SELF ASSESSMENT REPORT

Department of Plant Breeding & Genetics

PIR MEHR ALI SHAH ARID AGRICULTURE UNIVERSITY RAWALPINDI

Program Team

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Reporting Period:	**2010-2012**

Programme

B.Sc. (Hons) Agriculture

Plant Breeding and Genetics

Program of B. Sc.(Hons.) Agriculture, Department of Plant Breeding and Genetics

INTRODUCTION

Plant Breeding and Genetics has emerged as a key Department in the Faculty of Crop and Food Sciences. It started working as a major discipline at B.Sc. (Hons.) Agriculture level in 1982. So far, this department has produced **302** graduate students. The Department's progress can be assessed as **seven** students have been decorated with Gold, Silver, Bronze and ABN Amro medals, depicting the level of academic excellence. Students graduating from this department are currently serving in leading teaching, research and corporate organizations of public and private sectors in Pakistan. The department has established strong linkages with renowned scientists and research organizations at national and international level.

Criterion 1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES

Standard 1-1: Mission Statement of Department of Plant Breeding and Genetics

- Help students to excel in the discipline of Plant Breeding and Genetics by providing an excellent platform through high quality teaching and research.

- Provide students with basic and applied education at graduate level through the use of modern and advanced teaching methods in the specialized field of crop improvement related research methodologies.

Program Objectives

1. To elevate the department at a level to excel in higher education.
2. To inculcate scientific skills and knowledge related to Plant Breeding and Genetics for increased crop productivity, understanding inheritance mechanism and genetic divergence in field crops.
3. To improve the discipline of Plant Breeding and Genetics, by integrating the knowledge and advancements of related fields such as Biochemistry, Bioinformatics, Genetic Engineering and Biotechnology.

- **Main Elements of strategic plan to achieve program mission and objectives**

1. Design and improvement of curricula by the introduction of core and elective subjects in specialized areas and study trips to concerned research institutes.
2. Establishment of laboratories with latest equipments to impart hand-on training to students.
3. Research Project with Report at under-graduate level.

Program Outcomes

1. The department has emerged as a role model in teaching and research activities in Faculty of Crop and Food Sciences by producing 302 graduates.
2. Implementation of HEC guidelines for improvement of different courses, establishment of research facilities like Glasshouse, Shelter house, Research Farm area (at University Research Farm, Chakwal Road) and labs equipped with latest equipments has progressively improved the department by providing more facilities for graduate students.
3. The departmental students are well acquainted with allied sciences and make use of these sciences to complete their assignments and plan their future research activities.

Standard 1-2: Program Outcomes

Program Objectives	1	2	3
1	++	+++	+++
2	+	+	++
3	+	+	++

\+ = moderately satisfactory
++ = Satisfactory
+++ = High satisfactory

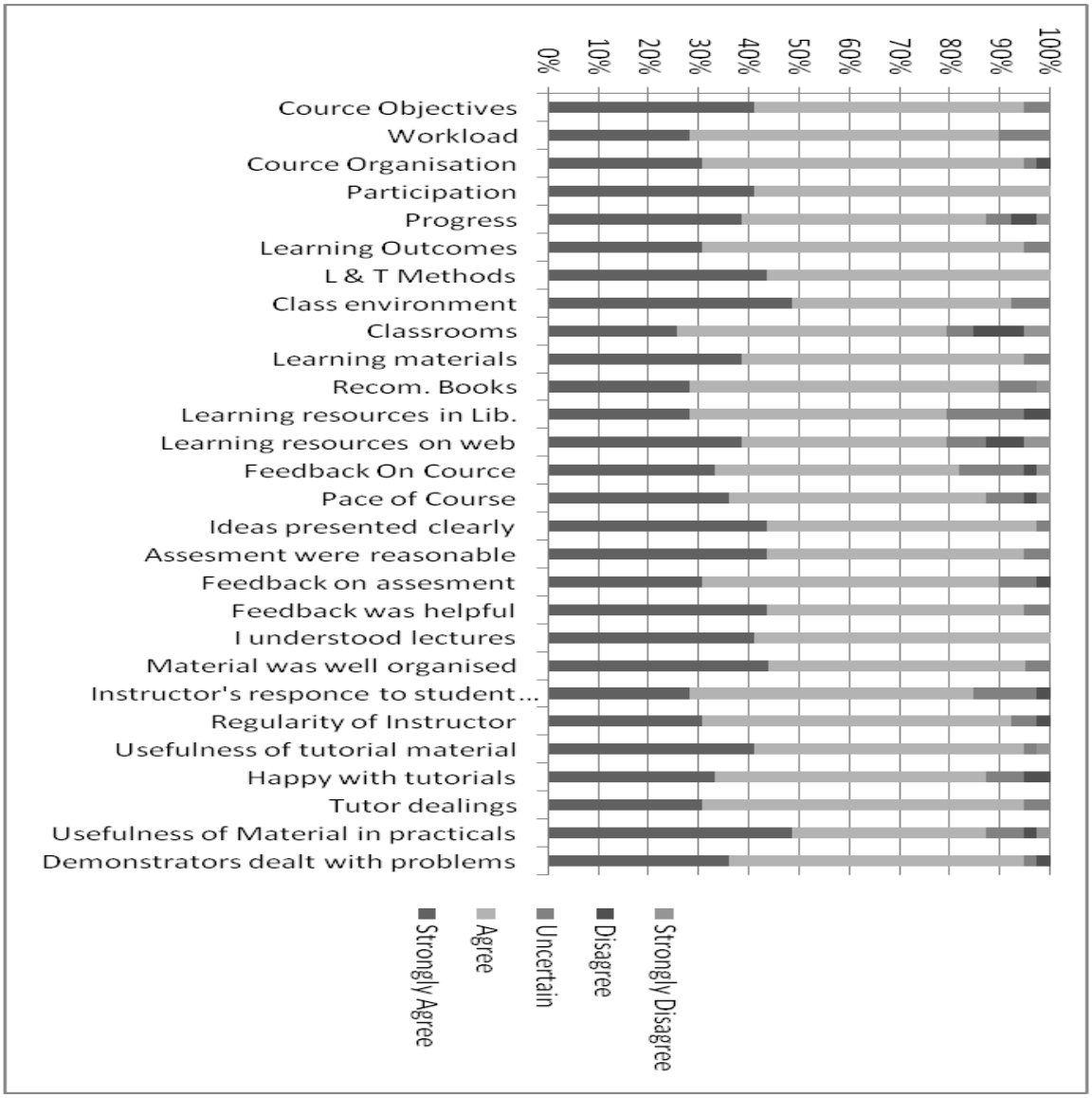
Surveys

The Department of Plant Breeding and Genetics has been helping students to equip with latest knowledge related to crop improvement. Written, oral and demonstration skills have been imparted to graduating students for enhancing their effective communication and build self confidence. Students have also been trained regarding use of modern breeding techniques and approaches enabling them to work as a productive team member for tackling problems faced during crop improvement programs.

Proforma 1: Students Course Evaluation Questionnaire

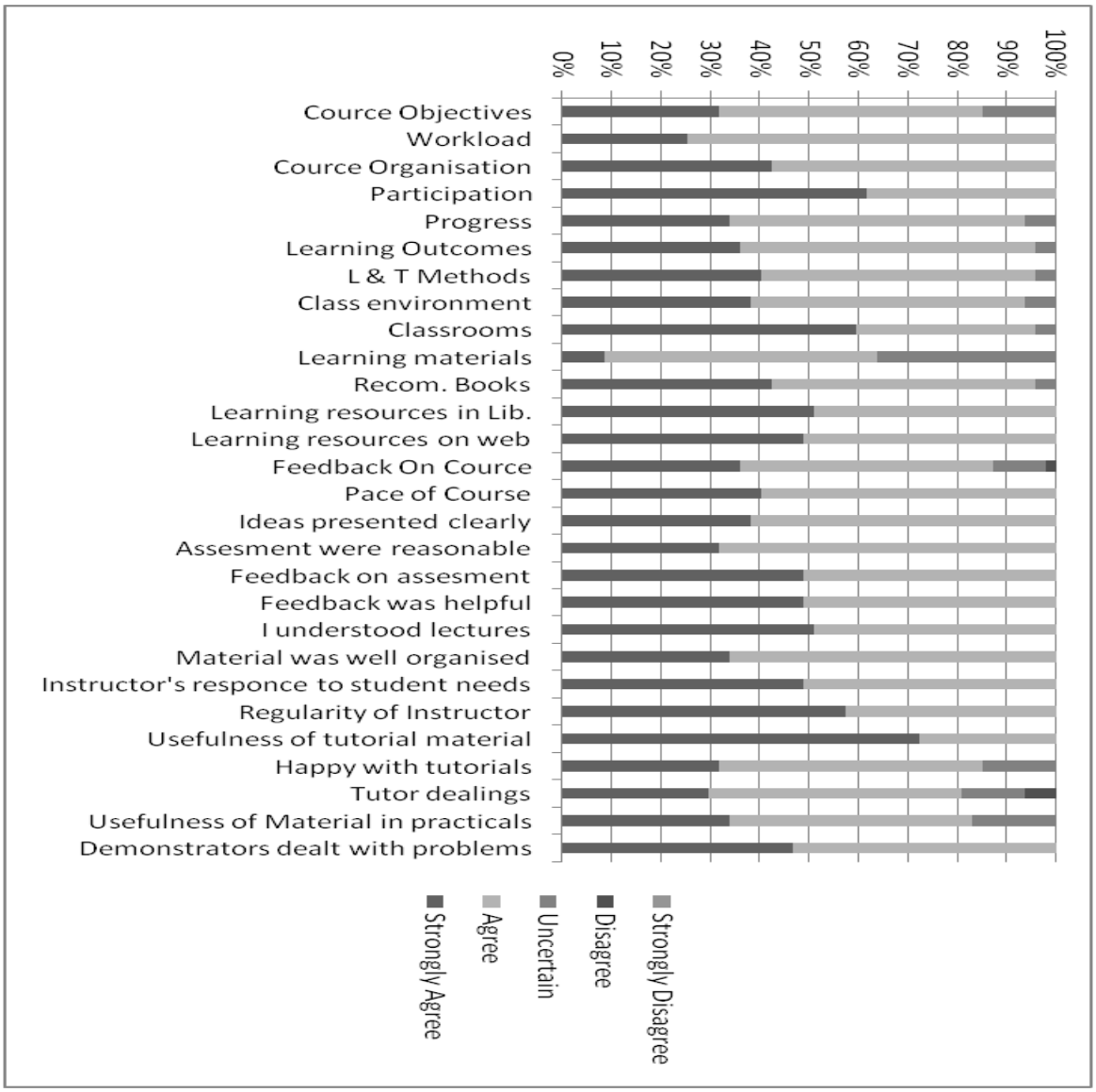
PBG-401 Introductory Genetics:

Cumulative graph regarding students' opinion for course evaluation questionnaire revealed that most of the students showed strong agreement to the question asked regarding the various aspects of course taught like, course objectives, class environment, ideas presented, course organization etc. A good number of students showed agreement; however few were uncertain or disagreed to the questions asked.



PBG-402 Introductory Plant Breeding:

As per cumulative graph pertaining to students course evaluation proforma, around 40% students showed strong agreement to the questions asked whereas most of them showed agreement. Small number of students were uncertain in answering the questions.

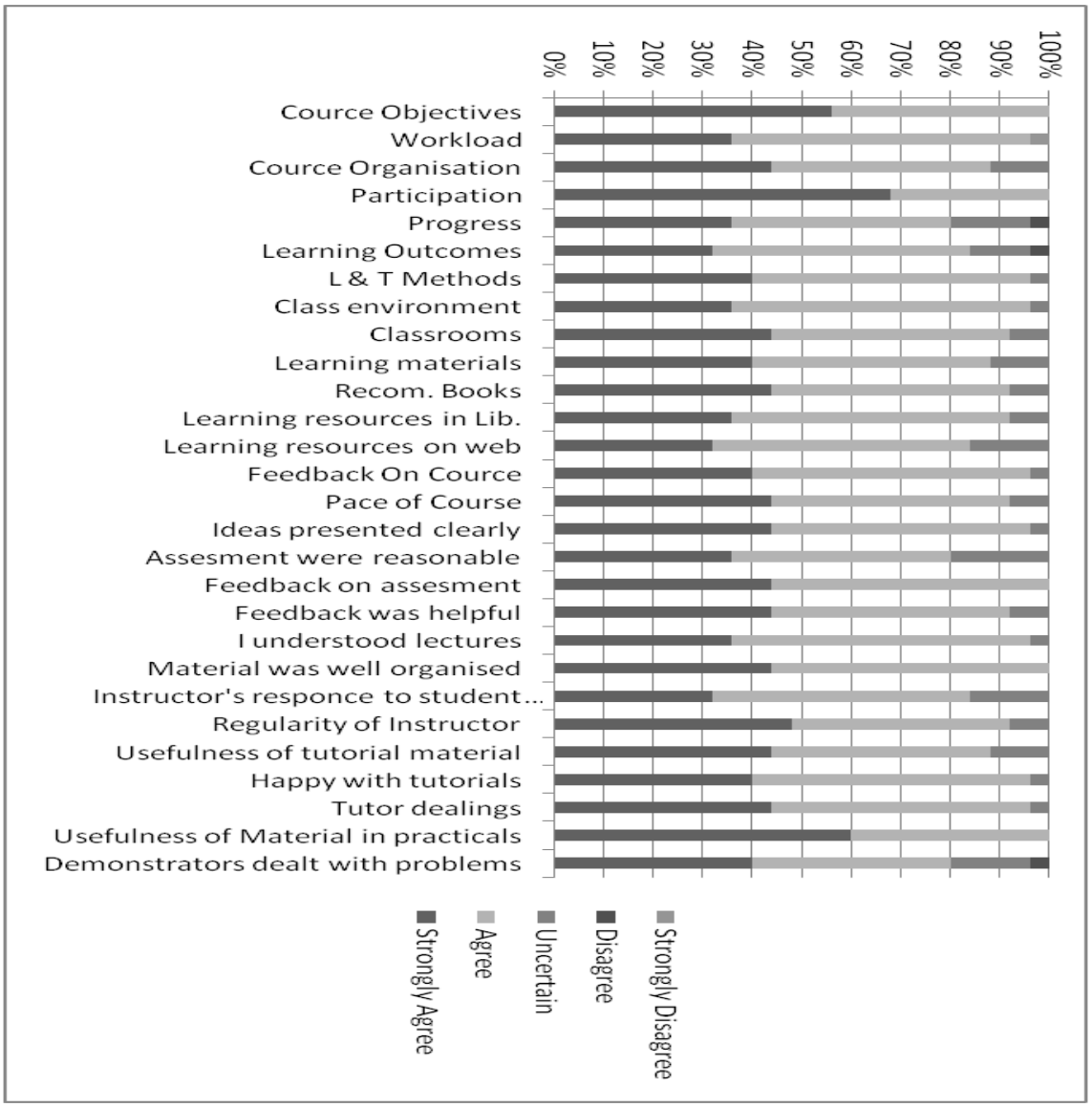


PBG 501 Genetics of Crop Plants

The aggregate analysis of Proforma 1, revealed that around 45% of the students strongly agreed to the various aspects of course evaluation questionnaire like course objectives, work load, feed back on assessment, usefulness of material in practical etc. Whereas, many of them showed general agreement. About 10% students were uncertain and are disagreed in answering their responses.

PBG 502 Breeding Cereal Crops

A perusal of proforma 1, depicted that about 35% students strongly agreed to different aspects of course evaluation questionnaire. However, around 30% students were satisfied with the class environment, assessment, L&T method etc. Only a few students were uncertain and disagreed.



PBG-503 Breeding Field Crops

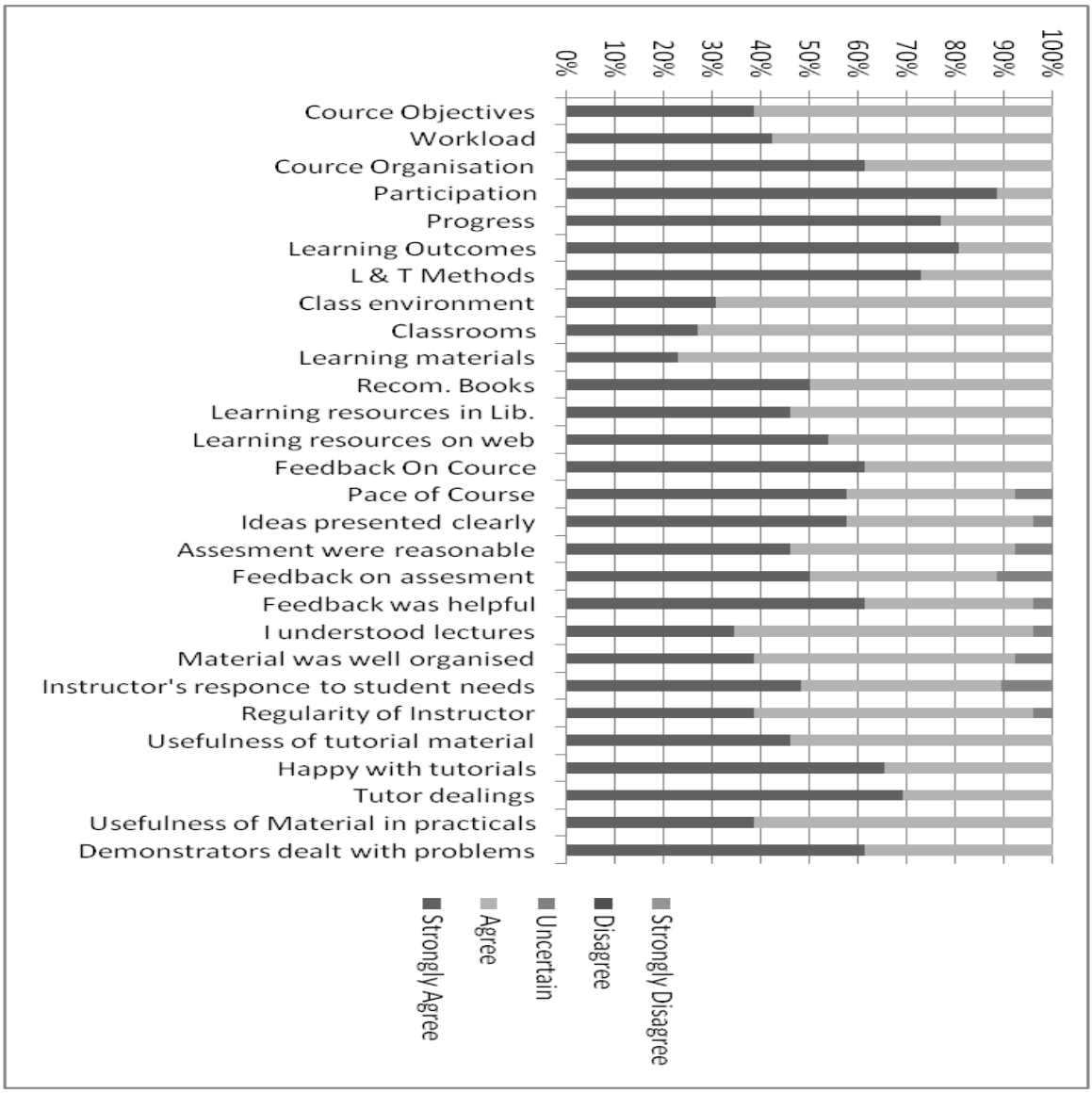
As regards cumulative student course evaluation graph, around 40% students expressed strong agreement on questions asked regarding course progress, learning outcomes, L&T methods, pace of course, feed back, usefulness of materials, and similar number of students showed agreement. However, about 10% students were uncertain in answering the questions and are disagreed with the contents.

PBG-504 Breeding Maize and Millets

The aggregate analysis regarding Breeding Maize and Millets course, revealed that around 35% students strongly agreed to the various aspects of course evaluation questionnaire like course progress, participation, learning outcomes, L&T methods, pace of course, feed back on course and assessment, usefulness of materials, whereas, 25% students showed general agreement. However, a small proportion of students were uncertain in their response.

PBG-505 Cytogenetics of Crop Plants

The analysis of Proforma 1, showed that about 55% students strongly agreed to the various aspects of course evaluation questionnaire course organization, course progress, learning outcomes, L&T methods, pace of course, ideas presented, feed back, tutor dealing with the problems, whereas 25% students showed general agreement. About 15% students were uncertain in answering their response

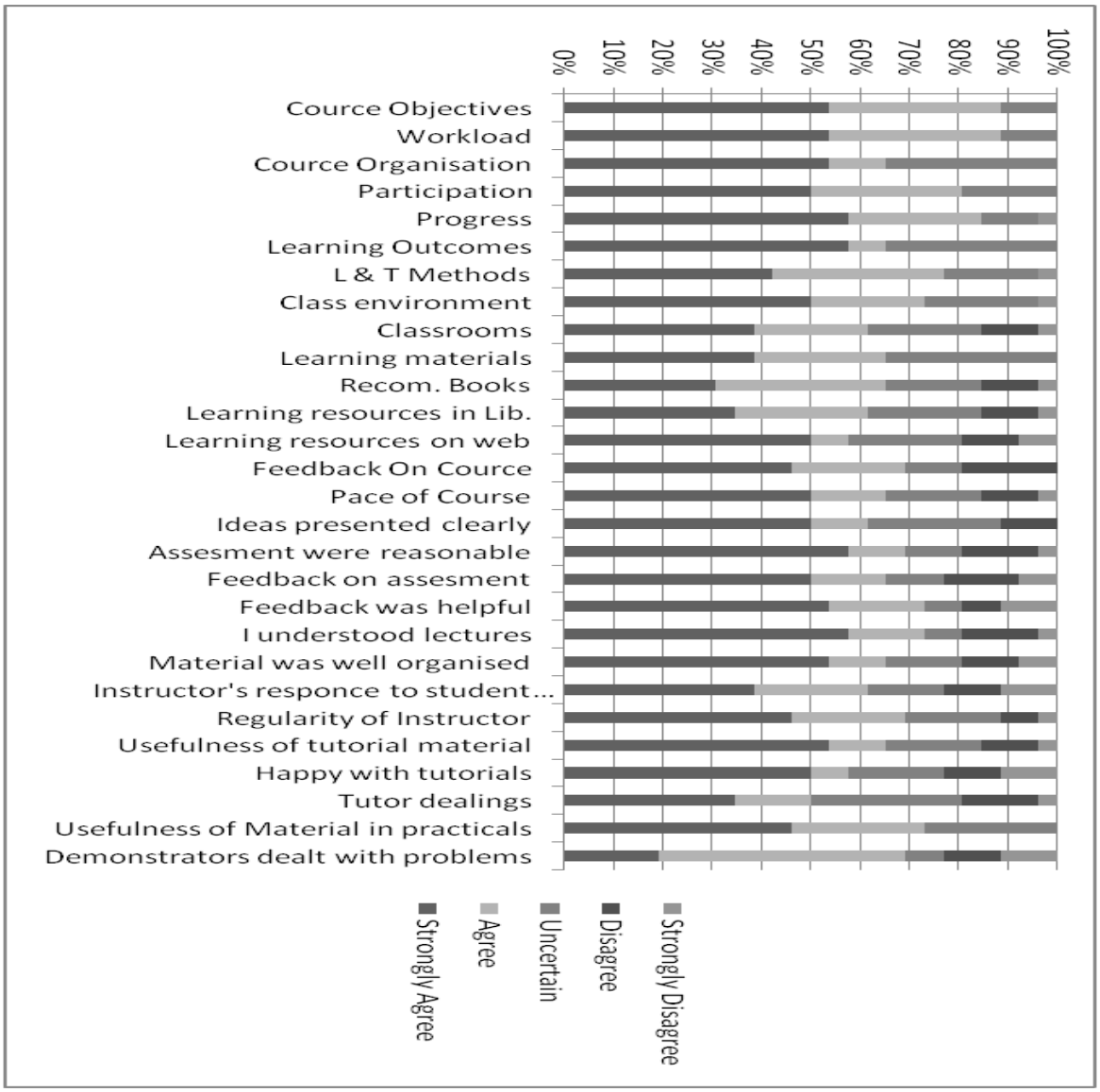


PBG-506 Breeding Oilseed Crops

A perusal of student course evaluation proforma 1, expressed that about 50% students showed strong agreement on questions asked like course organization, learning outcomes, learning resources, L&T methods, feed back, assessment, and dealing of problems whereas 25% showed agreement. However, about 20% students were uncertain in answering the questions, and a few disagreed with the contents.

PBG-507 New Trends in Crop Improvement

The graphical analysis of Proforma 1, expressed that about 60% students strongly agreed to the various aspects of course evaluation questionnaire like work load, course objectives, course progress, learning outcomes, L&T methods, pace of course, assessment and understanding, feed back, usefulness of materials etc. Around 20% students showed general agreement with various aspects of Proforma. About 10% students were uncertain in answering the questions.



PBG 508 Genetic Diversity and Germplasm Resources

The cumulative analysis for Proforma 1, suggested that 40% students strongly agreed to difference aspects of course evaluation questionnaire like work load, course objectives and organization, course progress, learning materials, L&T methods, pace of course, assessment and timely feedback, usefulness of materials etc. Around 30% students were in general agreement. Only a small proportion of students were uncertain in and/or disagreed.

PBG-510 Biometrical Techniques in Plant Breeding

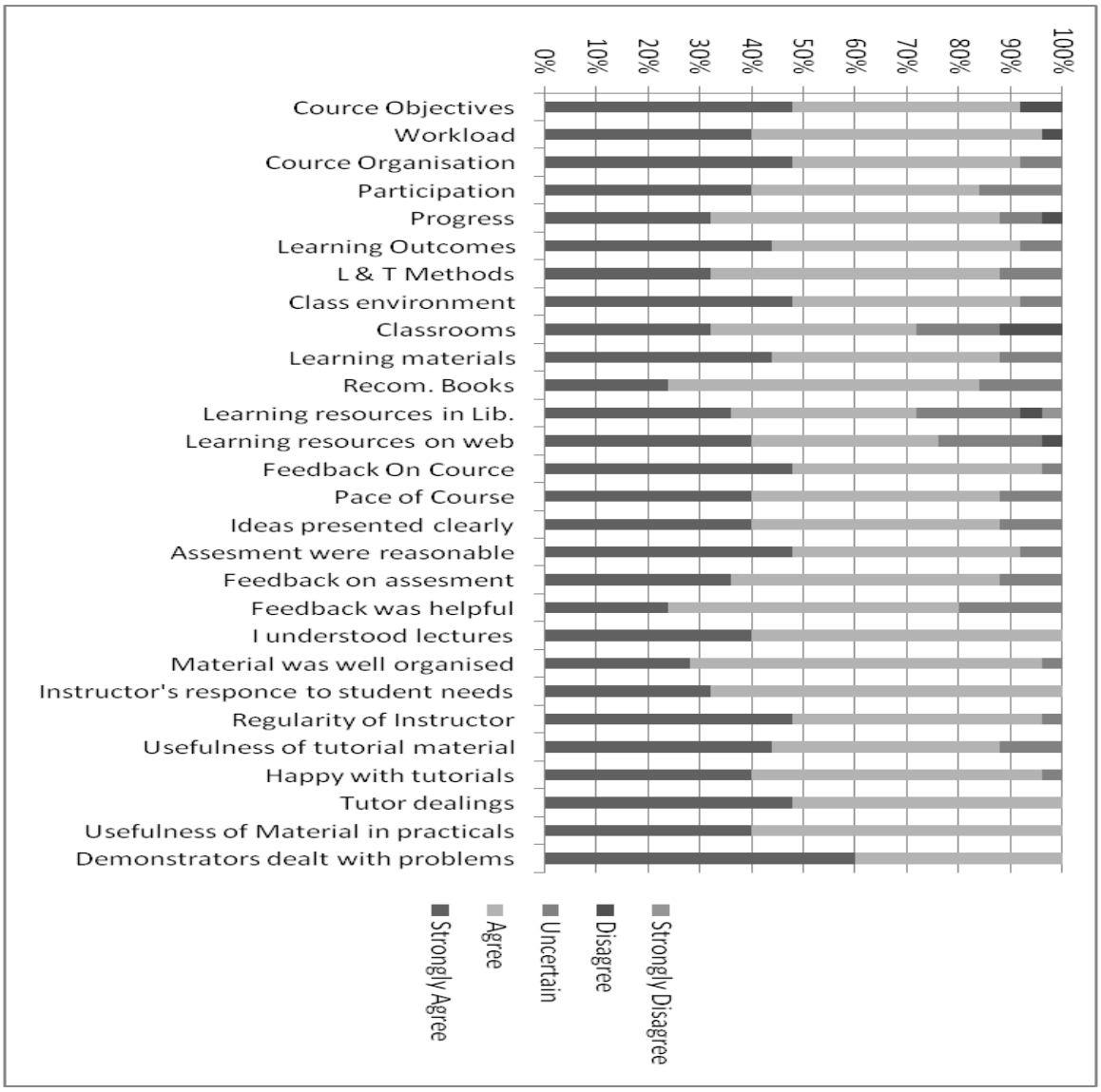
The graphic analysis showed that about 45% students strongly agreed to the various aspects of course evaluation questionnaire like work load, course objectives, course progress, participation, learning outcomes, L&T methods, pace of course, assessment, feed back, usefulness of materials etc. About, 25% students showed general agreement and a small number of students were uncertain in answering the questions.

PBG-601 Breeding Fiber and Sugar Crops

The analysis for Proforma 1, revealed that 60% students strongly agreed to difference aspects of course evaluation questionnaire like, course objectives, pace of course, ideas presented, assessment and feed back, usefulness of materials and demonstration etc. About 20% students were in general agreement with various aspects of Proforma and a few students were uncertain.

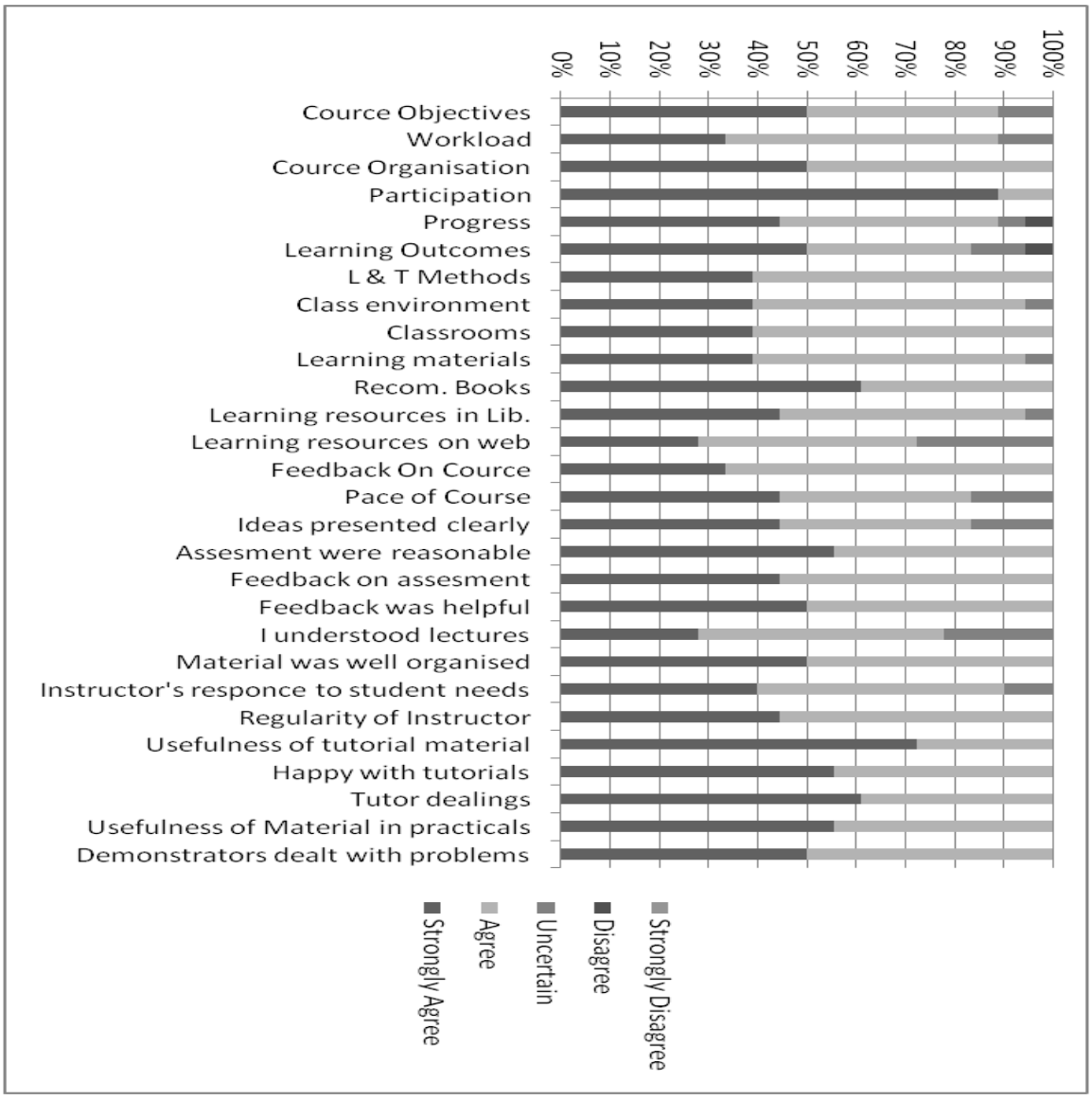
PBG-603 Breeding Pulse and Forage Crops

The aggregate analysis for Proforma 1, showed that about 65% students strongly agreed to difference aspects of course evaluation questionnaire viz. course objectives, learning outcomes, class environment, pace of course, assessment and feed back, usefulness of materials, dealing of problems etc. About 25% students were in general agreement with various aspects of Proforma. A small number of students were uncertain and/or disagreed to the contents of Proforma.



PBG 605 Breeding Vegetable Crops

The graphic analysis of Proforma 1, depicted that about 50% students strongly agreed to the various aspects of course evaluation questionnaire like course objectives, course organization, participation, recommended books, pace of course, assessment and feed back, usefulness of materials etc. Around 25% students showed general agreement with other aspects of Proforma. Only 5% of the students disagreed with various contents of Proforma.



- **PROGRAM OBJECTIVES ASSSESSMENT**

The details are provided in table as follows

Table: Program Objectives Measurement

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	To elevate the department at a level t excel in higher education.	On the basis of HEC recommendations	Before initiation of program	Strengthening of department	Department strengthened and lab and research facilities improved
2	To inculcate scientific skills and knowledge related to Plant Breeding and Genetics for increased crop productivity, understanding inheritance mechanism and genetic divergence in field crops.	On the basis of students feed back	At the time of students evaluation	Some basic courses and lab facilities needed improvement	Revision of courses and establishment of labs with latest equipments
3	To improve the discipline of Plant Breeding and Genetics, by integrating the knowledge and advancements of related fields such as Biochemistry, Bioinformatics, Genetic Engineering and Biotechnology.	Through interviews	Subject / courses attachment before start	Related subjects to be recommended or studied	Enhancement of knowledge and vision

Standard 1-3: Results of program assessment and extent to which they are used to improve the program must be documented.

Attached as graphs.

Actions Taken Based on Results of Periodic Assessment

Assessment has been made for the second time in the department and subsequently actions have been taken accordingly/ Action taken to be incorporated here to improve the deficiencies identified.

1. Departmental budget is quiet insufficient to meet the demands of its activities. A request to increase the budget has already been made by the department. The demand has been submitted and is in process at the moment.

2. Some faculty members have been awarded competitive research grants.

3. The Dept. also facilitates capacity building of faculty members. In this regard various faculty members have attended training courses/workshop.

Major Future Program Improvement Plans

- Use of audio visual aids and other modern tools like access to digital library for latest literature, journals, books, reviews and internet to enhance quality of education in Plant Breeding and Genetics.
- Improvement in facilities for crop improvement programme (green house, rainout shelters, tunnels for controlled environment studies).
- Up-gradation of post-graduate and undergraduate laboratories including Genetic Transformation, Biotechnology, Cytogenetics and General laboratories with latest equipments.
- More focus will be laid on problem oriented research with special focus on field problems of rainfed areas.
- Students/ Human Resource development in the field of Plant Breeding and Genetics to meet future challenges for sustainable agriculture.
- Improvement in knowledge and skills of faculty members in relation to the latest global advancements in this discipline through exchange programs, short term training and collaborative research projects within and outside Pakistan.

Strength of the Program

Highly qualified faculty with versatile knowledge of modern cum conventional breeding approaches is consistently making efforts for imparting knowledge. Majority of the faculty members have foreign degrees with Post-Doc Fellowships and are experts in their fields. Faculty have the experience of carrying out research projects at national level and are capable of handling the problems faced by the post-graduate students.

Weakness identified in the Program

- Short term foreign training to faculty members should be a regular feature to keep pace with the advancement in the scientific community.
- Faculty should be sponsored to participate in the seminars and conferences at National and International levels, to provide them opportunity for building International collaborations.
- New lecture rooms may be built to avoid clashes in teaching schedule.
- File work load may be reduced to help faculty focus on teaching and research.

Standard 1-4: **Quantitative Assessment of the Department (Last three years)**

Sr. #	Particular	Number	Remarks
i	Undergraduates (B.Sc. Hons) produced	55	90% of them joined M.Sc. and 10% got employment
ii	Students: Faculty ratio	9:1	Fulfils HEC criteria
iii	Average grade point	3	Fulfils HEC criteria
iv	Average time taken for undergraduate programme	4 years	Fulfils HEC criteria

Community Services By the Department

- Guidance of students from the other departments with respect to their courses, assignments and research issues.
- Provided advisory services to the farmers regarding cultivation of approved varieties following proper package of production technology.

Faculty Satisfaction Regarding the Administrative Services

- The department maintains a ratio of 3:1 for the academic (technical) and administrative non-technical staff. This ratio fulfils the standard set by HEC
- Administrative meetings (departmental, university, academic council, and syndicate) are attended. Normally two meetings are held per month.
- Proper records of each individuals, students thesis etc. are maintained.

Program outcomes	Objectives: Plant Breeding and Genetics, Development, Teaching and Research		
	Nos.	Criterion	Characteristics
Undergraduate Student	25 graduates /years	Basic courses	-

The program outcomes are fully supportive of program objectives mentioned above. Outcomes are based on actual details obtained from departmental documents.

Criterion 2. CURRICULUM DESIGN AND ORGANIZATION

A) Title of degree program:

Presently following degree programs are organized by the department

- **B.Sc. (Hons) Agric.** After completing the required number of credit hours (courses) followed by research project and its report and presentation.

B) Definition of Credit Hour:

A student must complete a definite number of credit hours. One credit hour is one theory lecture or two hours laboratory (practical) / week.

C) Degree Plan:

List of compulsory and elective courses is attached:

- The courses are relevant to the degree program.
- It meets the national and international requirements for the degree.
- Adequate facilities are available in the department.
- The program contents meet the program objectives as highlighted and provided by the Higher Education Commission, Government of Pakistan.

Degree	Pre-requisites
B.Sc. (Hons) Agric. Plant Breeding and Genetics	F.Sc. Pre-medical with second division or equivalent, Candidate must be from the districts mentioned in Prospectus.

D: **Curriculum Course Requirements for B.Sc. (Hons.) Agriculture**

Semester	Course Number	Category (Credit Hours)				
		Math and Basic Science		Core Courses	Humanities and Social Sciences	Technical Electives
		Math/Stat	Basic Science			
1st	Math-301, BIO-301, IS-301/ ET-301, ENG-301	3(2-2)	3(3-0)	4 courses of 12 credit hours	2(2-0) Isl. 3(3-0)Eng	-
2nd	Math-302, BIO-302, ENG-302	3(3-0)	3(2-2)	6 courses of 14 credit hours	3(3-0)	-
3rd	IT-401	3(1-4)	-	7 courses of 17 credit hours	-	-
4th	Stat-401	3(3-0)	-	6 courses of 17 credit hours	-	-
5th	AEN-501 AGR-501	-	-	2 courses of 4 credit hours	-	4 courses of 12 credit hours
6th	AEN-502 SS-508			2 courses of 4 credit hours	-	4 courses of 11 credit hours
7th	STAT-601, SOC-601, MGT-601	-	-	3 courses of 6 credit hours	2(2-0)	3 courses of 9 credit hours
8th	-	-	-	-	-	5 courses of 15 credit hours
Total	**149**	12	06	74	10	47

E. For each course in the program that can be completed for credit

Specifying the following:

- Course title
- Course objectives and outcome
- Catalogue description
- Text book and reference
- Syllabus breakdown lectures
- Computer usage: Computer facility is available to all the faculty members. Internet facility is used by the faculty members to update their knowledge regarding courses being taught, up-dating of research methodologies, documentation of references etc. This facility is also available to students which facilitates them complete their assignments, presentations, data tabulation, data analysis etc.
- Laboratory facilities are available to the students for their practical exercises, given in the curricula but there is not sufficient budget for consumables.

Curriculum course requirements for B.Sc. (Hons) Agriculture degree is summarized in the following table.

- **For each course in the program that can be counted for credit provide 1-2 pages specifying the following:**
    - Course Title: Annexed as Scheme of Study
    - Catalogue description: ---do----
    - Text book and references: ---do----
    - Computer usage: Internet facility is used by faculty members to up date their knowledge regarding each course and it is also used by students to complete their assignments.
    - Laboratories: For conducting practical given in the curricula the departmental laboratories are used as per requirements.

Standard 2-1: Courses Versus Program Outcome

Group of Courses	1	2	3
Plant Breeding PBG-402, PBG-502, PBG-503, PBG-504, PBG-506, PBG-510, PBG-601, PBG-603, PBG-605	+ +	+ + +	+ +
Genetics PBG-401, PBG-501, PBG-508	+	+ +	+ + +
Cytogenetics PBG-505	++	+	+ +
Biotechnology PBG-507	+ +	+ + +	++ +

+ = Relevant
+ + = Relevant satisfactory
+ + + = Very relevant satisfactory

Standard 2-2: The curriculum must be consistent and supports the program documented objectives.

Elements	Courses
Theoretical background	PBG-508
Problem analysis	PBG-401, PBG-402, PBG-501
Solution Design	PBG-502, PBG-503, PBG-504, PBG-506, PBG-507, PBG-601, PBG-603, PBG-605

All the courses for degree program were developed by a committee constituted by the Higher Education Commission, Pakistan. The committee consists of experts and Professors, subject matter specialists from the Universities and research organization from Pakistan.

Standard 2-3: The curriculum fits very well and satisfies the core requirements for the program, as specified the respective accreditation body.

Standard 2-4: The curriculum satisfies the major requirements for the program as specified by HEC, the respective accreditation body/council.

Standard 2-5: The curriculum satisfied the general arts and professional and other discipline required for the program according to demands and requirements set by the Higher Education Commission.

Standard 2-6: Information technology component of the curriculum has been integrated throughout the degree program.

While the curriculum was prepared, all aspects of information technology were considered and after a critical analysis, relevant aspects were integrated into the program.

Standard 2-7: Oral and written communication skills of the students have been developed.

- Assignments are given to B.Sc. (Hons) Agric students on specific titles (part of the course) that are presented orally and submitted in the form of written report (assignments) by the students which helps to increase their oral and written communication skills.

Criterion 3: LABORATORIES AND COMPUTER FACILITIES

- Laboratory Title: Plant Breeding and Genetics Laboratories for the Under-graduate students.
- Location and Area: Faculty of Agriculture and Food Sciences, B-Block, 1st and 2nd Floor, Main Campus
- Objectives: Laboratories are used for practical exercise and demonstrations given to graduate students in their introductory and major courses. Moreover, they are used for implementing the projects funded by the University, HEC, PSF, PARC and other agencies. Major apparatus, equipments: GDS, PCR, DNA Hybridization machine, Double distillation apparatus, Centrifuge, Incubator, Autoclave. Safety Regulations: Safety measures are not adequately available against fire, minor hazards and accidents, injuries.

Standard 3-1: Laboratory manuals / documentation / instruction for experiments.

Multimedia and slide presentation is mostly used during lectures for conducive learning environment. Laboratory work is encouraged and students are guided for understanding the usage of different equipments.

Shortcomings in the laboratories:

- Funding for regular supply of consumables for efficient running of laboratories.
- Most of the students are working in labs, and failure of power supply interrupts their experiments, therefore, uninterrupted power supply is direly needed for lab work.

Standard 3-2: Support personal for maintenance of laboratory

Laboratories are maintained by:

- One laboratory assistant
- Three laboratory attendants who assist in students practicals, cleaning and labs maintenance.

Standard 3-3: The University computing infrastructure and facilities

- Proper audio visual facilities in general lecture rooms should be installed.

Criterion 4: STUDENT SUPPORT AND ADVISING

Standard 4-1: Courses must be offered with sufficient frequency and number for students to complete the program in a timely manner.

- Subject courses are given as per strategy of HEC.
- At undergraduate level subjects courses are offered as per scheme of study provided by HEC and approved by Academic Council.
- Elective courses are offered as per policy of HEC and University.

Standard 4-2: Courses in the major must be structured to ensure effective interaction between students, faculty and teaching assistants.

- Courses are structured and decided in the board of studies meeting.
- Decided before the commencement of each semester and the faculty members interact frequently with students. Students are also welcomed to ask questions in classes.

Standard 4-3: Guidance on how to complete the program must be available to all students and access to qualified advising must be available to make course decisions and career choice.

- Students are informed about the program requirement through the office of the Chairman of the department.
- Through the personal communication of the teachers with the students.
- Students can contact with relevant teachers whenever they face any professional problem.
- Student can interact with the teachers/scientists in Universities or research organization, whenever they need.

Criterion 5: PROCESS CONTROL

Standard 5-1: The process by which students are admitted to the program must be based on quantities criteria and clearly documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

- The process of admission is well established and followed as per rules and criterion set by University.
- Admission criteria: F.Sc. pre medical or equivalent.
- It is based on the recommendations of advisory committee.
- Admission criteria are reviewed every year before the announcement of admissions.

Standard 5-2: **The process by which students are registered in the program and monitoring of students progress to ensure timely completion of the program must be documented this process must be periodically evaluated to ensure that it is meeting its objectives.**

- Registration is done once for each degree but evaluation is done through the examination of each semester. If the students fulfill the criteria of the University they are promoted to the next semester.
- In general, the students are registered on competition basis, keeping in view the academic and research standards.
- Students are evaluated through Mid, Final and Practical exams and through Assignments.
- At the completion of 4^{th} semester, students are allotted different majors (Like PBG, Agro etc) by the Dean FC & FS.

Standard 5-3: **Recruitment policy followed by the University is recommended by HEC. Induction of all posts is done as per rule**:

- Posts are advertised in the national newspapers, and the applicants are short listed on the basis of experience, qualification, publications and other qualities / activities as fixed by the University.
- The candidates are interviewed by the University Selection Board and Principal and alternate candidates are selected.
- Selection of candidates is approved by the Syndicate for issuing orders to join within a specified period.
- Induction of new candidates depends upon the number of approved vacancies
- For recruitment standards set by HEC are considered.
- At present, no procedure exists for retaining highly qualified faculty members. However, the revised pay scales structure is reasonable.
- It is done by periodically revising the curriculum depending upon requirements, innovations and new technology.

- With the emergence of new fields, new courses are set and included in the curriculum.
- Students usually buy cheap Asian editions of technology books. These are also available in the University library where documentation, copying and internet facilities are available.
- All efforts are made that the courses and knowledge imparted meet the objectives and outcomes.

Standard 5-4: **The process and procedures used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.**

The teaching methods adopted are according to the standards set by HEC. Normally course contents and lecture wise split schedule are given to the students so that they may know about the course topics in advance. Recommended books are mentioned in the course contents.

Standard 5-5: **The process that ensures that graduates have completed the requirements of the program must be based on standards, effective and clearly documented procedures. This process must be periodically evaluated to ensure that it is meeting its objectives.**

- According to the examination system of the University which is clearly documented, the evaluation procedure consists of quizzes, mid and final examinations, assignments, reports and oral presentations.

Grading System
A = 80 %
B = 65-79%
C= 50-64%
D= 40-49%
F= Below 40%

Criterion 6: FACULTY

Standard 6-1: Faculty distribution by program areas

Program area of specialization	Courses in the area and average number of sections per year	Number of faculty members in each area	Number of faculty with Ph.D. degree
Plant Breeding	18	04	03
Genetics	02	02	01
Cytogenetics	02	01	01
Genetic Engineering and Biotechnology	02	02	01
Total	24	09	06

Standard 6-2: Effective programs for faculty development must be in place.

- Professional training and availability of adequate research and academic facilities should be provided.
- Existing facilities used include mainly internet access which is available through networking system in addition to library facility.

Standard 6-3: All faculty members should be motivated and have job satisfaction to excel in their profession.

Young faculty members are encouraged by the senior faculty members.

Proforma 5 Faculty Survey

According to Faculty Survey Proforma 5, received from individual faculty members, it is evident that faculty members are satisfied with their current job. This satisfaction was expressed for different facilities and opportunities available to them at departmental level. However, most of them suggested provision of local and foreign trainings to enhance their teaching skills and research capabilities in respective fields. Accommodation facility is major concern expressed by most of faculty members, which can further enhance their professional efficiency to discharge their duties diligently.

Criterion 7: INSTITUTIONAL FACILITIES

Standard 7-1: The institution must have the infrastructure to support new trends in learning such as e-learning.

- Electronic library books and journals are available for learning purpose.
- Inadequate facilities regarding the infrastructure to support new trends in learning.

Standard 7-2: The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.

- Collection of appropriate technical books is sufficiently available at the library.
- Recommended books, relevant journals of the programs are available to the students to some extent.

Standard 7-3: Class rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

- Due to non-availability of class rooms, classes are taken in General Lecture Halls, especially in Fall semesters.
- Faculty offices are inadequate and hence two teachers share one office which affects their working.
- Space limitation is the major constraint in the development and strengthening of the discipline.

Criterion 8: INSTITUTIONAL SUPPORT:

Standard 8-1: There must be sufficient support and financial resources to attract and retain high quality faculty and provide the means for them to maintain competence as teachers and scholars..

- Insufficient secretarial support, technical staff and office equipment.
- Vacant posts should be filled in regularly to improve working efficiency of teaching staff.

Standard 8-2: There must be an adequate number of high quality graduate students, research assistants and Ph.D. students.

- Currently, there are 52 Graduate students in the department.
- Faculty : Graduate students ratio. 1 : 7

<u>Standard 8-3:</u> Financial resources must be provided to acquire and maintain library holdings, laboratories and computing facilities.

- At present small departmental library has been established that needs financial assistance for its expansion.
- One computer assistant and five official PCs are available.

Proforma 2: Faculty Course Review Report

The Faculty Course Review Report provides information as to course titles, credit hours, grading policy (Mid Exam 30%, Assignments 10% and Final Exams 60%) etc. The feedback from the Faculty members has revealed that the curriculum is continuously improved in the light of the guidelines provided by the National Curriculum Committee and latest innovations in the field of Plant Breeding and Genetics have been incorporated in the courses. The teachers are of the view that courses have been already updated as per HEC requirements. However, if indispensible the courses can further be improved as and when required. Moreover, as indicated in the previous report, the audio visual facilities are still lacking in the lecture rooms for general classes which are causing inconvenience in the delivery of lectures especially in summer as the class size is large in the university.

Proforma 3: Survey of Graduating Students

The graduating students were mostly found satisfied with the effectiveness, in enhancing team abilities, supporting learning, developing analytical and problem solving skills, planning abilities, conducive environment for learning, co-curricular and extra curricular activities and infrastructure. However, some students were uncertain that program is too heavy and induces a lot of pressure and there exists weak link between theory and practice organized by the department.

Proforma 7: Alumni Survey

Response of the alumni indicated that they were highly satisfied with the knowledge acquired related to problem formulation and solving skills, ability to design

research experiments and link theory to practice, communication skills involving oral communication report writing as well as presentation skills. Similarly they were found satisfied regarding learning of interpersonal skills like, ability to work in teams, to work under challenging situations and independent thinking. Most of the alumni responded with high satisfaction level regarding management skills learned at the university which proved helpful in their practical and performance of their professional life. They also emphasized that the department holds an important position in the Faculty of Agriculture. Moreover they were of the view that the alumni survey should be conducted well in advance and regularly for their maximum participation in it.

Proforma 8: Employer Survey

The Employer survey revealed that most of the employers were highly satisfied with the expertise viz, knowledge, communication skills, management skills and interpersonal skills gained by their employees from the university. However, it was also pointed out that more interactions should be developed between research organizations and universities for enhancement of their research capabilities to cope with the challenging research issues faced by the farming community of the country.

Summary

Since the commencement of B.Sc program in the department, remarkable improvement has been made in the facilities for the students. Apart from teaching various courses at undergraduate level, the department has initiated research activities aimed at cereal crop improvement with respect to crop yield, quality and stress related traits. The courses offered by the department are in accordance with the guidelines set by the Higher Education Commission Curriculum Committee. The courses meet the academic demands in the field of Plant Breeding and Genetics with special focus on Genetics, Evolution, Breeding Techniques, Plant Genetic Resources, Molecular Breeding, Biotechnology and

Genetic Engineering. The practical aspect is also an integral part of these courses which impart hand on experience to the students for development of professional skills.

A perusal of survey conducted for various courses and faculty, revealed that course content and level of teaching quality meets the academic standards. However, some shortcomings are also highlighted such as lack of space for class rooms, less laboratory work due to limited availability of chemicals etc. The department has forwarded requests for addressing these issues. The faculty members are of the view that sufficient funds should be allocated for smooth running of research activities alongwith provision of teaching facilities in the department. Moreover, frequent local and foreign trainings should be provided to faculty members to update their knowledge in the field of Plant Breeding and Genetics and its related disciplines.