Hort./PPHT 323 dt 28.01.2020)	Dr. Nilesh Bhowmick
6.	Topic: Component of Mother block and technique of fruit plant propagation Skill training on nursery worker (25.02.2020)	Cooch Behar KVK (Ref No. KVK/COB/2019-20/665 dt 25.02.2020)	Dr. Nilesh Bhowmick
7.	Judge of Exhibits of Regional Agricultural Fair-2020 (14-16.01.2020)	Regional Agricultural Fair-2020 (Ref No. DEE/UBKV/19-20/378 dt 10.01.2020)	Dr. Nilesh Bhowmick

(c) Farmers Advisory Services Regarding Agricultural Tips

Sl. No.	Name and address of the farmers	Problem addressed	Date	Associated Teacher
1.	Ratan Ch. Barman, Paschim Fulbari, PO-Masanpat, Gosanimari GPPS-Dinhata, Dist-Cooch Behar-736145, Mob:8918698196	Shoot borer of lemon, litchi fruit drop and litchi fruit borer	09.04.2019	Dr. N. Bhowmick
2.	Abdul Kader Mian, M. K. Kuthi, PO+PS-Pundibari, Dist-Cooch Behar, Mob-8293275289	Diseases of mango	24.04.2019	Dr. N. Bhowmick
3.	Suresh Barman, Vill+PO-Bhogramguri, PS-Mathabhanga, Dist-Cooch Behar, Mob-9635101129	Acid lime cultivation	30.04.2019	Dr. N. Bhowmick
4.	Narayan Barman, Vill-Jarabari, PO-Kuchni, Dinhata-I, Dist-Cooch Behar, Mob-8372973479	Propagation techniques of jackfruit	30.04.2019	Dr. N. Bhowmick
5.	Sujan Barman, Vill-Choto Shakdal, PO-Kuchni, dinhata-II, Cooch Behar, Mob-9641003950	Diseases of banana and use of polythene packets for scarring beetle	30.04.2019	Dr. N. Bhowmick
6.	Akhil Ch. Sen, Vill-D. K. Kuthi, PO-Pundibari, Cooch Behar-736165, Mob:9474827447	Fruit spot on acid lime due to thrips	15.07.2019	Dr. N. Bhowmick
7.	Anirban Chowdhury, Vill=-Dhangdhingguri, Cooch Behar-736165, Mob-8918186510	Strawberry cultivation	07.08.2019	Dr. N. Bhowmick
8.	Afchhar Ali, Shooting Camp, Patlakhawa, Cooch Behar-II-736165, Mob-9800327996	Flowering problem of pomegranate	19.09.2019	Dr. N. Bhowmick
9.	Haralal Mandal, Vill-Bhanurkuthi,	Bacterial canker of	17.10.2019	Dr. N. Bhowmick

PO-a. K. Paradubi, PS- Ghoksadanga, dist-Cooch Behar, Mob-6297467856, 8509350381	guava		
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7) OTHER ACTIVITIES:

(a) Members of different committee, assignment, additional responsibility

Sl. No.	Committee/Assignment	Teacher associated
1.	Dean, Faculty of Horticulture, UBKV (from 02.01.2020)	Prof. P.K. Paul
2.	Head, Dept of Pomology & Post Harvest Technology, UBKV (from 02.01.2020)	Dr. N. Bhowmick
3.	Member, Faculty Council, Faculty of Horticulture (Ref No. 1126/UBKV/Est(F.C.-Hort.)/31 dt 20.11.2015)	Dr. P. K. Paul Dr. N. Bhowmick
4.	Provost, M. N. Saha Hall (Ref No. 2129/UBKV/Est. (Trans.)/T/NT-40 dt 30.3.17, Ref 500/UBKV/Est (Trns)/T/F-39 dt 02.08.2019)	Dr. N. Bhowmick
5.	Convenor, Faculty Curriculum Committee (Ref No. 2161 dt 18.01.2018)	Dr. N. Bhowmick
6.	Member, Accreditation Committee of the University (Convener, College of Horticulture, Information of Individual Colleges) [vide Ref No. 656/UBKV/Est. (Acre.)-170 dt 01.09,2016]	Dr. N. Bhowmick
7.	Member, Special Study & Coaching, Pundibari Campus Sub-Cell (Ref No. 388/D-F/Ag-UBKV dt 28.10.16)	Dr. N. Bhowmick
8.	Member, Editorial & Publishing Committee, <i>Farmers' Bulletin (Uttorer Krishikatha)</i> (Vide Notification No. DEE/UBKV/13-14/58 dt 19.9.2013, Ref No. DEE/UBKV/18-19/24 dt 23.04.2018))	Dr. N. Bhowmick
9.	Member, Central Level Committee for Presentation of Teacher – Seminar, Symposium, Training programme (Ref No. 183-D-F/Ag-UBKV)	Dr. N. Bhowmick
10.	Member, Exhibition and Training Committee, Regional Agriculture Fair (14-16.01.2020) [Ref. No. DE/UBKV/19-20 dt 27.11.2019]	Dr. N. Bhowmick
11.	Member, Central Admission Committee for UG admission (2019-20) [Ref No. 144/UBKV/Est dt 03.05.2019]	Dr. N. Bhowmick Dr. M. Preema Devi Dr. A. Chakraborty
12.	Member, Document verification for UG Admission [Ref No. 89/UBKV/Admission dt 10.07.2019]	Dr. N. Bhowmick
13.	Member, Verification for M.Sc. & Ph.D. entrance Test (Ref No. 89/UBKV/Admission dt 10.07.2019)	Dr. N. Bhowmick
14.	Committee Member, Socio-economic developmental programme for the villagers along the border areas (Ref No. 60/Hort/UBKV dt 06.05.2019)	Dr. N. Bhowmick
15.	Member of Anti-Ragging Squad [Ref. No. 20/UBKV/Est.(Anti.rag-167), dt. 27.05.2019]	Dr. M. Preema Devi Dr. A. Chakraborty
16.	Convenor, Examination Committee, UBKV [Ref. No. 1278/EXAM/UBKV dated 14-02-20]	Dr. B. Chakraborty

(b) Organizing Seminar/Symposium/Conference/Workshop

Sl. No.	Subject	Period	Venue	Organizer	Resource Person
1.	Regional Agricultural Fair,2019-20	14-16.01.2020	UBKV	UBKV(Ref No. DEE/UBKV/19-20 nil dt 27.11.2019)	Dr. Nilesh Bhowmick (Member, Exhibition & Training Committee)
2.	National Seminar on Functional Foods, Bioactive Compounds and Phytochemicals for Better Nutrition	03 days	Virtual Mode, 9-11 Dec., 2020	UBKV and SPBB, New Delhi	Acted as Rapporteur in Technical Sessions, Dr. B. Chakraborty

(c) Act as Resource person in Training/Meeting/Workshop/Interaction

Sl. No.	Subject	Period	Venue	Organizer	Resource Person
1.	Training programme on food processing and value addition.	23.04.2019 to 24.04.2019	Department of Pomology and Post-Harvest Technology, UBKV	KVK, Cooch Behar	Dr. M. Preema Devi

(d) Participation in Summer/Winter School/Training:

Sl. No.	Subject	Period	Venue	Organizer	Associated Teacher
1.	Recent Advances on Mutation Breeding for crop improvement	20-30.01. 2020	Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, WB	Bhabha Atomic Research Centre, Trombay, Mumbai & BCKV	Dr. Nilesh Bhowmick
2.	Post Harvest Management and Storage Techniques	20.01.2020 to 24.01.2020	National Institute of Plant Health Management, Hyderabad	National Institute of Plant Health Management, Hyderabad	Dr. M. Preema Devi
3.	Agricultural Education, Entrepreneurship and Skill Development in India	27.08.2019 to 16.09.2019	Central Agricultural University, Imphal, Manipur	ICAR, New Delhi & Central Agricultural University, Imphal, Manipur	Dr. M. Preema Devi

(e) Participation in Seminar/Symposium/Conferences/Workshop

Sl. No.	Subject	Period	Venue	Organizer	Title of the Paper presented	Associated Teacher
1.	National Conference on Neglected Underutilized Crop Species 2019 Conference.	02.08.2019	National Institute of Plant Genome Research, New Delhi	National Institute of Plant Genome Research, New Delhi	Status of Burmese grape (<i>Baccaurea sapinda</i> Muell.Arg.)- a neglected underutilized fruit crop under Sub-Himalayan Terai region of WB	Dr. Nilesh Bhowmick
2.	International Conference on Agriculture, Horticulture and Food Sciences	21-22.12.2019	Hotel Hans, New Delhi	Society of Tropical Agriculture	Effect of Secondary hardening media on <i>in vitro</i> raised banana plantlets cv. Grand Naine	Dr. Nilesh Bhowmick
3.	3 rd International Conference on Global Initiatives in Agricultural and Applied Sciences for Eco-Friendly Environment (GIASE-2019)	16-18 June, 2019	Tribhuvan University, Kathmandu, Nepal	Agricultural Technology Development Society (ATDS)	Flower drying: an art to preserve those blossoms	Dr. M. Preema Devi
4.	National Symposium on Mitigating Biotic Stresses in Agriculture for 21 st Century: Changing Market Paradigm.	5-6, Nov., 2019	Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar	Indian Phytopathological Society and UBKV, Pundibari, Cooch Behar	-	Dr. M. Preema Devi
5.	National Symposium on Mitigating Biotic Stresses in Agriculture for 21 st Century: Changing Market Paradigm.	5-6, Nov., 2019	Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar	Indian Phytopathological Society and UBKV, Pundibari, Cooch Behar	-	Dr. A. Chakraborty
6.	National Seminar on Cultivation, conservation and	20-21 Nov, 2019	Uttar Banga Krishi Viswavidyal	Department of Forestry, Uttar Banga	Bioactive compounds from	Dr. M. Preema Devi

	sustainable utilization of medicinal plants for livelihood improvement.		aya, Pundibari, Cooch Behar	Krishi Viswavidyalaya, Pundibari, Cooch Behar & Ministry of AYUSH, GOI	medicinal plants in formulation of value added products	
7.	National Seminar on Cultivation, conservation and sustainable utilization of medicinal plants for livelihood improvement.	20-21 Nov, 2019	Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar	Department of Forestry, Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar & Ministry of AYUSH, GOI	-	Dr. A. Chakraborty
8.	4 th Regional Science & Technology Congress -2019	18-19, Dec 2019	Alipurduar College, W.B.	Alipurduar College, W.B. and DST&B, Govt. of W.B.	-	Dr. M. Preema Devi

8) OTHER ACADEMIC ACTIVITIES:

a) Award

Name of Award/Recognition	Name of Sponsoring Organization	Year	Associate Teacher
Best Young Scientist Award 2019	The Society of Tropical Agriculture	2019	Dr. N. Bhowmick
Best Research Paper Presentation (Title of the Paper: Effect of Secondary hardening media on <i>in vitro</i> raised banana plantlets cv. Grand Naine)	The Society of Tropical Agriculture	21-22.12.2019	Dr. N. Bhowmick

b) Paper Setter/Moderator/Evaluation of Answer Script

Sl. No.	Name of the Course	University	Associate Teacher
1.	Paper setter for Under Graduate End term Theory Examination of course "Tropical and Sub tropical fruit crops (FSC-121).	Birsa Agricultural University, (Ref.NO. F 44 -56/2019-BAU(Exam) 2023 /Kanke dt 30/07/2019)	Dr. Nilesh Bhowmick
2.	Conduction of practical examination HPG-521	NEHU, Tura (Ref No. TC/Hort./ Exam/ 2019 /65 dt 18.06.2019)	Dr. Nilesh Bhowmick
3.	External paper setter for M.Sc. (Ag.) in Horticulture (Major in Fruit Science), HOR-514-Breeding of Fruit Crops	Visva -Bharati (Ref. No. VB/EXAM/REG/09/PG/HORT/ Sem- ii/ 12880 / 2019 dt 06 .04.2019)	Dr. Nilesh Bhowmick

4.	External paper setter for FS-317 (Temperate Fruit Crops) for 3 rd Year (5 th Semester), B.Sc. (Hons) Horticulture External Theory Examination, 2019-20	Orissa University of Agriculture and Technology, Bhubaneswar (Ref No. 469/UT dt 24.04.2019)	Dr. Nilesh Bhowmick
5.	External paper setter for HORT-325 (Post harvest management and value addition of fruit and vegetable)	Orissa University of Agriculture and Technology, Bhubaneswar (Ref No. 469/OUAT dt 24.04.2019)	Dr. Nilesh Bhowmick
6.	External evaluator for end-term examination for PHM-211 (Fundamentals of Food Technology)	College of Horticulture, Central Agricultural University, Bermiok, Sikkim (Ref. No. COH /SKM /5/EXT.ADD-14/17/267, dt. 19.12.2019)	Dr. M. Preema Devi
7.	Paper setter for HORT-224 (Production Technology for fruits & Plantation Crops)	Orissa University of Agriculture and Technology, Bhubaneswar (Ref No. 399/COE dt 16.04.2019)	Dr. M. Preema Devi
8.	Paper setter for AHT-321 (Post-Harvest Management and Value Addition of Fruits and Vegetables)	Bihar Agricultural University, Sabour, Bhagalpur (Ref. No. 17/Exam. Cell/BAU, Sabour, dt. 05.04.2019)	Dr. M. Preema Devi
9.	Paper setter for HORT 361	Tripura University, Tripura (Ref. No. F.TU/COE, dt. 24.04.2019)	Dr. M. Preema Devi

c) Thesis Evaluation:

Sl. No	Name of Student	Topic	Degree	University	Associate Teacher
1.	Miss. Rani Shirnal (UHS16PGD177)	Qualities of wines as influenced by cane regulation and crop load of wine grape varieties grown under Northern Dry Zone of Karnataka	Ph.D.	University of Horticultural Sciences [Ref.No:R/UHSB/Evl n/Ph.D/306/2019-20. Date:22.06.2019]	Dr. Nilesh Bhowmick
2.	Urity Panching	Effect of bioformulation and coloured shade nets on germination and growth of rough lemon rootstocks.	M.Sc.	Northern Eastern University, Tura Campus, Meghalaya (Ref. No.exam /L-893(4): Dated:27.05.2019.)	Dr. Nilesh Bhowmick
3.	Miss. Sushmitha B.H (UHS17PGM897)	Studies on sex ratio and production potential of different mango varieties under northern dry zone of Karnataka.	M.Sc.	University of Horticultural Sciences, (R/UHSB/Evln /M.Sc./636 / 2019-20 dt 23.07.19, Dean PGS/ UHSB/247/ 2019-20 dt 23-07-2019	Dr. Nilesh Bhowmick

4.	Ms Lois Marak	--	M.Sc.	Northern Eastern University, Tura Campus (TC/Hort./Exam/2019/65 dt 18.06.2019)	Dr. Nilesh Bhowmick
5.	Ms Unity Pachiang	Effect of bioformulations and coloured shadenets on germination and growth of rough lemon rootstocks (<i>Citrus jambhiri</i>)	M.Sc.	Northern Eastern University, Tura Campus (TC/Hort./Exam/2019/65 dt 18.06.2019) on 25-26.06.2019	Dr. Nilesh Bhowmick
6.	Ms Alemmongla Pongen (Roll NoM-1112/17)	Ref No. Hort1-28/2013-445 dt 21.06.2019	M.Sc.	Nagaland University	Dr. Nilesh Bhowmick
7.	Subhalaxmi Behera	Studies on reproductive characters of mango hybrids in new alluvial zone of West Bengal	M.Sc.	BCKV on 20.6.2019 (Ref No. Exam/L-893 (4) dt 27.05.2019)	Dr. Nilesh Bhowmick
8.	Sristi Saha	Performance of strawberry (<i>Fragaria x ananassa</i> Duch.) cultivars in new alluvial zone of West Bengal	M.Sc.	BCKV on 20.06.2019 (Ref No. Exam/L-893 (4) dt 27.05.2019)	Dr. Nilesh Bhowmick
9.	Susmita Dey	Influence of Jasmonic acid on physico-chemical qualities of mango (<i>Mangifera indica</i> L.) cv. Himsagar grown in New Alluvial Zone of West Bengal	M.Sc.	BCKV on 20.6.2019 (Ref No. Exam/L-893 (4) dt 27.05.2019)	Dr. Nilesh Bhowmick

d) Member of the Advisory Committee:

Sl. No.	Name of Student	Course	Dept.	Thesis Title	Associated Teacher
1.	Suman Natta (A-2017-028-D)	Ph.D.	Biochemistry	Evaluation and characterization of nutritional components of jackfruit (<i>Artocarpus heterophyllus</i>) for potential applications as functional food	Dr. N. Bhowmick
2.	Fouzia Bari (A-2017-005-D)	Ph.D.	Agricultural Entomology	Screening of different banana cultivars against banana scare beetle.	Prof N. Bhowmick
3.	Samima Sultana (H-2018-014-D)	Ph.D.	Plantation Crops and Processing	Impact of arecanut based cropping system on growth, yield of different subsidiary crops and carbon sequestration in north-eastern foot hills of West Bengal	Dr. N. Bhowmick
4.	Sandeep Chetri	Ph.D.	Plantation Crops and	Studies on the performance of four varieties of arecanut (<i>Areca catechu</i>)	Dr. N. Bhowmick

	(H-2018-015-D)		Processing	under organic multi-storied cropping system	
	Eggadi Ramesh (H-2018-008-D)	Ph.D.	Vegetable Science	Standardization of Integrated Nutrient Management and Application of Bio-Stimulants for Growth, Yield and Post Harvest Quality of Tomato	Dr. M. P. Devi
	Kheyali Ghosh (H-2018-010-D)	Ph.D.	Vegetable Science	Studies on growth, yield and shelf-life of okra (<i>Abelmoschus esculentus</i> (L.) Moench) as influenced by date of sowing, spacing and packages	Prof. P. K. Paul Dr. M. P. Devi
5.	Toko Yarin (H-2019-012-D)	Ph.D.	Plantation Crops and Processing	Effect of intercropping on growth and latex physiological parameters of different rubber (<i>Hevea brasiliensis</i> Mull, Arg.) clones at juvenile phase in WB	Dr. N. Bhowmick
6.	Kamal Ghising (H-2018-11-M)	M.Sc.	Forestry	Effect of growing media and nutrients on production of teak (<i>Tectona grandis</i> L.) seedlings through stump	Dr. N. Bhowmick
7.	Marina Narjinary (H-2018-13-M)	MSc.	Floriculture and Landscape Architecture	Standardization of dehydration method and surface coating for improving quality and shelf-life of rose dry flowers	Dr. M. P. Devi
8.	Dharmaraj Saren (A-2019-010-M)	M.Sc.	Agricultural Entomology	Studies on Cicadellid hopper diversity and their population behaviour associated with mango ecosystem in sub-Himalayan West Bengal	Dr. N. Bhowmick
9.	Pema Kiden Sherpa (H-2018-015-M)	M.Sc	Forestry	Studies on different pre-sowing treatments and nutrient management for growth behavior of Champa (<i>Michelia champaca</i> Linn.) seedlings	Dr. A. Chakraborty

e) Reviewer of Journal

Sl.No.	Topic	Name of journal and year	Associated Teacher
1.	Rhizosphere microbial composition of peach seedlings grown in replanted soil correlated with root-derived benzoic acid.	Plant and Soil-Springer, Feb., 2020	Dr. B. Chakraborty

f) Internal Question Setter

Sl. No.	Paper	Associated Teacher
1.	Preparation of End term Question of PHT 501	Dr.P.K.Paul & Dr. M. Preema Devi

g) Question Moderation

Sl	Associate Teachers	Subjects
1.	Dr. Prodyut Kr. Paul	PPT 301, PPT 352
2.	Dr. Nilesh Bhowmick	PPT 101, PPT 151, PPT 201, PPT 251
3.	Dr. Aditi Chakraborty	PPT 101, PPT 102, PPT 151, PPT 152, PPT 251, PCP 151
4.	Dr. Binayak Chakraborty	152, 251, 252
5.	Dr. Mutum Preema Devi	301, 352, 353, ELC 352

h) Evaluator of answer scripts

Sl. No.	Paper	Associated Teacher
1.	PPT 252 (CoA, Majhian) (Ref No. 650/EXAM/UBKV dt 20.08.2019)	Dr. Nilesh Bhowmick
2.	PPT 101, PPT 301, ELC-352, ELC-352, PPT 353 (Ref No. 1125/EXAM/UBKV dt 21.01.2020; Ref No. 1089/EXAM/UBKV dt 15.01.2020; Ref No. 71/EXAM/UBKV dt 30.04.2020; Ref No. 541/EXAM/UBKV dt 23.07.2019, Ref No. 521/EXAM/UBKV dt 22.07.2019)	Dr. M. Preema Devi

i) Conduction of Practical examination

Sl	Associate Teachers	Subjects	Reference No.
1.	Dr. Nilesh Bhowmick	PPT 101, PPT 151, PPT 201, PPT 251, PPT 351, FSC 501, FSC 503, FSC 504, FSC 601, FSC 602, FSC 603, FSC 605	Ref No. UBKV /HORT / PPHT / 254 dt 11. 12. 2019; Ref No. UBKV /HORT / PPHT / 238 dt 22.11.2019
2.	Dr. Aditi Chakraborty	PPT 102, PPT 151, PPT 152, PPT 251, PPT 351, FSC 502, FSC 503, FSC 504, FSC 505, FSC 601, FSC 602, FSC 603, FSC 605	Do
3.	Dr. Binayak Chakraborty	PPT 152, PPT 251, PPT 252, FSC 505	Do
4.	Dr. Mutum Preema Devi	PPT 301, PPT 353, ELC 352, HOR 152, PHT 501, PHT 503, PHT 502, PHT 505, PHT 506, PHT 507, PHT 508, PHT 509, PHT 601, PHT 605	Ref No. UBKV /HORT / PPHT / 238 dt 22. 11.2019, Ref No. UBKV /HORT / PPHT / 254 dt 11.12.2019, Ref. No. D-F/Tech/UBKV/2019/1466, dt. 03.05.2019

9) ADDITIONAL RESPONSIBILITIES

Dr. N. Bhowmick

1. Orientation and village attachment programme to UG final year B.Sc. (Ag.) students under READY Programme. Ref.No:602-D-F/Ag-UBKV, Dated:25-01-2019.
2. Member (Associate Teacher), Student READY programme of B.Sc. (Hort.) students (Ref No: 60/Hort./UBKV dt 06.05.2019 & Ref Nil from the Co-ordinator dt 29.08.2019 & 11-09-2019 & Ref No.F/Hort/PCP/nil d 24.02.2020)
3. Associate Teacher for Village Exposure under the Student READY programme of B.Sc. (Ag.) students (Ref 602-D-F/Ag-UBKV dt 25-01-2019) & Ref.No:801-D-F/Ag-UBKV, dt 20-02-2020
4. Member, Reporting & Document Verification for UG admission (Ref No. 89/UBKV/Admission dt 10.07.2019, 103/UBKV/Admission dt 30.07.2019)
5. Member, Verification Duty for M.Sc. & Ph.D. (Ag./Hort.) Entrance Test 2019 (Ref No. 99/UBKV/Admission dt 22.07.2019)
6. Invigilator for Ph.D. courses FSC 602 held on 16.07.2019), FSC 603 held on 16.07.2019 (Ref No. UBKV/HORT/PPHT/106 dt 15.07.2019)
7. Invigilation Duty for End Term on 17.7.2019, 25.07.2019 (Ref No. 447/EXAM/UBKV dt 09.07.2019), 15.11.2019 (Ref. No 952/Exam/UBKV dt 06.11.2019), 13.01.2020 (Ref No. 1051/EXAM/UBKV dt 02.01.2020), 16.3.2020 (Ref No. 1349/EXAM/UBKV dt 06.03.2020) Mid Term on 30.04.2019, 06.05.2019 (Ref. No 59/Exam/UBKV dt 23/4/2019)
8. Invigilator for PG & Ph.D. entrance Test held on 23.07.2019 & 26.07.2019 respectively (email from Head, PPHT dt 18.07.2019)
9. Evaluator for M.Sc. and Ph.D. entrance test (vide email of Head, PPHT dt 18.06.2019)
10. Tabulator for Under Graduate (2nd, 4th, and 6th Term) End Term (2018-19) Examination (Ref No. 1011/UBKV/EXAM dt 29.11.2019)
11. Invigilation Duty for End Term on 16.3.2020 (Ref No. 1439/UBKVEXAM dt 06.03.2020)

Dr. Mutum Preema Devi

1. Invigilation Duty for End Term on 02.08.2019, 05.08.2019 (Ref No. 447/EXAM/UBKV dt 09.07.2019), 11.11.2019, 26.11.2019, 29.11.2019 (Ref. No 952/Exam/UBKV dt 06.11.2019), 08.01.2020, 15.01.2020, 20.01.2020 (Ref No. 1051/EXAM/UBKV dt 02.01.2020), 11.3.2020 (Ref No. 1349/EXAM/UBKV dt 06.03.2020) Mid Term on 29.04.2019, 08.05.2019, 17.05.2019 (Ref. No 59/Exam/UBKV dt 23/4/2019)
2. Member of Team for purchase of minor equipment and livestock under ICAR-SC-SP Sub Plan (Ref. No.: 615-D-F/Ag-UBKV, DT. 12.12.2019)
3. Course Coordinator for Human Recourse Development under ICAR-SC-SP Sub Plan (Ref. No.: 615-D-F/Ag-UBKV, DT. 12.12.2019)
4. Reporting duty on 08.08.2019 & 09.08.2019 for M.Sc and Ph.D. Admission (Ref. No. 612/EXAM/UBKV, dt. 07.08.2019)

5. Invigilator for PG & Ph.D. entrance Test for Postharvest Technology Discipline held on 23.07.2019 & 26.07.2019 respectively (email from Head, PPHT dt 18.07.2019)
6. Invigilation duty for comprehensive examination of Master's Degree on 17.05.2019 (Ref. No. UBKV/HORT/PPHT, dt. 15.05.2019)

Dr. Aditi Chakraborty

1. Invigilation Duty for End Term on 12.7.2019, 15.07.2019 (Ref No. 447/EXAM/UBKV dt 09.07.2019), 19.11.2019, 25.11.2019 (Ref. No 952/Exam/UBKV dt 06.11.2019), 06.01.2020, 10.01.2020, 17.01.2020 (Ref No. 1051/EXAM/UBKV dt 02.01.2020), 13.3.2020(Ref No. 1349/EXAM/UBKV dt 06.03.2020) Mid Term on 25.04.2019, 03.05.2019(Ref. No 59/Exam/UBKV dt 23/4/2019)
2. Invigilation Duty for Ph. D. End Term Examination on 17.02.2020 (Ref No. UBKV/HORT/PPHT 339 dt 13.02.2020)
3. Invigilator for Ph.D. courses FSC 601 and FSC 603 held on 16.07.2019), FSC 603 held on 16.07.2019 (Ref No. UBKV/HORT/PPHT/106 dt 15.07.2019)
4. Invigilation duty for comprehensive examination of Master's Degree on 17.05.2019 (Ref. No. UBKV/HORT/PPHT, dt. 15.05.2019)

Dr. B. Chakraborty

1. Invigilation Duty for Ph. D. End Term Examination on 17.02.2020 (Ref No. UBKV/HORT/PPHT 339 dt 13.02.2020)

10) LIFE MEMBERSHIP OF PROFESSIONAL SOCIETIES/JOURNALS

Sl. No.	Name of the Journal/Society	Address	Teacher
1.	Society for Advancement of Horticulture (The Horticultural Journal)	B.C.K.V., Mohanpur, Nadia, WB	Dr. N. Bhowmick
2.	Crop and Weed Science Society (Journal of Crop and Weed)	B.C.K.V., Mohanpur, Nadia, WB	Dr. N. Bhowmick
3.	Horticulture Society of India (Indian Journal of Horticulture)	I.A.R.I., New Delhi	Dr. N. Bhowmick
4.	Society Promotion of Horticulture (Journal of Horticultural Science)	I.I.H.R., Bangaluru	Dr. N. Bhowmick
5.	Indian Society for Plant Physiology (Indian Journal of Plant Physiology)	I.A.R.I., New Delhi	Dr. N. Bhowmick
6.	Forum of Scientists, Engineers and Technologists (Thought)	Kolkata	Dr. N. Bhowmick
7.	Fruit Science Society of Bangladesh	Bangladesh Agricultural University, Mymensingh, Bangladesh	Dr. N. Bhowmick
8.	Cooch Behar Association for Cultivation of Agricultural Sciences (Journal of Agricultural Technology)	U.B.K.V.	Dr. P.K.Paul N. Bhowmick Dr. M. P. Devi Dr. A. Chakraborty

9.	Association of Food Scientist and Technologist	CFTRI, Mysore	Dr. M. Preema Devi Dr. P.K.Paul
10.	Crop and Weed Science Society (Journal of Crop and Weed)	B.C.K.V., Mohanpur, Nadia, WB	Dr. A. Chakraborty
11.	Indian Society of Horticultural Research and Development (Progressive Horticulture)	ISHRD, Chaubattia, Uttarakhand	Dr. B. Chakraborty
12.	Medicinal and Aromatic Plants Association of India (Open Access Journal of Medicinal and Aromatic Plants) ISSN 0974-7877	MAPAI, Anand, Gujarat	Dr. B. Chakraborty
13.	Agricultural Letters, (Magazine Agricultural Letters)	Agricultural Letters, Raichur, Karnataka	Dr. B. Chakraborty

11) ANNUAL MEMBERSHIP OF PROFESSIONAL SOCIETIES/JOURNALS

Sl. No.	Name of the Journal/Society	Address	Teacher
1.	Indian Horticulture	ICAR, New Delhi	Dr. N. Bhowmick
2.	Crop and Weed Science Society (Journal of Crop and Weed)	B.C.K.V., Mohanpur, Nadia, WB	Dr. M. Preema Devi
3.	Progressive Horticulture, ISHRD, Chaubattia	ISHRD, Chaubattia, Uttarakhand	Dr. B. Chakraborty

PHOTO GALLERY

Teachers and students along with external expert, Dr. S. K. Dutta, Scientist, ICAR-NEH Centre, Sikkim after conduction of M.Sc. thesis *viva voce* examination



Field visit by faculty members to an acid lime orchard in Cooch Behar district



Rejuvenated mango trees in Horticulture Instructional Farm under Ph.D. research



Students performing practical classes in orchard



Interaction with B.Sc. (Hort.) final year students and the progressive farmers during RHWE program



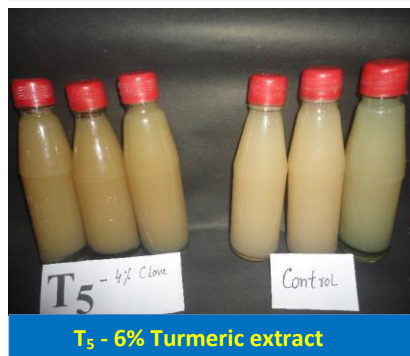
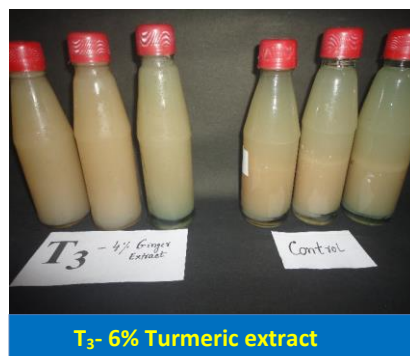
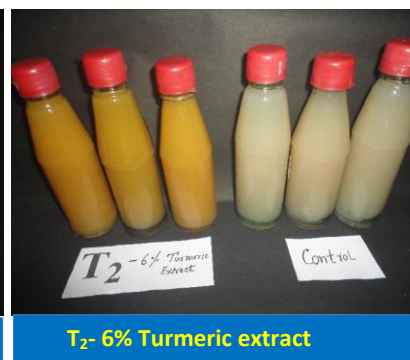
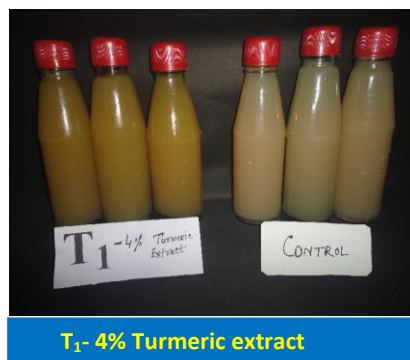
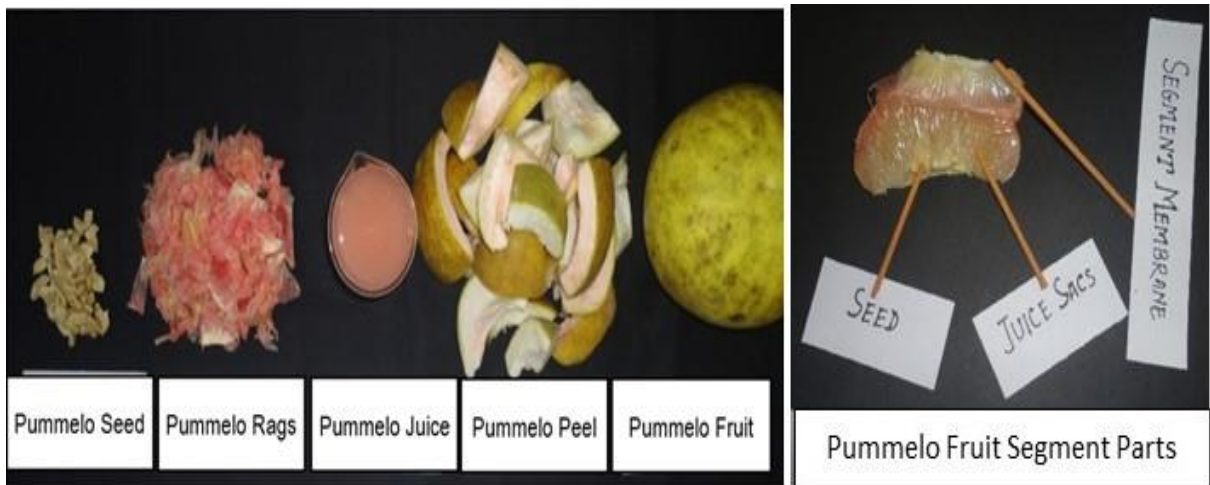
Research activity and thesis work by post graduate students

Viswanatha K E



Damonhi Phyllei





Srujana Eda



Bidyarani Devi Senjam

