



**National Agriculture Education Accreditation Council**

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

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**Plant Breeding & Genetics Department  
NWFP Agricultural University, Peshawar**

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## **ACKNOWLEDGMENT**

The Evaluation Team acknowledges the support and cooperation of the honorable Vice Chancellor, Dean Faculty of Agriculture, Chairman Department and Faculty / Staff members of the Department of Plant Breeding & Genetics, NWFP Agriculture University, Peshawar, Pakistan.

The immense help, guidance and logistic support of Mr. Naseer Alam Khan (Secretary), Raja Mehtab Yasin (Admin/Finance Officer) and Malik Muhammad Kashif Anwar (Admin. Assistant), NAEAC Secretariat is highly appreciated.

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

# **1. General:**

## **1.1 Introduction:**

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 of NWFP Agriculture University Peshawar for the assessment and accreditation for degree awarding academic programs:

- |      |  |          |
|------|--|----------|
| i)   | Prof. Dr. Muhammad Munir<br>Dean, Faculty of Crop and Food Sciences<br>PMAS - Arid Agriculture University, Rawalpindi  | Convener |
| ii)  | Prof. Dr. Hafeez Sadaqat<br>Professor<br>Department of Plant Breeding and Genetics,<br>University of Agriculture, Faisalabad                                       | Member   |
| iii) | Dr. Syed Dilnawaz Ahmed Gardezi<br>Professor/ Chairman,<br>Department of Plant Breeding and Molecular Genetics,<br>Faculty of Agriculture, Rawalakot, Azad Kashmir | Member   |

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

- To carry out an external evaluation of the academic programs of the Department of Plant Breeding & Genetics of NWFP Agriculture University Peshawar for the assessment and accreditation for degree awarding academic programs. To synthesize the critical observations recorded on the basis of discussion with the Chairman of the department and interaction with the Dean, the teaching faculty and students alumni and support staff besides the actual visits to the infrastructure of available laboratories, class rooms and field facilities into a consolidated report.
- To submit the recommendations to NAEAC Chairman.

## **1.2 Accreditation of Agriculture Education Institutions in Pakistan**

The Accreditation Inspection Committee (AIC) setup by the National Agriculture Education Accreditation Council (NAEAC) for the external review of the Degree Programs of B.Sc (Hons) & M.Sc (Hons) of the Plant Breeding & Genetics department of NWFP Agricultural University, Peshawar visited the institute on June 29-30, 2009. The AIC met on June 29-30, 2009 in the Department of Plant Breeding and Genetics to carryout external review of the Plant Breeding and Genetics degree program for accreditation.

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

### **1.3 NWFP Agricultural University, Peshawar**

In 1957/58 College of Agriculture was setup in Peshawar University. In 1963, Agriculture College was shifted to a new building and MSc program was started within the Peshawar University. During the year 1973, the College was given the status of Faculty of Agriculture under Peshawar University. It was given the status of Independent University during the year (1981). The NWFP Agricultural University comprises of various Faculties constituting various disciplines of agriculture and allied sciences. The main institutions and faculties are; Faculty of Crop Production, Faculty of Crop Protection, Faculty of Nutrition Sciences, Faculty of Rural & Social Sciences, Faculty of Animal Sciences, Institute of Biotechnology and Genetics Engineering, Directorate of Teaching, Directorate of Advanced Studies and Research and Directorate of Quality Enhancement.

### **1.4 The Department of Plant Breeding & Genetics**

The Department of Plant Breeding & Genetics was established in 1963, first under the Agriculture College and then under the Faculty of Crop Production after the establishment of the University.

Since the start of the Agriculture College in 1963 Department of Plant Breeding and Genetics has been offering degree programs in the discipline to BSc (Hons) and MSc (Hons) according to the national agriculture degree program approved by UGC and then HEC with following missions and goals. The department started PhD program since 1998. During the past 46 years, the Department has produced more than 500 well trained graduates and 12 PhD scholars. The Department has 10 highly qualified (9 PhDs) and experienced faculty, well-equipped laboratories and experimental farm for undertaking research projects. During the last five years, five faculty members have received Post-Doc trainings in developed countries of the world. In addition to academics, objective oriented breeding programs are underway in wheat, maize, rice, sorghum, pulses, cotton, and oil seed crops funded by PARC, HEC, and Ministry of Science and Technology. The department owns 37 acres land area for research and experimentation. The first wheat cultivar ‘Ghaznavi-98’ was released in 1998 by wheat breeding program of the Department. Two new wheat varieties and one each of Maize and Brassica are in final trials. The Department has unique winter maize breeding program wherein three maize crops are grown in a year thus completing a recurrent selection cycle in a single year. About 50 metric tons of certified seed of wheat and maize is produced annually by the Department. Faculty and students of the Department has published 300 research papers in internationally reputed journals. The department has well-established Linkages with advanced countries of the world for split PhD, Joint research, Joint faculty visit and organizing international symposium. The department has Rs.8.54 million and Rs.1.00 million as establishment and operational budget respectively.

## 1.5 Program Mission and Objectives

To be a model department focused on building and fostering academic environment conducive to teaching and research in Plant Breeding and Genetics at provincial level and national levels.

- Impart advanced academic and research training in the discipline of Plant Breeding and Genetics.
- Plan and undertake advanced basic and applied research on cereals, oilseeds, pulses and other major and minor crops of NWFP.
- Production of quality seed of wheat and maize crops for distribution to the farmers of the Province.
- Establish linkages with provincial, national and international research and educational organizations to undertake collaborative assignments of academic programs

**Academic Programs:** Following academic programs are being catered within the department of Plant Breeding & Genetics:

**A) B.Sc. Hons Agriculture majoring in Plant Breeding & Genetics.** The students of agriculture taken after F.Sc. are being offered general introductory courses of all agricultural discipline during the year-1 and year-2 and are allowed to opt for any major subject based on their interest and the merit of their results. The students opting for Plant Breeding & Genetics are taken on competitive base and only students obtaining CGPA above 2.5 are offered the major because of the limitation of seats. Presently the department takes only 40 students maximum every year based on the availability of Teachers, the laboratory, lecture rooms and field facilities.

**B) MSc. Hons Degree Program:** The student after graduation in Plant Breeding and Genetics are offered MSc Hons degree program comprising of two years of taught courses and thesis research. The courses offered in M.Sc. Hons given in annexure.

**C) PhD Program:** The students after completion of 18 years of education having MSc Hons in Plant Breeding & Genetics are offered PhD degree program which is for 3-5 years depending upon the efficiency of the students in the conduct of taught courses and the research. Detail of the courses is given in annexure.

## **Section-2 Criterion wise Analysis**

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

The curriculum followed is according to the national curriculum developed through HEC with little modification suitable for the area. The curriculum implemented was designed during the year 2005 which will be revised during the current year (2009) 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. The students were satisfied about the teaching methodology and the covering of the theoretical components of the courses. However there were some dissatisfaction about the laboratory facilities and the conduct of the experiments. Field trip for exposure to crops under study was also found to be deficient according to the students.

The objectives set out by the department were found clear and achievable. These included the capacity building, academic and applied research, quality seed production for distribution among farmers, and development of linkages with sister organizations and stakeholders. The students showed their concerns for the practical side; the internship program is being carried out within the department. The department has not internal library, however, the students take the advantage of the main library and are allowed to borrow books from the teachers.

Net instructional hours are according to HEC plans and courses are generally completed before the examinations. Course files are not maintained by the teachers/department or the faculty office. Admissions, course registration and withdrawal policy matches with that planed 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 but needs improvements. Board of Study exists and regularly meets in the department, but needs intake of stakeholders, outside university scientists and from NGOs.

### **2.2 Strength and Quality of Faculty**

The faculty of the department was found to be highly qualified covering all areas of Plant Breeding and Genetics. It included conventional breeding, marker assisted breeding, tissue culture and biotechnology, cytogenesis and quantitative genetics. Out of 10 faculty members

9 are having PhD and the one member is under the process of acquiring PhD. Almost all faculties have post-doc experience. The quality and strength of the faculty therefore was found to be very strong.

#### Area of specialization of Faculty

Specialization	Faculty with Specialization	Faculty with Ph.D. Degree	Faculty Status	
			Regular	Contract
Plant Breeding	06	06	06	00
Cytology	02	02	02	00
Plant Biotechnology	02	01	02	00
<b>Total</b>	<b>10</b>	<b>08</b>	<b>10</b>	<b>00</b>

The department has 10 faculty members comprising 5 professors, 2 associate professors, and 3 lecturers. Out of these, 8 are PhD and 6 faculty members are Post-Doc from abroad and 4 professors are HEC recognized supervisors. The department has not recruited any national professors/foreign faculty/subject expert/ tenure track. The department has 39 under- and 16 Post-Graduate students resulting about 1/6 student teacher ratio.

The courses and the post-graduate students, at both under- as well as post-graduate levels, are equally distributed among the faculty members irrespective to the faculty category. Therefore, each faculty member has 2-3 courses and 1-2 PhD students in each semester. Use of course assessment instruments and program monitoring system are operative through the HEC-QEC based at the campus.

Faculty training and development is through HEC based programs, like Post-Doc training and it is indiscriminately open to all members. Salaries are according to the pay-scales, nobody is on tenure track system yet (however, all have applied) but the system to benefit the faculty members is not working properly for instance: The faculty members are deprived of most of the benefits attached with the Pay-Scales BPS-20-21. Faculty better incentive program of HEC is not operative in the university. Incentive to the supervisors on account of HEC sponsored scholars is also not operative.

Medical facility is inadequate for faculty and family. There were lots of complaints about the complexity of the reimbursement system.



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

The students have approach to the minimum laboratory facilities within the department but have access to the facilities of Institute of Biotechnology and Genetic Engineering (IBGE) for advance research. The online facilities for literature retrieval and computing facilities were also existing but very limited.

Textbooks although were available for the students but only in the main library, which were also very old. There was no departmental library in the department. The students outreach activities were very much limited.

Admissions system is transparent, and intake is adequate. The students' drop out percentage is very low and the students' support facilities are not adequate such as indoor games, swimming pool or gym etc.

The need based scholarship facilities to the students (US and Japanies need based scholarships) are available, but there were no local scholarship provisions for outstanding or needy students. Similarly, interest free loans from banks were also not visible. There is an internship program in the scheme of studies as but it was some sort of internal internship. Students-teacher counseling is strength of the department. The post graduate students can utilize the computers and the printers of the supervisors easily.

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

Basic infrastructure was there but the lecture room facilities were below standard within the department. The teaching aids like multimedia and projectors are not usually used for class lectures and the classrooms were under multiple used.

Number of classrooms and laboratories need to be increased, however, the Director teaching announced for the provision of new classrooms. The laboratories had basic necessary equipment for the training of the students of undergraduate level but were not adequate for post-graduate research however, the department has strong linkages with the local sister organizations like Directorates of Agricultural Research, IBGE, and NIFA and the post graduate students do take the advantage. The laboratory staff was found trained in using the lab equipments present in the labs. However, the training has been acquired through

experience instead of any formal training as lab technicians. It was noticed that the labs are without any safety arrangements in case of emergency.

Main library facility exists but number of fresh books / journals was not adequate and the students do have complaints. There wasn't departmental library, and so was the case with journals and books. The operational budget allocated for books and journals is Rs.0.400 million. Total number of text/reference books in the library is 108,000 and the total number of PBG text/reference books in the library is 12,300. Facilities like internet, multimedia, video & audio equipment and online facility for access to journals are available but very limited.

## **2.5 Research and Consultancy activities**

Research activities of the staff and the students were visited and some projects in the field were 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 the staff is actively involved in research and activity is persuaded in groups according to the crops. Like wheat research group, maize and rice group, the cotton group and oil seed crops group. The department owned its own seeds, fertilizers and other farm inputs store/shed which may need further improvement. The consultancy of the staff out of university was not recorded.

The department has 6 HEC awardees in Indigenous Scholarship Programs, and the research outcomes are being published in HEC recognized journals/impact factor journals. The faculty research is continued with a strong academic collaboration, which has resulted in the approval of a Wheat Variety Ghaznavi 98 by the Government of the NWFP.

The research budget is operated by the Dean, and not by the Chairman. The faculty operates the research projects, and renders the advisory services as the department produces seed of maize for distribution among the farmers.

Students societies work under the guidance of faculty for social/community works like Blood donation society, IDPs welfare society etc. The activities like writing of text books and arranging of seminars and conferences/workshops are scarce.

## **2.6 Governance and Leadership**

The departmental activities were very well organized both in teaching and research but it was observed that the funds for students practical and research are not available within the department. The amount was mentioned in the presentation but practically that is under the

direct control of Dean Faculty of Agriculture. There is rotation system regarding the Chairmanship but the cooperation and coordination among the faculty was quite good.

The university statutory bodies like departmental Board of Studies, The faculty Board, Academic Council and Syndicate are in place for smooth running the teaching and research activities as well as other matters of concern

The University and hence the department have very good organizational setup and the operative statutory bodies like the Board of Studies, the Academic Council, The Syndicate, The Senate etc.

The finances are centrally controlled through the treasurer office. The department generates its income, which also becomes the part of the budget for the department. The University is short of placement bureau and alumni association.

## **2.7 Innovative Practices**

The qualification and potential of the faculty was beyond doubt but within the laboratories very less innovation was seen. The students were also demanding very minimum laboratory equipment to conduct their projects like gel electrophoresis, DNA and protein extraction and analysis and others.

The university has strong QEC establishment that through the students' and stakeholders' feedback mechanisms ensures the quality teaching. Both students-teachers assessment exercises and program assessment mechanisms are operative through the QEC establishments and other bodies like Directorates of teaching and students' affairs. Strength of the department was observed in the research fields, covering the area with citrus plantation not only enhances the aesthetic sense but also generates income to the department.

## **Section-3 Overall Analysis**

### **3.1 Major Strengths:**

The degree programs of the department have the following strengths:

- The teaching faculty is highly qualified with vision and will to work for students training and research. The teachers have good advanced trainings as 7 out of 10 faculty members have their post-doc trainings in advanced countries during the last three years. The teaching faculty thus was found to be strong in their qualification and experience and caters well the needs of the students.
- The teaching faculty have attained ample number of funded research projects from various national and international organizations and contributed greatly in teachers and student research. There are some individual research projects won by the faculty through national and international competition from HEC, PSF and ALP, which is appreciable.
- The department has vast research farms adjacent to the campus for the conduct of independent staff and student's research. The experimental area is divided into various sections according to the faculty research interests and students need. Adjoining to the research farm, there is an excellent research institute IBGE, accessible for faculty and post graduate students for the conduct of advanced research.
- The teaching faculty has some international linkage program in process with the institutions of developed countries including Europe and USA, which once matured will be greatly helpful in upgrading the academic and research acumen of the staff and graduate students.
- The Teachers were very much satisfied with their job and salaries. There is very good arrangement of staff's children free education within the University town with excellent pick and drop facility. Almost all teachers have accommodation within the campus and all utilities are available on campus, which also provide very conducive and tension free environment for the teachers. The teachers children also have free basic education facilities on campus with safety and quality hence the teachers are enjoying their time with full devotion to the academic and research culture of the

university.

### **3.2 Major Weaknesses:**

- Stakeholder feedback on curriculum was missing. Curriculum was reviewed by HEC during the year 2005 and no internal change through departmental board of studies and other university statutory bodies was made until the year 2009.
- The students internship at final year of professional degree (8<sup>th</sup> semester) was comparatively less useful. The students do research projects but mostly within the department. The students thus lack external exposure to provincial and national research system and on job training, which is only possible either at farmers field or in collaboration with other sister institutions. The breakdown of the lecture contents were not provided to the students by the teachers. There was no maintenance of proper course files at the department.
- The teaching aids like multimedia and computers are partially used in teaching, because computer and internet facilities to the staff are very much limited. One independent computer laboratory for senior under graduate and post graduate students is required for the internet facilities including the access to the online library. The examination system of semester is not strictly followed and some teachers even take only one exam during the whole semester which is more or less the design of annual system. The assignments, quizzes and other semester requirements are also lacking.
- The laboratory facilities for teaching and training the students in advanced fields like biotechnology are marginal. For example the modern Plant Breeding and Genetics laboratory is not complete without the provision of DNA extraction, electrophoresis, gel documentation, PCR machine and microscopes with digital camera for chromosomal investigation. Similarly some seed quality and its nutritional evaluation system were also missing. The tissue culture facilities were also lacking. It was said that these facilities are present at IBGE but during the students meeting it was observed that they never have any exposure to IBGE except when they get some advanced collaborative research at post-graduate level. The under-graduates do need these facilities for their training.
- The library facilities in the department were totally absent. Textbooks are only

available at main library and they were also very few and old. The online book consultancy in main library was also found to be limited. The main library was also lacking proper seating facilities, air conditioning and carpeting etc, hence not properly maintained.

- Merit scholarships are also lacking, which is necessary for creating competitive and healthy environment among the students.
- Post-graduate research funds are either nonexistent or if even exist they are out of the reach of research supervisor and are maintained by the Dean of Faculty i.e. Top to bottom approach, which is impracticable.
- Postgraduate student's inadequate space and IT facilities at the department. The students mostly do not have regular arrangements to work after university timings however, special arrangements are made for research students to work in labs as and when required.
- The mission statement lacks reflection on strong emphasis on capacity building in terms of human resource, space and time; academic and applied research by post-graduate students and faculty; information and resource sharing through strong linkages with sister organizations, government and private institutions and stakeholders.

### **3.3 Major Opportunities:**

- The department of Plant Breeding & Genetics is very old and academically very strong department as it is in place since 1963, hence it has good reputation for teaching and research. Being located at centre of the provincial capital and having qualified faculty in diverse fields of their specialization must generate knowledge and transfer technology to the younger generation for practical significance. The purposeful basic and applied research at post-graduate level could help in the development of new technologies of crop improvement. The curriculum must be revised frequently by incorporating stake holder's feedback to compete with the global standards.
- The qualified teachers have very good opportunity to train students in practical knowledge and disseminate that knowledge to the professionals through conferences, regular departmental seminars, public awareness lectures and innovative short trainings for the transfer of technologies. The department have

strong group of breeders trained in all major crops including, wheat, maize, rice and oil seed crops, with technical hands of manpower (post-graduates), and thus can provide valuable services in terms of new varieties, demonstration plots and farmers consultancy.

- Highly exposed faculty members having post-doctoral trainings from Europe, America and China shall materialize the linkages with international institutions by signing up MOU's and strong action plan for upgrading the standard and quality of the degree programs. There is also need to establish alumni, restore the tutorial system.
- The farming in future will be commercialized and the technology and material developed will have great value, the department thus can move in this direction by innovative approach and patenting its material for such avenues to compete with the international community.
- Because of the unfavorable situation of FATA and Tribal areas, many countries are deploying their resources in this province, the faculty may also avail such opportunities for strengthening teaching- learning resources for degree programs.

### **3.4 Major Challenges:**

- The PBG discipline is not moving with the technological advancement as could be seen by the status of laboratories. The acquisition of technology and students training in new technologies is very important to stay in the market. The department must think about it seriously and should make plans to fill the gaps.
- Thus, establishment of proper facilities are essential to cater all research and training needs of Post graduate and PhD students.
- The student internship during the last year of degree program needs to be implemented in its true spirit. The students must be sent to other sister institutions, industry and farmers field for on job training. The required funds may be arranged through HEC and other relevant sources in case there is shortage of financial resources.
- Although the new innovative techniques of plant improvement are being tackled at IBGE in the same University, the department faculty and students does not have full access to the facilities of IBGE, hence the minimum such facilities need to be

addressed at departmental level.

- The maintenance of course files and breakdown of the lectures and practical as well as the conduct of proper evaluation and examination is very much important to justify the proper conduct of teaching and students training. The importance of such course files required attention especially when semester system is followed where the teacher himself is responsible for teaching, examination and grading of the students. The quality of trained manpower could only be maintained by keeping proper records of all courses and keeping a uniformity and balance among the teachers and academic programs.
- Establishment of the state of the art library facilities at the department would be a challenge too. There must be at least 1,000 to 1,500 textbooks and reference books within the departmental library. The library shall also have online access to E-libraries for post graduate students.

### **3.5 Stakeholders View Point**

The views of the employers about Plant Breeding and Genetics Degree Programs:

- Practical work regarding crop breeding should be emphasized at the department to develop new crop varieties.
- Should be capable of undertaking applied research.
- All the students should be taught statistics, crop physiology, biochemistry and genetics in addition to the specialization.
- Students Computer knowledge of under and post-graduates students was inadequate, the communication and presentation skills were weak. They also need more training to use modern laboratory equipment. Internship and practical training should be a regular feature for all students with a view to developing a strong and effective program.
- Alumni association at the department level is not functional and need to be organized and strengthened.



## **Section- 4 Recommendations:**

### **4.1 Salient Findings**

- The overall assessment of the degree programs indicated that the department of Plant Breeding & Genetics is progressing very well according to the objectives envisaged.
- The quality of education imparted is satisfactory but need improvement
- The student exposure is minimum and need improvement
- The staff qualification and on job trainings are fine as recorded by the conduct of 5 post-docs during the last five years
- The infrastructure including lecture rooms, laboratories and field area for research are there but improvements are required for the better equipping of the laboratories, the addition of lecture rooms and better management of the farm

### **4.2 General Recommendations**

1. The departmental budget must be at the discretion of the chairman and research supervisors to meet the daily needs.
2. The semester system must be followed in letter and spirit i.e. the evaluation must be through regular mid term and terminal examinations as well as the assignments and quizzes at time.
3. The students progress must be monitored including the maintenance of their registers, roll calls, the lab and field work
4. Internship at the final year of BSc (Hons) degree must be made mandatory and it shall be either at farmer's field or in other agriculture related institutions.
5. The department shall have its own departmental library and new edition of the text books must be purchased and maintained at the departmental library.
6. The digital library facilities with online linkages must be provided at the department level for free access to final year BSc and the post-graduate students
7. The laboratory facilities must be made up-to date with addition of new equipments, sitting space for the post-graduate students and work environment after the regular university timings.
8. Lecture rooms facility is almost non existent. There must be 4 lecture rooms at least for the undergraduate and master students in the department.
9. There must be some space for the students at farm to sit and plan the experiments and to collect the material for taking data.
10. The student's field tours must be made mandatory for their field exposure and first hand knowledge of the crops and problems especially for the undergraduates.
11. The course files for each taught course must be maintained with breakup of the lectures, the student evaluation and other records.
12. The teachers and post-graduate research collaborations must be developed at national and international level for more meaningful research
13. The farm land and experiments need improvement by assigning additional job of farm management to a teacher of the department.

14. The mission statement lacks reflection on strong emphasis on capacity building in terms of human resource, space and time; academic and applied research by post-graduate students and faculty; information and resource sharing through strong linkages with sister organizations, government and private institutions and stakeholders.
15. Post-graduate students were found involved in the research in the fields which reflects the practical training being imparted by the department which is strength of the department, similarly under-graduate students should be completely involved in this
16. Workload of faculty members need to be distributed according to the HEC defined criteria i.e., according to the category. The faculty fringe benefits need to be provided
17. Strong system of students' scholarships from the university sources and from the donating agencies/zakat, baitulmal need to be established. There should be a separate sitting room with washrooms for the female students in the department. Transport and sports facilities must be extended to the students living on the campus for healthy development. Students support services and facilities such as scholarship, interest free loans, transport and medical help need to be in place and increased.
18. The department must develop its own Computer lab and a library, and cabins for postgraduate students within the department, the fresh books may be purchased/ copied through HEC/ the National Book Foundation. The department should take the advantage of the facility extended by HEC to hold seminars, conferences, placement bureau and alumni association.
19. The department should also involve under-graduate students in the research activities at faculty and postgraduate students' levels.

#### **4.2 Final Recommendation**

The faculty of the department out of 10, 8 are having PhD and Post doctorate experience in various disciplines of the plant breeding & Genetics. The strength of the trained faculty thus has been depicted in the coverage of main disciplines of the subject including, Plant Breeding using conventional approaches, the cytology, Plant tissue culture, the use of molecular markers in plant breeding and double haploid culture. The department has good number of post graduate students including MSc (Hons) and PhD and most of them are involved in

research projects of the faculty members pertaining to Cereal Crops, The fiber and oil seed crops. The department needs to focus on the strengthening of the following:

1. Laboratory facilities including the provision of Laboratory equipment for non conventional breeding like molecular markers assisted breeding and tissue culture facilities for graduate and post-graduate students training and research
2. Establishment of better liaison and collaboration with research institutes and progressive farmers for student's internship and on job training as well as joint research.
3. More funds for the departmental research activities by empowering the chairman to utilize the funds instead of central control.
4. More lecture rooms and teaching aids like the use of multimedia and digital library resources.
5. Better Computer facilities within the department for approaching the online journals and textbooks
6. Education of the faculty about the merits and smooth functioning of the semester system

On the basis of the inspection / evaluation, the team unanimously recommends Accreditation of the Degree Programs of Department of Plant Breeding & Genetics, NWFP Agriculture University, Peshawar in the "X" category of National Agriculture Education Accreditation Council/HEC with scope for up-gradation to category "W" after appropriate improvements in due course of time.

#### 4.4 Comments and Signatures of Chairman, NWFP Agricultural University, Peshawar

I agree with the observations and recommendations made by the peer team in this report.

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**Chairman**  
Department of Plant Breeding & Genetics  
NWFP Agricultural University, Peshawar

#### 4.5 Signatures of AIC Members

<u>Name and Designation</u>		<u>Signatures</u>
<b>Dr. Muhammad Munir</b> Professor/ Dean Faculty of Agriculture PMAS Arid Agriculture University Rawalapindi	(Convener)	<hr/>
<b>Dr. Hafeez Ahmed Sadaqat</b> Professor Plant Breeding & Genetics University of Agriculture Faisalabad	(Member)	<hr/>
<b>Dr. Syed Dilnawaz Ahmad Gardezi</b> Professor/ Chairman Department of Plant Breeding & Molecular Genetics, Faculty of Agriculture (UAJ&K) Rawalakot, Azad Kashmir	(Member)	<hr/>

Dated:

## 5.1 Itinerary of Accreditation Visit

<b>Host Institution:</b>	<b>NWFP Agricultural University, Peshawar</b>
<b>Institute/ Program:</b>	<b>Department of Plant Breeding and Genetics, B.Sc (Hons) &amp; M.Sc (Hons)-PBG</b>
<b>Review Team:</b>	<ol style="list-style-type: none"> <li>1. Prof. Dr. Muhammad Munir (Convener) Dean Faculty of Crop and Food Sciences PMAS Arid Agriculture University, Rawalpindi</li> <li>2. Prof. Dr. Hafeez Sadaqat, Professor Department of Plant Breeding and Genetics, University of Agriculture, Faisalabad</li> <li>3. Prof. Dr. Syed Dilnawaz Ahmed Gardezi, Professor/ Chairman, Department of Plant Breeding and Molecular Genetics, Faculty of Agriculture, Rawalakot, Azad Kashmir</li> </ol>
<b>Institute Coordinator:</b>	Dr. Syed Mehr Ali Shah, Lecturer
<b>NAEAC Resource Person:</b>	Mr. Raja Mehtab Yasin, Admin/ Finance Officer, NAEAC Secretariat
<b>Schedule of Visit:</b>	<b>June 29-30, 2009 (Two Days)</b>

Day 01	Time	Activity	Remarks
	09:00-09:30	<b>Meeting with Dean of the Faculty</b> <ul style="list-style-type: none"> <li>• AIC Convener Explains purpose of the visit</li> <li>• Describes the Program review process</li> </ul>	Convener of AIC
	09:30-10:00	<b>Meeting with Chairman, Department of PBG</b>	All AIC Members
	10:00-11:30	<b>Presentation: Chairman of Department of PBG</b> <ul style="list-style-type: none"> <li>• History of Institute/ Academic Programs</li> <li>• Mission Statement</li> <li>• Program Goals and Objectives</li> <li>• Annual operational budget (08-09) &amp; Human Resources (Total)</li> <li>• Curricula Summary, Revision/Update</li> <li>• Admission and withdrawal policy</li> <li>• Faculty Summary, Qualification/ Experience, Support Staff</li> <li>• Students Feed back</li> <li>• Grading System</li> <li>• Infrastructure Summary, Labs, Greenhouse, Library</li> <li>• Employers Feedback</li> <li>• Alumni Survey</li> <li>• Parents Viewpoint</li> <li>• Question/Answer Session</li> </ul>	All AIC Members
	11:30-13:00	<b>Curriculum Review: Department Coordinator</b> <ul style="list-style-type: none"> <li>• Course files maintenance</li> <li>• Attendance requirements</li> <li>• Examination Record</li> <li>• Session/Semester Record</li> <li>• Evaluation Instruments</li> <li>• Research Projects by faculty / students</li> </ul>	All AIC Members
	13:00-14:00	<b>Zohar Prayers &amp; Lunch</b>	
	14:00-16:00	<b>Infrastructure Visit: Department Coordinator</b> <ul style="list-style-type: none"> <li>• Research &amp; Teaching Labs</li> <li>• Greenhouses &amp; Experimental facilities</li> <li>• Departmental and main Library</li> <li>• Computer Labs, Internet and multimedia facilities</li> </ul>	All AIC Members

		<ul style="list-style-type: none"> <li>• Classrooms number &amp; size with multimedia</li> <li>• Faculty Offices &amp; facilities</li> </ul>	
	16:00-17:00	<b>Meeting of AIC for review and synthesis</b>	

## Itinerary of Accreditation Visit

**Host Institution:** NWFP Agricultural University, Peshawar

**Institute/ Program:** Department of PBG, B.Sc (Hons) Agric. & M.Sc (Hons) -PBG

Day 02	Time	Activity	Remarks
	09:00-09:30	<b>Meeting with Dean of the Faculty</b> <ul style="list-style-type: none"> <li>• Briefing on yesterday's activities of the visit</li> <li>• Seek guidance/help if required</li> </ul>	All AIC Members
	09:30-11:30	<b>Faculty Meetings: 10-15 minutes for each faculty member</b> <ul style="list-style-type: none"> <li>• Graduation and Higher studies</li> <li>• Personal Background</li> <li>• Area of Interest Vs teaching –learning environment</li> <li>• Perception about the academic programs, Students and peers</li> <li>• Opportunities for professional growth</li> <li>• Research Opportunities</li> <li>• Salary Perception and other incentives</li> <li>• Teaching Load, student- teacher ratio</li> <li>• Meetings with Support Staff</li> </ul>	Individual AIC Member
	11:30-13:00	<b>Classroom Visit: Two classrooms with 45 min. each</b> <ul style="list-style-type: none"> <li>• Students Interviews (B.Sc Hons final &amp; M.Sc Hons)</li> <li>• Students Assessment System (Institute Coordinator)</li> <li>• Students Perception about Teaching-Learning Environment</li> <li>• Students Feedback Mechanism Exists</li> <li>• Senior students views and suggestions to improve teaching-learning environment and facilities</li> </ul>	All AIC Members
	13:00-14:30	<b>SWOC Analysis: faculty /students point of view</b> <ul style="list-style-type: none"> <li>• Major Strengths of Academic Programs</li> <li>• Major Weaknesses of Academic Programs</li> <li>• Major Opportunities for Academic Programs</li> <li>• Major Challenges for Academic Programs</li> </ul>	All AIC Members
	14:30-15:30	<b>Concluding Meeting with Chairman of the Department</b>	
	15:30-16:30	<b>Prayers and Lunch</b>	
	16:30-17:30	<b>Concluding/ Exit meeting with Dean/Exit Meeting</b> <ul style="list-style-type: none"> <li>• Salient Findings of the visit</li> <li>• Formulation of Recommendations</li> <li>• Next Procedure</li> </ul>	
	17:30-19:30	<b>Discussions among the AIC for synthesis &amp; report outline</b>	
	19:30	<b>End of Review Visit</b>	

### 5.2 Strength and Qualifications of the PBG Faculty

S.No	Name	Designation	Ph.D& Post Doc. Experience (yrs)	Res. Papers in HEC Approved Journals
1.	Prof. Dr. Farhatullah	Chairman	Ph.D	
2.	Prof. Dr. Hidayatur Rahman	Professor	Ph.D	
3.	Prof. Dr. Fida Muhammad	Professor	Ph.D	
4.	Dr. Raziuddin	Professor	Ph.D	
5.	Dr. Iftikhar Hussain Khalil	Professor	Ph.D	
6.	Dr. Naqib U Khan	Associate Professor	Ph.D	
7.	Dr. G. Hassan	Associate Professor	Ph.D	
8.	Dr. S. Mehar Ali Shah	Lecturer	Ph.D	
9.	M. Sayyar Khan	Lecturer	Ph.D	
10.	Ms. Rozina Gul	Lecturer	M.Sc(Hons)	

### 5.3 Major Course offered BSc (Hons) degree

Course No.	Course Title
PBG-301	Botany (Deficiency)
PBG-311	Introductory Genetics
PBG-401	Introductory Plant Breeding
PBG-501	Morphology & Reproductive Systems of Crop Plants
PBG-502	Principles of Genetics
PBG-503	Breeding Field Crops
PBG-504	Breeding Tobacco and Sugar Crops
PBG-511	Cytogenetics
PBG-512	Breeding Oil Seed Crops
PBG-513	Breeding Pulse Crops
PBG-514	Germplasm Resources of Crop Plants
PBG-601	Methods in Genetics and Biometry
PBG-602	Non-Conventional Approaches
PBG-603	Breeding Forage/Fiber Crops
PBG-604	Principles of Evolution
PBG-699	Internship, Report Writing and Presentation

### MSc (Hons) Degree Program Courses

Course No.	Course Title
PBG-701	Principles of Plant Breeding
PBG-707	Population Genetics
PBG-710	Advanced Cytogenesis
PBG-712	Advanced Genetics
PBG-722	Advances in Molecular and Microbial Genetics



PBG-794	Thesis
PBG-795	Defense Seminar

### **Courses Offered for PhD Program**

<b>Course No.</b>	<b>Course Title</b>
PBG-702	Hybrid Seed Production of Field Crops
PBG-704	Advanced Methods in Plant Breeding
PBG-708	Genetics of Insect and Disease Resistance
PBG-714	Mutation Breeding
PBG-716	Genetic Engineering in Plants
PBG-719	Molecular Evolution
PBG-725	Breeding Crop Plants for Stress Environments
PBG-797	Seminar-I (Ph.D Synopsis)
PBG-798	Seminar-II (Ph.D Defence)
PBG-799	Ph.D Dissertation

## 5.4

## Research Activities of PBG Department

## A. Projects Completed

S.#	Name of Research Project	Duration	Principal Investigator	Funding Source
1	Inter Cropping	2005-08	Dr. Ghulam Hassan	PSF
2	Developing Forage-Plus-Grain Winter Wheat Production System for the Northern Areas	2004-07	Dr. Iftikhar H. Khalil	HEC
3	Production of Doubled Haploids Wheat with Longer Coleoptile	3 years	Dr. Fida Mohammad	HEC
4	Development of True Potato Seed as a Seed Source for Potation Production in NWFP	2004	Dr. Farhatullah	HEC/AUP
5	Development of Desi Sarsoon (Brassica Campestris) Varieties through Conventional and Modern Techniques	2003-06	Dr. Farhatullah	HEC
6	Development of New High Yielding Canola Quality Brassica Juncea Variety	2 years	Dr. Raziuddin	HEC/AUP
7	Collection and evaluation of Indigenous maize germplasm for superior attributes	2 years	Dr. Hidayatur Rahman	HEC/AUP
8	Quantification of Maize Yield Losses from Leaf Blights and Improving Maize Populations for Grain Yield and Leaf Blight Resistance	2003-2006	Dr. Hidayatur Rahman	PARC (ALP)

## B. Research Projects under progress

S.#	Name of Research Project	Duration	Principal Investigator	Funding Source
1	International Linkage of Pakistani Universities with Foreign Universities	3 years	Dr. Farhatullah	HEC/USA ID
2	Collection and Characterization of Indigenous Brassica in Pakistan	3 years	Dr. Farhatullah	HEC
3	Production of Modified Double Cross Maize Hybrids as Source of Low Cost Seed	2006-09	Dr. Hidayatur Rahman	HEC
4	National Cooperative Program on Fodder Crops Improvement	3 years	Dr. Hidayatur Rahman	PARC

## C. Research Projects in Pipeline

S.#	Name of Research Project	Duration	Principal Investigator	Funding Source
1	Collection, Screening and Pyramiding of Breed Wheat for Low Phytic Acid and Other Agronomic Traits in Bread Wheat	3	Dr. Fida Mohammad	ALP
2	Production of Local Maize Hybrids for Increasing Maize Productivity in NWFP	3	Dr. Hidayatur Rahman	HEC
3	Development of High Yielding & Canola Quality Brassica Lines for Rainfed Agriculture Using Conventional and <i>In Vitro</i> Techniques	3	Dr. Raziuddin	HEC