

I. Name of the Programme: M. Sc. (Ag.) Genetics and Plant Breeding

6.4.1. Brief History of the Programme:

Based on the recommendation of the ICAR-high power review team during the first accreditation of our university, bifurcated departments, Genetics and Plant Breeding started its further journey as a single department in 2012.

Objectives:

- i. To impart education in the area of the Genetics and Plant breeding, varietal development and testing, use of advance biotechnological tools in selection and allele mining.
- ii. To train students for the various career opportunities in the areas of Genetics and Plant Breeding.

Accomplishment:

- Seventy-three students completed Master-degree; out of which twelve students were admitted from other universities through ICAR-JRF examination.
- Overall performance in academic level: ICAR-NET: 26; ICAR-SRF:3;International fellowship: 1 (BRAVE); CSIR-JRF:1; DST-INSPIRE:2; JRFs/SRFs in extramural funded research project: 11.
- Placement: National level: 12; State-level (ADA, Food safety officer etc): 16;
- Publication with NAAS > 6.0: 7 (Related to Master degree works).

6.4.2. Faculty Strength

| SL. No. | Type of Faculty | Sanctioned Faculty | Faculty in place | Vacant position | Faculty recommended by the ICAR |
|---------|---------------------|--------------------|------------------|-----------------|---------------------------------|
| 1. | Professor | 3 | 0 | 3 | 1 |
| 2. | Associate Professor | 3 | 1+3* | 2 | 1 |
| 3. | Assistant Professor | 3 | 1+6* | 2 | 2 |

Note: *Faculties involved from AICRPs, RRS/RRSS/ Other Research Units

6.4.3. Technical and Supporting Staff

| SL No. | Category of Staff | Sanctioned Staff | Staff in place | Vacant position | No. of staff recommended by ICAR |
|--------|-------------------------|------------------|----------------|-----------------|----------------------------------|
| 1. | Technical Assistant | 2 | 2 | 0 | 2 (Lab Assistant) |
| 2. | Office Assistant | 2 | 2 | 0 | |
| 3. | Laboratory Attendant | 1 | 1 | 0 | |
| 4. | Field Assistant | 2 | 2 | 0 | 1 (Assistant) |
| 5. | Field workers (Skilled) | 2 | 2 | 0 | 2 (Field Assistant) |

6.4.4. Classrooms and Laboratories:



6.4.4.1. Number of Classroom: 6

| Room | Room No | Purpose (Class/Practical) | Area (Capacity of students) |
|------|---------|--|--|
| 1. | 232 | Class room (PG and PhD) | 5 x 5 m ² ;20 even & 20 odd semesters |
| 2. | 235 | M. Sc-Practical class room (Genetics and Cytogenetics) | 13.5 x 10 m ² ;35/batch even & odd semesters |
| 3. | 342 | Class room (M. Sc& PhD) | 13.5 x 5.5 m ² ;25 even & 25 odd semesters |
| 4. | 345 | M. ScPractical room (Plant Breeding) | 13.5 x 5.5 m ² ;35/batch even & odd semesters |
| 5. | 340 | Class cum seminar room (PG & PhD) | 13.5 x 5.5m ² ; 50 students |
| 6. | 346 | Class room (PG & PhD) | 13.5 x 3 m ² ;15 even & 15 odd semesters |

6.4.4.2. Number of Functional Laboratories: Eight (8)

| Sl. No. | Room No | Name of the Laboratories | Area (Capacity of students) |
|---------|---------------------|--|--|
| 1. | 236 | PG-Lab: Marker and Genome analysis lab | 13.5 x 3.5 m ² ;15 even &15 odd semesters |
| 2. | 238 | PG-Lab: Abiotic Stress Lab | 13.5 x 4 m ² ;15 even &15 odd semesters |
| 3. | 358 | PG Lab (PhD) | 13.5 x 3 m ² ,5 even &5 odd semesters |
| 4. | 338 | Quantitative Genetics Lab | 20 even & 20 odd semesters |
| 5. | CRU | Plant Tissue Culture laboratory | 10 x5 m ² ; 15 even & 15 odd semesters |
| 6. | AINP-Jute | Fiber Quality analysis Lab | 10 x7 m ² ; 10 even & 10 odd semesters |
| 7. | AICRP-Floriculture | Floriculture Laboratory | 10 x5 m ² ; 10 even & 10 odd semesters |
| 8. | AICRP-Wheat &Barley | Wheat Breeding Lab | 10 x6 m ² ; 10 even & 10 odd semesters |

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-Lab: Marker and Genome analysis lab | Protein and Nucleic acid electrophoresis apparatus with power pack, Thermocycler, Gel documentation system, Real-time PCR. Microwave, -20 ⁰ C Freezer, Balance, Microcentrifuge, Cooling centrifuge, Lamina-hood |



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-Lab: Abiotic Stress Lab | Spectrophotometer, PAR analyzer, Refrigerated water bath, Hot-air oven, Chlorophyll-fluorescent analyzer. EC & pH meter, Weighing machine, Refrigerator, Western Blotting apparatus, Incubator-shaker |
| 3. | PG-Lab (Ph D) | Compound microscopes, Spectrophotometer, Camera lucida, Stage micrometer, Ocular, Pointer, Infrared Thermometer, Seed Dryer, Seed Germinator, Seed Analyzer, Grain analyzer, Weighing machine |
| 4. | Plant Tissue Culture laboratory | Lamina-hood, Autoclave, Weighing machine, Tissue culture rack with temperature and time controlling devise, Nucleic acid electrophoresis apparatus with power pack, Thermocycler, Gel documentation system, Microwave, -20 ⁰ C Freezer, Microscope with attached camera and software, Plant growth chamber. |
| 5. | Fiber Quality analysis Lab | Dry air oven, Flame photometer, N-analyzer, Spectrophotomter, Refregerater, Balance, pH meter, Microscope, |
| 6. | Floriculture Laboratory | Spectrophotomter, Cold centrifuge, -20 ⁰ C Freezer, Electrophoresis aaparatus with power pack, Plant growth chamber, BOD incubator, Balance, Autoclave, pH meter |
| 7. | Wheat Breeding Lab | Simple and compound Microscope, Spectrophotometer, Dryer, seed grinder, Geldoc system. |
| 8 | Quantitative Genetics Lab | Computers and a few analyses software |
| 9. | Instructional Farm | Shade-net house, Rainout shelter |

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

Although there is a huge scope of improvement but the existing facilities are sufficient to meet the course curricula requirement of 15 Master degree students. However, a little lack in computation facilities in the Quantitative Genetics laboratory.

6.4.4.5. Number of theory batches for the Degree Programme: One (1)

6.4.4.6. Number of Practical Batches for the Degree Programme: One (1)

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

Lab-based practical classes are organized at the department laboratories and hands-on training on Instructional Farm or the experimental fields specially for crop-specific breeding program.



Protocols and methodologies are distributed to the students, and concerned teachers give instruction followed by a demonstration. Following the demonstration and taking help from the technical assistants, students performed the practical and kept a record or drew figures in the laboratory notebook.

Practical Manual for the course: GPB553 (Biotechnology for the crop improvement).

Except for a few advanced cytogenetics practicals, the Department provides sufficient hands-on training as per the ICAR-recommended curriculum requirement of Master degree (GPB) requirements in functional laboratories of the Departments.

We evaluate the practical learning abilities of the students through the end-term evaluation followed by viva, their attendance, and laboratory notebook.

6.4.6. Supervision of students in M. Sc. (GPB) Programme:

6.4.6.1. Total Number of Students perusing the Degree at Present: 30 (Thirty only)

6.4.6.2. Total Number of faculties supervising the Students: 11 (eleven)

| | 2016-17 | 2017-18* | 2018-19* | 2019-20* | 2020-21* |
|---|---------|----------|----------|----------|----------|
| No of students in Master Degree Programme | 24 | 26 | 31 | 32 | 30 |
| No of Eligible Teachers for supervision | 11 | 11 | 11 | 11 | 11 |

Note: *Number of students intake increased due to enhanced seats under the reserve categories of OBC-A and OBC-B, keeping the unreserved seat constant.

Eligible Criteria to become a PG Advisor:

(Clause 4.08 of the BCKV Regulations regarding Masters' Degree Programme, 2019)

4.08 Advisement:

A Chairperson shall be assigned to each student by the Head of the department in consultation with the Board of Studies (BOS) from amongst the internal member of BOS in which the student is registered. The chairperson must be associated with regular post graduate teaching program of the concerned department. The students should be allotted to the Chairpersons following the norm as laid down below.

- (i) Head of the department, in consultation with the Board of Studies, will prepare a list of eligible teachers according to seniority, keeping continuity of the previous years.
- (ii) Student will not be allotted to the teachers having less than (2) two years of regular service in the Viswavidyalaya at the time of allotment of the student.



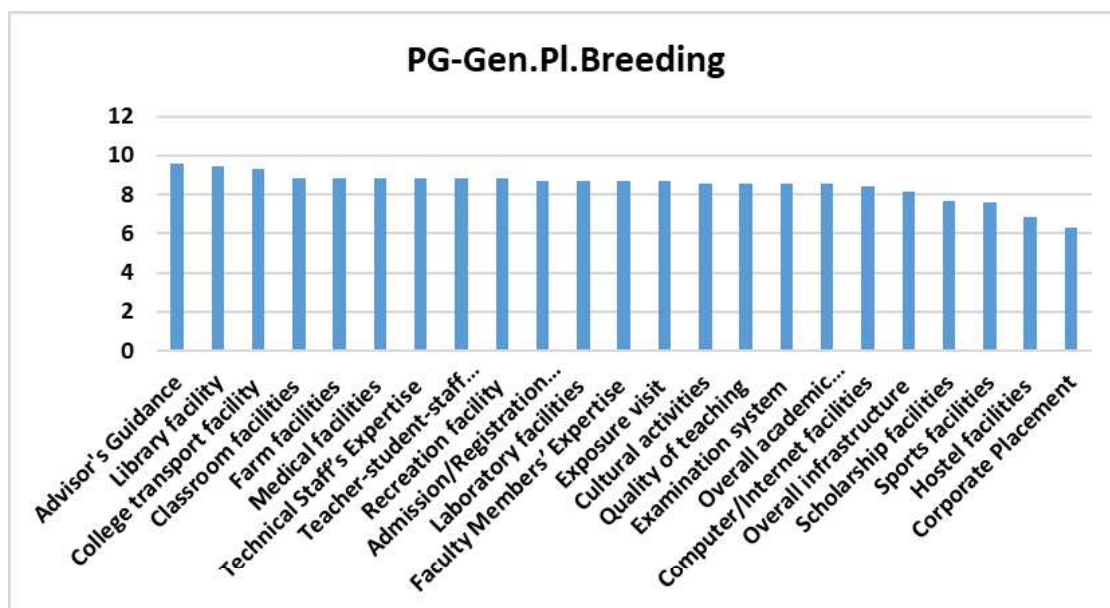
(iii) Student will not be allotted to a teacher when he /she is on lien.

* Documentary evidence attached as annexure -I

6.4.7. Feedback of stakeholders:

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

Feedback from the students were 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: Masters' degree students of Genetics & Plant Breeding Programme are happy with nearly all the facilities provided by the University. Though, facilities like Corporate Placement and Hostel Facilities have 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 scope 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 | 12 | 12 | 0 |
| 2017-18 | 15 | 15 | 7 |
| 2018-19 | 16 | 16 | 0 |
| 2019-20 | 16 | 16 | 0 |
| 2020-21 | 14 | 14 | 0 |

6.4.9. ICT Application in Curricula Delivery:

Generally, in the pre-pandemic period the use of ICT in our faculty was limited to classroom lecture through LCD Projectors and computers, Use of Web-based free software for Quantitative genetics Practical and bioinformatics analysis.

The use of ICT tools became more dominant as the pandemic situation started. The institute has to run the teaching and learning process completely in virtual mode. The ICT tools used for the curriculum delivery for different theory and practical classes are tabulated below:

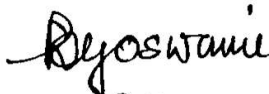


| Theory | Practical |
|---|--|
| <ol style="list-style-type: none"> 1. Google meet has been used for taking regular classes 2. E-mail, Whatsapp etc. has been used for giving lecture notes. 3. Use different free web browser for lecture notes 4. Use of ICAR E Courses (https://ecourses.icar.gov.in) 5. Use of 'Google form' for the assessment purpose. | <ol style="list-style-type: none"> 1. Use of YouTube and other web link for demonstrating in different practical classes. 2. Use of Google meet for practical video demonstration. 3. Use of free software for quantitative genetics practical. |

I, the **Dean, Prof. Subhendu Bikash Goswami**, 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


 Dean
 Faculty of Agriculture
 Bidhan Chandra Krishi Viswavidyalaya
 Mohanpur, Nadia, West Bengal

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

