

# **SELF ASSESSMENT REPORT**

*Department of Plant Breeding & Genetics*

**PIR MEHR ALI SHAH ARID AGRICULTURE  
UNIVERSITY RAWALPINDI**



## **Program Team**

<b>Coordinator</b>	<b>Dr. M. Kausar Nawaz Shah</b>
<b>Member</b>	<b>Dr. Zahid Akram</b>
<b>Member</b>	<b>Dr. Ghulam Shabbir</b>
<b>Reporting Period:</b>	<b>2010-2012</b>

# **Programme**

**P.hD (Hons) Agriculture**

**Plant Breeding and Genetics**

**Self Assessment Report of Department of Plant Breeding and Genetics**  
**Pir Mehr Ali Shah Arid Agriculture University Rawalpindi**

**INTRODUCTION**

Plant Breeding and Genetics is one of the leading departments in the Faculty of Crop and Food Sciences. Ph.D. programme was initiated in 1999. The department has so far awarded 12 doctorate degrees. The first ever local Ph.D awarded in Agricultural Sciences in the history of PMAS-Arid Agriculture University Rawalpindi, have also been produced by this department.

**Criterion 1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES**

**Standard 1-1:        **Mission statement of Plant Breeding and Genetics Program****

To help students excel in the discipline of Plant Breeding and Genetics by providing an excellent platform through high quality teaching and research. Providing applied education to postgraduate students and imparting professional training through use of modern techniques for crop improvement and related innovative research methodologies.

**Program Objectives**

1. To motivate and guide the postgraduate students to achieve professional excellence.
  2. To help students plan their research projects according to the current issues of crops.
  3. To inculcate the research thrust among students, to enable them to plan and execute their research projects independently.
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- **Main Elements of strategic plan to achieve program mission and objectives**
    1. Use of the experience and vision gathered from international reviews, literature, symposia etc. for the development of a quality teaching system.

2. Design and improvement of curricula by the introduction of core and elective subjects in specialized areas and study trips.
3. Supervision of post graduate research students with thesis write-up.
4. Publication of research papers in reputed National and International Journals preferably with impact factor.

**Program Outcomes**

1. The department has produced 12 Ph.Ds since initiation of post graduate program.
2. The research facilities developed at different laboratories and green houses have helped students carry out their research activities more efficiently and target oriented.
3. The students have been trained to conduct research projects regarding mode of inheritance of various traits and genetic variability using conventional and non-conventional approaches for improvement in different crops of the region.

Standard 1-2:      Program Outcomes

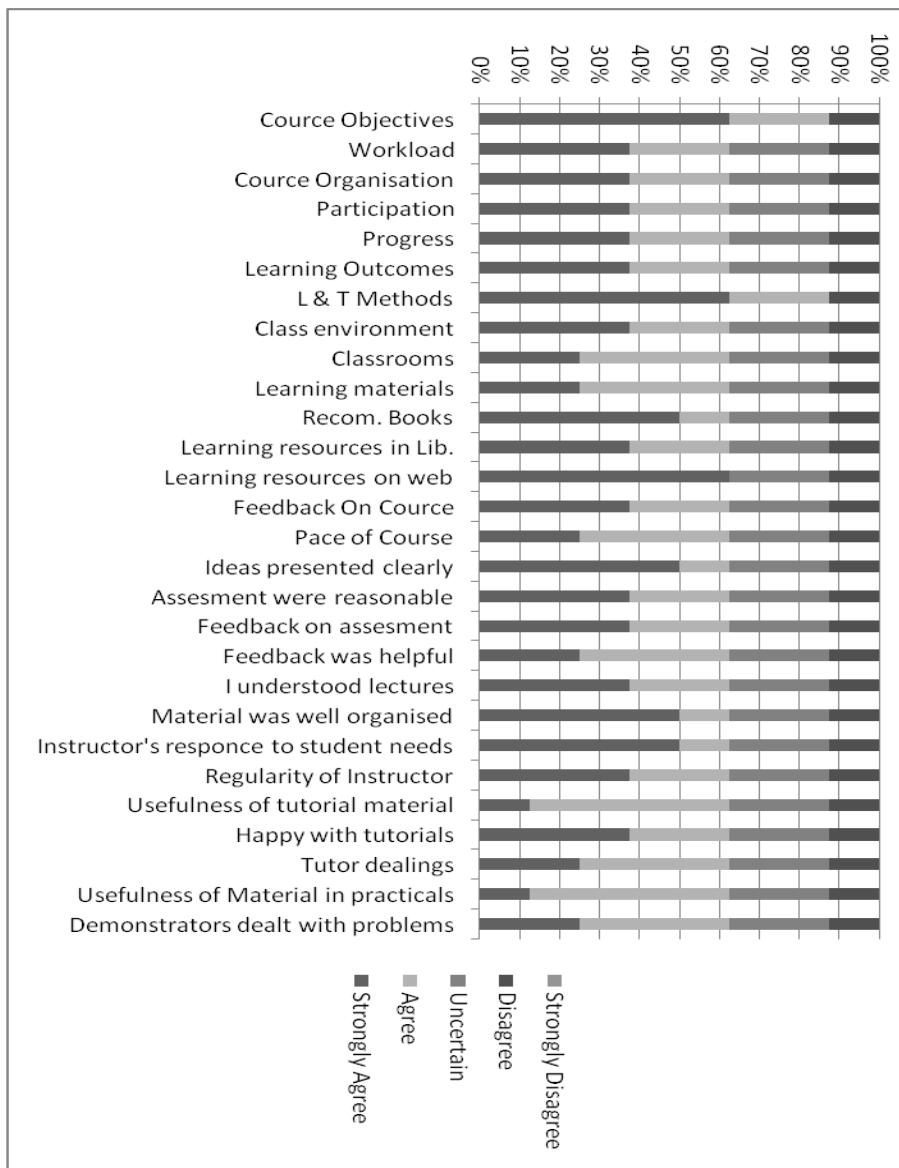
Program Objectives	1	2	3
1	+++	++	++
2	++	++	++
3	+++	+++	+++

- + = moderately satisfactory
- ++ = Satisfactory
- +++ = High satisfactory

## Proforma 1: Students Course Evaluation Questionnaire

### PBG-708 Genetic Engineering and Biotechnology

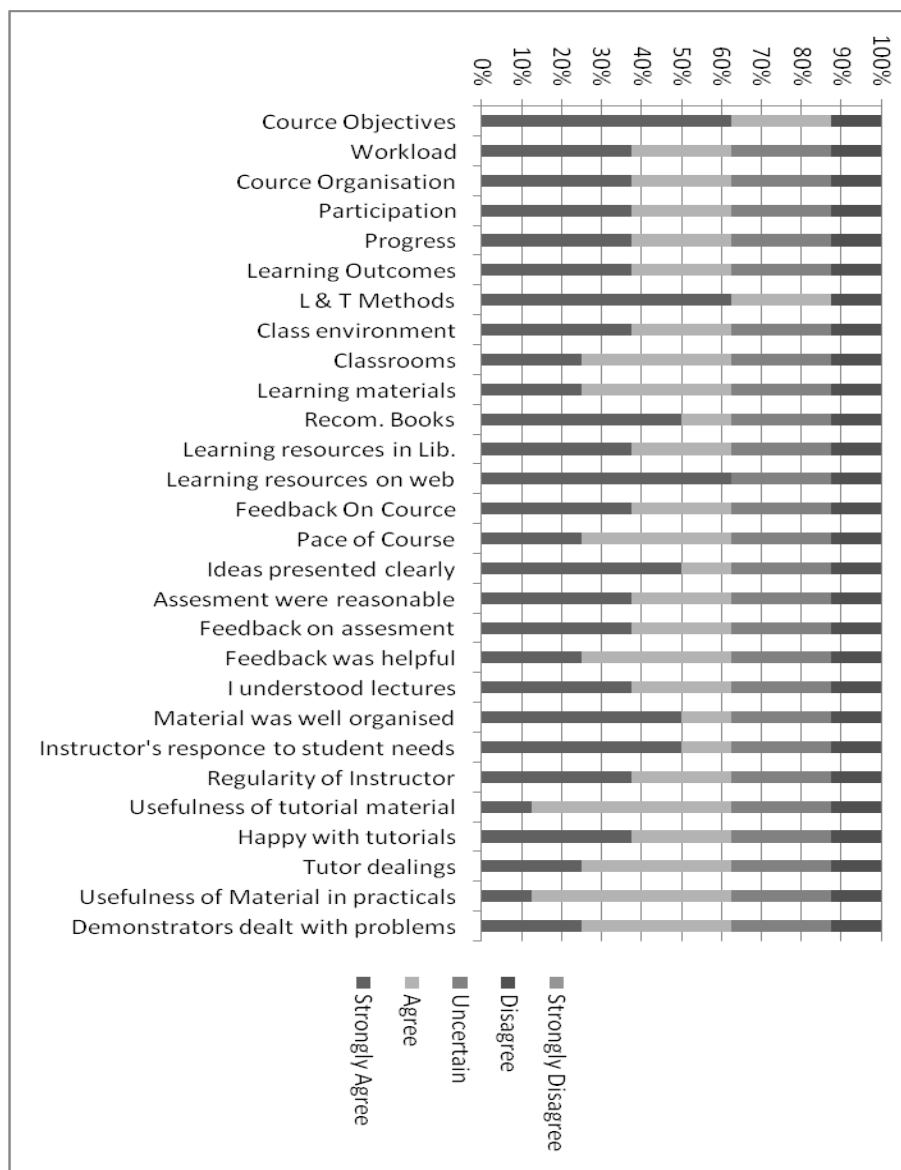
About 60% students strongly agreed to the questions asked regarding course objectives, L&T methods, learning resources, ideas presented clearly etc of the course in proforma 1. However, 35% students agreed to the questions related coarse organization, participation, progress, learning outcomes, class rooms, learning materials etc. Small proportion of students was uncertain and/or disagreed to the various aspects inquired in the proforma.



**PBG-711**

**Cereal Genetics**

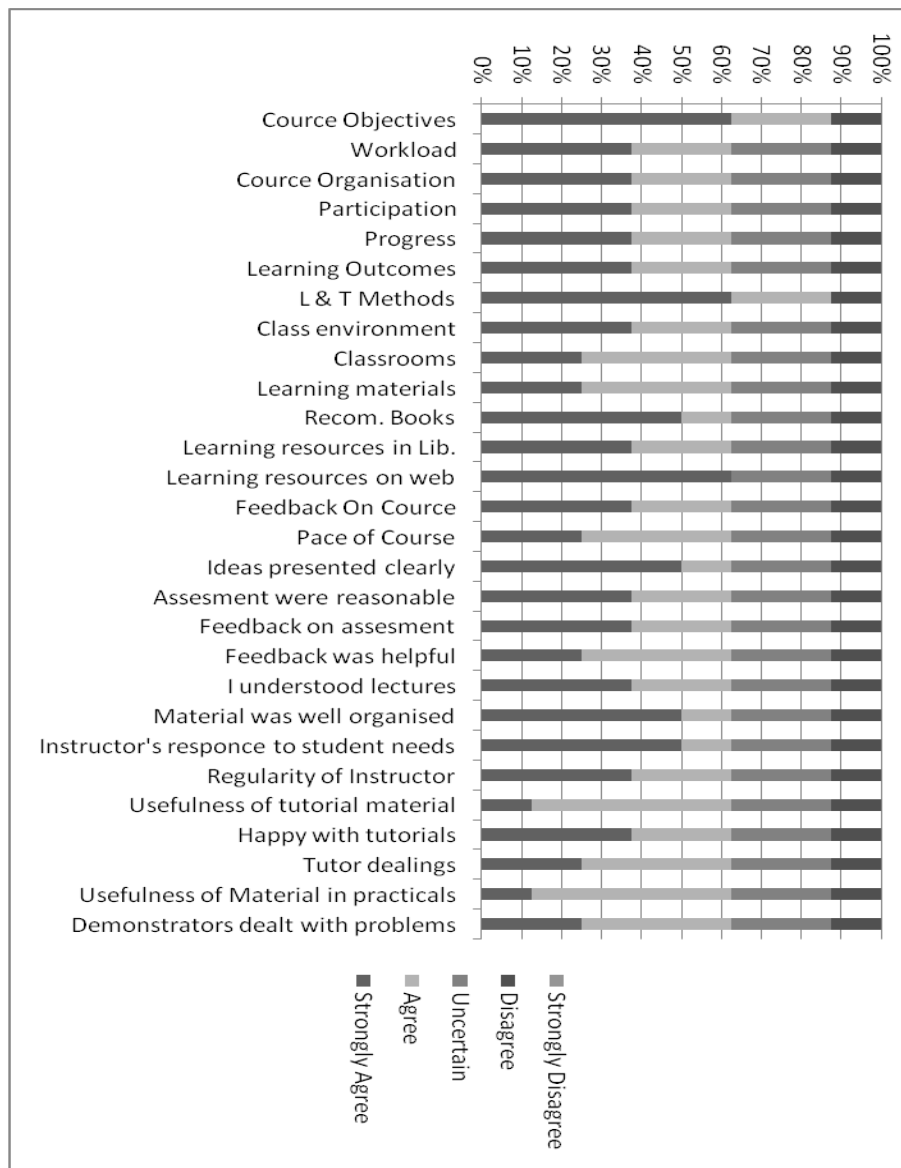
Graph depicted that about 30% students strongly agreed to the questions asked regarding work load, course organization, progress, and class environment in proforma 1. And 60% students agreed to the questions related coarse objectives, L&T methods, learning resources etc. However, a small proportion of students was uncertain and/or disagreed to the various aspects inquired in the proforma.



**PBG-712**

**Maize Genetics**

Graph for the performa 1 revealed that more than 60% students strongly agreed to the questions asked regarding course objectives, L&T methods, learning resources, ideas presented clearly etc. However, 35% students agreed to the questions related work load, coarse organization, progress, class rooms, learning materials etc. Whereas a small number of students was uncertain and/or disagreed to the various aspects inquired in the proforma.



**PBG-714      Genetics of Plant Disease and Insect Resistance**

A perusal of the graphic analysis showed that about 35% students strongly agreed to the questions asked regarding course organization and L&T methods etc. of the course in proforma 1. However, some students showed agreement to work load, class room environment etc. while others were uncertain to the various aspects inquired in the proforma.

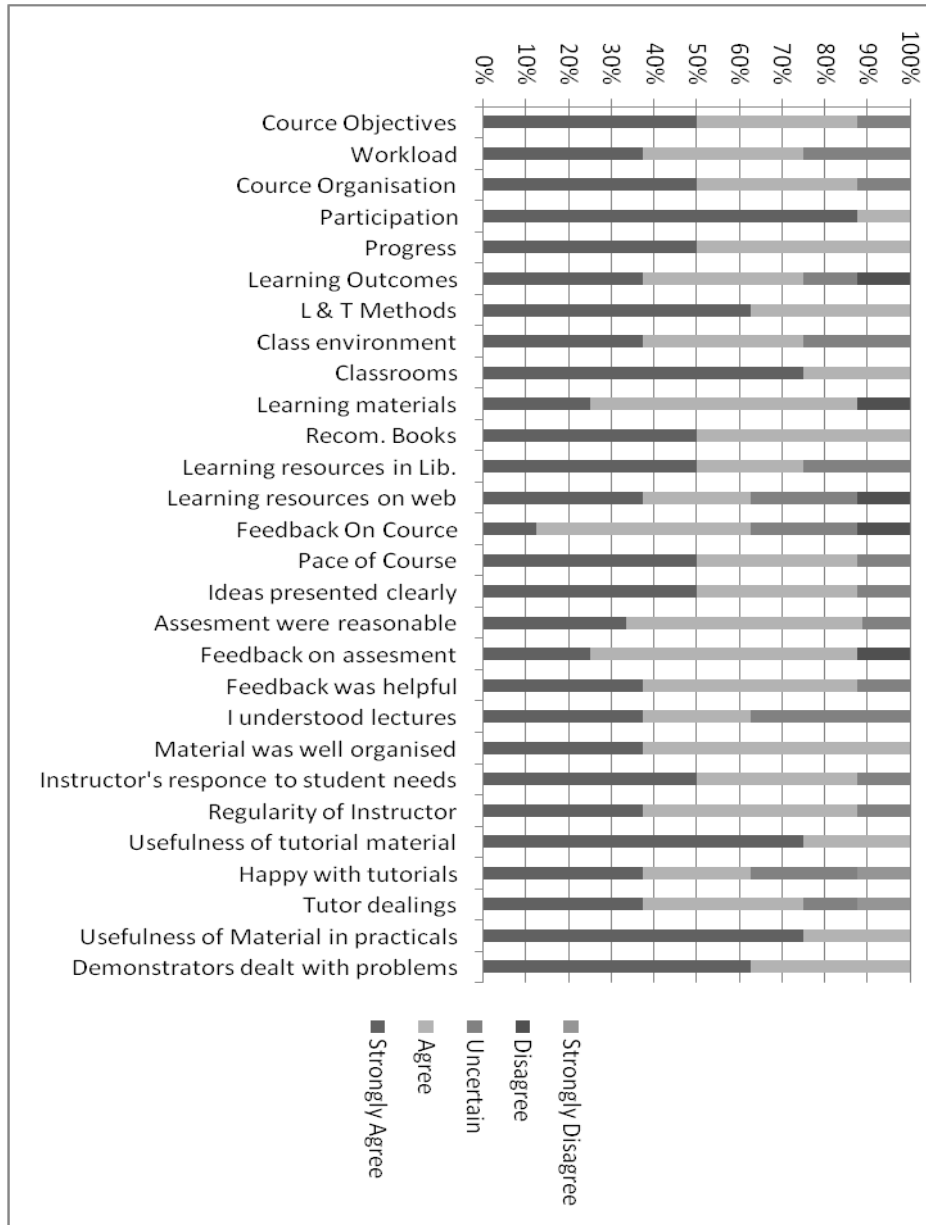




**PBG-715**

**Hybrid Seed Production**

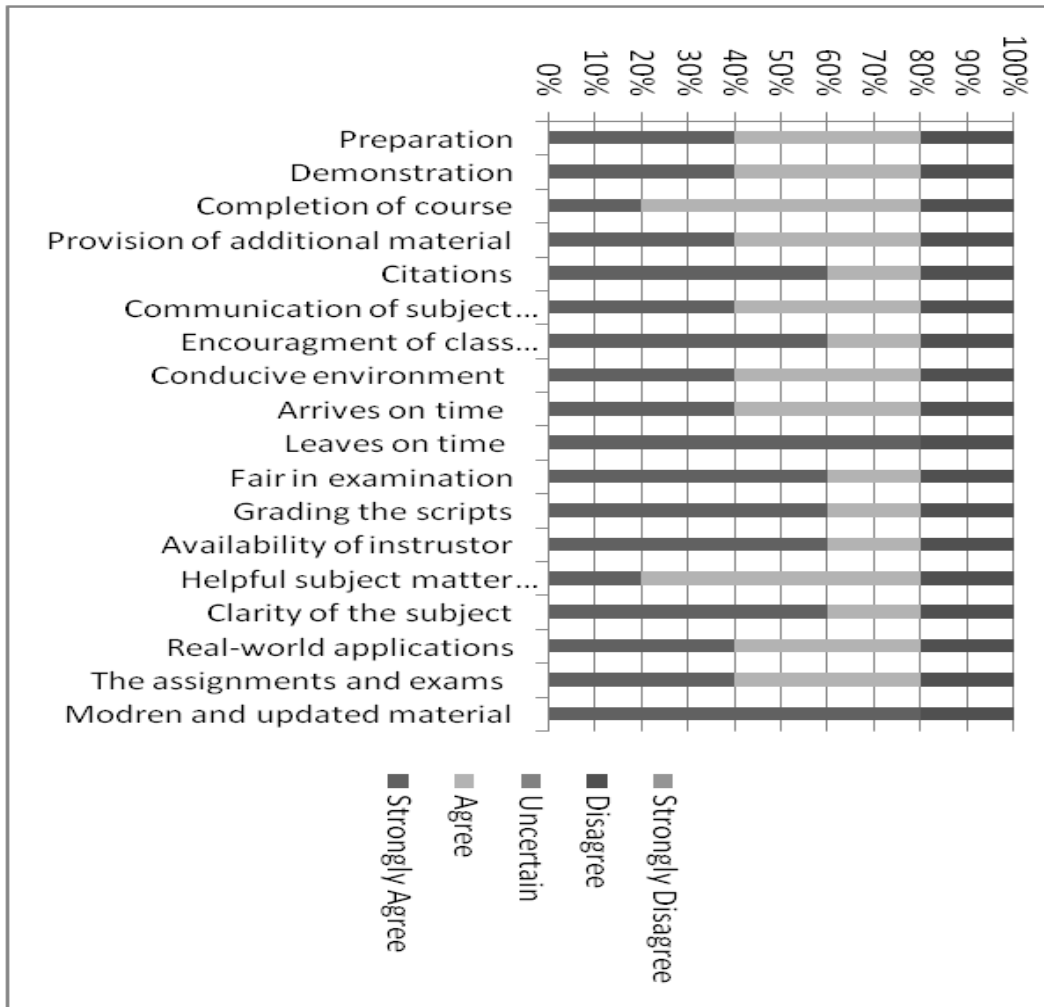
A perusal of the graphic analysis showed that 50% students strongly agreed to the questions asked regarding course objectives, course organization, pace of course and ideas presented etc. of the course in proforma 1. However, less than 10% of the students disagreed and were uncertain to the various aspects inquired in the proforma.



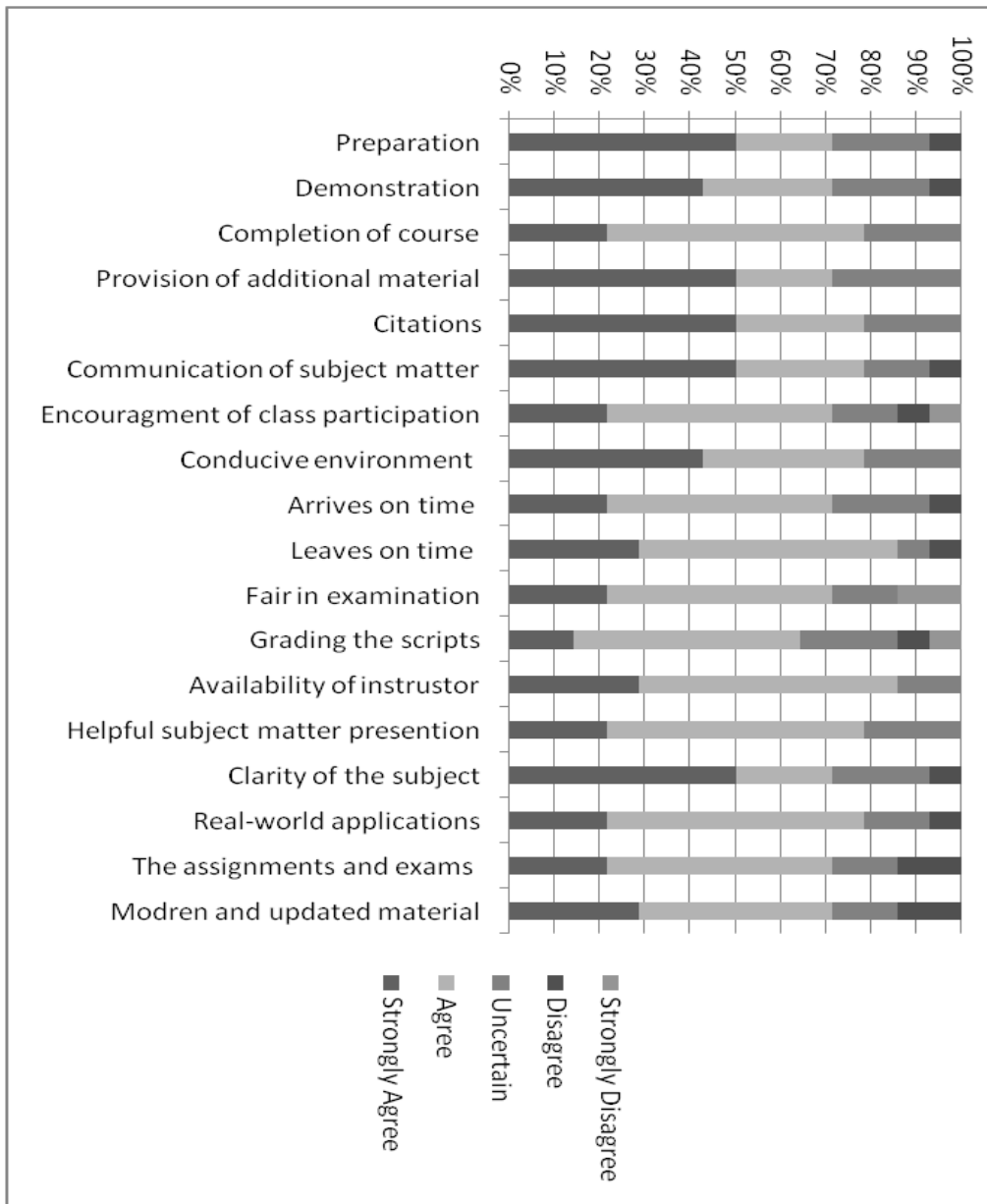
**Proforma 10**

**PBG-708 Genetic Engineering and Biotechnology**

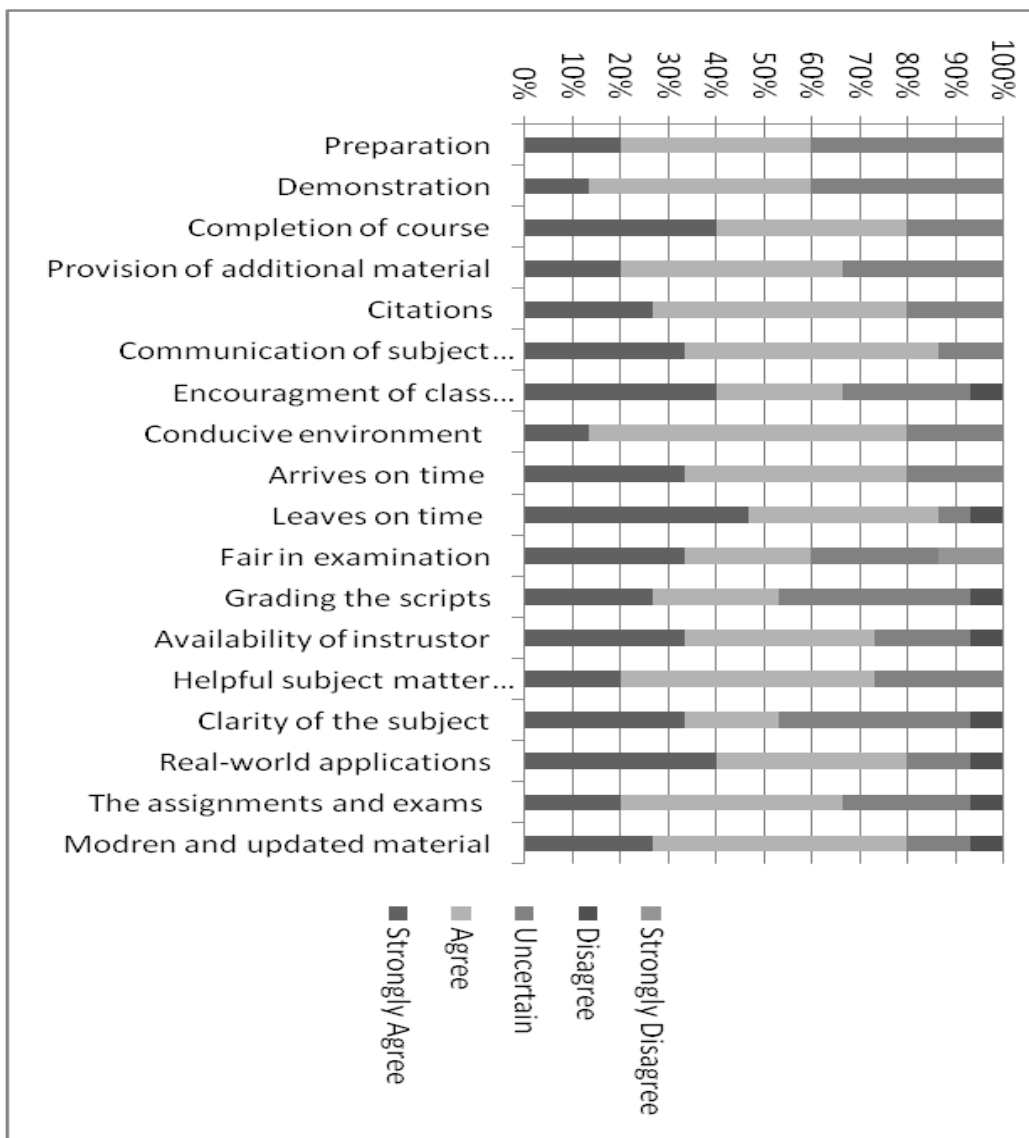
A perusal of the graphic analysis showed that about 50% students strongly agreed to the questions asked regarding citation, encouragement of class, fair in examination, grading in scripts, availability of instructor etc. of the course in proforma 10. However, around 40% students showed agreement with preparation, demonstration, additional materials, assignments etc. while others were uncertain to the various aspects inquired in the proforma.



Graphic analysis of Performa 10 revealed that about 50% students strongly agreed to the questions asked regarding preparation, provision of additional materials, citation, communication of additional materials and clarity of subject and 40% agreed to aspects like demonstration and conducive environment. However, less than 15% students disagreed and were uncertain to the various aspects inquired in the proforma.

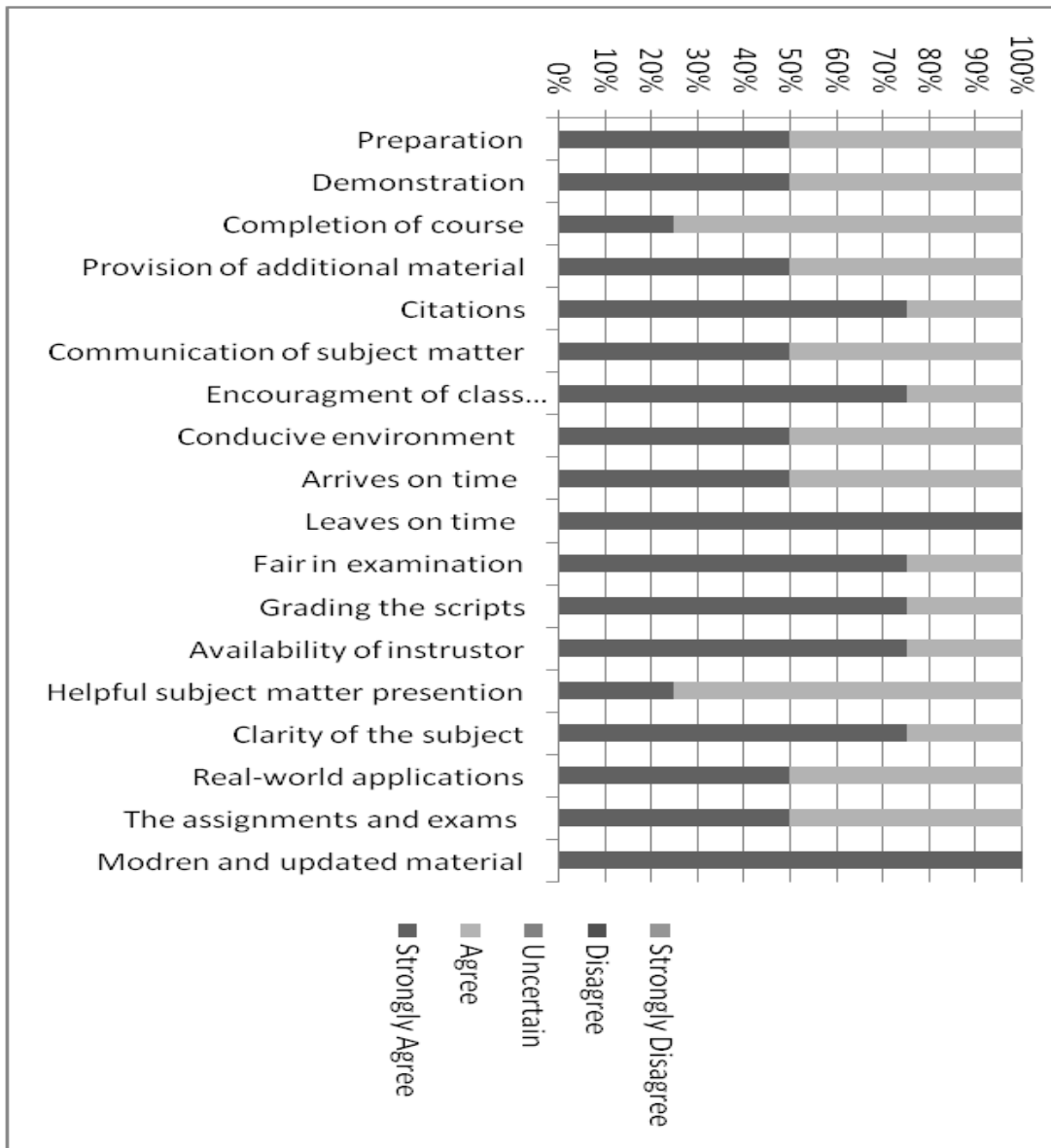


A perusal of the graphic analysis showed that about 40% students strongly agreed to the questions asked regarding completion of course, encouragement of class, fair in examination, availability of instructor etc. of the course in proforma 10. However, less than 20% students disagreed and were uncertain to the various aspects inquired in the proforma.



**PBG-714      Genetics of Plant Disease and Insect Resistance**

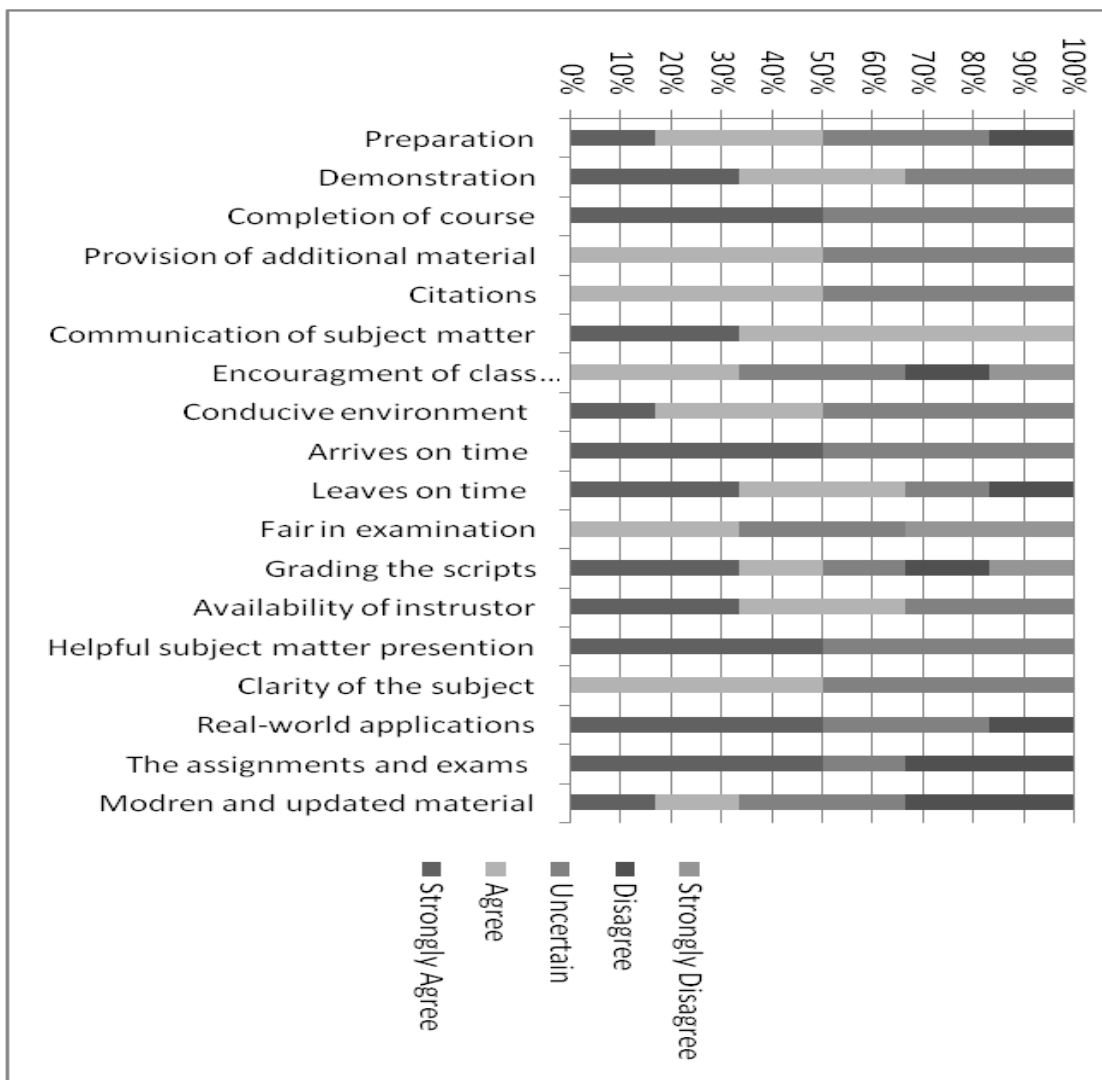
A perusal of the graphic analysis showed that about 70% students strongly agreed to the questions asked regarding citation, encouragement of class, fair in examination, grading scripts, availability of instructor and clarity of subject of the course in proforma 10. However, other students disagreed and were uncertain to the various aspects inquired in the proforma.



**PBG-715**

**Hybrid Seed Production**

A perusal of the graphic analysis showed that about 50% students strongly agreed to the questions asked regarding completion of course, arrives on time, subject matter presentation, assignment and exams of the course. However, response to other questions was variable.



## **PROGRAM OBJECTIVES ASSESSMENT**

The details are provided in table as follows

**Table: Program Objectives Measurement**

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	To motivate and guide the graduate students of the department for their professional excellence.	On the basis of students feed back	At the time of students evaluation	Some laboratory facilities needed improvement	Establishment of labs with latest equipments
2	To inculcate the research interest in the students so that they can plan and execute their research plans independently.	Through students surveys and research planning experiences	At the start of students admission	Related subjects to be studied	Enhancement of knowledge and vision
3	To help students plan their research projects according to the current and critical issues of their respective crops ultimately leading towards production of crop varieties of economical significance.	On the basis of assessment of post graduate students and alumni of the department.	At the time of completion of each academic year.	Planning and execution of research.	Most of the students have gained related technical skills in the respective area of research.

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

Results are explained in the report.

### **Actions Taken Based on Results of Periodic Assessment**

Assessment has been made for the third time in the department and subsequently actions are underway accordingly to improve the deficiencies identified.

### **Major Future Program Improvement Plans**

- Augmentation of facilities for crop improvement programme (green house, rain shelters, and tunnels etc. for controlled environment studies) and students experiments.
- More emphasis will be given to problem oriented research initiatives with special focus on field crop problems of rainfed areas.

### **Strength of the Program**

Highly qualified academic staff with vast knowledge of local agriculture production system is available. Most of the faculty members have foreign degrees with Post-Doc Fellowships and are experts in their fields. Faculty has rich 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**

1. There is a need for regular short term local/foreign training to faculty members.
2. Non- availability of continuous power supply in the labs of department and glass house.
3. Non-availability regarding housing facility for teaching and allied staff at campus.

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

Sr. #	Particular	Number	Remarks
i	Ph.D.	12	In employment
ii	Post-Doc fellowship	1	South Korea
iii	Students: Faculty ratio	10:1	Fulfils HEC criteria
iv	Average grade point	3	Fulfils HEC criteria
v	Average Time Taken for Post graduate	2 Years	Fulfils HEC criteria

### **Present performance measures for research activities**

Faculty	Journal, Publications (National and International)	Conference Publications (Proceedings Abstract)	Projects
Prof. Dr. Muhammad Munir	9	2	-
Dr. M. Kausar Nawaz Shah	6	2	1
Mr. Nasir M Minhas	5	-	-



Dr. Zahid Akram	12	1	-
Dr. Ghulam Shabbir	6	1	1
Dr. Talat Mahmood	1	-	-
Mr. Mahmood ul Hassan	1	-	-
Dr. Saad Imran Malik	-	-	1
Dr. Munir Ahmed	1	-	-

### **Community Services By the Department**

- Guidance of students from the other departments with respect to their research projects.
- Advisory services to the farmers regarding crop related issues.

### **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 and academic council) are attended. In general, two meetings are held each month.
- Proper records of each individual, students thesis etc. are maintained.

Program outcomes	Objectives: Plant Breeding and Genetics, Development, Teaching and Research		
	Nos.	Criterion	Characteristics
Ph.D.	1 Ph.D / year	Advance research, thesis to be evaluated by two International scientists/ experts	Solution-oriented research problems involving advanced techniques and new findings

The program outcomes fully support program objectives mentioned above. Outcomes are based on actual details obtained from departmental records.

**Criterion 2. CURRICULUM DESIGN AND ORGANIZATION**

**A) Title of degree program:**

Presently following degree program is organized by the department

- **Ph.D.** Course work following a thesis defense seminar, comprehensive paper and submission of Ph.D thesis to be approved by the University and examined by two foreign internationally recognized teachers of the subject.

**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 courses and elective courses is attached:

- The course is relevant to the degree program
- It meets the material 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**

Ph.D. Plant Breeding and Genetics

**Pre-requisites**

M.Sc. (Hons) Agric. in Plant Breeding and Genetics, GAT (Subject) 60 score, Interview

**D. 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 and internet facility is available to all 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.
- Post-graduate students work for their theses research in the laboratories, basic equipment, material and chemicals are provided as per budget availability. University Research Farm Chakwal Road is used for field experiments of research students.
  - **For each course in the program that can be counted for credit provide 1-2 pages specifying the following:**
    - 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
<u>Plant Breeding</u> PBG-715, PBG-716	+	++	++
<u>Genetics</u> PBG-711, PBG-712, PBG-714	++	+	+++
<u>Cytogenetics</u> PBG-713	++	+	++
<u>Biotechnology</u> PBG-708	+	+++	+

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

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

<b>Elements</b>	<b>Courses</b>
Theoretical background	PBG-711
Problem analysis	PBG-713
Solution Design	PBG-708, , PBG-715

All the courses for degree program were developed by a committee constituted by the Higher Education Commission, Pakistan. The committee consists of experts and learned 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 satisfies 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.**

- Two seminars each of one credit hour is compulsory for the Post-graduate students.
- Special problem and assignments are given to Ph.D students on specific titles (part of the course) which are presented orally and submitted in the form of written report (assignments) by the students which have increased their oral and written communication skills.

**Criterion 3:      LABORATORIES AND COMPUTER FACILITIES**

- Laboratory Title: Plant Breeding and Genetics Laboratories for the students.
- Location and Area: Faculty of Agriculture and Food Sciences, B-Block,  
1<sup>st</sup> and 2<sup>nd</sup> Floor, Main Campus
- Objectives:      Laboratories are used for:  
Practical demonstrations to post graduate students in their major courses.  
Research work for the post-graduate students.  
Used for implementing the projects funded by the University, HEC, PSF, PARC and other agencies.  
Software available if applicable      Nil  
Major apparatus, equipments: GDS, PCR, DNA Hybridization machine, Double distillation apparatus, Centrifuge, Incubator, Autoclave etc.  
Safety Regulations: Safety measures are not adequately available against fire, minor hazards and accidents, injuries.

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

Guidance is provided to the students to conduct various lab experiments.

**Shortcomings in the laboratories:**

- Labs are lacking proper working environment due to non-availability of uninterrupted power supply.
- Funding for the supply of consumables for regular working of laboratories.

**Standard 3-2: Support personal for maintenance of laboratory**

Laboratories are maintained by:

- One laboratory assistant.

**Standard 3-3: The University computing infrastructure and facilities**

- Proper audio visual facilities in 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.**

- Courses are given as per strategy of HEC.
- At postgraduate level courses are offered according to the availability of the teachers.
- 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 study meeting.
- Decided at the commencement of the semester and in the faculty members interact frequently among themselves and with students. Students are welcome to ask question in class and even after the class.
- Emphasis is always given for an effective interaction between each section.

**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 respective supervisor whenever they face any professional problem.
- Student can interact with the teachers / scientist in Universities or research organization whenever they need and there is open option for the students to get the membership in the professional societies.

## **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: M.Sc. (Hons) Agri. result.
- GAT (subject) 60% for Ph.D. and Interview.
- It is based on the recommendations of Admission committee.
- Admission criteria are announced each 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.**

- Students are evaluated through Mid, Final and Practical exams and through Assignments.
- Registration is done one for each degree but evaluation is done through the result 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

**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.

**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 are given to the students and lecture break down is also given 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	04
Genetics	02	02	02
Cytogenetics	02	01	01
Genetic Engineering and Biotechnology	02	02	02
Total	24	09	09

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

- Professional training and availability of adequate research and academic facilities are provided.
- Existing facilities used include mainly internet access which is available through networking system in addition to library facility.
- Effective programs for faculty development was just introduced in the last semester

**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**

Proforma No.5 indicated the faculty member's satisfaction level and effectiveness to help them progress and excel in their profession. This satisfaction was expressed for different facilities and opportunities available to them at department. Among suggestions, provision of local and foreign trainings with accommodation at university main campus, was on top to enhance the skills of faculty members in fields of latest emerging technologies in various avenues of science.

### **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.
- Insufficient 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 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 room, classes are taken in the general lecture halls.
- Space limitation is the major constraint in the development and strengthening of the discipline.

**Criterion 8: INSTITUTIONAL SUPPORT:**

Unfortunately, this aspect is very weak at present.

**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 8 Ph.D. students in the department.

**Standard 8-3:        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 4    Research Students Progress Review Form**

Proforma 4 was filled in by post graduate students giving details about; when they were admitted to the department, initiation of research and course work details etc. On the basis of survey conducted it was indicated that students are generally satisfied with the level of supervision provided and research facilities available in the department except few problems related to timely availability of chemicals in the labs to conduct their experiments smoothly.

## Proforma 6

### SURVEY OF DEPARTMENT OFFERING Ph.D. PROGRAMS

The following information is required for EACH Department in which a Ph.D. program is offered.

<b>1</b>	<b>General Information:</b>
1.1	Name of Department: Plant Breeding and Genetics
1.2	Name of Faculty : Faculty of Crop and Food Sciences
1.3	Date of initiation of Ph.D. program : 1999
1.4	Total number of academic journals subscribed in area relevant to Ph.D. program. Nil
1.5	Number of Computers available per Ph.D. student : 0.8
1.6	Total Internet Bandwidth available to all the students in the Department. Normal connection available in the university
<b>2</b>	<b>Faculty Resources:</b>
2.1	Number of faculty members holding Ph.D. degree in the department.: 9
2.2	Number of HEC approved Ph.D. Advisors in the department.: 8
<b>3</b>	<b>Research Output:</b>
3.1	Total number of articles published last year in International Academic Journals that are authored by faculty members and students in the department. 5
3.2	Total number of articles published last year in Asian Academic Journals that are authored by faculty members and students in the department. 12
3.3	Total number of ongoing research projects in the department funded by different organizations:3
3.4	Number of post-graduate students in the department holding scholarships/fellowships. 2
3.5	Total Research Funds available to the Department from all sources. About Rs.30,000/- ( Operational Budget)
3.6	Number of active international linkages involving exchange of researchers/students/faculty etc. Nil

<b>4</b>	<b>Student Information:</b>
4.1	Number of Ph.D. degrees conferred to date to students from the Department during the past three academic years. 3
4.2	Number of Ph.D. students currently enrolled in the department.:8
4.3	Ratio of number of students accepted to total number of applicants for Ph.D. Program. 1:3
<b>5</b>	<b>Program Information</b>

5.1	Entrance requirements into Ph.D. Program (M.Sc. / M.Phil.) Indicate subjects or M.Sc. / M.Phil. : MSc(Hons.)Agri.(PBG)
5.2	Is your Ph.D. program based on research only? (No)
5.3	Maximum number of years in which a Ph.D. degree has to be completed after initial date of enrollment in Ph.D. program. 5 Years
5.4	Total number of post M.Sc. (16 year equivalent) courses required for Ph.D. : 6
5.5	Total number of M.Phil. level courses taught on average in a Term / Semester. 5
5.6	Total number of Ph.D. level courses taught on average in a Term / Semester. 2
5.7	Do your students have to take/write:
	a. Ph.D. Qualifying examination (y) Thesis defence in an open seminar
	b. Comprehensive examination (Y)
	c. Research paper in HEC approved Journal (Y)
	d. Any other examination (Y) :International GRE Type Test
5.8	Total number of International examiners to which the Ph.D. dissertation is sent. Two
5.9	How is the selection of an examiner from technologically advanced countries carried out? Selection is based on strict criteria from technologically advanced countries and their names are approved by Departmental Board of Studies.
5.10	Is there a minimum residency requirement (on campus) for award of Ph.D. degree? Three years
<b>6</b>	<b>Additional Information</b>
6.1	Any other information that you would like to provide.

## **Summary**

The Department of Plant Breeding and Genetics is addressing problem oriented research activities aimed at rainfed agriculture. Substantial efforts have been made to improve the course content according to the standards set by HEC Curriculum Committee. The Department is in pursuit of academic excellence through capable faculty members which will pave the way for future success.

The department is making consistent efforts to provide all basic facilities to students for planning and execution of their research activities. The courses have been improved considering the latest research developments in field of applied science. The courses for Ph.D program have been included in the scheme of studies keeping in view their practical utility. The courses are regularly modified and updated as per Guidelines of HEC Curriculum Committee recommendations.

A perusal of Proforma 1 and Proforma 10 filled by the Post Graduate students revealed that most of the students found the course content, course objectives, course organization, demonstration, class environment, L&T methods, grading scripts etc and strongly agreed with the general information gathered from these courses. It has been highlighted in the surveys of degree completing students and alumni that although the department has developed very well equipped laboratories, but due to insufficient funding and procedural delays, the research activities are adversely affected. Therefore, a revolving fund may be provided to meet the immediate needs of research activities.

**Proforma 9****Faculty Resume**

<b>Name</b>	Dr M. Kausar Nawaz Shah
Personal	Professor, Plant Breeding and Genetics Department PMAS Arid Agriculture University Rawalpindi Email: drgshabbir@uar.edu.pk
Experience	Working as Professor
Honor and Awards	
Memberships	Pakistan Botanical Society
Graduate Students Postdocs Undergraduate Students	Supervised Five M.Sc.(Hons)Agri. PBG students and Committee member to many Supervisory Committees
Service Activity	Teaching and Research
Brief Statement of Research Interest	Breeding and genetics of drought tolerance in field crops
Publications	<ol style="list-style-type: none"> <li>1) Rehman R., M. Arshad, M. A. Khan, A.S. Mohmand, G. Shabbir and M. K. N. Shah. 2012. Using multivariate analysis for selecting desirable hybrids In sunflower (<i>Helianthus annuus</i>L.). <i>Pakistan Journal of Botany</i>, 44(5): 1715-1720.</li> <li>2) Rabbani G., A. Mahmood, G. Shabbir, K .N. Shah and N. U. Din. 2011. Gene action in some yield attributes of bread wheat under two water regimes. <i>Pakistan Journal of Botany</i>, 43(2): 1141-1156.</li> <li>3) Hussnain S.Z., M. I. Haque, S. M. Mughal, K. N. Shah, A. Irfan, S. Afghan, A. Shahazad, A. Batool, P. Khanum, K. Hussain, K. Nawaz, M. N. Hassan and F. Y. Hafeez. 2011. Isolation and biochemical characterizations of the bacteria (<i>Acidovorax avenae</i> subsp. <i>avenae</i>) associated with red stripe disease of sugarcane. <i>Afr. J. Biotech.</i> 10(37): 7191-7197.</li> <li>4) Shabbir G., M. Aftab, A. Mahmood, K. N. Shah and N. M. Cheema. 2011. Chakwal sarson: A new high yielding rapeseed variety. <i>Pakistan J. Agric. Res.</i> 24 (1-4): 14-18.</li> <li>5) Ikramullah, I. H. Khalil, M. Noor and M. K. N. Shah. 2011. Heterotic effects for yield and protein content In white quality protein maize. <i>Sarhad j. Agric.</i> 27 (3):403-409.</li> <li>6) Ali, B., M. S. Iqbal, M. K. N. Shah, G. Shabbir and N. M. Cheema.2011. Genetic analysis for various traits in <i>Gossypium hirsutum</i> L. <i>Pakistan J. Agric. Res.</i> 24 (1-4):8-13.</li> </ol>
Research Grants and contracts	HEC Funded project

Other Research or Creative Accomplishments	<ul style="list-style-type: none"> <li>• Developed three cotton varieties</li> <li>• Developed a sorghum variety “<i>Chakwal Sorghum</i>”</li> </ul>
Selected Professional Presentation	-

## Proforma 9

### Faculty Resume

<b>Name</b>	Dr. Zahid Akram															
Personal	Associate Professor, Department of Plant Breeding and Genetics, PMAS, Arid Agriculture University Murree Road, Rawalpindi Telephone No.: 0307-5292949 E. Mail Address: <a href="mailto:zahid.akram@uaar.edu.pk">zahid.akram@uaar.edu.pk</a>															
Experience	<table border="1"> <thead> <tr> <th>Date</th> <th>Title</th> <th>Institution</th> </tr> </thead> <tbody> <tr> <td>14-12-2010</td> <td>Associate Professor</td> <td>PMAS-AAUR</td> </tr> <tr> <td>02-12-2002</td> <td>Assistant Professor</td> <td>PMAS-AAUR</td> </tr> <tr> <td>01-04-1998</td> <td>Lecturer</td> <td>PMAS-AAUR</td> </tr> <tr> <td>08-09-1993</td> <td>Assistant Research Officer</td> <td>Agriculture Research Wing Punjab</td> </tr> </tbody> </table>	Date	Title	Institution	14-12-2010	Associate Professor	PMAS-AAUR	02-12-2002	Assistant Professor	PMAS-AAUR	01-04-1998	Lecturer	PMAS-AAUR	08-09-1993	Assistant Research Officer	Agriculture Research Wing Punjab
Date	Title	Institution														
14-12-2010	Associate Professor	PMAS-AAUR														
02-12-2002	Assistant Professor	PMAS-AAUR														
01-04-1998	Lecturer	PMAS-AAUR														
08-09-1993	Assistant Research Officer	Agriculture Research Wing Punjab														
Honor and Awards	Merit Scholarship holder throughout academic career															
Membership	Member of Pakistan Botanical Society															
Graduate Students Postdocs Undergraduate Students Honour Students	Eleven Masters level student have graduated under my supervision. Currently seven M.Sc (Hons) students and three Ph.D scholars are working under my supervision.															
Service Activity	Teaching and Research															
Brief Statement of Research Interest	Breeding wheat for yield and quality traits using conventional and marker assisted selection .															
Publications	<ol style="list-style-type: none"> <li>1. <b>Akram, Z.</b>, S.U.Ajmal, K.S.Khan, R.Qureshi and M.Zubair.2011. Combining ability estimates of some yield and quality related traits in spring wheat (<i>Triticum aestivum</i> L.).Pak.J.Bot., 43(1):221-231. <b>(IF-0.905)</b>.</li> <li>2. Shabbir,G., N.H.Ahmed, <b>Z.Akram</b> and M.I.Tabassum.2011. Genetic behavior and analysis of some yield traits in wheat (<i>Triticum aestivum</i> L.) genotypes. J.Agri.Res.,49(1):1-9.</li> <li>3. Nazir,F., M.U.Hassan, <b>Z.Akram</b>, M.M.Javed, S.Ali, G.M.Ali and Y.Zafar.2011.Invitrro regeneration of</li> </ol>															



	<p>Pakistani Peanut (<i>Arachis hypogea</i> L.) varieties using de-embryonated coteledonary explants. <i>Afr.J.Biotech.</i>,10(43):8599-8604. <b>(IF-0.565)</b>.</p> <p>4. Khalid, R., K. S. Khan, <b>Z. Akram</b>, R. Qureshi and M. Gulfraz. 2011. Relationship of plant available sulphur with soil characteristics, rainfall and yield levels of oilseed crops in pothwar Pakistan. <i>Pak.J.Bot.</i>, 43(6): 2929-2935. <b>(IF-0.905)</b>.</p> <p>5. <b>Akram, Z.</b>, M. M. Khan, G. Shabbir and F. Nasir. 2011. Assessment of genetic variability in different sorghum genotypes for drought tolerance based on their RAPD analysis. <i>J.Agric.Res.</i>, 49(4): 455-463.</p> <p>6. Anwar, Z., M.Gulfraz, M.J.Asad, M.Imran, <b>Z.Akram</b>, S.Mehmood, A.Rehman, P.Anwar and A.Sadiq. 2012. Bioethanol productions from rice polish by optimization of dilute acid pretreatment and enzymatic hydrolysis. <i>Afr.J.Biotech.</i>, 11(4): 992-998. <b>(IF-0.565)</b>.</p> <p>7. Tariq, A. S., <b>Z. Akram</b>, G. Shabbir, M. Gulfraz, K. S. Khan, M. S. Iqbal and T. Mahmood. 2012. Character association and inheritance studies of different sorghum genotypes for fodder yield and quality under irrigated and rainfed conditions of Punjab, Pakistan. <i>Afr.J.Biotech.</i>, 11(38):9189-9195. <b>(IF-0.565)</b>.</p> <p>8. Shafi,A., G.Shabbir, <b>Z.Akram</b>, T.Mahmood, A.Bakhsh and I.R.Noorka.2012. Stability analysis of yield and yield components in chickpea genotypes across three rainfed conditions of Pakistan. <i>Pak.J.Bot.</i>,44(5):1705-1709. <b>(IF-0.905)</b>.</p> <p>9. Amber,P., A.Akram, R.U.Qureshi and <b>Z. Akram</b>. 2012. HPLC analysis for secondary metabolites detection in <i>Sclerotium rolfsii</i> isolated from chickpea. <i>Pak.J.Bot.</i>, 44 (SII):417-422. <b>(IF-0.905)</b>.</p> <p>10. Baig,M.M.Q., I.A..Hafiz, N.A.Abbasi, M.Yaseen, <b>Z.Akram</b> and D.J.Donnelly. 2012. Reduced-stature <i>Rosa</i> species through in vitro mutagenesis. <i>Can.J.Pl.Sci.</i>92(6):1049-1055. <b>(IF-0.613)</b>.</p> <p>11. Shabbir,G., T.Kiran, <b>Z.Akram</b>, M.I.Tabassum and K.N.Shah. 2012. Genetics of some biometric traits in</p>
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	<p>bread wheat (<i>Triticum aestivum</i> L).J.A.R.50(4): 457-468.</p> <p>12. Rasheed, A.,T.Safdar, A. G.Kazi, T. Mahmood, <b>Z.Akram</b>, and A. Mujeeb-Kazi. 2012. Characterization of HMW-GS and evaluation of their diversity in morphologically elite synthetic hexaploid wheats. Breed Sci., 62(4): 365–370. <b>(IF-1.248)</b>.</p>
Research Grants and contracts	Completed a research project funded by university on "estimation of genetic divergence for drought tolerance in some sorghum genotypes as revealed by RAPD analysis" worth Rs.92,700/=.
Other Research or Creative Accomplishments	-----
Selected Professional Presentation	-----

Proforma 9

Faculty Resume



<b>Name</b>	Dr Ghulam Shabbir																																				
Personal	Assistant Professor, Plant Breeding and Genetics Department PMAS Arid Agriculture University Rawalpindi Email: drgshabbir@uar.edu.pk																																				
Experience	Working as Assistant Professor since 05-05-2007 to date Worked as Assistant Research Officer from 29-05-1991 to 05-04-2007 at Barani Agricultural Research Institute Chakwal																																				
Honor and Awards	<ol style="list-style-type: none"> <li>1. <i>Bronze Medal</i> in B.Sc. (Hons) Agriculture.</li> <li>2. <i>Quaid-e-Azam Scholarship</i> for Ph D</li> <li>3. <i>Overseas Research Students Award</i></li> </ol>																																				
Memberships	Pakistan Botanical Society																																				
Graduate Students Postdocs Undergraduate Students	Supervised Eleven M.Sc.(Hons)Agri. PBG students and Committee member to many Supervisory Committees <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Years</th> <th>Degree</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>2009</td> <td>M.Sc.(Hons)</td> <td>Naeem Murtza</td> </tr> <tr> <td>2009</td> <td>M.Sc.(Hons)</td> <td>Tanvir Naqvi</td> </tr> <tr> <td>2009</td> <td>M.Sc.(Hons)</td> <td>Nadia Hussain Ahmad</td> </tr> <tr> <td>2009</td> <td>M.Sc.(Hons)</td> <td>Adeel Shafi</td> </tr> <tr> <td>2010</td> <td>M.Sc.(Hons)</td> <td>Aisha Arshad</td> </tr> <tr> <td>2010</td> <td>M.Sc.(Hons)</td> <td>Tayyaba Kiran</td> </tr> <tr> <td>2010</td> <td>M.Sc.(Hons)</td> <td>Misbah Sehar</td> </tr> <tr> <td>2010</td> <td>M.Sc.(Hons)</td> <td>Mushtaq Ahmad</td> </tr> <tr> <td>2011</td> <td>M.Sc.(Hons)</td> <td>Bushra Moin</td> </tr> <tr> <td>2011</td> <td>M.Sc.(Hons)</td> <td>M. Imran Khan</td> </tr> <tr> <td>2011</td> <td>M.Sc.(Hons)</td> <td>Shagufta Nasim</td> </tr> </tbody> </table>	Years	Degree	Name	2009	M.Sc.(Hons)	Naeem Murtza	2009	M.Sc.(Hons)	Tanvir Naqvi	2009	M.Sc.(Hons)	Nadia Hussain Ahmad	2009	M.Sc.(Hons)	Adeel Shafi	2010	M.Sc.(Hons)	Aisha Arshad	2010	M.Sc.(Hons)	Tayyaba Kiran	2010	M.Sc.(Hons)	Misbah Sehar	2010	M.Sc.(Hons)	Mushtaq Ahmad	2011	M.Sc.(Hons)	Bushra Moin	2011	M.Sc.(Hons)	M. Imran Khan	2011	M.Sc.(Hons)	Shagufta Nasim
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Service Activity	Teaching and Research																																				
Brief Statement of Research Interest	Breeding and genetics of drought tolerance in wheat																																				
Publications	<ol style="list-style-type: none"> <li>1) Rabbani, G., A. Mahmood, <b>G. Shabbir</b>, M.K.N. Shah and N. U. Din. 2011. Gene action in some yield attributes of bread wheat under two water regimes. <i>Pak. J. Bot.</i>, 43(2): 1141-1156.</li> <li>2) <b>Shabbir, G.</b>, N.H. Ahmad, Z. Akram and M.I. Tabassum. 2011. Genetic behaviour and analysis of some yield traits in wheat (<i>Triticum aestivum</i> L.) genotypes. <i>J. Agric. Res.</i>, 49(1): (1-9).</li> <li>3) <b>Shabbir, G.</b>, M. Aftab, A. Mahmood, M.K.N. Shah and N.M. Cheema. 2011. Chakwal Sarson - A new high yielding rapeseed (<i>Brassica napus</i>) variety. <i>Pak. J. Agric. Res.</i>, 24(1-4):(Accepted).</li> </ol>																																				

	<p>4) Khan, M., Z. Akram and <b>G. Shabbir</b>. 2011. Assessment of genetic variability in different sorghum genotypes for drought tolerance based on their rapid analysis. <i>J. Agric. Res.</i>, 49(4): (Accepted).</p> <p>5) Qureshi. R., G.R. Bhatti and <b>G. Shabbir</b>. 2011. Floristic Inventory of Pir Mehr Ali Shah Arid Agriculture University Research Farm at Koont and its Surrounding Areas. <i>Pak. J. Bot.</i>, 43(3): 1679-1684.</p> <p>6) Abbas, G., K. Farooq, I.A. Hafiz, A. Hussain, N. A. Abbasi, and <b>G. Shabbir</b>. 2011. Assessment of processing and nutritional quality of potato genotypes in Pakistan. <i>Pak. J. Agri. Sci.</i>, 48(3): 169-175.</p>
Research Grants and contracts	Profiling wheat germplasm for drought tolerance based on physio-morphic markers submitted to PMAS-AAUR
Other Research or Creative Accomplishments	<ul style="list-style-type: none"> <li>• Developd a rapeseed variety “<i>Chakwal Sarson</i>”and contributed to the development of a mustard variety “<i>Chakwal Raya</i>”</li> <li>• Contributed to the development of sorghum variety “<i>Chakwal Sorghum</i>”</li> </ul>
Selected Professional Presentation	-

**Proforma 9****Faculty Resume**

<b>Name</b>	Mr.Nasir Minhas									
Personal	Assistant Professor, Department of Plant Breeding and Genetics, PMAS, Arid Agriculture University Murree Road, Rawalpindi									
Experience	<table><thead><tr><th>Date</th><th>Title</th><th>Institution</th></tr></thead><tbody><tr><td>06-01-98</td><td>Assistant Professor</td><td>PMAS-AAUR</td></tr><tr><td>02-04-87</td><td>Lecturer</td><td>Barani College/Arid University</td></tr></tbody></table>	Date	Title	Institution	06-01-98	Assistant Professor	PMAS-AAUR	02-04-87	Lecturer	Barani College/Arid University
Date	Title	Institution								
06-01-98	Assistant Professor	PMAS-AAUR								
02-04-87	Lecturer	Barani College/Arid University								
Honor and Awards	Nil									
Membership	Member of Pakistan Botanical Society									
Graduate Students Postdocs Undergraduate Students Honour Students	<table><tbody><tr><td>2010-11</td><td>Degree</td></tr><tr><td>6</td><td>M.Sc(Hons)</td></tr></tbody></table>	2010-11	Degree	6	M.Sc(Hons)					
2010-11	Degree									
6	M.Sc(Hons)									
Service Activity	Nil									
Brief Statement of Research Interest	Interested in the genetic improvement of crops so that the less privileged people could also be fed									
Publications	Nil									
Research Grants and contracts	Nil									
Other Research or Creative Accomplishments	Nil									
Selected Professional Presentation	Nil									

**Performa 9**

**Faculty Resume**

Name	Dr Talat Mahmood		
Personal	03338367573		
Experience	<b>Date</b>	<b>Title</b>	<b>Institution</b>
	01.04.2011 to todate	Assistant Professor	PMAS-Arid Agri. Univ. Rawalpindi
	16.05.2007 to 31.03.2010	Lecturer	Do
	26.01.1991 to 15.05.2007	Agricultural Officer	Govt. of Punjab, Agri. Ext. Deptt.
Honor and Award	No		
Memberships	No		
Graduate students Postdocs undergraduate students, Honour Students	<b>Years</b>	<b>Degree</b>	<b>Name</b>
	2009	M.Sc.Hons.Agri. PBG	Muhammad Faheem
	2009	M.Sc.Hons.Agri. PBG	Muhammad Bilal
	2010	M.Sc.Hons.Agri. PBG	Saadia
	2010	M.Sc.Hons.Agri. PBG	Tahira Bibi
	2011	M.Sc.Hons.Agri. PBG	Muhammad Sohail Akbar
	2011	M.Sc.Hons.Agri. PBG	Waqas sadiq
Service Activity	Teaching, research and technology transfer		
Brief statement of research interest	Improvement in wheat for yield and environmental stresses		
Publications	1. Naeem, A., <b>T. Mahmood</b> , M. Ahsan, A. Aziz, M. Ashraf, S. ahmad, M. Asif and E. Safdar. 2011. Estimation of correlation coefficients among seed yield and some quantitative traits in wheat ( <i>Triticum aestivum</i> L.). African J. Agri. Research 6(1): 152-157.		
Research grants and contracts	No		
Other research or creative accomplishments	No		
Selected professional presentations	No		

## **Mahmood-ul-Hassan**

**Lecturer**

**Plant Breeding & Genetics**

**M.Sc. (Hons) Agri.**

**Phone** +92-051-9290151-52  
**Mobile No** 0333-5120508  
**Fax No** +92-051-9290160  
**Email** hmhassanq@hotmail.com  
**Postal Address** Department of Plant Breeding and Genetics, University of Arid Agriculture, Rawalpindi, Pakistan.  
**Work Experience** 2 year(s)  
**Areas of Research Interests**  
i. Cereals, pulses and vegetable breeding, genetics and biotechnology  
ii. Haploid culture  
**Publications** **Total: 2**