D. Name of the Programme: Ph.D. in Fruit Science

6.4.1. Brief History of the Programme:

Doctoral degree programme of the Department of Fruit Science (erstwhile Department of Fruits and Orchard Management) was initiated in 1996 with the establishment of the Faculty of Horticulture in the University to strengthen the academic programme including research works and extension activities in Horticulture as a whole and Fruit science in particular. Students from West Bengal and other states of India are being admitted for Doctoral degree programme of the Department of Fruit Science through Entrance Examination. Large pool of small and marginal farmers has taken fruit farming as their viable livelihood security. The Department is also functioning as an effective linkage for the Fruit growers, research and extension workers of various stakeholders, Govt., Semi-Govt. and Non-Govt. Organizations.

Objectives:

- This program aims to train and ignite the innovation power of the students for bringing problem-based solutions in different arena of Fruit Science.
- To overall development of students fit for generating new ideas in teaching and research in the areas of Fruit Science.

Accomplishment:

- Total Sixteen students (16) have been awarded Ph. D. degree during last 5 years, and presently twenty two (22) students are pursuing their Ph D programmes.
- A good number of Ph.D. students are being enjoyed fellowships at All India level during last five years for Research in Fruit Sciences for pursuing Ph. D. degree.
  - ✓ INSPIRE Fellowship - 2 students,
  - ✓ National fellowship for person with disabilities - 1 student,
  - ✓ National Fellowship for OBC (NFOBC) - 1 student,
  - ✓ National Fellowship for SC (NFSC) - 2 students,
  - ✓ National Fellowship for ST (NFST) - 1 student,
  - ✓ Moulana Azad National Fellowship (MANF) - 1 student,
  - ✓ Swami Vivekananda Non NET fellowship (SVNNF) - 2 students
- Five (5) Doctoral degree students do research works under several research projects funded by Govt. of West Bengal (RKVY, RIDF, DST BT) and Govt. of India (BARC, DST, DBT).

- One (1) Ph. D. student has undergone Summer school programme of two weeks duration on Pre- and Post harvest physiology of Temperate Fruit crops held at University of Hohenheim at Stuttgart, Germany.
- Ten (10) Ph. D. awardees from the Department have been placed as Assistant Professors in Central, States and Private agricultural universities during last five years.
- Two (2) Ph. D. students from the Department have been placed as SMS (Horticulture) in KVK of State Universities during last five years.
- Five (5) students of Doctoral degree programme have been placed in Assistant Director of Horticulture (ADH), Govt. of West Bengal during last five years.
- Eighty (80) research papers (including review paper) have been published by the doctoral students in journals above 5 NAAS scores during last five years.
- Thirty five (35) book chapters, Two (2) books and Twenty five (25) popular articles have been contributed by the Ph D students during last five years.
- The Ph. D students have so far participated and presented 40 oral and poster presentation in National and International seminar or Conferences during the last five years.

6.4.2. Faculty Strength

SL. No.	Type of Faculty	Sanctioned Faculty	Faculty in place	Vacant position	Faculty recommended by the ICAR
1.	Professor	1	1	0	1
2.	Associate Professor	3	1+2*	2	2
3.	Assistant Professor	5	2+3*	3	3

*Faculties from AICRP on Fruits and RRSS

6.4.3. Technical and Supporting staff

SL No.	Type of Staff	Sanctioned Staff	Staff in place	Vacant position	No. of Staff recommended by the ICAR
1.	Technical Assistant	1	1	0	2 (Field Assistant)
2.	Lab. Attendant /Assist.	2	1	1	1 (Lab Assistant)
3.	Office Assistant	1	0	1	1 (Assistant)
4.	Store Keeper	1	0	1	

6.4.4. Classrooms and Laboratories:

6.4.4.1. Number of Classroom: 02

Sl No.	Room	Room No	Area (Square-metre)
1.	Class room- 1 (PG and PhD)	H-62 (T.K. Bose Lecture Hall)	29.73
2.	Class room -2 (PG and PhD)	H-9/B (P. C. Mallick Lecture Hall)	29.73

6.4.4.2. Number of Functional Laboratories: 10

Sl No.	Name of Laboratory/ Facility	Area (Square-metre)	No. of Supporting Staff Attached
1.	PG laboratory - 1	59.46	02
2.	PG laboratory - 2	44.59	
3.	PG laboratory - 3	29.73	
4.	Banana Processing Laboratory (RIDF)	256.0	
5.	Spices processing Laboratory (RIDF)	256.0	
6.	Inoculation Laboratory (RIDF)	16.0	
7.	Microscopy Laboratory(RIDF)	16.0	
8.	Chemical Laboratory -1 (AICRP – Fruits)	42.0	02
9.	Chemical Laboratory - 2 (AICRP – Fruits)	16.0	
10.	Training Hall (AICRP – Fruits)	54.0	

6.4.4.3. List of major equipments, laboratories, farm facilities, workshops and other instructional units

SL. No.	Name of Laboratory/ Facility	List of major equipments and facilities
1.	PG laboratory – 1	1. Spectophotometer 2. Flame photometer 3. Time Domain Reflectometer 4. Portable Photosynthesis System 5. pH meter 6. Leaf area meter 7. Hot air oven 8. Precision balance 9. Refrigerator

6.4.4.3. Cont..List of major equipments, laboratories, farm facilities, workshops and other instructional units

SL No.	Name of Laboratory/ Facility	List of major equipments and facilities
2.	PG and Ph.D. laboratory – 2	1. Microscope 2. Penetrometer 3. Digital slide callipers 4. Digital refractometer 5. Centrifuge 6. Digital balance 7. Refrigerator
3.	PG and Ph.D. laboratory – 3	1. Digital balance 2. Distillation set 3. Hot plate 4. Mixer Grinder 5. Nitrogen estimation apparatus 6. Refrigerator
4.	Banana Processing Laboratory (RIDF)	1. Chips making Machine
5.	Spices processing Laboratory (RIDF)	1. Pulverizer machine
6.	Inoculation Laboratory (RIDF)	1. Laminar 2. BOD 3. Autoclave
7.	Microscopy Laboratory(RIDF)	1. Trinocular Microscope
8.	Chemical Laboratory -1 (AICRP – Fruits)	1. B.O.D. Incubator 2. Microscope with photographic attachment 3. Hot plate 4. Portable soil testing kit 5. Multilab portable water & soil analysis kit 6. Pressure cooker (22 lt) 7. High precision balance 8. Hot water bath 9. Microoven 10. Double glass distillation set 11. Mixer Grinder
9.	Chemical Laboratory - 2 (AICRP – Fruits)	1. Digital hand refroctometer 2. Digital slide calipers 3. Penetrometer 4. pH meter 5. Digital Balance 6. Distillation Set 7. Mixer Grinder
10.	Training Hall (AICRP Fruits)	1. LCD Projector 2. Computer with Printer 3. Sitting Arrangement

11.	Farm Facilities	Well laid out orchard of different fruit crops Germplasm blocks for different fruit crops Well-arranged research fields with irrigation and machinery facilities

6.4.4.4. Justify whether these facilities are sufficient to meet the course curricula requirement

The facilities available in the Farm and laboratory are sufficient to meet the course curricula requirement for the Doctoral degree programme in Fruit Science. Students also take the facilities available in the quality control laboratory. Expenditure required for different research programme leading to thesis work for the fulfilment of the degree programme is incurred from the monthly contingent grant of the University. However, separate financial grant for persuasion of research programme for the thesis would be beneficial for the student.

6.4.4.5. Number of theory batches for the Degree Programme: 01

6.4.4.6. Number of Practical Batches for the Degree Programme: 01

6.4.5. Conduct of Practical and Hands-on-Training:

The practical syllabi are successfully catered with the available facilities. Facilities are given individually to all the students to make them skilful enough for the entire practical. Horticulture Research Station, Mondouri, Central Research Farm, Gayeshpur, Fruit Research Station of ICAR- AICRP Fruits and Fruit Crops Breeding and Multiplication Centre of RIDF are available for taking practical and doing research works for Ph.D. thesis work.

6.4.6. Supervision of students in PG/PhD Programmes:

6.4.6.1. Total Number of Students pursuing the Ph.D degree at present: 22

6**.4.6.2. Total Number of faculties supervising the Students**: **8**

Status	2016-17	2017-18	2018-19	2019-20	2020-21
No. of Students	20	17	23	18	22
No. of Teachers	9	9	9	8	8

Eligible Criteria to become a PhD Advisor:
(Clause 6.03 of the BCKV Regulations regarding Doctoral Degree Programme, 2019)

6.03. Recognition of chairperson / Member of Advisory Committee

(i) A teacher of the Viswavidyalaya as defined in the Act having at least three (3) years of research and/ or teaching experience after a doctoral degree and at least seven (7) publications after the doctoral degree or joining in service as applicable in the NAAS/

UGC rated journals and /or peer reviewed journals with impact factor as approved by the Board of Studies of the concerned department and subsequently by the PG-UG Council of the respective Faculty, if required, may be recognised as chairperson / member of the Advisory Committee of a student under doctoral degree program.

(ii) A teacher of the Viswavidyalaya without Doctorate degree but having at least 10 years research / teaching experience and at least seven (7) publications in the NAAS/ UGC rated journals and /or peer reviewed journals with impact factor as approved by the Board of Studies of the concerned department and subsequently by the PG-UG Council of the respective Faculty, if required, may be recognised as chairperson /member of Advisory committee of a student under doctoral degree program.

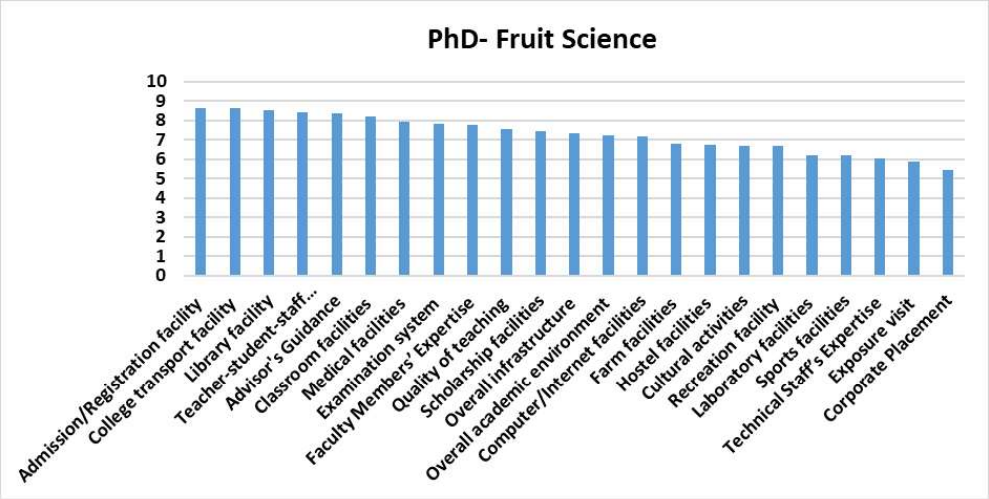
(iii) The teachers of the Viswavidyalaya who have registered themselves for the doctoral degree programme shall not be eligible as the Chairman / Member of the Advisory committee of a student.

* Documentary evidence attached as annexure at the end

6.4.7 Feedback of stakeholders:

6.4.7.1. Mention the feedback mechanism

Feedback from the students was conducted in Google Forms using standard questionnaire (24 questions) developed on the basis of comprehensive dimension of Agricultural Education in BCKV campus. The dimension covered all the physical and academic facilities provided by the University. The responses were collected on a 10-point scale (1 denotes poorest facility and 10 denotes excellent facility) from the students of this programme. Individual responses were analyzed statistically (by computation of weighted average of every facility as perceived by the students) for the programme and the result was graphically presented in the SSR. As a documentary evidence, individual responses collected from the students' email ID through Google Forms have been stored in our computer (Google Drive). On demand, of ICAR Peer Review Team, the link for the individual responses can be shared.



Comment: Doctoral students of Ph D-Fruit Science Programme are happy with nearly all the facilities provided by the University. Facilities like Corporate Placement and Exposure Visit have good scope for improvement.

6.4.7.2. What action the University has taken to address the issues raised in the feedback?

Action taken

The feedback reports were shared with concerned sections of the university. Students responded very positively with regards to majority of the facilities provided by the university. However, with respect to timely publication of results and corporate placement, there are ample scopes of improvement. Considering this feedback, the university has taken administrative actions for publication of results within stipulated period as reflected in the circulars of the concerned authorities. As corporate placement, to a great extent, is beyond the purview of the university itself, the Placement Cell continuously in touch with the potential employers to utilize the vacancies in favour of BCKV

Impact

We are expecting very positive impacts in near future on these issues as some steps have already been taken in recent times as mentioned above.

6.4.8. Student intake and attrition in the programme for last five years

Academic Year	Sanctioned strength	Actual intake	Attrition (%)
2016-17	3	3	0
2017-18	7	7	28.5*
2018-19	9	9	0
2019-20	4	4	0
2020-21	6	6	0

Note: *2 students admitted during 2017-18 left for getting job. Leaving of 2 students made the attrition high.

6.4.9. Information Communication Technology Application in Curricula Delivery:

The systematic use of ICT tools in classroom instruction makes the teaching learning process more effective and highly interactive. Generally, in the pre-pandemic condition the use of ICT was limited to classroom lecture through power point presentation using LCD projector. The use of ICT tools became more dominant as the pandemic situation started. The University has to run the teaching and learning process completely in distance mode *via* electronic networks. The ICT tools used for the curriculum delivery for different theory and practical classes at regular basis are Google meet, Zoom and Microsoft Team. E-mail, Whatsapp etc. has been used for delivering lecture notes to the students.

I, the **Dean**, **Prof. Pallab Datta**, hereby certify that the information contained in the Section 6.4.1 to 6.4.9 are furnished as per the records available in the college, and degree awarding university.

Place: Mohanpur
Date: 02-11-2021

Pallab Datta

DEAN
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Dist.- Nadia, West Bengal

(Signature of Dean of the Faculty with Date & Seal)