



**National Agriculture Education Accreditation Council**

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**Report of the  
Accreditation Inspection Committee  
(AIC)**

Prof. Dr. Muhammad Munir  
Prof. Dr. Syed Dilnawaz Ahmad Gardezi

**Department of Plant Breeding and Genetics  
University College of Agriculture, BZU, Multan**

## **ACKNOWLEDGMENT**

The Evaluation Team acknowledges the support and cooperation of the honorable Vice Chancellor, Principal University College of Agriculture, Chairman Plant Breeding & Genetics and Faculty / Staff members of the Department of Plant Breeding & Genetics, Bahauddin Zakaria University (BZU) Multan, Pakistan.

The immense help, guidance and logistic support of Mr. Naseer Alam Khan (Secretary), and Malik Muhammad Kashif Anwar (IT Coordinator), NAEAC Secretariat is highly appreciated.

**Accreditation Inspection Committee (AIC), NAEAC**

# 1. General:

## 1.1 Introduction:

The Accreditation Inspection Committee (AIC) setup by the National Agriculture Education Accreditation Council (NAEAC) for the external review of the Degree Programs B.Sc (Hons), M. Phil and PhD of the Department of Plant Breeding & Genetics, University College of Agriculture Bahauddin Zakaria University (BZU) Multan, visited the Department on Feb. 15-16, 2012 for the in-depth review of the Department degree programs. The report of the Committee is presented below

The AIC met on Feb 15-16, 2012 in the Department of Plant Breeding & Genetics to carryout external review of the BSc Hons., MPhil and PhD degree program for accreditation.

## 1.2 Accreditation of Agriculture Education Institutions in Pakistan

In pursuance to its mandate given by the HEC under clause 10 subsections (d) and(1) of the byelaws of NAEAC, an Accreditation Inspection Committee (AIC) was constituted comprising of the following scientists to review the Department of Plant Breeding & Genetics, University College of Agriculture Bahauddin Zakaria University Multan, Pakistan for the assessment and accreditation for degree awarding academic programs:

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| i) Prof. Dr. Muhammad Munir<br>Dean, Faculty of Crop Sciences,<br>PMAS Arid Agriculture University Rawalpindi               | Convener |
| ii) Prof. Dr. Syed Dilnawaz Ahmad Gardezi<br>Dean, Faculty of Agriculture, rawalakot,<br>University of Azad Jammu & Kashmir | Member   |

### **The main terms of reference (TORs) of the committee were as follows:**

- To validate the self-assessment report (SAR) of the degree programs (B. Sc. Hons and M. Phil.) prepared by the Department of Plant Breeding & Genetics, University College of Agriculture BZU Multan.
- To carry out external evaluation of the degree programs in a transparent, neutral, holistic and participatory manner for accreditation and rating **based on seven (7) evaluation criteria given in the Evaluation Manual.**
- To submit synthesized and concise analytical report (4-5 pages only) consisting of SWOT Analysis and actionable recommendations based on the instructions with the Principal, Chairman, Faculty Members, Students and Support Staff and Alumni as well as detail visit of physical infrastructure,

facilities and other teaching-learning resources available for the degree programs.

- To submit clear, specific and justified degree programs accreditation and rating recommendations to the chairman NAEAC within two weeks of the on-site visit.

The itinerary of accreditation visit schedule is given at Annex-I.

### **1.3 The University**

The University of Multan was established in 1975 by an Act of the Punjab Legislative Assembly. To pay homage to the Great Saint, the name was changed from University of Multan to Bahauddin Zakariya University in 1979. The main Campus is spread over 960 acres of land. The University started functioning in 1975 in rented buildings with 8 departments. Presently, it has more than 30 departments/institutes/colleges. Out of its 392 faculty members, 130 hold doctoral degrees and among its around 10,000 students, half are female. The University has also established two sub-campuses at Sahiwal and D.G. Khan to provide education facility at the doorsteps of the people as part of the policy of the Government.

Agricultural potential and specific ecological conditions of the region led to the establishment of Agriculture College of Bahauddin Zakariya University, Multan in 1989. The construction of the College building was started in 1990. Three academic blocks, one for Agronomy and Soil Science, second for Agricultural Entomology and Plant Pathology and third for Horticulture and Plant Breeding and Genetics have been constructed. A boys hostel [Hamza Hall] for 250 students and 19 residences for academic staff have also been constructed. Eight research laboratories (in the field of Agronomy, Soil Science, Food Science, Entomology, Plant Pathology Forestry, Range and Wildlife Management, Horticulture and Plant Breeding and Genetics) have been set up for conduct of practical and research work. In addition **Central Postgraduate Research Laboratory** and **Chrysopa Research Laboratory** have been established recently for postgraduate students. The College also has Agricultural Experimental Farm of 40 acres attached with the Faculty for demonstration of crop production practices, and 20 acres are reserved for faculty research. The Principal of the College is the academic and financial manager for all departments.

### **1.4 The Department of Plant Breeding & Genetics (PBG)**

The University College of Agriculture is one of the new establishments of the BZU University started in 1989 at a specific area within the campus. The department of Plant Breeding & Genetics shares the block with Horticulture Department. The BSc Honors in Plant Breeding & Genetics was started in 2002 and the MSc Hons/MPhil and PhD degree program during the year 2004. There are two classes of major students in BSc Honors comprising of 24 and 23 students. The curriculum and duration of degree program is similar as approved by HEC. There are 17 students in 2<sup>nd</sup> semester and 15 in 4<sup>th</sup> semester. The PhD program although in paper is from 3-5 years as per HEC criteria but practically the students are only registered after submission and approval of synopsis and the period of PhD studentship started after registration, hence taking longer time. Only a single PhD

has been produced so far and 6 students are registered for PhD. Department comprises of 6 Faculty members out of which 4 holds PhD, while two hold M Phil degrees. There is one Professor, no associate Professor, 3 assistant professors and 2 lecturers. Out of 3 Assistant Professors one is on Tenure track System (TTS). The department owns enough field area to conduct field experiment. The faculty research is mostly on Cotton and Wheat and one variety of cotton is at final stage of approval at provincial registration authority. The support staff for laboratory and office work is insufficient. There is one lab superintendent, one senior attendant and one attendant. The lab staff has no opportunity for training and promotion. The office staff was non existent as the administrative and financial matters are dealt by the Principal and Chairman has no such powers and facilities.

### **1.5 Program Mission**

The institute mission is to produce quality graduates of substantially higher caliber and conduct result oriented research by applying innovative techniques thereby to play a role in capacity building and offering solution to the agriculture related problems of national importance.

#### **Program objectives**

- Manpower production through undergraduate and postgraduate degree programs.
- Engagement in target oriented applied and basic research of international standard.
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- **Section-2: Point wise Analysis**

### **2.1 Curriculum Design and Development**

The curriculum followed is according to the national curriculum developed through HEC. The curriculum implemented was designed during the year 2006 and revised during the year (2010) under HEC curriculum review program.

**Students Perception:** the students undergraduate and post-graduate were contacted for their views about the contents of the courses, the method of teaching, use of teaching aids, the conduct of practical and field exposure, examinations, grading and awards. The students were satisfied about the teaching methodology and the covering of the theoretical as well as practical components of the courses. The laboratory facilities for under graduates were inadequate, however the number of graduates taken in each class is ideal i.e. less than 25 in BSc Honors and less than 20 in M Phil program. A new research laboratory with state of the art facilities for post graduate students has been recently established. The farm field facilities were also available for student's and faculty research and field activities but the green house, screen house facilities are lacking. According to the students views the young motivated teachers are excellently performing teaching duties apart from the research supervision and student's participation.

- The objectives set out by the department were found clear and achievable. These included the capacity building, academic and applied research, and development of linkages with sister organizations and stakeholders.

- The department has no internal library, but the library of college is having 300 text and reference books for PBG other than Main Library which holds 20000 electronic journals apart from the large collection of reference books and subject books. The students also take the advantage of the main library and are allowed to borrow books from both the libraries.
- Net instructional hours are according to HEC plans and courses are generally completed before the examinations.
- Course files are maintained by the teachers
- Admissions, course registration and withdrawal policy matches with that planned by HEC.
- The course evaluation system is more or less according to the HEC instructions. The mid semester, final semester and practical examinations are being held according to the schedule given by the Principal of the College. Quizzes, Assignments are also given to the students
- Institutional Board of Study, Faculty Board and Academic Council exist and regularly meet in the college / faculty, and take input of stakeholders.

## 2.2 Strength and Quality of Faculty

The faculty of the department was found with minimum requirement. Out of 6 scientific staff 4 (teachers) are having PhD, 2 staff members are having M Phil but are registered for PhD at the department. Two staff members earned PhD from abroad while other two earned their PhD degrees locally. One visiting faculty is also engaged in teaching with M Phil qualification. Most of the faculty members are young and energetic and while developing their own currier they will put maximum efforts for the advancement of research and teaching in the institute

### Academic Programs:

Following academic programs are being catered within the Department of Plant Breeding & Genetics.

**A) B.Sc. (Hons) Agriculture majoring in PBG.** The students are taken after F.Sc. and are being offered general introductory courses of agriculture and allied subjects as per HEC guidelines for the 1<sup>st</sup> half (4 semester). The students opt for major in 5<sup>th</sup> semester and spend two years in the department with internship/ research project in other institutions or within the department. Presently the department have 24 and 23 students in two major classes which is an ideal number of students in a class according to universal standards.

**B) MSc Honors/ M Phil Degree Program:** The students after graduation in Plant Breeding Genetics (PBG) are offered MSc honors/M Phil degree program comprising of two years of taught courses and thesis research. The number of MSc Honors/ M Phil students taken in each semester is 15-17. The students have to take 38 credit hours of taught and thesis research.

**C) PhD Program:** The students after completion of 18 years of education having MSc Honors/M. Phil are offered PhD degree program which is for 3-5 years in theory but normally it takes longer time depending upon the efficiency of the students in the conduct of taught courses (18 hours) and the research. Each Ph.D. student has to publish at least one research paper during their studies as a requirement of HEC.

Salaries of the teachers are according to the National pay-scales except for the teachers on tenure track system (TTS).

### **2.3 Students Support and Progression**

The students have approach to the Central Library. The online facilities for literature retrieval and computing facilities also existed within the the main library but college library only contained little collection for reference within the institution. Some computers and internet facilities are available for under graduate and post graduate (M Phil and PhD) students within the department but require improvement. The computer facilities may become meaningless after the provision of Laptop to all students by the Chief Minister Punjab.

Admissions system is transparent, and intake is adequate. The students' drop out percentage is very low. The students' sports facilities are only available at main campus. The need based scholarship facilities to the students are available, for needy students. Similarly the merit scholarships are also available.

### **2.4 Infrastructure and Learning Resources**

There is adequate infrastructure for the research students but for undergraduate students the laboratory facilities are inadequate. There is no separate sitting place for post graduate students except the conference room shared by two departments. The teaching aids like multimedia, white boards and others are available but student's complaints for the shortage of multimedia were noted. There is only one multimedia system in the department while there are 5-6 classes of graduate and post-graduate students going on at the same time. There is no separate space for sitting of students (Post graduate) where they can work peacefully after the lectures or while performing research work independently. The computers facilities available for students within the department are very low and student's complaints were there for slow internet facilities.

### **2.5 Research and Consultancy activities**

Research activities of the staff and the students were visited and some projects in the field were also observed. The staff research was good and the post-graduate students also were found to be involved in quality research. The farm activities indicated that few staff is actively involved in research but groups according to the specialized area i.e. specialized Plant groups including fiber, cereal and fodder crops are not established. The department has fields and other farm facilities, however the green house and screen house facilities are lacking.

## **2.6 Governance and Leadership**

The departmental activities were well organized both in teaching and research but it was observed that the funds for student's practical and research are controlled centrally by the Principal of the College. The departmental needs are met through centrally administered academic and financial control and the chairman has no funds at his disposal. The staff research funding from outside sources were non existing, however, the small projects less than Rs. 300,000 are being provided by the University for individual research projects. not sufficient enough within the institute except funding through research projects. The university statutory bodies like the faculty Board, Academic Council and Syndicate are in place for supervision of the teaching and research activities as well as other matters of concern. The student's affairs and other counseling facilities are available only at college level. The department has laboratory staff including one lab supervisor, an assistant and attendant. Similarly one field assistant and four fieldsmen but no office staff was available.

## **2.7 Innovative Practices**

The qualification and potential of the faculty observed was not bad but the staff members were found to be very young and gaining experience. The innovations and research require healthy competition, which was not found among the teaching staff. The staff publications in quality journal were also very low. The staff members have developed some improved lines of cotton and wheat which may be released as varieties in near future.

## **Section-3 Overall/ SWOT Analysis**

### **3.1 Major Strengths:**

The Department has the following strengths

1. Moderately qualified faculty with vision and will to work for students training and research.
2. The department has ample research farm for the conduct of staff and student's research.
3. The number of the students (graduate & post graduate) is ideal for conduct of classes and laboratory work which is the strength of the department.
4. The teachers are very much satisfied with their job and salaries. Residential, transport, day care center and children teaching facilities for senior staff members are available on campus.



5. The helping staff including the laboratory and field staff was also found to be satisfied with their salaries.
6. Faculty members have few publications in HEC recognized journals and impact factor journals.
7. The statutory bodies of the institute including Board of Studies and governing body were in place for solving the academic matters of staff and students.
8. The computer and internet facilities are available for all faculty members.
9. The examination system was found to be intact through central control.
10. The residential and transport facilities for the students and staff are adequately available on campus.
11. The scholarships were available for needy and meritorious students.

### **3.2 Major Weaknesses:**

Following weaknesses were observed while visiting and contacting the stake holders.

1. The library facilities within the department are missing.
2. Functional tutorial groups and counseling for students at the campus is also lacking.
3. The facilities for undergraduate laboratories were insufficient and the financial control is centrally maintained by the college principal. The computer facilities for students within the department are limited and hence the internet facilities could not be approached efficiently.
4. The support staff of the department is insufficient and is less than the criteria set by HEC
5. There is no individual sitting arrangements for research students (Post-grads) within the department, only one common room for all students is available.
6. Post-graduate research funds are not enough except those provided through staff research projects under university funding.
7. Research Journals were altogether missing in the college library and only HEC e-journals are available in the central library of the university.

### **3.4 Major Opportunities:**

1. The Department of Plant Breeding & Genetics although is at its infancy but it has gained very good reputation by developing improved lines of wheat and cotton. The advanced lines of these crops will be released as varieties in few years time. The University lies in the major cotton growing area of the country and can take lead in developing good varieties for commercial cultivation
2. The Department also could look for training the scientists with advanced techniques of plant breeding including MAS (marker assisted selection), double haploid production, tissue culture and gene transformation for which the expertise is readily available.
3. The students were demanding for the shortening of PhD duration which is taking much time by university registration policy i.e. after the approval of synopsis after

- two years. Once the matter is solved the students can work more efficiently and can complete their degrees in time.
4. The students have good employment opportunities in seed companies, pesticide companies and other stakeholders, because of the important cropping zone of Punjab.

### **3.5 Major Challenges:**

1. The department would be moving with the technological advancement in terms of status of their laboratories. The imparting of training to students in new technologies is very important in future.
2. The documentation of important crop plant material (wild and cultivated) of the area based on molecular markers would be a challenge for the department in future.
3. The production of improved genetic material, hybrid seed, improved varieties and others and their provision to the stake holder is a major challenge for the department, where lots of business opportunities are lying. For that purpose the facilities like in-vitro culture, green house and screen house are very much required within the department.

### **3.6 Stakeholders View Point**

#### **Employer's feedback:**

The faculty members (teachers) were found to be satisfied with the provision of facilities, the pay and others. The helping staff was also found to be satisfied with the medical facilities and others. The students graduating from the department are very well placed in various organizations and there is no problem of unemployment.

#### **Students View Point:**

Students were satisfied with their studies and the facilities available, however there were some complaints about the duration of PhD program and the non availability of some research facilities like tissue culture laboratory green house etc. The computer facilities for students were also lacking but may be met through laptop provision by the provincial Government.

#### **Alumni Survey:**

Survey showed that old students possess sound knowledge wise, very good communication skill and some of them have good management and leadership qualities. Alumni association at the University level is functional but at the departmental level is not well organized yet.

## **Section- 4 Recommendations:**

### **4.1 Salient Findings**

1. The overall departmental evaluation indicated that the department of Plant Breeding & Genetics is progressing very well according to the objectives.
2. The quality of education being imparted to the students is satisfactory especially when the number of students in each class is less than 25.
3. The student's exposure to latest developments and communication skills development is good but need better practical laboratory facilities at undergraduate level.
4. The computer and internet facilities for the students are limited and the departmental library is altogether missing.
5. The transport facilities and the residential for students and staff are excellent.
6. The Post-graduate research lab although is well equipped but its entry is limited. As similar facilities for undergraduate students are not available in their lab they need exposure to modern equipment's and technologies for information and application in the improvement of crop plants.
7. The support and co-curricular activities although are present on main campus, some student counseling and help needs to be created either within the department or at least at college level to solve immediate problems of the students.
8. The infrastructure at under graduate laboratory needs improvements.
9. The number of lecture rooms according to the number of classes B Sc Hons., MSc Honors and PhD are not sufficient and there is only one multimedia available at the department.
10. Better incentives like quick promotion and additional increments to better performing staff are lacking.
11. There is central control of budget at the College level and department has no regular research and students activities budget at its end

### **4.2 General Recommendations**

1. Lecture rooms facility may be increased according to the number of classes and degree programs. The under-graduate students may be given exposure and demonstration in Post-graduate laboratory to acquaintance with the new equipment's and techniques for Crop plant improvement.
2. More facilities in digital library with online linkages may be provided at the departmental/college level for free access to final year BSc and the post-graduate students.
3. There must be some space for the research students to sit and plan the experiments and to keep their material.
4. The facilities for tissue culture and in-vitro embryo rescue may be created within the department.
5. The Green house and screen house facilities are urgently required for the department to control the environmental factors in developing better plant varieties.

6. The students support and co-curricular activities/ facilities need further strengthening with establishment of a student counseling desk at departmental level.
7. The post-graduate students may be given access to the laboratories after official hours so that they can continue their experiments afterward as is required in laboratory research work.
8. The number of teaching, laboratory staff may be increased and Office staff for the department shall be employed
9. There must be some budget at the disposal of the chairman so that the immediate student research requirements may be met.

#### **4.2 Final Recommendations**

Most of the teachers (4 out of 6) of the department are having PhD in various disciplines of Plant Breeding & Genetics. The staff members except 1 professor are very young and energetic and are just at the beginning of their carrier and have good training and exposure to their field of specialization. The post-graduate laboratory has state of the art research and teaching facilities and enough farm field area is available for students and staff research. In order to harness the full potential of the physical infrastructure and trained manpower following suggestions may be considered for institutional and national interest.

1. More furnished lecture rooms and teaching aids like the use of multimedia and digital library resources within the department are recommended.
2. The students and teachers must be given access to laboratories after regular official hours to carry on their research work.
3. Better computer facilities for the students within the department for approaching the online journals and textbooks are required
4. The support and co-curricular activities including counseling must be initiated at the department/college level.
5. Green house and tissue culture facilities need creation within the department at an earlier time.
6. Chairman of the Department may be given some financial and administrative powers to run the day to day matters more efficiently and effectively.
7. Departmental Library with text books and research journals and support staff is essentially required.

On the basis of the inspection/evaluation, the team recommends accreditation/rating of the degree programs of Department of Plant Breeding and Genetics department, University College of Agriculture, BZU, Multan, Pakistan in the Lower band (68%) of “X” category of National Agriculture Education Accreditation Council/HEC.

#### 4.4 Signatures of AIC Members

| <u>Name and Designation</u>  |            | <u>Signatures</u> |
|--|------------|-------------------|
| <b>Dr. Muhammad Munir</b><br>Dean Crop and Food Sciences/ Vice<br>Chancellor<br>PMAS Arid Agriculture University,<br>Muree Road Rawalpindi | (Convener) |                   |
| <b>Prof. Dr. Syed Dilnawaz Ahmad<br/>Gardezi</b><br>Dean, Faculty of Agriculture (UAJ&K)<br>Rawalakot, Azad Kashmir                        | (Member)   |                   |
| Dated: Feb. 24, 2012   |            |                   |

#### 4.5 Comments and Signatures of Chairman

E-mail: [dilnawazgerdezi@yahoo.com](mailto:dilnawazgerdezi@yahoo.com)

Phone: 0301-5280796

E-mail: [drmunir\\_m@yahoo.com](mailto:drmunir_m@yahoo.com)

Phone: 0301-5055989