

6.4. Self-Study Report for the Undergraduate Programme

Faculty of Horticulture, Mohanpur, BCKV

Name of the Programme: B. Sc. (Hons.) Horticulture

6.4.1. Brief History of the Programme:

In the degree programme of **B. Sc. (Hons.) Agriculture** which started in the year 1960 under the Faculty of Agriculture, Kalyani University, West Bengal, Horticulture was one of the departments in the Faculty of Agriculture. The status of department of Horticulture continued after the establishment of Bidhan Chandra Krishi Viswavidyalaya in 1974 by the State Government. Later on, considering the importance of the subject as well as the increased importance of Horticulture for livelihood security of most of the small and marginal farmers of the state, Govt. of West Bengal decided to establish the Faculty of Horticulture in Bidhan Chandra Krishi Viswavidyalaya in 1996 and the degree programme of **B. Sc. (Hons.) Horticulture** has been started under the Faculty. Within this long journey of 25 years, the Faculty of Horticulture, BCKV is playing a vital role for the development of Horticulture in the state of West Bengal and India. The Faculty of Horticulture having 5 Departments caters courses to the 38 undergraduate students.

The horticulture education under the **B. Sc. (Hons.) Horticulture programme** has been started with the basic and fundamental courses, the principles and production technologies and protection management of wide array of horticultural crops (fruits, vegetables, flower and other ornamentals, spices, plantation, medicinal and aromatic crops), biodiversity, breeding strategy, production of seed and planting materials of different horticultural crop, post harvest management of horticultural crops, extension, skill and entrepreneurship development in the field of horticulture for developing human resource.

Objectives

1. To produce qualified graduates with strong back ground of Horticultural Science.
2. The graduates may take lead in enhancing productivity of horticultural crops in the state.
3. High-tech horticultural technologies will get impetus with the involvement of qualified graduates in Horticultural Science.
4. Export of horticultural produce from the state and country as a whole will get a boost with the involvement of qualified graduates in the trade.



- To provide advisory services to the progressive farmers, entrepreneurs, agro-industries and others involved in horticulture and allied sectors

Accomplishment:

- Twelve students qualified ICAR-JRF, two students qualified ICAR-SRF and one student got ARS service.
- Through All India competitive examinations, students graduated under this programme get admission IARI, GBPUA&T, TNAU, YSPUH&F, PAU, GKVK etc.
- Indian Council of Cultural Research also sends foreign students (Afghanistan) through ICAR, who all successfully completed the assigned curriculum.
- A good number of horticulture graduates have been placed in Governmental and semi-Governmental organizations and Banking sectors. Twenty nine students of this programme have been appointed as Assistant Director of Horticulture, Govt. of West Bengal in its last recruitment.

6.4.2. Faculty Strength

Sl.No.	Type of Faculty	Sanctioned Faculty	Faculty in place	Vacant position	Faculty recommended by the ICAR
1.	Professor	5	2	3	5
2.	Associate Professor	14	7	7	5
3.	Assistant Professor	24	21	3	15
	Total	43	30	13	25

Name of the Department	Type of Faculty	Sanctioned Faculty	Faculty in place	Vacant position
Fruit Science	Professor	1	1	0
	Associate Professor	5	3	2
	Assistant Professor	8	5	3
Vegetable Science	Professor	1	0	1
	Associate Professor	2	1	1
	Assistant Professor	6	6	0
Floriculture and Landscaping	Professor	1	0	1
	Associate Professor	3	2	1
	Assistant Professor	4	4	0
Post harvest Management	Professor	1	0	1
	Associate Professor	2	0	2
	Assistant Professor	3	3	0



Plantation Spices	Professor	1	1	0
Medicinal and	Associate Professor	2	1	1
Aromatic Crops	Assistant Professor	3	3	0

6.4.3. Technical and Supporting staff:

Sl. No.	Supporting staff	Sanctioned Staff	Staff in place	Vacant position	No. of Staff recommended by the ICAR
1.	Technical Assistant	5	5	0	5
2.	Laboratory Attendant/Assistant	5	2	3	10
3.	Office Assistant	5	4	1	0
4.	Field Assistant	5	2	3	10

6.4.4. Classrooms and Laboratories:

6.4.4.1. Number of Classroom: 3

Class room for	No. of class rooms	Area (m ²)	Sitting capacity
1 st Year B.Sc.(Hons) Ag	1	60.0	60
2 nd Year B.Sc.(Hons.) Ag.	1	60.0	60
3 rd Year B.Sc.(Hons.) Ag.	1	60.0	60

6.4.4.2. Number of Functional Laboratories:

Sl. No.	Name of laboratory	Area (Sq.m)	No. of supporting staff attached
1	UG Laboratory	90	Two
2	Tissue Culture Laboratory	50	-
3	Quality Control Laboratory	375	-

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.	UG Laboratory	Hot air oven, Distillation set, Drier, Electrical balance, Digital Slide callipers, Water bath, Spectrophotometer, N-estimation apparatus, Soil Augar, Slide calipers
2.	Tissue Culture Laboratory	Laminar air flow, Distillation set, Hot air oven, Autoclave, BoD, Shaker, Freeze, Centrifuse Machine, Micropipette, pH meter and Vortex.
3.	Quality Control Laboratory	UV-VIS spectrophotometer, Colorimeter, HPLC, GCMS, Centrifuge, Refrigerated centrifuge, AO Spectrophotometer, Polarimeter, Laminar air flow, Spectrophotometer, Hot air oven, Freeze dryer, Vaccume dryer, Bod incubator, Soxhlet apparatus,



	Distiller uni, Moisture analyzer, Texture analyzer, Coloni counter, pH meter
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6.4.4.4. Justify whether these facilities are sufficient to meet the course curricula requirement:

To cater the B. Sc. (Hons.) Horticulture programme successfully following the ICAR curricula, all the facilities for field and laboratory based practical are available in sufficient quantities in the Faculty of Horticulture of the University. The specified portion of land (1.5 ha, rest 3.5 ha being for perennial orchards) has been allotted to the UG students (38 students per semester for three semesters proportionately for production of horticultural crops.

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 classes are being conducted in the Instructional Farm for field practical and laboratory practicals are done at the composite undergraduate laboratory of the Faculty of Horticulture as per the syllabus of B.Sc. (Hons.) Horticulture as recommended by the 5th Dean's committee. Different practical classes are taken according to the practical manual documented for different courses. The hands-on-training (HOT) and student READY programmes are being conducted for the degree programme following Rural Horticultural Work Experiences (RHWE) and in-Plant Training/ Industrial attachment in the 7th Semester and Experiential Learning Program (ELP) modules in the 8th Semester. Students in the 7th semester are engaged with different commercial set up/ organization like, CADC, KVK, different reputed nurseries (NHB accredited) and food processing industries for their hand-on practical exposure and entrepreneurial competence.

PRACTICAL MANUALS

1. Hort- 101: Fundamentals of Horticulture
2. Hort -102: Water Management in Horticultural Crops
3. Hort- 151: Tropical and Subtropical Fruits
4. Hort-152: Tropical and Subtropical Vegetables
5. Hort-153: Ornamental Horticulture
6. Hort-154: Plant Propagation and Nursery Management
7. Hort-155: Growth and Development of Horticultural Crops
8. Hort-201: Temperate Fruit Crops
9. Hort-202: Temperate Vegetables Crops



10. Hort-203: Commercial Floriculture
11. Hort-204: Principles of Landscape Architecture
12. Hort-205: Post Harvest Management of Horticultural Crops
13. Hort-206: Weed Management in Horticultural Crops
14. Hort-207: Fundamentals of Food Technology
15. Hort-251: Dry Land Horticulture
16. Hort-252: Plantation Crops
17. Hort-253: Spices and Condiments
18. Hort-254: Breeding of Fruit and Plantation Crops
19. Hort-255: Precision Farming and Protected Cultivation
20. Hort-301: Orchard and Estate Management
21. Hort-302: Medicinal and Aromatic Crops
22. Hort-303: Potato and Tuber Crops
23. Hort-304: Organic Framing
24. Hort-305: Breeding of Vegetable, Tuber and Spice Crops
25. Hort-351: Seed Production of Vegetable, Tuber and Spice Crops
26. Hort-352: Processing of Horticulture Crops
27. Hort-353: Breeding and Seed Production of Flower and Ornamental Plants

Instructional Farm Facility for UG Field Practical

- **Location:** Jaguli Instructional Farm for Horticulture (22°93' N latitude, 88°53' E longitude and 9.75 MSL)
- **Area:** 5.0 ha
- **Infrastructure:** Office, permanent glass house, net house and plant propagation arena, permanent seed bed, low cost poly shed and agro-shade net shed, pump house
- **Farm machineries:** Power tiller 1, Power sprayer 1; different small farm equipment
- **Farm implements:** Hand sprayers , spades , Augurs , different farm implements
- **Farm pond-**To culture water lilly
- **IrrigationFacility:** Pump irrigated

RHWE PROGRAM

RHWE Programme is a sequel of the recommendation made by the 'Randhawa Committee' constituted by ICAR. The Rural Horticultural Work Experience (RHWE) programme is a flagship activity for the final year B.Sc. (Hort.) Hons students during the 7th semester. Building self-confidence in the Horticultural graduates by honing their professional skills is the key objective of introducing RHWE at the under graduate level by ICAR. The students are



given rigorous orientation and familiarization on various issues and problems they can expect in the farmers' field. In the university under the Faculty of Horticulture as per the recommendation of ICAR one full 7th semester has been earmarked for RHWE programme with the following aim:

- ❖ To make them understand the rural community life and the prevailing situation
- ❖ To familiarize with the rural socio-economic conditions
- ❖ To provide an opportunity to have practical training in crop production
- ❖ To improve communication skills among the students using extension teaching methods in transfer of technology
- ❖ To sensitize them regarding agricultural technologies, used by farmers and to prepare alternate farm plans according to the local situation in consultation with the farmers
- ❖ To develop confidence and competence in students for handling professional problems

The RHWE programme has been supervised by RHWE CourseCoordinator, Course Leaders, with the facilitators under the Faculty of Horticulture by Dean, and Heads of the Department. The complete guideline has been given to the students before commencement of the programme. The RHWE programme initially will start with five days orientation classes in the Faculty Seminar Hall. During this period on different topic lecture was delivered by the respective Head of Department and some guest speaker from banking and industrial sectors. Village surveys were carried out in the different villages of somedistrict. All the students were divided into 3 or 4 groups and each group got a different villageto survey. The RHWE Programme has mainly covered various villages under different blocks of Nadia, Hooghly, Howrah , North 24- pgs, South 24-pgs, Jhargram , Bankura, Burdwan, Purba Midnapur district of West Bengal as the students have undergone most of the RHWE courses as village attachment programmes. Student have worked and experienced about rural and agricultural scenario in about more than 12 different villages under different Gram Panchayats (GPs). During the village Survey studies through PRA students should to stay in the respective villages which were allotted for them to complete the task. Students have interacted with the farmers, farm women, rural youth, scientists of research stations, subject matter specialists of KVK, officials of line departments, financial institutions and agro-based industries in order to blend their theoretical knowledge with practical life to have realistic experiences in the concerned field.



Under this RHWE Programme, practical aspects of crop production were experienced by the students during their attachments to different agroclimatic zones of West Bengal especially villages in Ghoragacha, Madanpur, Banamalipara, Khaldharpara, Narapatiparain Nadia district, Balagarh, Jirat, Haripur, Adhisaptagramin Hooghly, Uluberia, Amta, Bagnan in Howrah, Amdanga, Belirpur in North-24pgs, etc in West Bengal that included study on different practices of field crops (agronomy) and horticultural crops, plant breeding, plant physiology, soil health management, and farm mechanization. Study on cultivation of off season vegetables in farmers' fields was undertaken in village BanamaliPara. Cropping system adopted by the farmer and limitations in adopting diversified cropping system was studied in village Ghoragacha. Students experienced the importance of manurial process, compost pit, vermicompost, etc. in Bioparivar Organic village Chakdaha. Organic waste management and organic manuring was studied. Type and method of composting were discussed. The vermicompost units of the farmers were visited and during interaction it was realized that farmers earning good amount by selling vermicompost. The students acquired the practical hands on experience of seed production of Horticultural and field crops and processing under RHWE. Besides this students acquired the practical hands on experience of Nursery Management of horticultural crops also by visiting some nursery sectors near to villages. Students have studied different aspects of rural economy during their attachments to different villages and financial institutions, which included household and socio-economic survey (demography, cropping scenario, estimation of cost of cultivation, etc), market survey to identifying marketing channel, price spread analysis, etc., study on producers surplus, market survey of agricultural products, survey of marketing and financial institutions.

During the RHWE programme students were placed to research station, Krishi Vigyan Kendra (KVK), and block level agricultural development institutions to orient them with agricultural research, extension, and developmental activities, respectively. An attachment to the agro-based industries has enabled the students to understand the different aspects of agribusiness.

The students have made a detail study on the agro-based industry, which has helped them to gather practical knowledge on key performances of an agro-industry and agribusiness. They have studied the organisational structure (staffing), functioning (production, processing, marketing), managerial aspects, etc. Students have visited different units of the industry and witnessed their functioning in association with the concerned persons and managers.



Evaluation of the RHWE program

The students are required to record their observations in field while visiting the villages and agro/horti -industries on daily basis and will prepare their project report based on these observations and submit a comprehensive end report of the program. Minimum attendance for this program is 85%. Individual Presentation is evaluated separately by the concerned course leaders and a comprehensive evaluation is conducted at the final stage by a committee comprising of all the Heads of the Department and course leaders and Professor of the Faculty including external examiner(s).

Experiential Learning programmes under Student READY:

SL. No	Name of Experiential Learning Unit	Sanctioned by ICAR? (Yes/ No)	Functional condition	Profit sharing with the students (Rs./student) (50% of the total profit)				
				16-17	17-18	18-19	19-20	20-21
1.	Commercial Horticulture	Yes	Running in partial business mode*	600/-	640/-	680/-	Nil**	Nil**
2.	Processing of Fruits and Vegetables for Value Addition (Fruit Beverage Unit)	Yes	Newly established Unit. It will run in full-fledged business mode from this year.	This unit will be functional from this year (2021-22) in full-fledged business mode'. Fifty per cent profit will be shared with the students amounting about Rs. 84,000/- student/ programme of six months @ Rs. 14,000/- /student/month.				

*due to lack of revolving fund. Two devastating cyclones namely 'Amphan' and 'Yash' had badly damaged the poly houses under this unit. For revival of this unit and running it on commercial mode, a proposal is being prepared for sanction of fund.

**Due to lock down, training had been imparted in on-line mode

Impact of Experiential Learning Programme

Considering the importance of "Experiential Learning Programme (ELP)", an important component of the 'Student READY' as a flagship scheme of the Indian Council of Agricultural Research, under graduate students are encouraged to take part actively in different modules during 8th semester following the guidelines of 5th Dean Committee with an intention to develop manpower that can help in making farming a profitable venture.

Under ELP, an integrated learning system of skill and knowledge, students are trained in such a manner that they are sufficiently skilled for starting a commercial venture after passing



out. EL modules both in business and skill development mode are offered to the students for giving hands on training for all activities of the agri-business to encourage them for entrepreneurship development. Experiential Learning Units (ELUs), running in business mode have implemented the concept 'Earning by learning' by sharing 50% profit with the students. The concept 'Earning by learning' in ELP has gained popularity among the students, and some students trained in EL units in past five years are trying to develop their own enterprise. One student trained in 'Commercial apiculture unit' functioning under the Faculty of Agriculture, has already established his own enterprise named 'Sejuti Honey' in 2018-19 after passing out in 2017-18, which is running successfully.

During last two years, activities under ELP could not be conducted physically due to the pandemic situation. From this year, in addition to the "Commercial apiculture unit", newly established EL unit entitled "Processing of fruits and vegetables for value addition (Fruit Beverage Unit)" funded by ICAR will start functioning in full-fledged business mode under the Faculty of Horticulture with 50% profit sharing for full involvement of the students in the production system for encouraging them to become job provider rather than job seeker. Considering the interest of the students and possibilities for entrepreneurship development, some units namely 'Commercial Seed Production', 'Mushroom Cultivation', 'Production of Bio-agents and Botanical pesticides', and 'Organic Production' functioning in skill mode under the Faculty of Agriculture will be transformed into business mode from this year with profit sharing with the students. Similarly, an effort is being made for upgrading one EL unit entitled 'Model rice based Agro-processing' functioning in skill mode under the Faculty of Agricultural Engineering to a 'Model Agro-processing Centre for Processing of Rice, Mustard Oil and Spices' for running it in business mode with profit sharing with the students.

6.4.6 Supervision of students in PG/PhD Programmes:(as per ICAR guidelines)

This is not applicable for UG curricula.

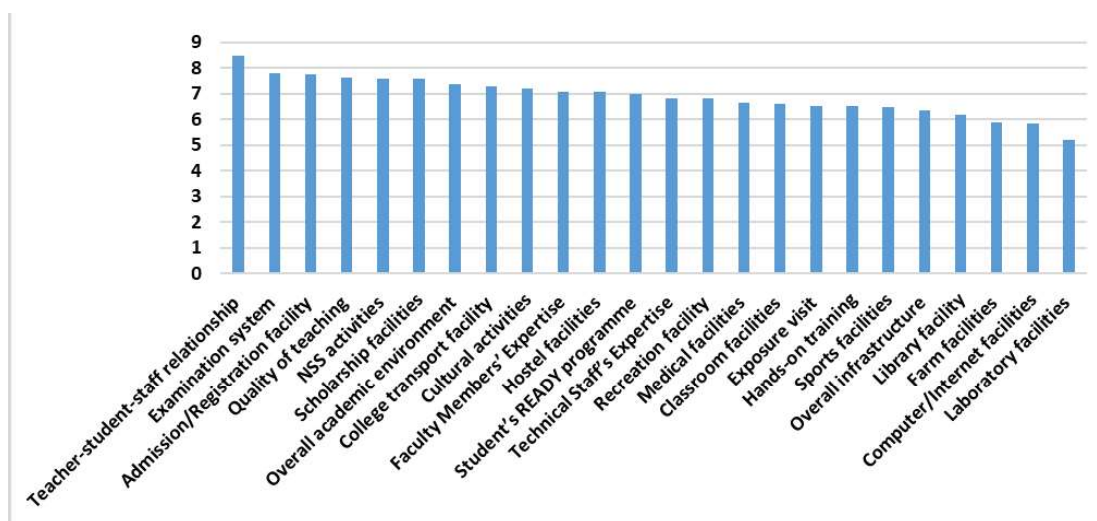
6.4.7. Feedback of stakeholders:

6.4.7.1. Mention the feedback mechanism (duly supported by the documents)

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: Undergraduate Students of Horticulture are satisfied with the facilities provided by the University. According to them, Laboratory Farm facilities need some 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	38	35	8.57
2017-18	38	33	15.15
2018-19	38	35	8.57
2019-20	38	36	5.55
2020-21	38	36	5.55

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

