PirMehrAli Shah

ARIDAGRICULTUREUNIVERSITY

RAWALPINDI

DEPARTMENT OF AGRONOMY

Self-AssessmentReport

M.Sc. (Hons.) Agronomy
2010-12

Program Team

Prof. Dr. Fayyaz-ul-Hassan	Coordinator
Dr. Muhammad Rasheed	Member
Dr. Allah Wasaya	Member
Mr. Safdar Ali	Member

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INTRODUCTION

Agronomy Department was established in 1984 in the Barani Agriculture College, Rawalpindi. The department started M.Sc. (Hons.) degree program in 1997. The department offers research oriented M.Sc.(Hons.), degree Agriculture, in Agronomy. Students who fulfill the criteria are admitted in M. Sc.(Hons.) Agronomy degrees programs. Agronomy degree programs are designed to be flexible in order to meet the student's requirements in different areas of Agronomy viz. Nutrient Management / Nutrient Use Efficiency,Crop Production Technology of Field Crops, Seed Production and Technology, Physical Properties of Soil, Breeding Field Crops, Principles of Plant Nutrition and Growth Regulators, Soil Fertility and Fertilizers, Methods of Soil And Plant Analysis, Organic Farming, Conservation Agronomy, Crop Growth Modeling, Allelopathy, Weed Management, climat change and remote sensing.

The students of Masters are encouraged to take part in national as well as international seminars, workshops and other training activities for more exposure to the recent trends in agronomy. The faculty always lead the students in research publications. The use of various new instruments and equipments is an essential part of any research.

The Department has highly qualified and experienced faculty mostly having post doctorate research experience from universities of International fame. The faculty has produced 69 publications during the reporting period in journals of national and international repute. The faculty members have specialization in the fields of remote sensing, Crop Modeling, Crop Physiology, Crop & Seed Production Technology, Plant Nutrition, Forage and Fodder Production, Organic Farming, Conservation Agronomy, Allelopathy/ Weed Management etc.

Components of Self Assessment Process:

This Self Assessment has been arranged on the foundation of the following eight criteria described in self Assessment Manu

CRITERION 1

PROGRAM MISSION, OBJECTIVES AND OUTCOMES

The Department of Agronomy presents the M.Sc.(Hons.) students the association, ability and indulgent critical for professional achievement in a changing world. Agronomy is a diverse profession that encompasses all aspects of crop production and soil management. The goal of the

Department is to increase yield production, quality and profit by utilizing crop possessions and crop physiology.

Mission Statements of the Department of Agronomy:

The Mission of the department is to equip and impart training to M.Sc.(Hons.)students for high-quality education and research resulting in increased scientific knowledge and skills for employment and productive citizenship. Presently the department is striving for multi-dimensional approach to impart standard educationand research skills.

STANDARDS

Standards 1.1:

Documented measurable objectives

Objectives:

The main objectives of the Agronomy department are to:

- Build up the Department on modern lines for education and research at M.Sc. (Hons.) level.
- Employ the superior analytical approaches to impart the realistic scientific skills in the field of Agronomy.
- Broaden the visualization of students by teaching them integrated agriculture.
- adherence to new teaching methods & planning for current and upcoming researchable problems

Outcomes:

- Department of Agronomy wasStrengthened by planning the point in time needed education and research for M.Sc. (Hons.) students.
- M.Sc. (Hons.) students wereimparted practical knowledge using advanced diagnostic techniques.
- Amalgamation of knowledge was achieved through induction of multidimensional courses for master's degree students in addition to contemplation on latest developments in applied research projects/thesis research.
- Eagerness of new teaching/researchable areas achieved by updating the curricula.

Main elements of strategic plan to achieve mission and objectives

- To award M.Sc. (Hons.) degrees to these students a crash training system collecting information'sthrough consultation from world reviews, writing, symposia and workshops.
- To update the curricula of major& major courses, regular planning was launched.
- By equipping with up to date facilities&equipment's the departmental labs.
- Publication of research data in scientific journals of world repute, books and other literature.

Programme Objectives Assessment

Table 1: Objective Assessment

sr. #	Objectives	How measured	When measured	Improvement identified	Improvement made
1	Improvement and escalation of Agronomy Department for Master's education	After assessing the accessibility of latest research services and practical appliance of new technology in agronomic aspects of agriculture	As a requisite requirement It is an incessant practice.	Training andresearch style is required to be superior.	The induction of more striking and comprehensible Teaching and research methods has been done.
2.	To teach practical / useful information to the M.Sc. (Hons.) students	Through the semestoral examinations, seminars and research presentation. Examinations.	During their mid and final exams, seminars& research presentation.	A few innovative courses and research facilities are needed to be included in the Master's curricula	Under HEC requirementpolicy the curricle has been revised for Master's.
3	Assimilation of multi-dimensions of agronomy.	By examining the students in incorporationof the effects in semestoral and comprehensive exams.	During semester exams and in comprehensive exams after completion of research.	The induction of multidimensional courses is needed to be integrated in the M.Sc. (Hons.) course work	Introduction of new subjects coveringthe entireboundary of agronomy has been done.
4	Anticipation of new teaching/researchable areas	Unfeeling the need of recent progress in the pertinent areas of Agronomy	It is a constant doings.	Point in time requirement based novel courses and research problems are needed to be included in curriculum and research priority areas.	Approval of new curricula and research areas has been accorded by the Faculty Academic Council

STANDARD 1.2:

Objectives vs. Outcomes

TABLE 2: Objectives vs. Outcomes

		Objectives			
Outcomes	Sr.#	1	2	3	4
Outcomes	1	**	***	**	**
	2	*	***	**	***
	3	**	***	**	**
	4	**	**	**	**

* Relevant

** Relevant and satisfactory

*** Highly relevant and satisfactory

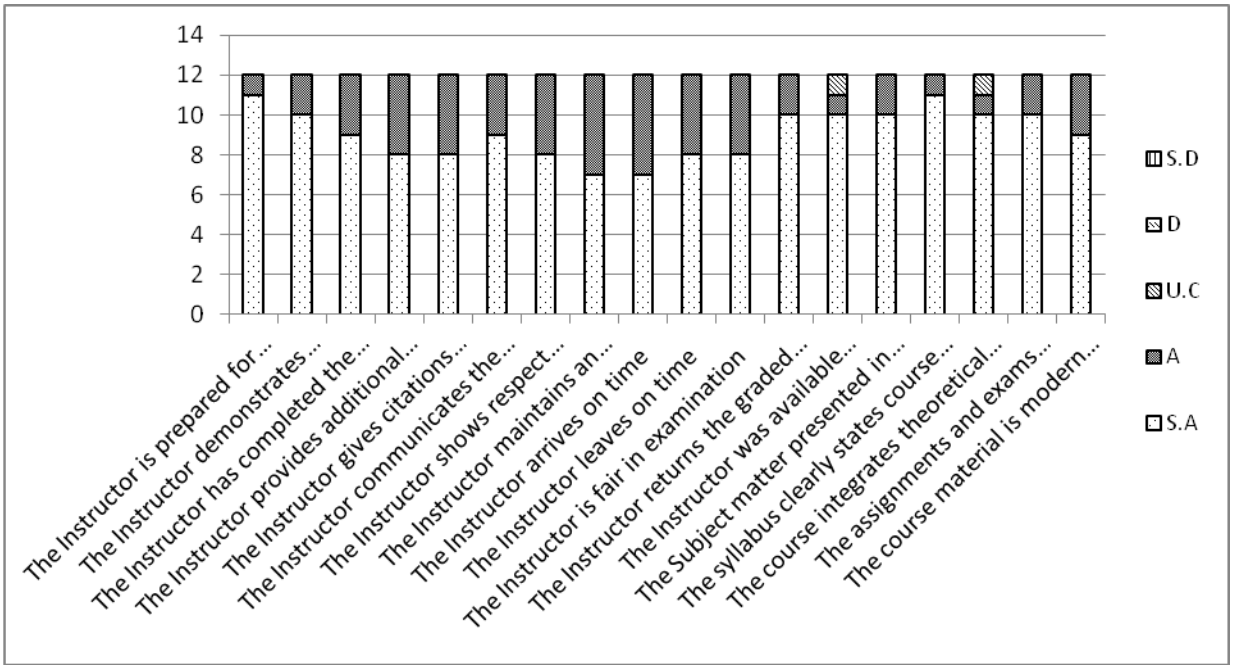
1. Dr. Mukhtar Ahmed

i. Teacher Evaluation

Data were collected from 11 students. The evaluation criteria parameters showed that the 75% of the students strongly agreed, 24% agreed, 1% uncertain, 0% disagreed, and 0% strongly disagreed that the instructor was prepared for each class. The data of other parameters inferred that major proportion of the students are agreed that, the performance and expertness of the teacher, the instructor came with good preparation. ,instructor demonstrates knowledge of the subject, instructor had completed the whole course, the Instructor provided additional material apart from the textbook, the Instructor gave citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintained an environment that was conducive to learning, the Instructor arrived on time, the Instructor returned the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours after class for consultations, the Subject matter presented in the course has increased their knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated.

Comments / Suggestions

- Instructor was fine in conduct and always wearisome to assist.
- Instructors was prepared for each class.
- Instructor cleared the concepts in a good manner.



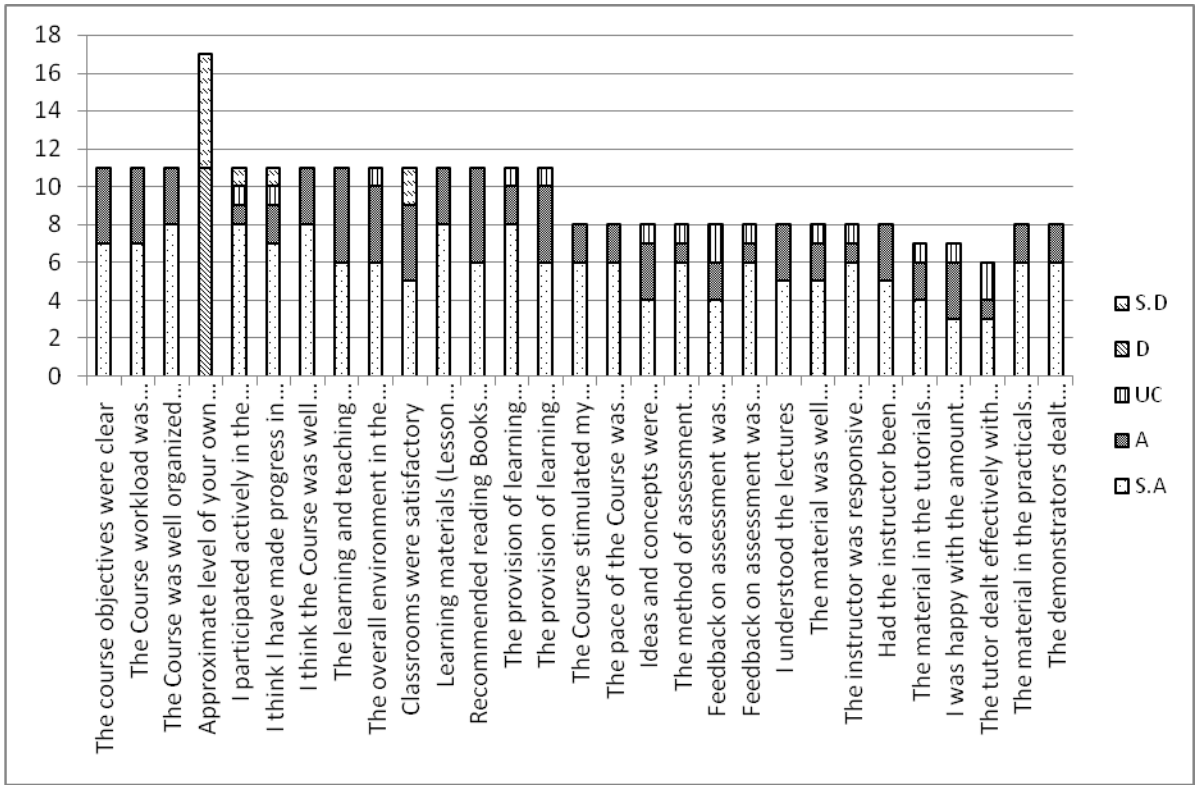
ii. Course Evaluation

AGR-718	Crop Modeling	3(2-2)	Dr. Mukhtar Ahmed

Data were collected from 11 students.The individual parameter showed that 60% the students strongly agreed, 27% agreed, 6% uncertain, 4% disagreed and 4% strongly disagreed that the course objectives were clear. Data regarding other parameters showed that major proportion of the students agree the course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.). Similarly, they agreed that the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate, the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area,the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful.

Comments / Suggestions

- Learning atmosphere in class was not reasonable.
- The objectives of the course were very clear.
- Appropriate information about course was in the books available in library but it must be updated.
- Practically, lab requirements were not satisfactory.



ii. Dr. Mukhtar Ahmed

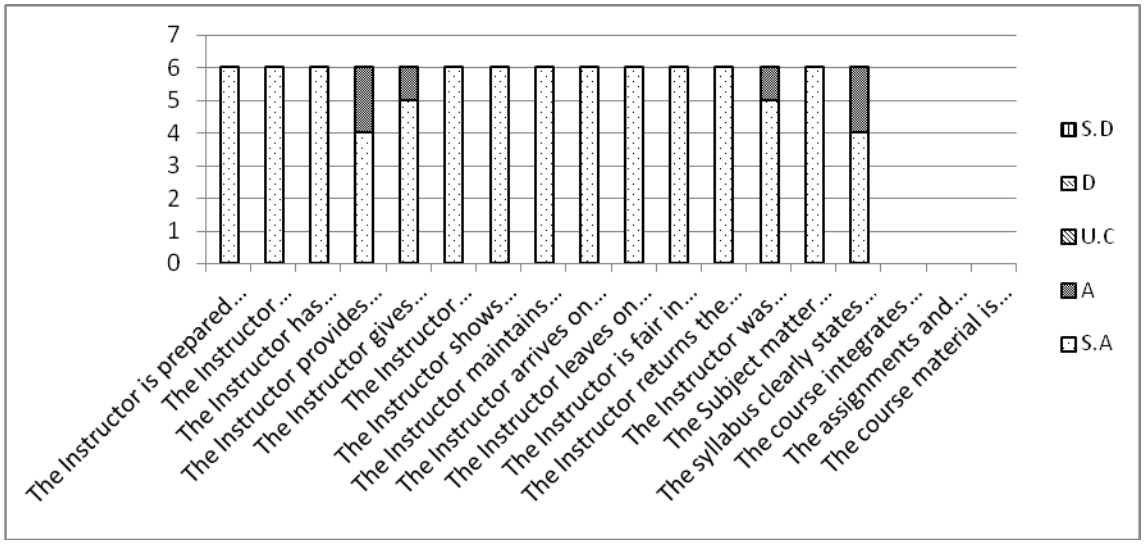
i. Teacher Evaluation

Data were collected from 6 students. The evaluation criteria parameters showed that the 93% of the students strongly agreed, 7% agreed, 0% uncertain, 0% disagreed, and 0% strongly disagreed that the instructor was prepared for each class. The data of other parameters inferred that major proportion of the students are agreed that, the performance and expertness of the teacher, the instructor came with good preparation. Instructor demonstrates knowledge of the subject, instructor had completed the whole course, the Instructor provided additional material apart from the textbook, the Instructor gave citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively,

the Instructor maintained an environment that was conducive to learning, the Instructor arrived on time, the Instructor returned the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours after class for consultations, the Subject matter presented in the course has increased their knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated.

Comments / Suggestions

- Instructor was fine in conduct and always appreciative to assist.
- Instructor was prepared for each class.
- Instructor cleared the concepts in a good manner.
- Instructor incouraged to ask more questions.



ii. Course Evaluation

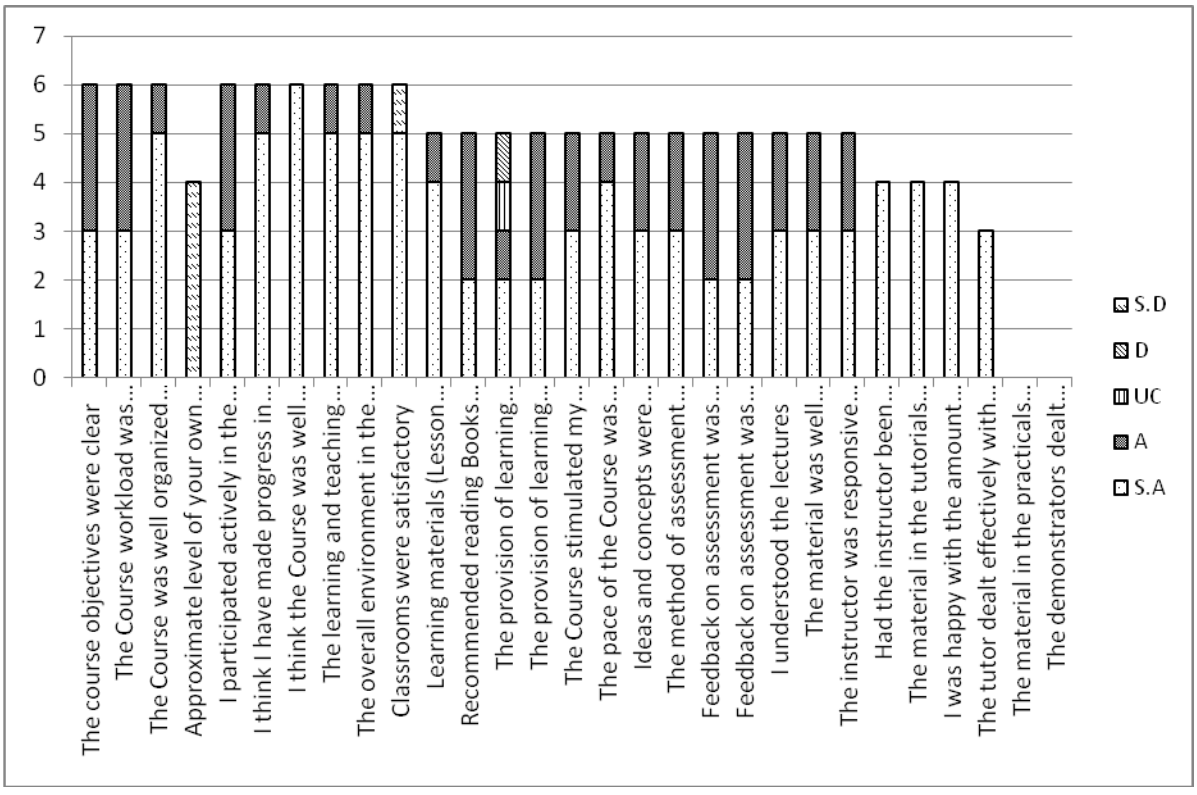
AGR-704	Crop Environment	3(2-2)	Dr. Mukhtar Ahmed

Data were collected from 6 students. The individual parameter showed that 66% the students strongly agreed, 29% agreed, 1% uncertain, 1% disagreed and 4% strongly disagreed that the course objectives were clear. Data regarding other parameters showed that major proportion of the students agree the course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.). Similarly, they agreed that the learning and teaching methods encouraged participation, the overall environment in the class was

conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate, the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area,the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful.

Comments / Suggestions

- Learning atmosphere not up to the date.
- The objectives of the course were according to the course requirments.
- Much information about course was in the books available in library but it should be updated.



2. Dr Allah Wassya

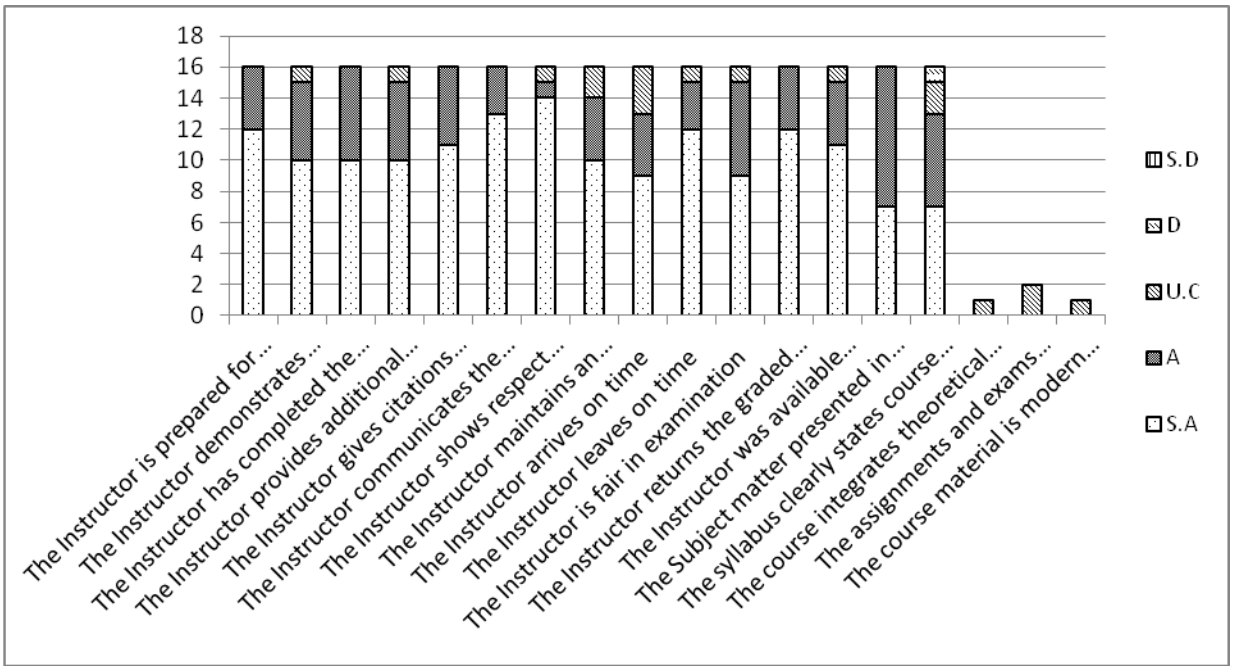
i. Teacher Evaluation

Data were collected from 16 students. The evaluation criteria parameters showed that the 64% of the students strongly agreed, 28% agreed, 7% uncertain, 0% disagreed, and 0% strongly

disagreed that the instructor was prepared for each class. The data of other parameters inferred that major proportion of the students are agreed that the teacher is fair in examination, the instructor came with good preparation. ,instructor demonstrates knowledge of the subject, instructor had completed the whole course, the Instructor provided additional material apart from the textbook, the Instructor gave citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintained an environment that was conducive to learning, the Instructor arrived on time, the Instructor returned the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours after class for consultations, the Subject matter presented in the course has increased their knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated.

Comments/Suggestions:

- The teacher always relates the course topics with his practical incidents under the local environmental conditions for proper understanding of the students.
- The teacher's attitude was affable during and after his lectures with the students.
- The pace of course covering was commendable and understanding of the theme of the course was also appreciable.



ii. Course Evaluation

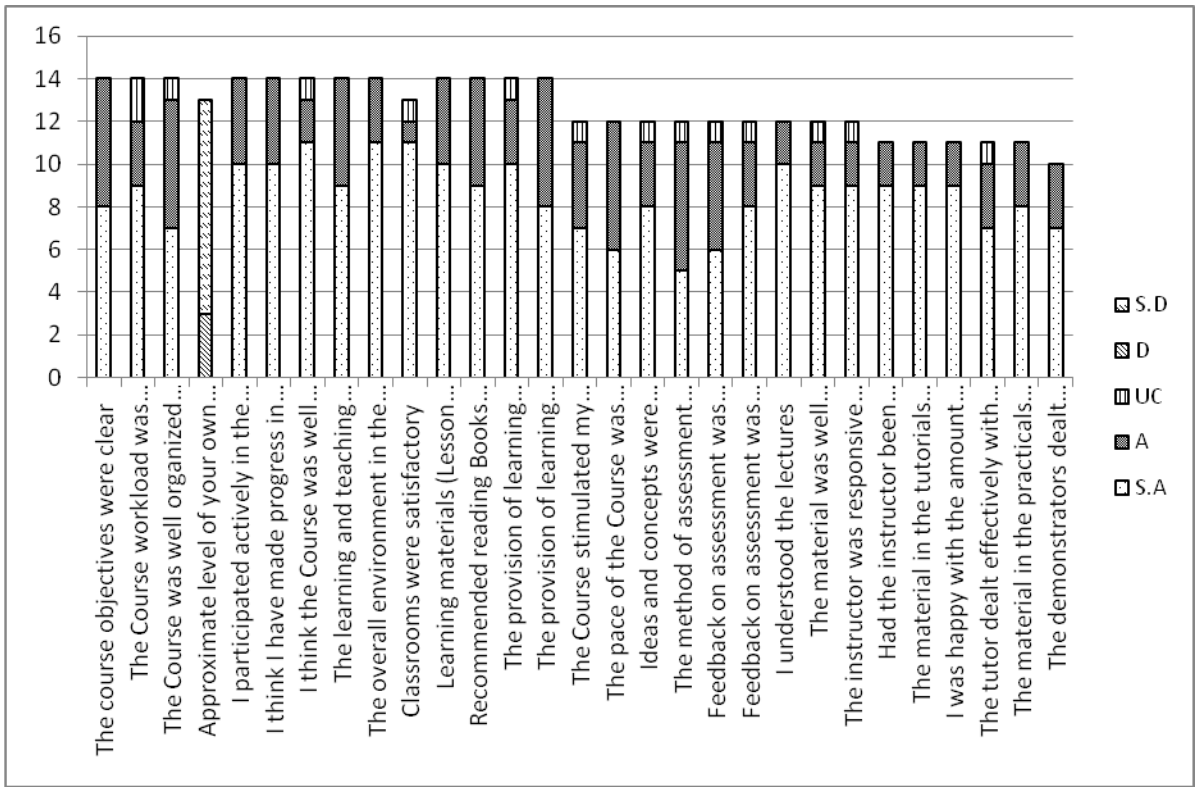
AGR-706	Weed Mangement	4(3-2)	Dr. Allah Wasaya

Data were collected from 16 students. The individual parameter showed that 65% the students strongly agreed, 27% agreed, 4% uncertain, 1% disagreed and 3% strongly disagreed that the course objectives were clear. Data regarding other parameters showed that major proportion of the students agreed that the course workload was manageable, well organized ,the approximate level of student's attendance during the whole course was higher; students participated actively in the course and have made progress in this course, the course was well structured to achieve the learning outcomes ,the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate. They described that the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area. According to most of the students, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable.

Comments / Suggestions

- More practicals will make the course better.
- Lab equipments were not generous.

- Projector and multimedia should be used to deliver lectures.
- There was lack of practical demonstrations in the practical part of the course.
- No doubt the course was informative and interesting.



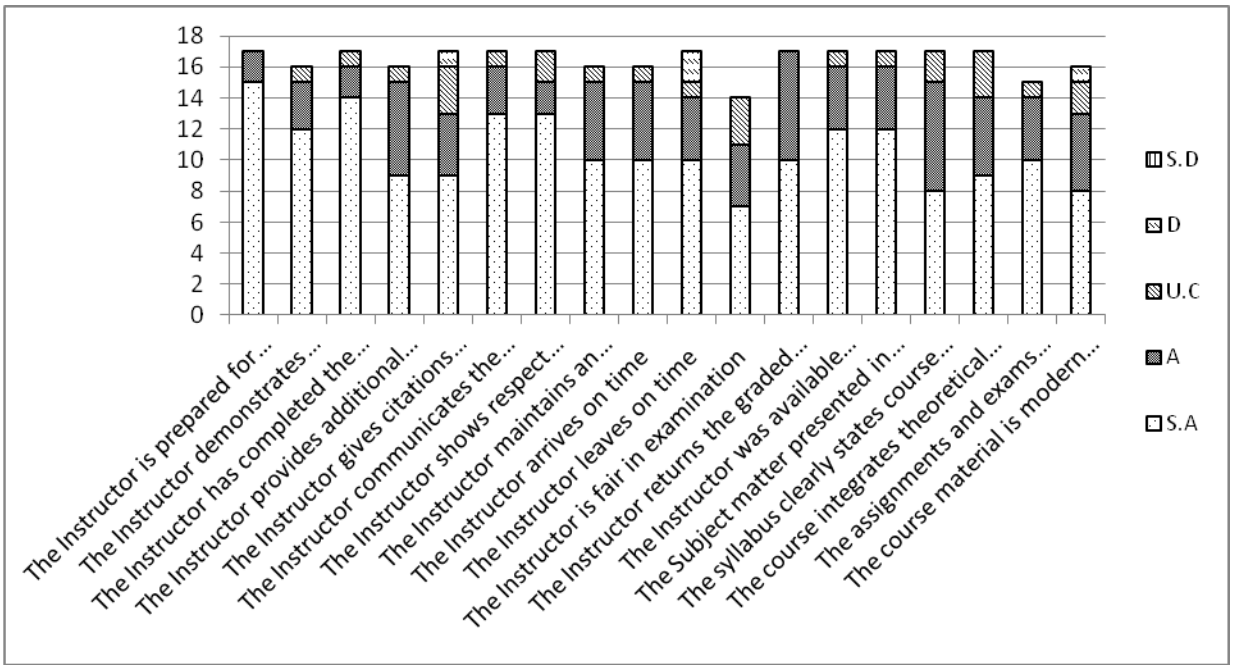
3. Dr. Zammurad Iqbal Ahmed

i. Teacher Evaluation

Data were collected from 18 M. Sc. students. The evaluation criteria parameters showed that the 65% of the students strongly agreed, 26% agreed, 8% uncertain, 1% disagreed, and 0% strongly disagreed that the instructor was prepared for each class. The data of other parameters inferred that major proportion of the students are agreed that the teacher was fair in examination, came with good preparation, the instructor demonstrates knowledge of the subject, instructor had completed the whole course, the Instructor provided additional material apart from the textbook, the Instructor gave citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintained an environment that was conducive to learning, the instructor arrived on time, the Instructor returned the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours after class for consultations.

Comments/Suggestions

1. Kind and good teacher with amiable and parental attitude with the students.
2. Always teaches his practical experiences to make the understanding of the subject effective.
3. Course was accomplished in appropriate time and was very motivating.



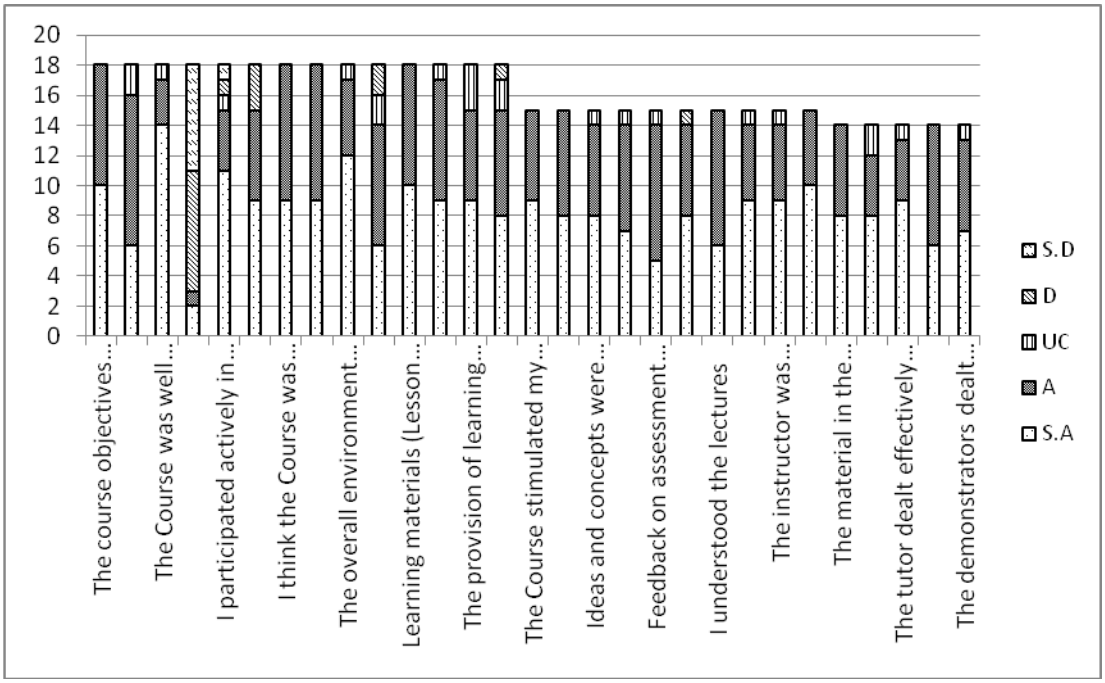
ii. Course Evaluation

AGR-707	Field Crop Experimentation	4(3-2)	Dr. Zammurad Iqbal Ahmed

Data were collected from 18 M. Sc students.The individual parameter showed that 51% the students strongly agreed, 39% agreed, 5% uncertain, 3% disagreed and 2% strongly disagreed that the course objectives were clear. Data regarding other parameters showed that major proportion of the students agreedabout the effectiveness and objectivity of the course, the course objectives were clear, the course workload was manageable, well organized , the approximate level of student's attendance during the whole course was higher; students participated actively in the course and have made progress in this course. Most of the students agreed that the course was well structured to achieve the learning outcomes,the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate, the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area. According to most of the students, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable.

Comments / Suggestions

- The course can be improved by adding more tours and practical demostrations.
- There was lack of practical demonstrations in the practicals.



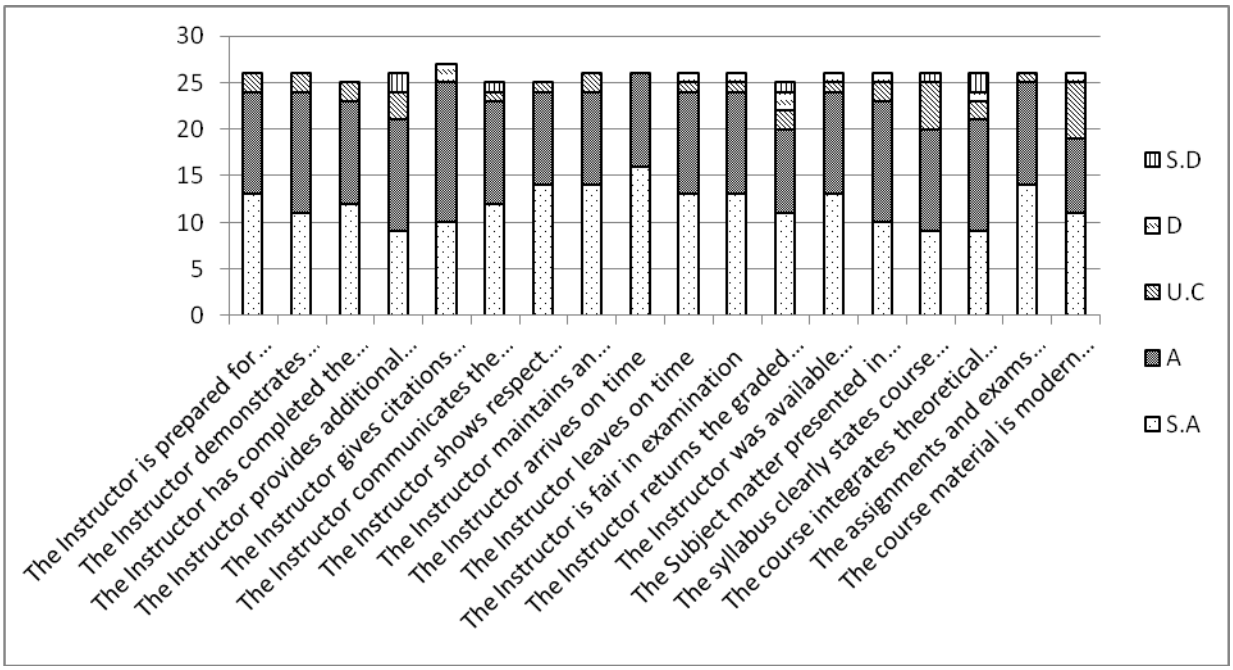
4. Prof. Dr. MuhammadAzim Malik

i. Teacher Evaluation

Data were collected from 50 M. Sc. students. The individual parameters showed that the 46%of the students strongly agreed, 43% agreed, 7% uncertain, 2% disagreed, and 2% strongly disagreed that the instructor was prepared for each class. The data of rest of the parameters inferred that major proportion of the students are agreed that the teacher is fair in examination, the instructor came with good preparation the instructor demonstrates knowledge of the subject, instructor had completed the whole course, the instructor provided additional material apart from the textbook, the instructor gave citations regarding current situations with reference to Pakistani context, the instructorcommunicates the subject matter, the instructor shows respect towards students and encourages class participation effectively, the instructor maintained an environment that was conducive to learning, the instructor arrived on time, the instructor returned the graded scripts etc. in a reasonable amount of time, the instructorwas available during the specified office hours after class for consultations, the Subject matter presented in the course had increased their knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated.

Comments / Suggestions

- He conveyed the lectures in a conceptual way.
- More practicals must be arranged in labs.
- Prepared for each class.
- Good behavior of the teacher and was available any time.
- Completed course in time.
- He had full command in the subject.



ii. Course Evaluation

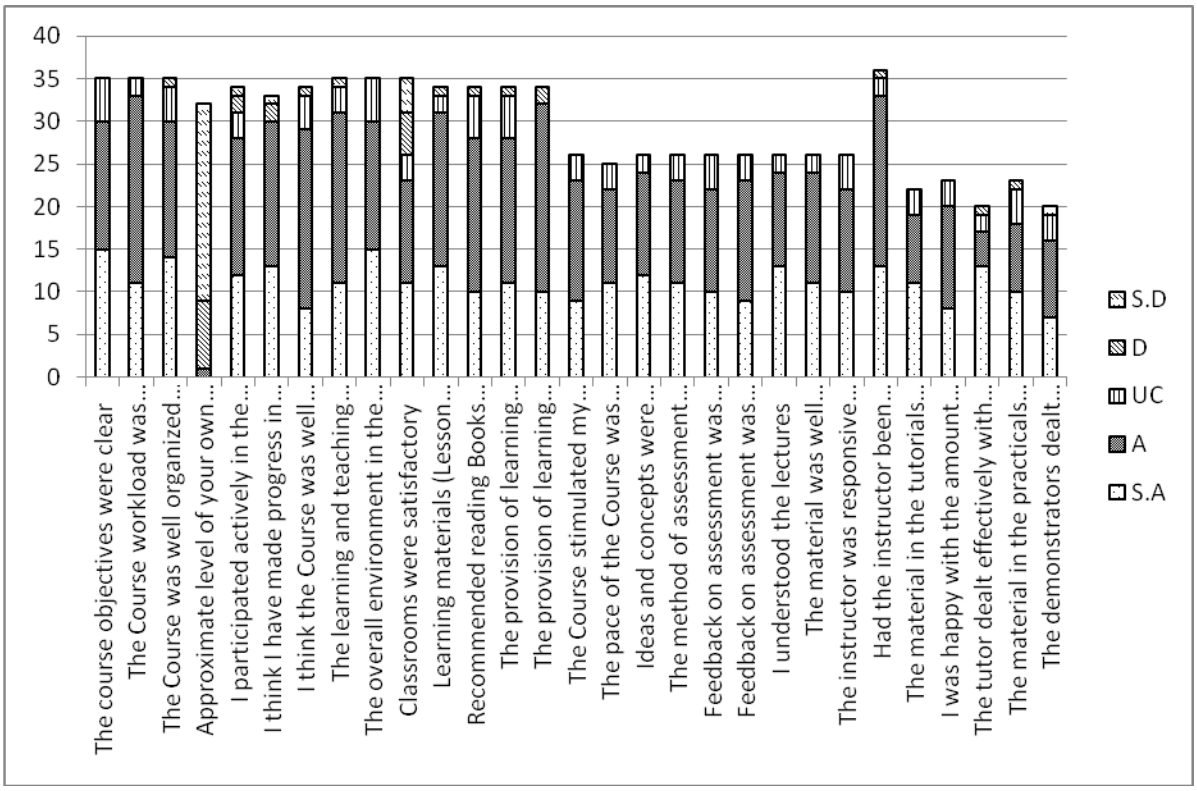
AGR-713	Seed Physiology	3(3-0)	Prof. Dr. Muhammad Azim Malik

Data were collected from 49M. Sc. students. The individual parameters showed that the 38%of the students strongly agreed, 49% agreed, 10% uncertain, 3% disagreed, and 0% strongly disagreed that the instructor was prepared for each class.Data regarding other parameters showed that most of the students agreed about the effectiveness and objectivity of the course, the course workload was manageable, well organized , the course was well structured to achieve the learning outcomes, the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials were relevant, recommended reading books etc. were relevant and appropriate, provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area,, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful.

Comments / Suggestions

- The course was thought provoking and informative.
- Course can be improved by adding more practicals and tours.

- Lab equipments/facilities are needed to be improved.
- Classrooms condition should be improved.
- Course was interesting and conceptual



ii. Dr. Muhammad Azim Malik

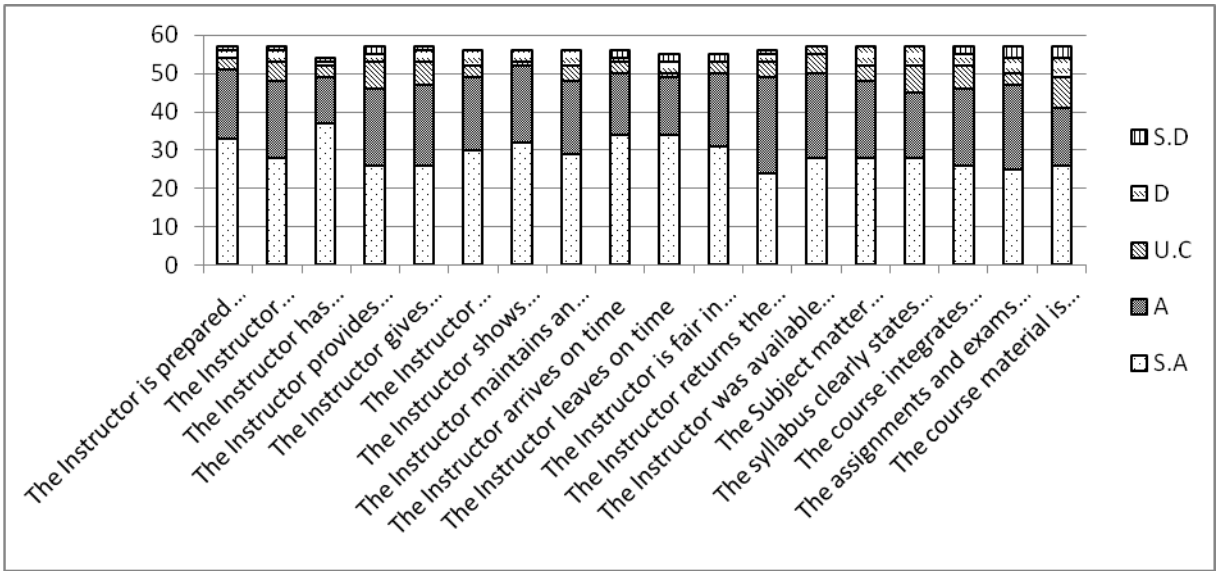
i. Teacher Evaluation

Data were collected from 58 M. Sc. students. The individual parameters showed that the 52%of the students strongly agreed, 34% agreed, 7% uncertain, 5% disagreed, and 2% strongly disagreed that the instructor was prepared for each class. The data of rest of the parameters inferred that major proportion of the students are agreed that the teacher is fair in examination, the instructor came with good preparation the instructor demonstrates knowledge of the subject, instructor had completed the whole course, the instructor provided additional material apart from the textbook, the instructor gave citations regarding current situations with reference to Pakistani context, the instructor communicates the subject matter, the instructor shows respect towards students and encourages class participation effectively, the instructor maintained an environment that was conducive to learning, the instructor arrived on time, the instructor returned the graded scripts etc. in a reasonable amount of time, the instructor was available during the specified office hours after class for consultations, the Subject matter presented in the course had

increased their knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated.

Comments / Suggestions

- He conveyed the lectures in a conceptual way.
- More practical must be arranged in labs.
- Prepared for each class.
- Good behavior of the teacher and was available any time.
- Completed course in time.
- He had full command on the subject.



ii. Course Evaluation

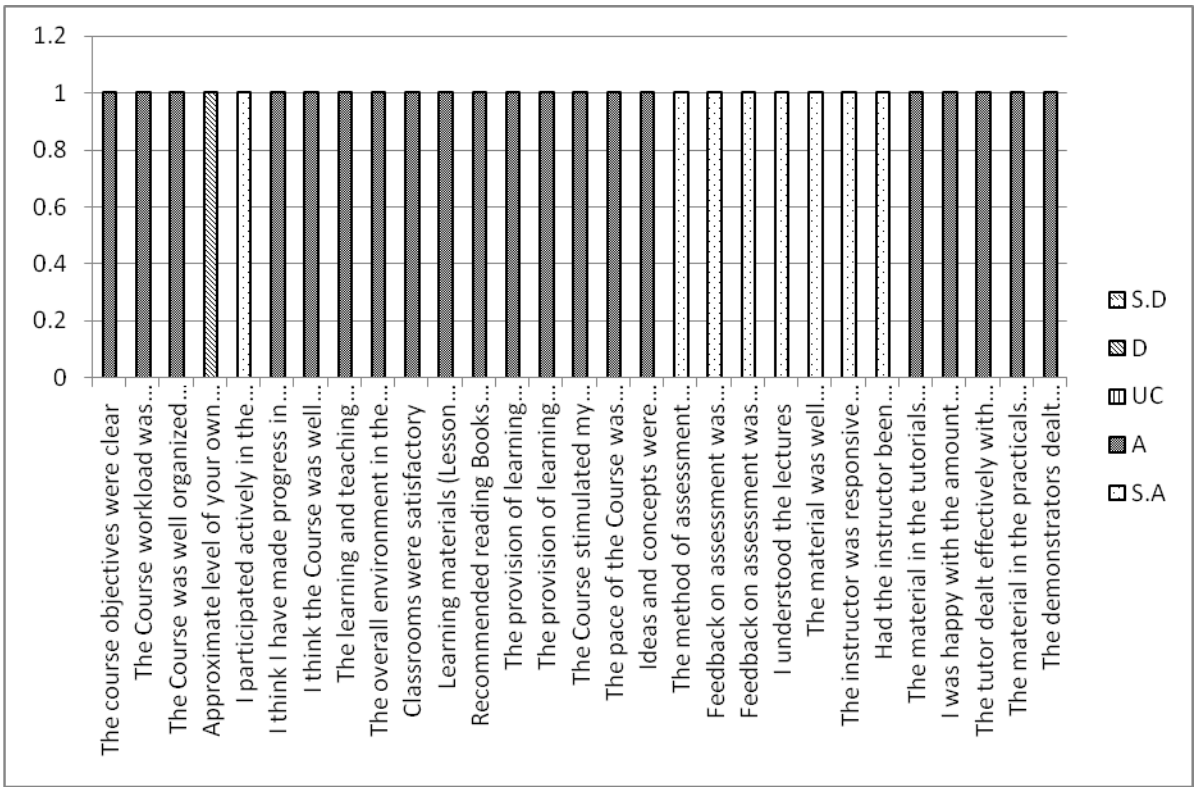
AGR-703	Dryland Agro-Management	3(3-0)	Dr. Muhammad Azeem Malik

Data were collected from 58M. Sc. students. The individual parameters showed that the 28%of the students strongly agreed, 69% agreed, 0% uncertain, 3% disagreed, and 0% strongly disagreed that the instructor was prepared for each class.Data regarding other parameters showed that most of the students agreed about the effectiveness and objectivity of the course, the course workload was manageable, well organized , the course was well structured to achieve the

learning outcomes, the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials were relevant, recommended reading books etc. were relevant and appropriate, provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area,, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful.

Comments / Suggestions

- The course was thought provoking and informative.
- Course can be improved by adding more practical and tours.
- Lab equipments/facilities are needed to be improved.
- Classrooms condition should be improved.



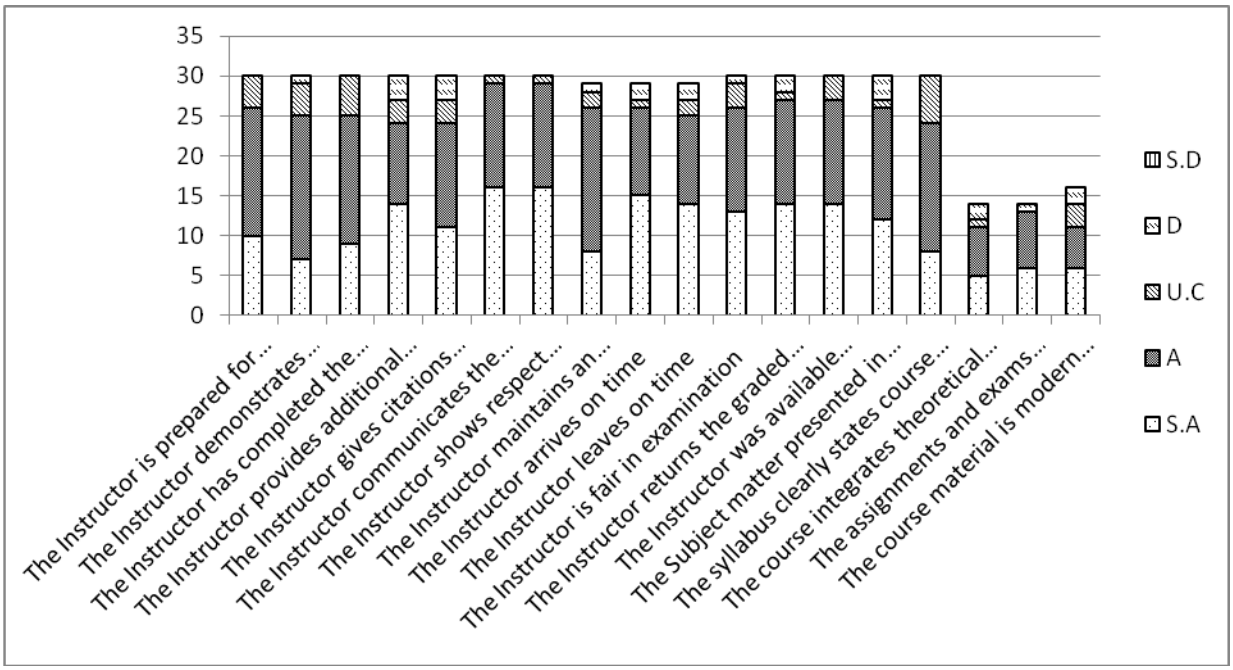
5. Dr. Irfan Aziz

i. Teacher Evaluation

Data were collected from 43 M. Sc. students. The individual parameters showed that the 40%of the students strongly agreed, 46% agreed, 9% uncertain, 5% disagreed, and 0% strongly disagreed that the instructor was prepared for each class. The data of rest of the parameters inferred that major proportion of the students are agreed that the teacher is fair in examination, the instructor came with good preparation the instructor demonstrates knowledge of the subject, instructor had completed the whole course, the instructor provided additional material apart from the textbook, the instructor gave citations regarding current situations with reference to Pakistani context, the instructorcommunicates the subject matter, the instructor shows respect towards students and encourages class participation effectively, the instructor maintained an environment that was conducive to learning, the instructor arrived on time, the instructor returned the graded scripts etc. in a reasonable amount of time, the instructorwas available during the specified office hours after class for consultations, the Subject matter presented in the course had increased their knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated.

Comments / Suggestions

iii. He conveyed the lectures in such a way that we understood them properly.
iv. Need of more practical work in labs.
v. Good behavior of the teacher and was available in most of the time.
vi. Completed course in time.
vii. Prepared for each class.
viii. He had full command in his subject.



ii. Course Evaluation

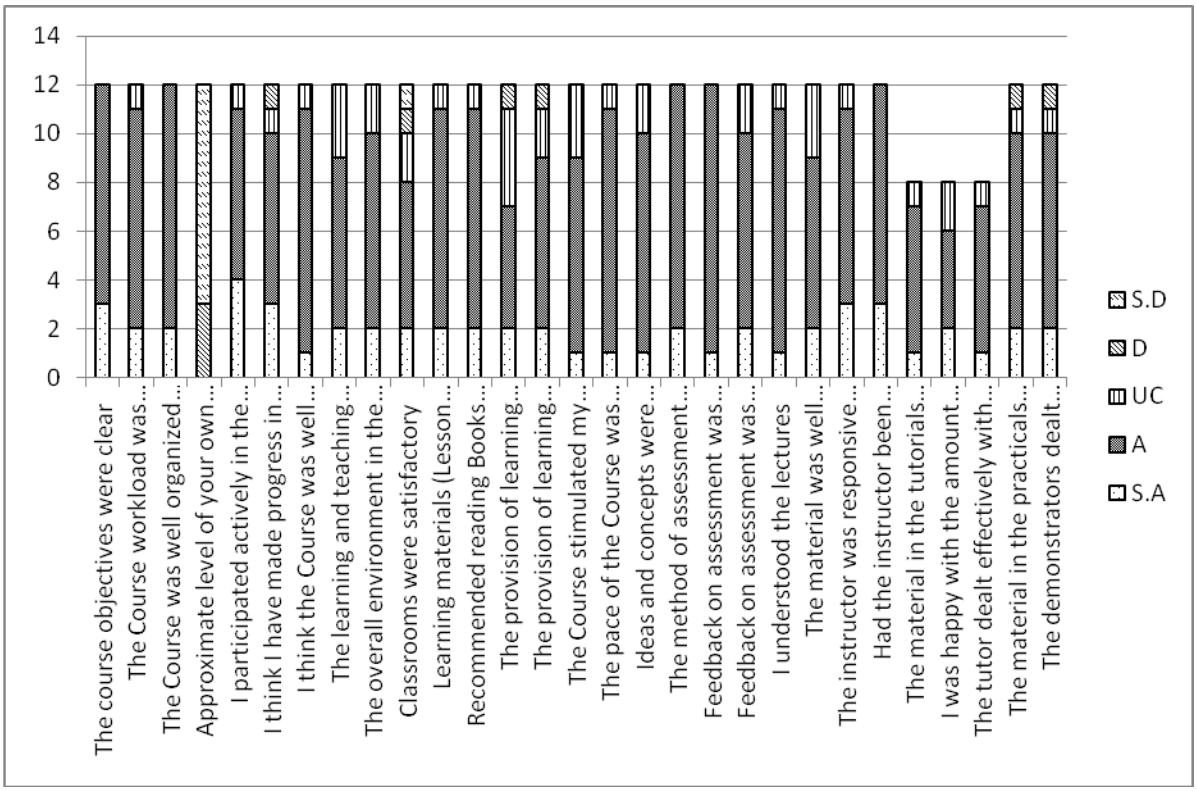
AGR-716	Principles of Remote Sensing	3(2-2)	Dr. Irfan Aziz

Data were collected from 42M. Sc. students. The individual parameters showed that the 16%of the students strongly agreed, 67% agreed, 11% uncertain, 3% disagreed and 3% strongly disagreed that the instructor was prepared for each class Data regarding other parameters showed that most of the students agreed about the effectiveness and objectivity of the course, the course workload was manageable, well organized , the course was well structured to achieve the learning outcomes, the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials were relevant, recommended reading books etc. were relevant and appropriate, provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area,, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful.

Comments / Suggestions

- The course was very inclusive and presents the prodigy of agronomic principles.

- Course contents were properlyplanned
- Course effectiveness can be improved by increasing practicals and field outings.
- Lack of ultimate environment of the class which is desirable to be improved.
- Course was properly completed and course objectives were clear.



6. Dr. Ghulam Qadir

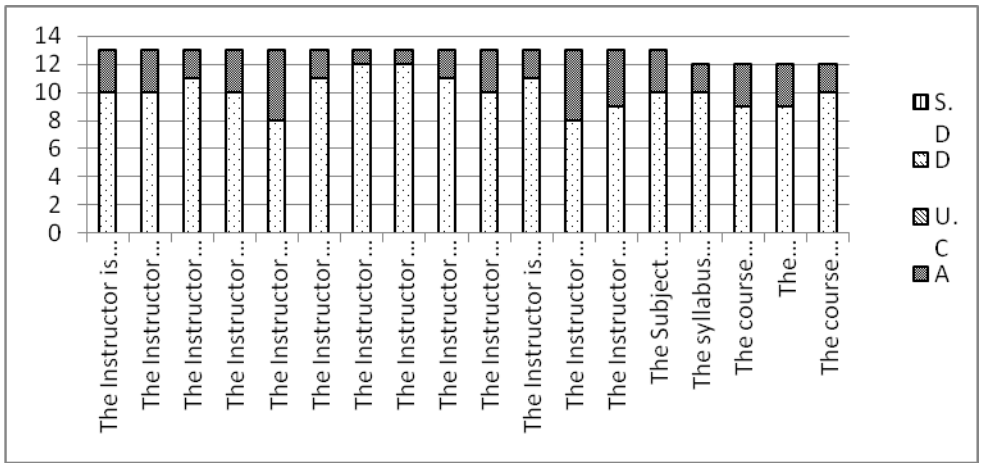
i. Teacher Evaluation

Data were collected from 12 students. The evaluation criteria parameters showed that the 79% of the students strongly agreed, 21% agreed, 0% uncertain, 0% disagreed, and 0% strongly disagreed that the instructor was prepared for each class. The data of other parameters inferred that major proportion of the students are agreed that, the performance and expertness of the teacher, the instructor came with good preparation. ,instructor demonstrates knowledge of the subject, instructor had completed the whole course, the Instructor provided additional material apart from the textbook, the Instructor gave citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintained an environment that was conducive to learning, the Instructor arrived on time, the Instructor returned the graded scripts etc. in a

reasonable amount of time, the Instructor was available during the specified office hours after class for consultations, the Subject matter presented in the course has increased their knowledge of the subject, the syllabus clearly states course objectives requirements, procedures and grading criteria, the course integrates theoretical course concepts with real-world applications, and the assignments and exams covered the materials presented in the course, the course material is modern and updated.

Comments / Suggestions

- Instructor was fine in conduct and always wearisome to assist.
- Instructor was prepared for each class.



ii. Course Evaluation

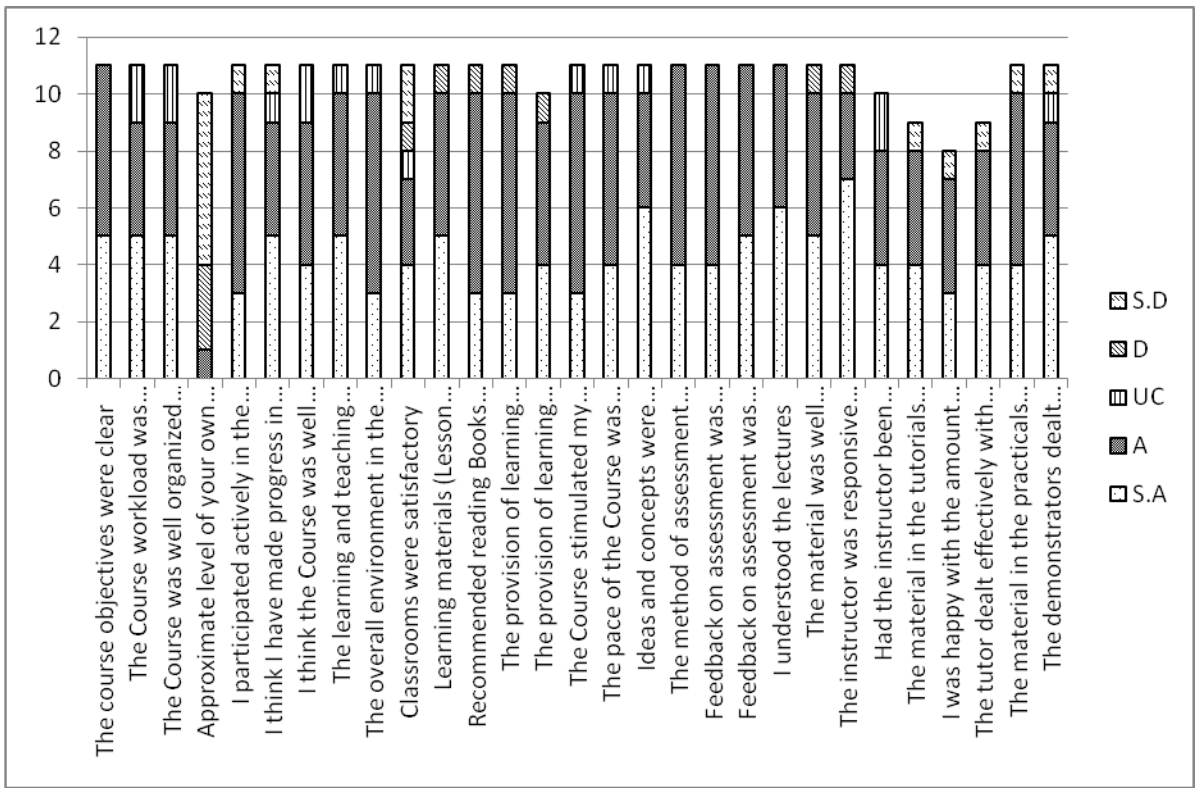
AGR-708	Advanced Seed Technology	4(3-2)	Dr. Ghulam Qadir

Data were collected from 13 students. The individual parameter showed that 41% the students strongly agreed, 50% agreed, 5% uncertain, 3% disagreed and 0% strongly disagreed that the course objectives were clear. Data regarding other parameters showed that major proportion of the students agree the course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.). Similarly, they agreed that the learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate, the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area. The pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable, the

material was well organized and presented, the instructor was responsive to student needs and problems, instructor was regular throughout the course and the material in the tutorials was useful.

Comments / Suggestions

- Learning atmosphere in class was not reasonable.
- The objectives of the course should be very clear.
- Appropriate information about course was not offered in the books available in library.
- Practically, lab requirements were not satisfactory.



7. Dr. Abdul Rasheed

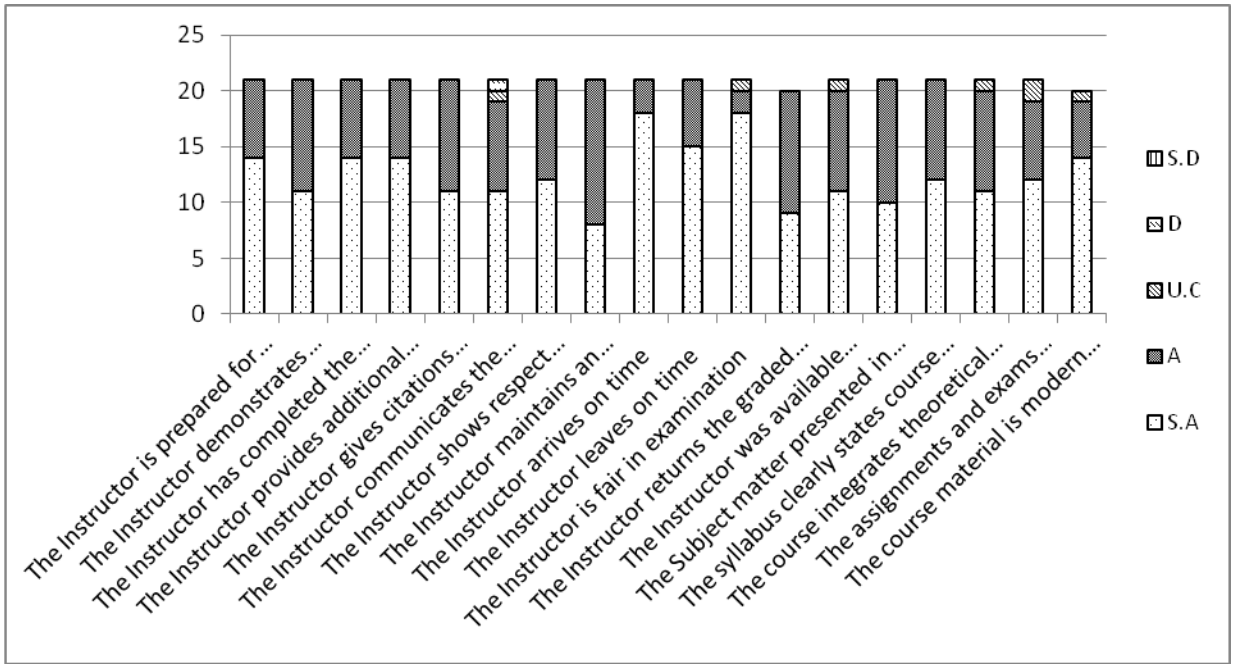
i. Teacher Evaluation:

Data were collected from 27M. Sc. students.The individual parameter showed that 60% the students strongly agreed, 38% agreed, 2% uncertain, 0% disagreed and 0% strongly disagreed that the course objectives were clear. The data of other parameters inferred that major proportion of the students are agreed that the teacher was fair in examination , came with good preparation, the instructor demonstrates knowledge of the subject, instructor had completed the whole course, the Instructor provided additional material apart from the textbook, the

Instructor gave citations regarding current situations with reference to Pakistani context, the Instructor communicates the subject matter, the Instructor shows respect towards students and encourages class participation effectively, the Instructor maintained an environment that was conducive to learning, the instructor arrived on time, the Instructor returned the graded scripts etc. in a reasonable amount of time, the Instructor was available during the specified office hours after class for consultations.

Comments/Suggestions

1. Kind and good teacher with amiable and parental attitude with the students.
2. Always teaches his practical experiences to make the understanding of the subject effective.
3. Course was accomplished in appropriate time and was very motivating.



ii. Course Evaluation

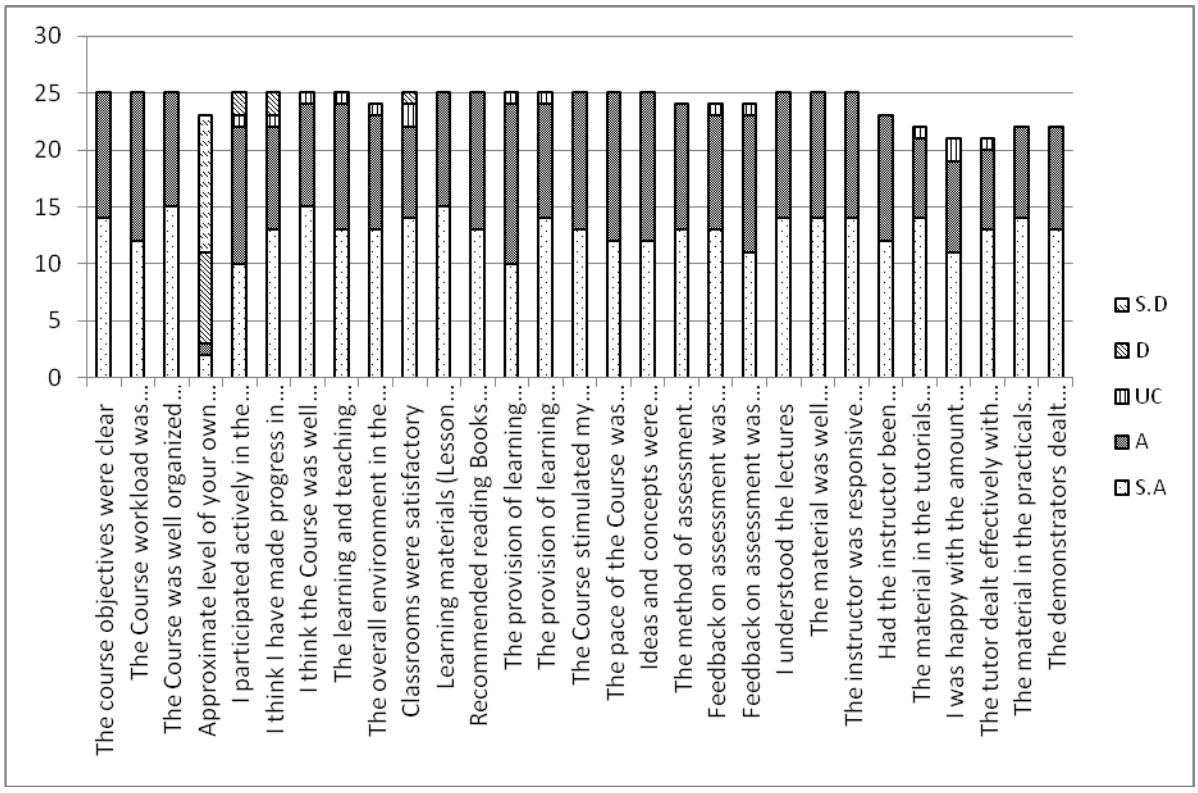
AGR-710	Crop Nutrition	3(2-2)	Dr. Abdul Rasheed

Data were collected from 21M.Sc. students.The individual parameter showed that 52% the students strongly agreed, 42% agreed, 2% uncertain, 2% disagreed and 2% strongly disagreed that the course objectives were clear. Data regarding other parameters showed that major proportion of the students agreedabout the effectiveness and objectivity of the course,the course objectives were clear, the course workload was manageable, well organized , the approximate level of student's attendance during the whole course was higher; students

participated actively in the course and have made progress in this course. Most of the students agreed that the course was well structured to achieve the learning outcomes. The learning and teaching methods encouraged participation, the overall environment in the class was conductive to learning, and classrooms were satisfactory, learning materials (Lesson Plans, Course Notes etc.) were relevant and useful, recommended reading books etc. were relevant and appropriate, the provision of learning resources in the library was adequate and the course stimulated their interest and thought on the subject area. According to most of the students, the pace of the Course was appropriate, ideas and concepts were presented clearly, the method of assessment were reasonable.

Comments / Suggestions

- The course can be improved by adding more tours and practical demonstrations.
- There was lack of practical



Proforma 2: Faculty Course Review Report

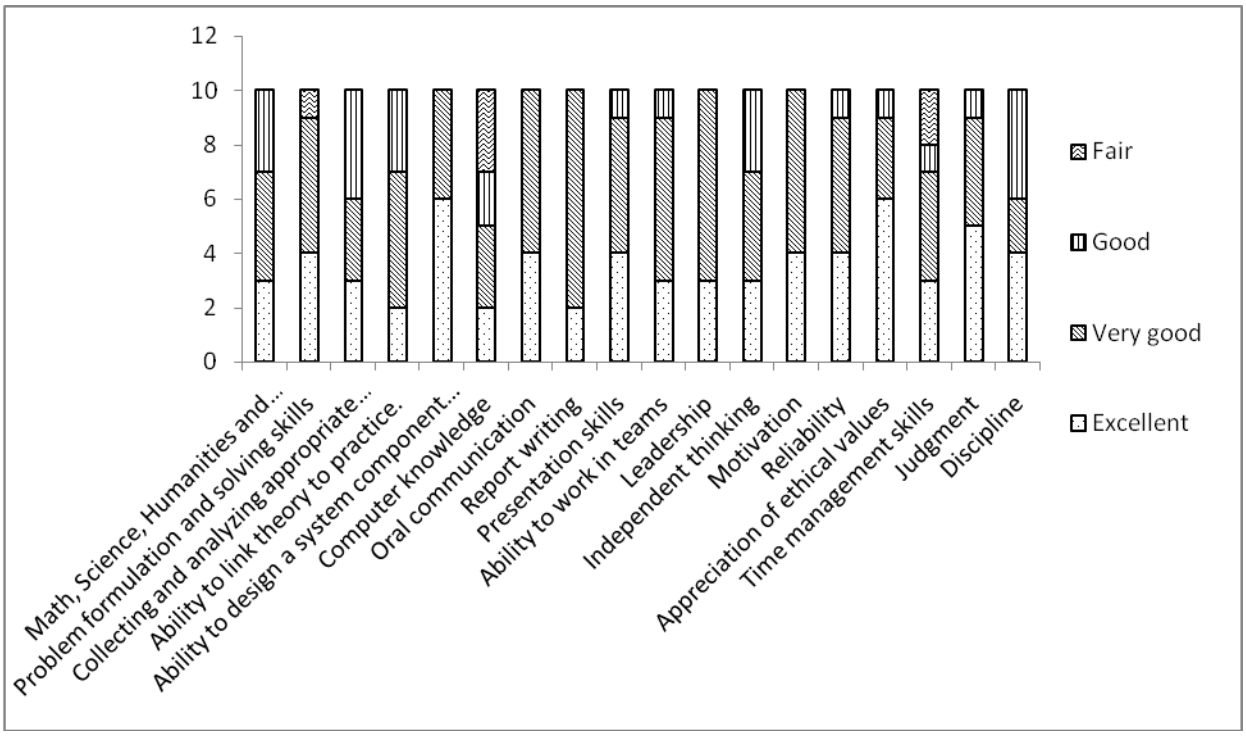
The evaluation revealed that the faculty is satisfied with curricula. Proformas for evaluation has been filled and analyzed. The internal evaluation was done through semestoral

examinations for all courses offered by department. Some of the teachers suggested splitting up of certain courses as they were lengthy.

Course code	Title	Credit Value	Assessment Methods/ Exams	No. of Students	comments on curriculum	Any changes for future in course	Semester	%Grade		
								A	B	C
AGR-707	Field Crop Experimentation	4(3-2)	Mid term And Final	18	The course was interesting	The course Should be add more expamples	Fall	45	37	18
AGR-717	Integrated Agriculture	4(3-2)	Mid term And Final	7	The course was ecelence	The course Shouldinclude demonstration sites	Spring	39	49	12
AGR-703	Dryland Agro-management	3(3-0)	Mid term And Final	50	The course was up to the mark	The course Should include visit	Fall	18	56	15
AGR-704	Crop environment	3(2-2)	Mid term And Final	6	Excellent but lengthy	Should be divided	Spring	57	20	6
AGR-706	Weed management	4(3-2)	Mid term And Final	16	The course was Very good	The course should include more visit	Fall	31	43	19
AGR-716	Principle of Remote Sensing	3(2-2)	Mid term And Final	43	The course was new and onteresting	The course should foucs on the applied side	Spring	47	23	20
AGR-708	Advanced seed technology	4(3-2)	Mid term And Final	13	The course was well prepared	No	Spring	53	25	18
AGR-710	Crop Nutrition	3(2-2)	Mid term And Final	21	The course was well organized	No	Spring	58	14	

Proforma 3: Survey of Graduating Students

A total of 45 students were included in the survey. The datashowed that 59% of the students were very satisfied (VS), 28% satisfied, 18% uncertain, 2% dissatisfied and 3% very dissatisfied for the work in the program is too heavy and induces a lot of pressure. Moreover, most of the students were very satisfied with program administration, development of analytical and problem solving skills, the program is effective in developing independent thinking, written communication skills and planning abilities, the contents of curriculum are advanced and meet program objectives, faculty was able to meet the program objectives and the environment was conducive for learning.



Proforma 4 :Research Student Progress Review Form

A total of 16 students of M.Sc. (Hons.) were surveyed. Most of the students of the Masters are interested in laboratory work and eager to operate modern equipments. They pointed out the problems regarding to the availability of space, computers and internet which is very poor.

Skills and Capabilities Reflected in Performance as Agronomist

- Students will be able to work in the field of Agronomy with confidence.
- To develop abilities of effective writing, oral presentations and demonstration.

- To use modern techniques/ tools in research studies

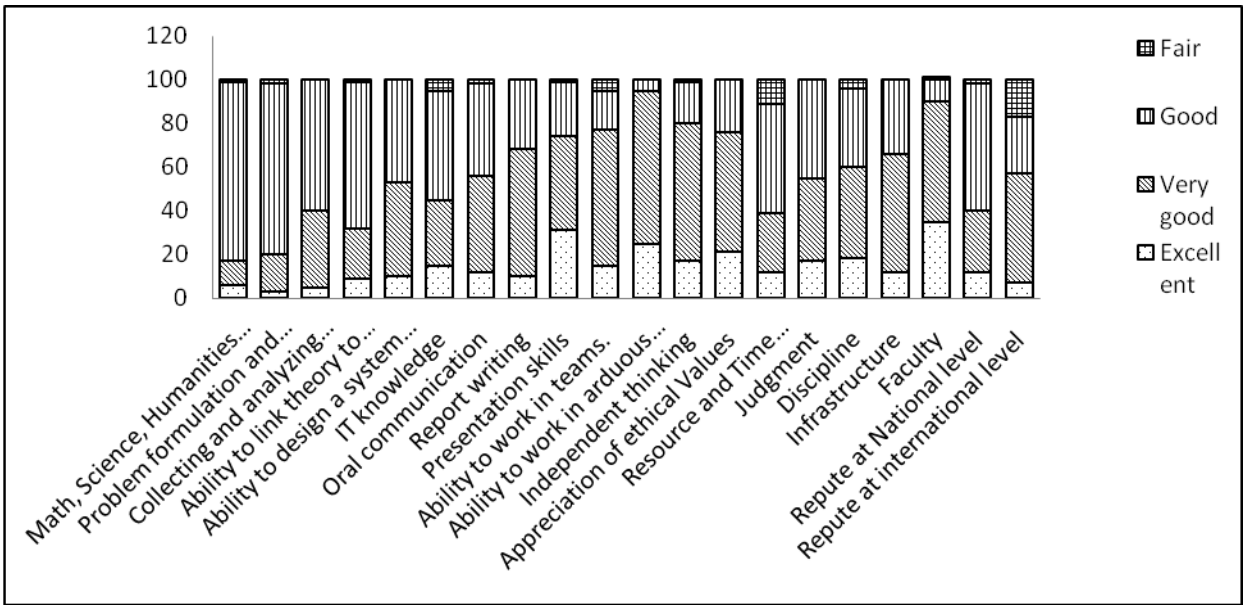
Performa 5: Results of Faculty Survey

The data generated as a result of faculty survey, showed that 31% of faculty members were very satisfied , 23% satisfied, 23 uncertain, 15% dissatisfied and 8% very dissatisfied are satisfied with their job clarity about promotion process . However, most of the faculty themselves reported as very satisfied mentoring and administrative support, job security, support from the department, their progress through ranks. The least time availability to faculty to interact with their family is due to extra load on present teachers as some times of the faculty members proceed on training, workshops etc so the poor strength of remaining faculty in the campus has to bear out the load of course work and other assignments.

	Dr. M. Azim	Dr. F.U.Hassan	Dr. Z.I.Ahmed	Dr. A.Razzaq	Dr. M.Ansar	Dr. M.Rasheed	Dr. I. Aziz	Dr. A.Manaf	Dr. Mukhtar Ahmed	Dr. A. Wasaya
Your mix of research, teaching and community service	B	A	B	B	A	B	B	B	B	A
The intellectual stimulation of your work.	B	B	B	B	B	B	B	A	B	A
Type of teaching / research you currently do.	B	A	B	B	B	A	A	A	B	A
Your interaction with students.	A	A	A	B	B	B	B	B	A	B
Cooperation you receive from colleagues.	A	B	B	A	B	B	B	A	B	B
The mentoring available to you.	B	B	B	B	B	B	B	B	B	B
Administrative support from the department.	A	B	B	B	B	B	B	B	B	C
Providing clarity about the faculty promotion process.	A	B	C	B	B	B	B	B	D	A
Your prospects for advancement and progress	B	B	C	B	B	B	B	B	D	A

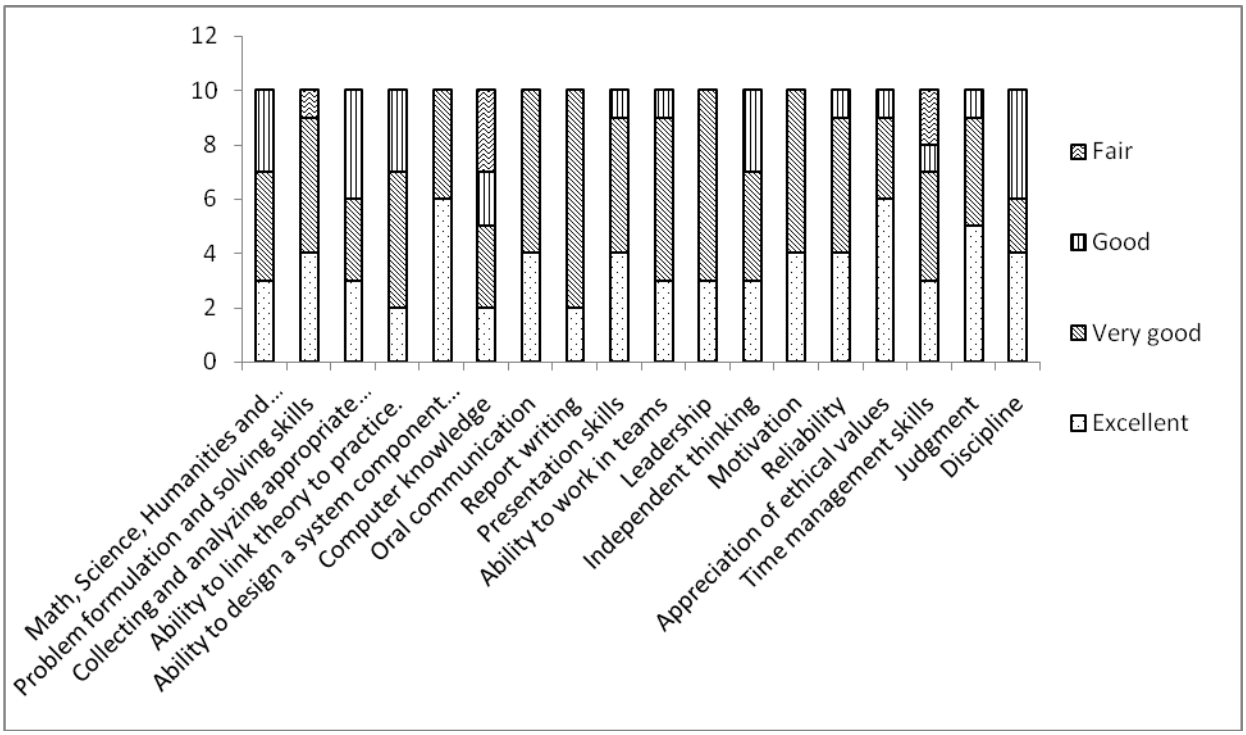
Proforma 7:Alumni Survey

The purpose of this survey was to obtain alumni input on the quality of education and research they received and the level of preparation they had at University. A total of 57 alumni were surveyed. The data showed that the alumni reported 54% excellent, 30% very good, 14% good, 2% fair and 0% poor knowledge of Math, Science, Humanities and professional discipline. Also most of the Alumni reported excellent concerning department trained them excellently about the interpersonal skills such as team work,,training of oral communication, IT knowledge, report writing and management skills, department hasexcellent infrastructure and repute, working in difficult conditions and independent philosophy, learnt excellent administration of resource and time, learnt excellent power of judgment.



Proforma 8:Employer Survey

The rationale of this survey is to obtain employers input on the quality of education, the department is providing and to assess the quality of the academic program. The survey included University graduates employed in different organizations. A total of 11 employers provided the data. The generated data showed the report of the employers about the Math, Science, Humanities and professional discipline was as 49% excellent, 35% very good, 3% good, 2% fair and 1% poor.All the employers significantly favoured the excellent performance of the candidates as regards different aspects of the professional life like power of problem formulation and solving skills, and have great ability of oral communication and are reliable and morally sound. Employers showed a little apprehension about computer skills of the students.



Standard 1.3:Strength of the Department

The results are being communicated to the respective departmental head through the Dean for corrective measures where needed.

Strength of the department

The main strength of the department is the availability of highly qualified teachers and their full acquaintance with respective subjects. Majority of the faculty members are foreign qualified and are well versatile in their area of interest.

Weakness Identified in the Program:

Lack of space and infrastructure to transfer the recommendations and technology to the farmers. Partial access to latest literature and updated review. There is a lower frequency deputing the young faculty for foreign trainings ..

Major Feature of Improvement Plans

Quality education in the department is met partially through audio visual aids and use of modern equipments along with provision of latest literature, journals, books, reviews and access to internet.

The augmentation of knowledge and skills of faculty members to keep them up in pace with the latest global advancements in the discipline through is being practiced through faculty exchange

programs (FEP), short training and collaborative research project (CRP) within and outside Pakistan.

Program out comes:

Table 3: Quantitative Assessment of the Department

Sr. #	Particular	No	Remarks
1.	M.Sc (Hons.) Degree awarded	138	A few of the students joined Ph.D. Degree program and rest of the students got jobs in public and private institutes/organizations.

The evaluation process indicated high efficiency of system and satisfactory impact of outcomes. Almost all the graduates students got jobs in various organizations viz provincial agricultural department, universities, research organizations, banks and private firms.

Skills and capabilities Reflected in performance as Agronomy:

Students build up potential to apply information of Agronomy and to work as professionals to build self-confidence and communicate successfully in writing and oral skills. Students are able to make obvious use of modern research tools, techniques and skills for building their proficient career. To make them be aware of how to formulate and design the experiments and to work efficiently in a research groups.

Table 4: Present Performance Measures for Research Activities

Sr. Nos.	Name of faculty member	Research Papers	Projects Completed
1.	Dr. Muhammad Azim Malik	8	1(ALP)
2.	Dr. Muhammad Ashraf	7	--------
3.	Dr. Fayyaz-ul-Hassan	9	1 (ALP)
4.	Dr. Zammurad Iqbal Ahmad	6	------
5.	Dr.Abdul Razzaq	7	1(HEC)
6.	Mr. Irfan Aziz	5	--------
7.	Dr. Muhammad Ansar	6	1(PMAS-AAUR)

8.	Dr. Muhammad Rasheed	7	2(PMAS-AAUR)
9.	Mr. Ghulam Qadir	5	----------
11.	Mr. Mukhtar Ahmad	5	1 (PMAS-AAUR)
12.	Dr. Abdul Manuaf	4	----------
13.	Mr. Safdar Ali	1	----------
Total		69 international as well as national	6

Faculty Satisfaction Regarding the Administrative Services

- The department upholds a percentage 4:1 for the academic (technical) and administrative non-technical staff which fulfils the standard set by HEC.
- Administrative meeting (departmental, university, academic council and syndicates) are attended as and when required.
- Regular disposal of office works is practised without reminder from higher authorities .
- Proper records of the following is maintained;
    - Enrolment
    - Research Reports
    - Assignments
    - Tour reports
    - Attendance report
    - Evaluation report

Table No: 5 : Degree Requirements

Degree	Pre-requisites
M.Sc. (Hons.)	Academic minimum score of 2.5 CGPA, 45 credit hours comprising 35 credits of course work and 10 credits of researchthesis, comprehensive examination and thesis writing.

Major future improvement plans

- Establishment of Crop Seed Production ,Research and Training Centre
- Execution of research projects funded by different donor agencies.
- Further Strengthening of Linkages with National/ International organizations. Participatory research activities.

- Establishment of demonstration plots on farmers fields.
- Arranging faculty trainings in advanced countries to equip them with latesdevelopments and research skills.

CRITERION 2:
CURRICULUM DESIGN AND ORGANIZATION

SECTION: 2

Criterion 2: Curriculum Design and organization:

Curriculum design and update is initiated by the faculty members of the Department after the approval of Board of Studies which comprises of senior faculty members and subject specialist who is taken from other faculties or from other Universities or research Institutions. It is headed by the Chairman of the Department. The approved curriculum is then sent to Board of Faculty, headed by the Dean Faculty of Crop and Food Sciences. This Board consists of senior faculty members from all the Departments of the faculty and subject specialists. Finally the curriculum is presented before the Academic Council which is comprised of the Professors, Associate Professors, Faculty Representatives and nominated experts.

Definition of Credit Hour

A student must complete a definite number of credit hours. One credit hour is one theory lecture or two hours practical work per week. One credit hour carries 20 marks. The semester is of 18 weeks.

Degree Plan

M. Sc (Hons.) in Agronomy

The M.Sc (Hons.) degree program consists of 2 academic years / 4 semesters. As a whole a student has to study 35credit hours with 10 credit hours (research work and thesis writing) consisting of total 45 credit hours. Degrees are awarded after completing course work, one year research work, thesis writing and comprehensive examination are mandatory for the M.Sc (Hons.) degree. For Each course 10% marks are reserved for the assignments, 30% marks are for mid-term examination while 60% marks for final examination as per university rules

Pre-requisites

Academic Requirements:

The process of admission well established and followed as per rules and criteria set by HEC. For this purpose an advertisement is given in the National Newspapers by the Registrar office.

Table 6 : Admission requirements for different academic Programme

Degree	Pre-requisites
M.Sc. (Hons.)	B.Sc. (Hons.) Agriculture in Agronomy with minimum CGPA 2.50 GAT score 50%

Degree Requirements:

Degrees are awarded after completing the required number of credit hours (courses). Minimum Grade Point Average for obtaining the degree is 2.50. To remain on the roll of the university, a student shall be required to maintain the following minimum GPA/CGPA in each semester.

Table 7: Degree Requirements

Degree	Pre-requisites
M.Sc. (Hons.)	Academic minimum score of 2.5 CGPA, 45 credit hours comprising 35 credits of course work and 10 credits of research thesis, comprehensive examination and thesis writing.

Examination Weightage

In course work, student's evaluation is done by mid-term examination, assignments/presentations/quizzes and final examination. A student, who misses the mid-term examination, is not allowed a make-up examination and is awarded zero marks in that examination. In case a student does not appear in the final examination of a course, he shall be deemed to have failed in that course. In theory, weightage to each component of examination is as prescribed here under:

Mid Examination	30%
Assignments	10%
Final Examination	60%

For practical examination (if applicable) 100% Weightage is given to practical as scored in the final examination. A student is eligible to sit for the examination provided that he/she has attended not less than 75% of the classes in theory and practical, separately. The minimum pass marks for each course are 40 % for B.Sc.

Table 8: Courses vs objectives

Courses	**Objectives**		
	HRD	Research oriented	Integrated
M .Sc. (Hons.) Agriculture	Highly satisfactory	Satisfactory	satisfactory

Standard 2.1:

Assessment of the Curriculum of Agronomy Department

The Curriculum fits very well and satisfies the interior requirements for the program, as specified by the respective accreditation body. The Curriculum satisfied the general arts and professional and other discipline required for the program according to demands and requirements set by the Higher Education Commission (HEC).

Standard 2.2:

Elements vs courses:
Table 9: Elements vs courses

Elements	**Agronomy Courses**
Theoretical background	AGRO-702, AGRO-703, AGRO-704, AGRO-705, AGRO-706, AGRO-708, AGRO-709, AGRO-701, AGRO-711, AGRO-712, AGRO-713, AGRO-714, AGRO-715, AGRO-716, AGRO-717
Problem analysis/ Solution Design	AGRO-707 (Field Crop Experimentation)

Standard 2.3:
Credit hours distribution

Table 10: Credit hours distribution

Elements	Credit hours/ semester	Total credit hours	Course Work	Research and thesis
M. Sc. (Hons.) Agriculture	Minimum 12 Maximum 32	45	35	10

Standard 2.4:

Credit hours and HEC requirement

The courses offered by the department meet the minimum criteria as laid down by Higher Education Commission.

Standard 2.5:

Attendance requirement

Attendance required in each course is 75%, below which the student is not allowed to sit in the examination.

Standard 2.6:

Need for IT courses:

Information technology component of the curriculum must be integrated throughout the program.There is deficiency of information technology related courses but some activities and courses in program are useful to give basic training of IT especially of computer programs.

Standard 2.7:

Enhancement of communication skills

Two seminars included in the course work and presentation of special problem of 1credit hour in addition to the M.Sc.(Hons.) research activities enhances oral and written communication skills of the students .

CRITERION 3
LABORATORIES AND COMPUTER FACILITIES

Laboratory Facilities:

Laboratory titles:

1. Allelopathic Research lab
2. General research lab
3. Stress physiology lab
4. Nutrient efficacy lab

Location and Area:

Faculty of crop and food sciences, Ground floor, Agronomy Department

Objectives:

- Laboratories are used for:

- Practical exercise and demonstrations to students in their major courses
- Research work for the master,s students
- Used for implementing the funded projects by the University, HEC, PSF, PARC and other agencies.
- Laboratories are well spacious and adequate and efforts are being made to update these more advanced and sophisticated research in future.

List of instruments:

S/No.	Name of Equipment	Quantity/No.
1.	Heating Drying Cabinet	Three
2.	Water Distillery apparatus	One
3.	Over Head Projector	Two
4.	Computer with Laser Printer	Two
5.	Freezer	One
6.	pH Meter	One
7.	EC Meter	One
8.	Centrifuge 14000 Rpm	One
9.	Top Loading Balance	Two
10.	Vacuum Pump	One
11.	Water Potential Operates	One
12.	Water Bath	One
13.	Spectrophotometer	One
14.	Leaf Area Meter	Two
15.	Growth Chamber	Two
16.	Flame Photometer	One
17.	Analytical Balance	Two
18.	Osmometer	One
19.	Chiller	One
20.	Digestion Block	One
21.	Mechanical shaker	One

Shortcoming in Laboratory facilities:

- For faculty member and Master,s students equipments for growth analysis/physiological parameters are lacking viz. IRGA, chlorophyll meter, moisture monitoring, Neutron probe, tensiometers, water potential measurement devices. etc
- The department lacks lecture rooms so the research labs are being used for classes.
- A green/glass house is direly needed for controlled experiments.

Safety arrangements:

- There is no proper safety arrangement and no security plans are in the case of emergency.

- There is no emergency exit for the lab and classroom.
- No fire extinguishers have been installed in any laboratory.
- No first aid kits/ facilities provided in the laboratory/department.

Standard 3.1:

Laboratory Manuals

Laboratory manuals of each subject are not available. The department has no library at all. However, individual teachers have their books.

Standard 3.2:

Laboratory Personalsfor Maintenance of Laboratory

Laboratories are maintained by Lab Assistant (01), and Laboratory Attendants(02).

Standard 3.3: Computing Infrastructure and Facilities

Computer facilities are not available to all faculty members and the master,ss students.

SECTION 4

CRITERION 4

STUDENT SUPPORT AND ADVISING

University organizes support programs and provides information regarding admission, scholarship schemes, etc. Department in its own capacity arranges orientation and guides various cultural activities and solve the student's problems, however currently there is no parent teacher association.

Standard 4.1:

Frequency of courses

- Courses are taught as per policy of HEC.
- At master,s level course subjects are offered as per scheme of study provided by HEC and approved.
- Courses are offered according to scheme of study.
- Elective courses are offered as per strategy of HEC and the university.
- For M. Sc. (Hons.), a variety of courses are offered according to demand of the profession.

Standard 4.2:

Structure of the courses

- To ensure effective interaction between students and faculty during course formulation both theoretical and practical aspects are focused.

- Theoretical problems are explained and assignment is also given to the students whereas practical are carried out both in the laboratory as well as in the field
- Courses are structured and decided in the board of study meetings.
- Emphasis is always given for an effective interaction between each section.

Standard 4.3:

Guidance to the Students

- Several steps have been taken to provide guidance to the students such as:
- Students are informed about the program requirement through the office of the head of the department.
- Through the personal communication of the teachers with the students.
- Students can also consult their relevant teachers whenever they face any professional problems.
- In case of some problems, Director, Student Affairs is available who is ready to help the students.
- Student can interact with the teachers in university, whenever they need.
- Realizing the need for exploring job opportunities for the university graduates, Directorate of placement bureau has been established at PMAS-AAUR.

CRITERION 5
PROCESS CONTROL

It includes student admission, registration, faculty recruitment activities which are dealt by various statutory bodies and the university administration.

Standard 5.1:

Program admission criteria

The process of admission is well established and followed as per rules and criteria set by HEC. For this purpose an advertisement is given in the National Newspapers by the Registrar office.

Table 11: Admission requirements

Degree	Pre-requisites
M.Sc. (Hons.)	B.Sc. (Hons.) Agriculture in Agronomy with minimum CGPA 2.50 and GAT score 50% for admission in M.Sc degree programm

Standard 5.2:

Process of registration

- The student name, after completion of the admission process, are forwarded to the registrar office for proper registration in the specific program and registration numbers are issued to the students
- Registration is done for one time for each degree but evaluation is done through the result of each semester, if the students fulfill criteria of the university, they are promoted to the next semester.
- In general, the students are registered on merit basis keeping in view the academic and research standards.

Standards 5.3:

Recruiting Process for Faculty

- Recruitment policy followed the university is recommended by HEC for induction of new faculty is done as per rules:
- Vacant and newly created positions are advertised in the National Newspapers, applications are received by the registrar office and call letters are issued to the short listed candidates on the basis of their experiences, qualifications, publications and other qualities / activities as fixed by the university.
- The candidates are interviewed by the university selection Board. Principal and alternate candidate 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 sanctioned posts.
- Standard set by HEC are followed.
- At present, no procedure exists for retaining highly qualified faculty members, however, the revised pay scales of structures is quite attractive.
- HEC also supports appointment of highly qualified members as foreign faculty professors, National Professors and place them in various departments of the university.

Standard 5.4:

Teaching and Delivery of Course Material

- To help providing high quality teaching, Department periodically revises the curriculum depending upon requirements, innovations and new technology

- With the emergence of new fields, new courses are set and included in the curriculum
- Lecture notes are also prepared by the teachers and given the students.
- Most of the lectures are also supplemented by overheads, slides, pictures.
- All-out efforts are made that the courses and knowledge imparted should meet the objectives and outcomes. The progress is regularly reviewed in the staff meetings.

Standard 5-5:

Completion of Program Requirements

The controller of examinations announces the date of commencement ofexamination. After ~20-30 days of the examinations, the controller office notifies the resultsof the students. The evaluation procedure consists of mid and final examinations, practicalformulas, assignments and reports, oral and technical presentations. Candidates whosecure 80% or more marks are awarded grade A. Gold medals are awarded to the studentswho secure highest marks. Degrees are awarded to the students on the annual convocationthat is held every year.

Examination Weightage

Grading Policy

A grade = 80 % and above
B grade = 65-79 %
C grade = 50-64 %
D grade = 40-49 %
F grade = below 40 %

CRITERION 6

FACULTY

Standard 6.1:
Full Time Faculty
Table 12: Faculty qualification

S. No.	Name of faculty member	Designation	Qualification	Name of Country Awarding Highest Degree	Date of Birth	Email address
1.	Dr. Muhammad Azim Malik	Professor	Ph.D.	USA	20-06-1955	drazim61@gmail.com
2.	Dr. Muhammad Ashraf	Professor	Ph.D.	USA	01-09-1952	muhammad.ashraf@uaar.edu.pk drashraf_150@yahoo.com
3.	Dr. Fayyaz-ul-Hassan Sahi	Professor	Ph.D.	UK	15-05-1963	fayyaz.sahi@uaar.edu.pk
4.	Dr. Zammurad Iqbal Ahmed	Associate Professor	Ph.D.	PK	01-05-1960	azammurad@htomail.com
5.	Dr. Abdul Razzaq	Associate Professor	Ph.D.	China	01-08-1957	abdul.razzaq@uaar.edu.pk
6.	Dr. Muhammad Ansar	Associate Professor	Ph.D.	UK	14-10-1964	Muhammad.ansar@uaar.edu.pk drmatarar@gmail.com
7.	Mr. Irfan Aziz	Assistant Professor	M.Sc. (Hons.)	PK		dIrfan.aziz@uaar.edu.pk
8.	Dr. Muhammad Rasheed	Assistant Professor	Ph.D.	PK	09-10-1962	drrasheed786@gmail.com
9.	Dr. Ghulam Qadir	Associate Professor	Ph.D.	PK	01-12-1968	Qadir@uaar.edu.pk
10.	Dr. Mukhtar Ahmed	Assistant Professor	M. Sc. (Hons.)	PK	01-10-1979	mukhtarahmad@uaar.edu.pk
11.	Dr. Abdul Manaf	Assistant Professor	Ph.D.	PK	20-02-1970	munafawan@yahoo.com
12.	Mr. Safdar Ali	Lecturer	M. Sc. (Hons.)	PK	01-10-1974	safdaraliarid@yahoo.com

Table 13. Faculty Distribution by Program Areas in Agronomy

S. No.	Area of Specialization	Faculty members

1.	Integrated Weed Management, Zero-tillage, Allelopathy	Dr. Muhammad Azim Malik, Dr. Muhammad Ashraf
2.	Oilseed Crops, Crop Water Management	Dr. Fayyaz-ul-Hassan, Dr. Ghulam Qadir Dr. Abdul Manaf
3.	Integrated Plant Nutrient Management, Drought stress physiology, NRM & GIS	Dr. Zammurad Iqbal Ahmed, Dr. Muhammad Rasheed Mr Irfan Aziz
4.	Stress Physiology, Genetic Transformation of Crops.	Dr. Abdul Razzaq
5.	Fodder & Forage Production	Dr. Muhammad Ansar Mr. Safdar Ali
6.	Plant Physiology, Crop Growth Modeling and climate change	Mr. Naveed Tahir Mr. Mukhtar Ahmed

Standard 6.2:

Effective Programs for Faculty Development.

- Professional training and availability of adequate research and academic facilities are provided to the faculty members according to the available resources.
- Currently one faculty member is abroad for post-Doc as sponsored by the HEC.
- Incentives in the form of allowances to theses supervisors have been implemented lately to promote high standard research.
- Existing facilities include mainly internet access, which is available through networking system in addition to library facility with latest books also available.
- Effective programs for faculty development have been introduced.

Standard 6.3:

Faculty member motivation

- Time to time provision of enthusiasm to the young faculty by the senior faculty members.

CRITERION 7

INSTITUTIONAL FACILITIES

Standard 7.1:

Infrastructure

- The department must have the infrastructure to support new trends in learning and research.
- Department has established new laboratory for research related to crop physiology and working on developing new more laboratories.
- Equipments are not suffiecient to meet the current requirement of research.

Lack of Institutional Facilities

- Insufficient facilities regarding the infrastructure to support new trends in learning or prevalent.
- Department library must be developed to provide support to graduate and post graduate students.
- Computer facilities should be provided to the staff and postgraduate students.
- Offices must be adequate to enable faculty to carry out their responsibility.

Standard 7.2:

Library Facilities

The university Central Library has very limited number of books, journals and periodicals. It's a small library in term of space and facilities with no catalogue systems. It does not meet the standards of a university library. Department itself does not have a library.

Standard 7.3:

Class Room and Faculty Offices

No class room available. Research laboratories are being used for teaching purpose also,which affect the working of research students. Two to three teachers are sharing rooms. Unavailability of most modern and related books and internet affects the quality of teaching. Common room for students is also missing.

CRITERION 8

INSTITUTIONAL SUPPORT

- Institutional support is highly appreciated.
- The upgradation of existing teaching cadre also provided and added advantage in detaining the present faculty.

- Sufficient secretarial support, technical staff and office equipment.

Lack of Institutional support

- Due to unavailability of class rooms, classes are taken in the laboratories.
- Financial support should be raised and allocate funds for postgraduate research students.

Standard 8.1:

Support and financial resources

The department has limited funds and Individual research grants for students and faculty are mainly supporting the departmental research activities. There is a dire need for increasing the financial resources allocated to the department to establish a library, laboratories and computer facilities.

Standard 8.2:

High quality Research scholars

The intake is once in a year. A strict merit policy applies and University test/GRE/NTS is preferred.

Standard 8.3:

Financial resources

Total budget of the department of agronomy for the financial years 2010-11 was just 25000 and for the no budget provided which is abig o\constraint for research facilities and meet other departmental expenses etc.

List of Enrolment for last few years

Around 20-25 students get admission in M.Sc. (Hons.) Agriculture in.Agronomy every year.

SUMMARY

Agronomy is a diverse profession that encompasses all aspects of crop production and soil management. The Mission of Agronomy department is to equip and impart training toM.Sc. (Hons.) students for high-quality education for their esteemed and productive living. The department started its M.Sc. (Hons.) degree program in 1996. The Department has well structured academic programme of M.Sc. (Hons) Agriculture. The courses aim to develop and strengthen students capacity to grasp principles and practices Agronomy based on scientific principles. The strong academics enables them to specialize in one or more areas reflecting the student's particular interest. Specialization in Agronomy have inputconsiderate of the current

concepts of crop and edaphic practices. In addition they have sufficient specialist knowledge in selected areas to allow them to pursue a research degree in crop science. M.Sc. (Hons.) students acquire scientific background as well as having gained experience in problem solving and have developed the communication, numerical and computer skills required for a wide range of careers.

In order to evaluate whether department is fulfilling its objectives or not, surveys on various aspects such as course evaluation, teacher evaluation, alumni survey, research/graduating students surveys and faculty survey etc. have been conducted by the departmental members of the program team. The data were collected on prearranged proformas and later on analyzed and presented in the form of graphs and tables. The data revealed that students are satisfied with the subject approach of faculty members, their fairness in examination, and level of knowledge. However, the partial availability of lecture rooms and poor laboratories infrastructure were reported as major hurdles. Course evaluation survey showed that students are satisfied with workload and value of knowledge provided to them. According to research student survey, accessibility of internet and access to various scientific journals is limited. Similarly, the department has limited budget for research purposes which cannot maintain laboratories and research activities. According to employer survey, students are good at job but they have very basic knowledge of information technology and computer skills. Faculty members are pleased with their salaries but they have severe concerns about the workload as most of them are agreed that they have very less time for themselves.

The faculty course review report tinted the need to divide the M.Sc. (Hons) Agriculture class into several section so that the teachers and students have conducive environment for teaching and learning. Some courses were rated as excellent but lengthy. Overall, the program of study was rated very good. The internship programme was reported as highly effective as majority of the internees were satisfied from the programme. However, the problems related to accommodation and research facilities and poor stipend were reported.

The Department has highly qualified and experienced faculty mostly having post doctorate research experience from universities of worldwiderenown. The faculty has produced 69 publications during the last five years in journals of national and international repute. Moreover, five research projects were completed during the reported period; lack of

infrastructure to transfer the recommended practices and technology to farmers. Access to latest literature and availability of updated review is not up to the mark. There is a need for short foreign trainings of young faculty members.

The performance of the department may be further improved considering;

- Split class rooms are required to facilitate the post-graduate students to continue laboratory works without breaks.
- There is a shortage of personal computers and unavailability of Internet which creates many impediments. Improvement in this area will also speed up the level of research and teaching,
- Departmental Laboratories need intensification through new equipments.
- There is also need to recover mix of research and teaching proportion to fabricate professionally sound graduates,
- At present there are no planning for professional training of the staff. Such trainings will improve their abilities for attractive the quality of research and teaching. It would be worthy to point out here that proper man at proper place is not being practiced.
- The budget allocated to the department hardly meets the requirements of the research,
- At present there is no departmental library. Allocation of sufficient funds for this purpose will be helpful in subscribing reputed journals and purchase of books that will ultimately boost quality of learning, teaching and research.

Annexure-1

List of Courses offered by the Department of Agronomy for M.Sc. (Hons.) Agronomy

S. No	Course No.	Title	Credit Hours
1.	AGR-701	Advanced field crop production	4(3-2)
2.	AGR-702	Advanced agronomy	4(3-2)
3.	AGR-703	Dryland agro-management	3(3-0)
4.	AGR-704	Crop environment	3(2-2)
5.	AGR-705	Sustainable agriculture	3(3-0)
6.	AGR-706	Weed management	4(3-2)
7.	AGR-707	Field crop experimentation	4(3-2)

8.	AGR-708	Advanced seed techonology	4(3-2)
9.	AGR-709	Heribicides in crop production	4(3-2)
10.	AGR-710	Plant nutrition	3(2-2)
11.	AGR-711	Recent advances in agronomy	3(3-0)
12.	AGR-712	Plant water relations	3(2-2)
13.	AGR-713	Seed physiology	3(3-0)
14.	AGR-714	Agro-environment conservation	3(3-0)
15.	AGR-715	Seed production and management	3(2-2)
16.	AGR-716	Resources ecology of agriculture	3(3-0)
17.	AGR-717	Integrated agriculture	3(3-0)
18.	AGR-719	Special problem	1(1-0)
19.	AGR-720-I	Seminar	1(1-0)
20.	AGR-720-II	Seminar	1(1-0)

Annexure-2

Proforma 9 FACULTY RESUME

Name	Prof. Dr. Fayyaz Ul Hassan
Personal	Professor of Agronomy Department of Agronomy University of Arid Agriculture, Rawalpindi Phone Office: +92-51-9062217, Cell: 0300-9514597 Fax Office: +92-51-9290160 e-mail:fayyaz.sahi@uaar.edu.pk drsahi63@gmail.com Phone Residence: +92-51-4848187
	Name: Fayyaz-ul-Hassan Date of Birth: 15-05-1963 Father's Name: Abdul Latif Permanent Address: Village & Post Office TOOR, Teh. & Distt. JHELUM
	EDUCATION University/Board — Degree — Year Curtin University of Technology, Perth, Australia — Post Doc — 2007 University of Wales Aberystwyth (UK) — PhD — 1995 University of Agriculture, Faisalabad (Pakistan) — M.Sc(Hons) — 1988 University of Agriculture, Faisalabad (Pakistan) — B.Sc(Hons) — 1986 Board of Intermediate & Secondary Education, Mirpur — F.Sc(Pre-medical) — 1981 Board of Intermediate & Secondary Education, Rawalpindi — Matric(Science) — 1979
Experience	**Date of Appointment** — **Title** — **Institution** 23-06-2007 — Professor of Agronomy — PMAS-AAU, Rawalpindi 29-05-2004 to 22-06-08 — Associate Professor — As above 22-01-1998 to 28-05-04 — Assistant Professor — As above 15-01-1992 to 22-01-98 — Assistant Agronomist — Agric. Dept. Govt. of Punjab 16-11-1989 to 14-01-92 — Agricultural Officer — As above 01-01-1989 to 15-11-89 — Assistant Research Officer — As above
Honor and Awards	University Best Teacher Award for 2007, Awarded by HEC, Islamabad Endeavour Pakistan Research Award by Govt. of Australia, 2007 Overseas Research Students Award 1994-95(Awarded by CVCP UK). Ministry of Education Scholarship for PhD 1992.
Memberships	*Life Member of Old Student Association, University of Wales, Aberystwyth.* Life Member of Agriculture Society, of Wales, Aberystwyth Life Member Soil Science Society of Pakistan Life Member Pakistan Society of Agronomy Life Member Agricultural Foundation of Pakistan Life Member Pakistan Botanical Society

Supervised Students	*PH.D STUDENTS THESIS SUPERVISED* Shuaib Kaleem 2010 Physio-morphic expression of Sunflower in response to environmental variations *Mukhtar Ahmad 2011 Climatic Resilience of Wheat (Triticum aestivum) using simulation modeling in Pothwar* *M.Sc(Hons) STUDENTS THESIS SUPERVISED* Obaid Afzal 2011 Response of Safflower to Integrated Nutrient management. M. Usman Qadir 2011 Comparison of Brassica genotypes for yield and quality traits under rainfed conditions Fozia Kanwal 2011 Response of Safflower to Silicic acid for physio-morphic attributes Farina Shaheen 2011 Response of Safflower to Potassium silicate for drought tolerance Munir Jillani 2012 Response of Brassica hybrids to detoping
Service Activity	Teaching and Research.
Brief Statement of Research Interest	• Crop production and Management. • Oilseed crop production and enhancement. • Alternate crop production. • Soil conservation and crop production
Publications	**PUBLICATIONS IN IMPACT FACTORS & HEC RECOGNIZED JOURNALS** 1. ***Fayyaz-ul-Hassan*** and Muhammad Arif. 2012. Response of white Mustard (*SINAPIS ALBA* L) to spacing under rainfed conditions J. Anim. & Plant Sci. 22:137-141. **(IF.0.585)** 2. Ahmad Sher, Muhammad Ansar, ***Fayyaz-ul-Hassan***, Ghulam Shabbir and Muhammad Azim Malik. 2012. Hydrocyanic Acid Content Variation amongst SorghumCultivars Grown with Varying Seed Rates and Nitrogen Levels. Int. J. Agric. & Biol. 14:720-726. **(IF.0.94)** 3. Mukhtar Ahmed, ***Fayyaz-Ul-Hassan***, M. Aslam and M.A. Aslam. 2012.Physiological Attributes Based Resilience of Wheat to Climate Change. Int. J. Agric. & Biol. 14:407-412. . **(IF.0.94)** 4. Muhammad Akmal, M.S. Altaf, R. Hayat, ***Fayyaz-ul-Hassan***, M. Islam. 2012. Temporal changes in soil urease, alkaline phosphatase and Dehydrogenase activity in rainfed wheat field of Pakistan. J. Anim. & Plant Sci. 22:457-462. **(IF.0.585)** 5. Mukhtar Ahmed, ***Fayyaz-ul Hassan*** and M. Asif. 2012. Physiological response of bread wheat (*Triticum aestivum* L.) to high temperature and moisture stresses. Aust. J Crop Sci. 6:749-755. . **(IF.1.623)** 6. ***Fayyaz-ul-Hassan*** and Mukhtar Ahmed 2012. Oil and fatty acid composition of peanut cultivars grown in Pakistan. Pak. Jour. of Botany, 44(2):627-630. . **(IF.0.94)** 7. Muhammad Islam, S. Ali, S. Mohsin, R. Khalid, ***Fayyaz-ul-Hassan***, A. Mehmood and S. Afzal. 2012. Relative efficiency of two sulfur sources regarding nitrogen fixation and yield of Chickpea. Communications in Soil Science and Plant Analysis, 43:811–820**, (IF. 0.506)** 8. Mukhtar Ahmed and ***Fayyaz-ul-Hassan,***2011. "Cumulative Effect of Temperature and Solar Radiation on Wheat Yield". Not. Bot. Horti. Agrobo., 39(2):146-152**.(IF.0.643)** 9. Mukhtar Ahmed, ***Fayyaz-ul-Hassan***, Yasir Khurshid, 2011. Does silicon and irrigation have impact on drought tolerance mechanism of sorghum?. Agric. Water Manag. 98:1808-1812. **(IF. 1.998)** **10.** M. Ijaz, M. I. Haque, C. A. Rauf, ***Fayyaz-ul-Hassan***, A. Riaz, S. M. Mughal. 2011. Correlation between humid thermal ratio and epidemics of Cercospora leaf spot of Peanut

	in Pothwar. *Pak. J. Bot*., 43(4): 2011-2016. **(IF.0.94)** 11. Islam, M, S. Mohsan, S. Ali, R. Khalid, ***Fayyaz-Ul-Hassan***, A. Mahmood and Abid Subhani, 2011. Growth, Nitrogen Fixation and Nutrient Uptake by Chickpea (*Cicer arietinum*) in Response to Phosphorus and SulfurApplication under Rainfed Conditions in Pakistan. Int. J. Agric. & Biol. 13:725-730. . **(IF.0.94)** 12. Mukhtar Ahmed, ***Fayyaz-ul-Hassan***, M. Aqeel Aslam, Mustazhar Nasib Akram and M. Akmal, 2011.Regression model for the study of sole and cumulative effect of temperature and solar radiation on wheat yield**.** Afr. J. Biotech. 10(45):9114-9121. 13. M. Ahmed, ***Fayyaz-Ul-Hassan***, A. Razzaq, M.N. Akram, M. Aslam, S. Ahmad & M. Zia-Ul-Haq. 2011 "Is Photothermal quotient determinant factor for spring wheat yield?" Pak. Jour. of Botany, 43(3):1621-1627. . **(IF.0.94)** 14. Shuaib Kaleem, ***Fayyaz- ul- Hassan***, M. Ahmad, Imran Mahmood, Allah Wasaya, M. A.Randhawa and Pervaiz Khaliq. 2011. Effect of growing degree days on autumn plantedSunflower. Afr. J. Biotech. Vol. 10(44):8840-8846 15. ***Fayyaz-ul-Hassan***, S. Kaleem & M. Ahmad. 2011. Oil and fatty acid distribution in different circles of sunflower head. Food Chemistry, 128: 590-595. **(IF.3.478)** 16. Mukhtar Ahmed, **Fayyaz-ul-Hassen**, Ummara Qadeer & M. Aqeel Aslam 2011. Silicon application and drought tolerance mechanism of sorghum" Afr. J. Agric. Res. 6(3): 594-607. **PUBLICATIONS IN OTHER JOURNALS** 1. Abid Hussain, Abdul Saboor, Muhammad Azeem Khan, Abdul Qayyum Mohsin and ***Fayya -ul-Hassan***. 2012. Technical Efficiency Of Wheat Production In Rain-Fed Areas: A Cas Study Of Punjab, Pakistan. *Pak. J. Agri. Sci.*, 49(3), 411-417. 2. Safdar Ali, Sahiba, M. Azim Malik, ***Fayyaz-ul-Hassan*** and M. Ansar. 2012. Growth o rainfed fodder maize under different levels of nitrogen and phosphorus. Pak. Jour. Agric Res. 25(3):196-205. 3. Sidra Mukhtar, Muhammad Arshad, Saikat Basu, ***Fayyaz-ul-Hassan***, Mukhtar Ahmed an Muhammad Asif. 2012**.** Influence of capsule position on seed traits and oil content of linsee (*Linum usitatissimum* L.). Plant Knowledge Journal. 1(2):52-56. 4. M. Ahmed, Muhammad Asif, ***Fayyaz-ul-Hassan***, Zammurad Iqbal Ahmed and Arsha Nawaz Chaudhry.2012. Resilience of physiological attributes of wheat (*Triticum aestivu* L.) to abiotic stresses. Scientific Research & Essays. 7(35):3099-3106. 5. Shuaib Kaleem, ***Fayyaz- ul- Hassan***, I. Mahmood, M. Ahmad, Rehmat Ullah and M Ahmad. Response Of Sunflower To Environmental Disparity**.** Nature and Science, 9(2):73 81. 2011 6. Shuaib Kaleem, ***Fayyaz-ul-Hassan***, M.A.A.H.A. Bukhsh, I. Mahmood, R. Ullah, M. Ahma and A. Wasaya "Oil and Oil Quality in Different Circles of Mature Sunflower Head a Influenced by Varying Environments". Pakistan Journal of Nutrition 10 (4): 373-377, 2011
Research Grants and Contracts	**Research Grants and Contracts** **Date** **Title** **Funding Agency/Amount** July, 2008-June 2011 Phenotypic plasticity of safflower (*Carthamus tinctorius*) in response to environment and integrated Nutrient management. PARC, 1.9 million
Selected Professional presentation	**Participation in Workshops/Conferences/Symposiums** 1. 12th National and 3rd International Botany Conference held at Quaid-I-Azam University Islamabad, 1-3 September, 2012. 2. International Seminar on "Crop Management: Issues and options" held at University o Agriculture, Faisalabad. 1-2, June, 2011. 3. Stakeholders workshop "Edible oilseed Crops: Threats and challenges from production t

	consumption" held on 4th Aug. 2010 at University of Agriculture Faisalabad. Final meeting of ICARDA project "Integrated watershed development for food security and sustainable improvement of livelihood in Barani areas" held on 15-17 June, 2010

Dr. Zammurad Iqbal Ahmed			
Personal	Father's Name : Ghulam Ahmed Date of Birth : 1st May 1960 Gender : Male Nationality : Pakistani Marital Status : Married Present Address: Associate Professor University of Arid Agriculture, Rawalpindi, Pakistan Phone : Office 051-9062256 Cell 0333-5101247 E-mail : azammurad@hotmail.com Residential Address : House # 11, University Colony # 2 Opposite Divisional Public School, Shamsabad Rawalpindi, Pakistan Permanent Address : Kakrala, Tehsil Sohawah, District Jhelum Pakistan		
ACADEMIC & PROFESSIONAL QUALIFICATION	Examination Passed	Year of Passing	Major Subjects
	Matriculation	1976	Science Group
	F. Sc.	1979	Science Group
	B. Sc. (Hons.)	1984	Agronomy(Production and Field Management)
	M. Sc. (Hons.)	1986	Agronomy(Production and Field Management)
	Ph. D.	1996	Agronomy(Production and Field Management)
	MBA Management	2004	Human Resource
	Post Doc	2008	Zhejiang University, China
	COMPUTER TRAINING	FROM TO	TOPIC
	Pakistan Computer Bureau Islamabad	02.04.2001 01.05.2001	IT Training
EXPERIENCE	I have a variety of experience in teaching, research and extension services. I have served in BS-17 in Government of the Punjab from June 15, 1986 to December 28, 1986 I have been serving as Lecturer since 1986 in Barani Agricultural College, Rawalpindi. Currently I am working in University of Arid Agriculture, Rawalpindi as Associate Professor. Here my main duties are teaching and research both at undergraduate and graduate levels. I have published a number of research articles in journals of repute. I am member of Academic Council and Faculty Board of Studies. I have also the charge of Head of the Department of Library for the last ten years. I had been Hall Warden for about two years and member of Central Purchase Committee of the University. I am also member of National Curriculum Revision Committee of Higher Education Commission.		

LIST OF PUBLICATIONS	1. Ansar, M., Z. I. Ahmed, M. A. Malik, M. Nadeem, A. Majeed and B. A. Rischkowsky. 2010. Forage yield and quality potential of winter cereal-vetch mixtures under rainfed conditions. Emir. J. Food Agric. 22 (1): 25-36. 2. Jin, Z.L.F. Zhang, Z.I. Ahmed, M. Rasheed, M.S. Naeem, Q.F. Ye, W.J. Zhou. 2010. Differential morphological and physiological responses of two oilseed *Brassica* species to a new herbicide ZJ0273 used in rapeseed fields Pestic. Biochem. Physiol.In Press, Corrected Proof, Available online 18 April 3. Ullah, N., L. Xu, Z. I. Ahmed, M. Rasheed, G. Jilani, M. S. Naeem, W. Shen and W. Zhou. 2011. Ultraviolet-C mediated physiological and ultrastructural alteration in *Juncus effuses* L. shoots. Acta Physiologiae Plantarum: 33(2) 481-488. 4. Saleem, R., Z. I. Ahmed, M. Ashraf, M. Arif, M. A. Malik, M. Munir and M. A. Khan. 2011. Response of maize-legume intercropping system to different fertility sources under reainfed conditions. Sarhad J. Agric. 27(4):503-511. 5. Saleem, R., Z. I. Ahmed, M. Yousaf, H. I. Javed and H. Shah. 2012. Agro-economic evaluation of different fertility sources for maize productivity under rainfed conditions. J. Agri. Res. 50(3):349-360. 6. Minhas, N. M., S. U. Ajmal, Z. I. Ahmed and M. Munir. 2012. Genetic analysis for grain quality traits in Pakistan wheat varieties. Pak. J. Bot. 44(5): Accepted.

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Dr. Abdul Razzaq

Name	Dr. Abdul Razzaq
Personal	Father's Name: Muhammad Din Religion: Islam Nationality: Pakistani Date of Birth: August 1, 1957 Postal Address: University of Arid Agriculture Rawalpindi. PC - 46300. Pakistan Permanent Address: House No.15, Colony No.2, University of Arid Agriculture (Murree Road), Rawalpindi, Pakistan Phone Number: 0092-51-4455173 (home) 0092-321-5623307 (mobile) Email: arazzaq57@yahoo.co.in Qualifications: Certificate/Degree — Year of passing — Institute — Div./Grade — Major Subject B.Sc.(Hons)Agri. — 1986 — Barani Agri. College, University of Agriculture Faisalabad — B (3.96 CGPA) — Agronomy M.Sc.(Hons)Agri. — 1988 — University of Agriculture Faisalabad — B (3.77 CGPA) Ph. D. — 2005 — Agricultural University of Hebei, — A (94% — Plant Breeding

	Baoding PR China & Genetics
Experience	Associate Professor University of Arid Agriculture Rawalpindi From Sept, 2007 to date Agronomy Assistant Professor University of Arid Agriculture Rawalpindi From Mar 2005 to Sep- 2007 Agronomy Lecturer Agronomy University of Arid Agriculture Rawalpindi From July 1988-March 2005 1- About 24 years' experience of teaching introductory courses on Crop Production and Management, Crop Physiology, and Supervision of Master students. 2- About five years' experience of rice production and its pest management in Pest Management Project of Pakistan Agricultural Research Council, Islamabad. **Additional Duties**: 1 Hostel superintendent Barani Agricultural College Raalpindi (Presently PMAS University of Arid Agriculture Rawalpindi) for more than three years 2- Incharge Agronomy Laboratory, University of Arid Agriculture Rawalpindi w.e.f 2006 to date Equipped the lab for all basic facilities for research in stress physiology and nano-biotechnology 3- Chairman Masjid Committee, Main Campus PMAS-AAUR 4- Controller of Examinations w.e.f 26th May, 2012 to Oct. 2012
Honor and Awards	1- Academic Gold Medal for standing first in B.Sc. (Hons.) Agri. (1982-86) 2- Certificate of Appreciation from Hebei Academy of Agriculture and Forestry Sciences, Shijiazhuang, PR China 3- Honor Certificate from Hebei Education Department, Shijiazhuang PR China 4- Member Syndicate, PMAS-Arid Agriculture University Rawalpindi for three years w.e.f. 2008 to 2011 5- Member Planning and Finance Committee, PMAS-Arid Agriculture University Rawalpindi for three years w.e.f. 2008 to 2011
Students Supervised	*PH.D STUDENTS THESIS SUPERVISED* **Name Year Title** Muhammad Ahmed 2012 Responsiveness of wheat varieties to chilling period and developing temperature based sowing model Abdul Qayyum 2011 Molecular and physiological evaluation of wheat cultivars for drought tolerance Imran Mahmood 2012 Improvement of wheat for drought tolerance through tissue culture *M.Sc. STUDENTS THESIS SUPERVISED* Talal Ahmed Shafique 2012 Relationship between proline accumulation and drought tolerance in wheat.

	Madiha Rashid 2012 Evaluation of Abscisic acid sensitivity as a criterion for drought tolerance in wheat Riaz Hussain Shahzad 2011 Qualitative response of canola to different temperature and moisture regimes Hafiz Muhammad Shahzad Akhtar 2011 Study on drought tolerance of maize in relation to anthesis interval
Service Activity	Teaching and Research.
Brief Statement of Research Interest	Stress Physiology, Biological Yield Potential of Crops, Genetic Transformation of Crops
Publications	1. Mahmood, I., A. **Razzaq**, S. A. H. Bukhari and M. N. Tahir. 2010. Optimization of N quantitative and qualitative response of lentil (lens culinaris Medic.) cultivars under conditions. J. Agr. Res. 48 (3).(X-category) 2. Arshad Ullah, M., J. Azal, M. Anwar, A.S. Rana, M. Rasheed, A. Ali, **A.Razzaq**. Assessment of promising exotic grasses at Faisalabad, Pakistan. Pak. J Agri. Sci. 49(2): 1-5 3. Mahmood, I., **A. Razzaq**, M. Ashraf, I.A.Hafiz. S. Kaleem, A. Qayyum, M. Ahmad. 20 *vitro* selection of tissue culture induced somoclonal variants of wheat for drought tolera Agri. Res. 50(2) (X category) 4. Ahmad, M., Fayyaz-ul-Hassan, A. Razzaq, M.N. Akram, M. Aslam, S. Ahmad and Zia- 2011. Is photothermal quotient determinant factor for spring wheat yield? Pak. J. Bot. 1621-1627. (IF) 5. Mahmood, I., A. Razzaq, Z. Khan, I.A. Hafiz, and S. Kaleem. 2012. Evaluation of tissue responses of promising wheat (Triticum aestivum L.) cultivars and development of e regeneration system. Pak. J. Bot. (Special Issue) 44: 277-284 (IF) 6. Rao, S.R., A. Qayyum, A. Razzaq, M. Ahmad, A. Sher.2012. Role of foliar applica salicylic acid and L-trptophan in drought tolerance of maize. JAPS, 22 (3): 768-772 (IF) **International** 7. Mahmood, I., A. Razzaq, I.A. Hafiz, S. Kaleem, A. A. Khan, A. Qayyum and M. Ahma Interaction of callus selection media and stress duration for in vitro selection of drought callus of wheat. African J. Biotechnol. 11(17), pp. 4000-4006. (IF) 8. Ahmad, M., A. Razzaq, A. Qayyum and M. A. Jenks. 2011. Response of spring typ (Triticum aestivum L.) cultivars to different chilling treatments. African J. Biotech. AJB-1 African J. Biotech. 10(73): 16541-16547. (IF) 9. Qayyum, A., A. Razzaq, M. Ahmad and M. A. Jenks. 2011. Water stress causes dif effects on germination indices, total soluble sugar and proline content in wheat (Triticum a L.) genotypes. African J. Biotech. 10(64): 14038-14045. (IF) 10. Razzaq, A., I. A. Hafiz and I. Mehamood. 2011. Development of in planta transformation for wheat. African J. Biotech. 10(5), 740-750. (IF) 11. Kaleem, S., Fayyaz-ul-Hassan, A. Razzaq, A. Manaf, and A. Saleem. 2010. Growth Rhy sunflower (Helianthus annuus L.) in response to environmental disparity. African J. Bi (15): 2242-2252. (IF)
Research Grants and Contracts.	1- Strengthening Informal Seed Supply System at Two Locations in Pothwar Through Participatory Technology Transfer Funds: Rs. 2.087 millions Funding agency: Endowment Fund University of Agriculture Faisalabad Duration 2 years (July 2011 to June 2013) 2- Potential Applicationof Nanotechnology in Crop/Vegetable Growth, Nutrient Use Efficiency, Crop Tissue Culture and Tolerance to Osmotic Stress Funds: Rs.4.785 million Funding Agency: HEC Islamabad Duration: 3 years (January 2012 to December 2014)

Selected Professional presentation	**1. Razzaq, A.**,, A. Rehman and M. Jabeen. 2011. Effect of Silver Nano-Particles on Germ and Seedling Growth of Wheat. Poster Presentation In: Recent Trends in Chemistry. 3rd Che Conference. PAEC, Pakistan. October 17-19, 2011 (Poster Presentation).

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Name	Muhammad Ansar
Personal	Associate Professor Agronomy, Pir Mehr Ali Shah – Arid Agriculture University Murree Road, Rawalpindi Ph. No. 03215563037
Experience	*Date* / *Title* / *Institution* 28.05.2010 to date — Associate Professor - Agronomy — PMAS-AAUR 05.03.2005 to 27.05.10 — Assistant Professor - Agronomy — PMAS-AAUR 23.10.2003 to 04.03.2005 — Assistant Research Officer -Agronomy — Fri, Sargodha 26.04.1997 to 22.10.2003 — Assistant Research Officer-Agronomy — Sawcri, Chakwal 01.09.1991 to 25.04.1997 — Assistant Research Officer-Agronomy — Bari, Chakwal
Honor and Awards	(1) Overseas Research Student Award (By CVCP UK) (2) 1st Position in Agronomy during B.Sc. (Hons) Agri. (3) Muslims Student Scholarship Award, (FOSIS UK) (4) Ministry of education scholarship for PhD from U.K. (5). PMAS-AAUR Award for Post-doctoral training at ICARDA, Syria. (6) 1st division throughout the academic career.
Memberships	➢ Life membership of Agronomy Society of Pakistan ➢ Life membership of Soil Science Society of Pakistan ➢ Life membership of Weed Science Society of Pakistan ➢ Member and Subject Matter Specialist of Sarhad Journal of Agriculture ➢ Member and Subject matter specialist of Journal of Agriculture Research, AARI, Faisalabad ➢ Member of Journal of Phytopathology Society of Pakistan

<table>
<tr><td rowspan="4">Graduate Students
Postdocs
Undergraduate Students

Honour Students</td><td>Rao Sabir Sittar</td><td>Evaluation of Different Oats-Vetch Mixtures for Forage Yield and Quality Under Rainfed Condition</td></tr>
<tr><td>Fahid Sheraz</td><td>Comparison of Winter Fodder Crops for Yield and Quality Under Rain fed Condition of Pothwar.</td></tr>
<tr><td>M. Asad Mukhtar</td><td>Forage Yield and Quality as Influenced by Different Ratios of Winter Cereals With Vetch</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Service Activity</td><td colspan="2">Teaching and research</td></tr>
<tr><td>Brief Statement of Research Interest</td><td colspan="2">1- Forage production, preservation and utilization.
2- Conservation Agriculture.
3- Integrated Weed Management.
4- Management of Farm Crops.</td></tr>
<tr><td>Publications</td><td colspan="2"><u>A-PUBLICATIONS IN HEC RECOGNISED NATIONAL JOURNALS</u>
1. Sher, A; M. Ansar; FU. Hassan; G. Shabbir and M. A. Malik. 2012. Hydrocyanic acid contents variation amongst sorghum cultivars grown with varying seed rates and nitrogen levels. Int. Journal of Agri. And Biology. 14, 720-726.
2. Anser, M. R. F. Zahoor, M. A. Malik, K. M., M. Ansar,M. Rasheed & S. H. Raza. 2012. Wheat response to various tillage-herbicide interactive systems under semi-arid climate. Paper accepted in conference organized by Botanical Society of Pakistan.
3. Zahid, A.; A. Khanum; M. Ansar and M.A. Malik. 2012. Effect of cutting and post-cutting intervals on hydrogen cyanide in sorghum forage grown under rainfed conditions. Pak. J. Bot. 44(3):955-960.
4. Ahmed, Z. I.; A. Saleem, M. Ansar; H. I. Javed, R. Saleem. 2012. Improvement of mash been production under rainfed conditions by Rhizobium inoculation and low rates of starter nitrogen. Pakistan Journal of Agricultural Research 25(2) 154-160.
5. Ali, S.; Sahiba; M. A. Malik; F.U. Hassan; and M. Ansar. 2012. Growth of rainfed fodder maize under different levels of nitrogen and phosphorus. Pakistan Journal of Agricultural Research 25(3) 196-205.
6. Ashiq, S., Javed, H. I., S., Saleem, R., M. Ansar; Zia, M. A. 2011. Effect of split application of potash fertilizer on maize and sorghum in Pakistan. Pakistan Journal of Agricultural Research. 24(1-4): 31-34.

<u>A1-PUBLICATIONS SUBMITTED IN HEC RECOGNISED NATIONAL JOURNALS</u>
7. Ansar, M., A. Sher, M. Irfan, M. A. Mukhtar and M. Hussain. 2012. Evaluation of barley cultivars for forage and seed yield under rainfed conditions of Pothwar. Submitted in Journal of Animal and Plant Sciences No.12-0161.
8. Ansar, M., A. Sher, M. Hussain, M. Irfan and M. Majeed. 2012. Comparison of hybrid VS composite brassica varities for forage and seed yield under rainfed conditions of Pothwar. Submitted in Journal of Animal and Plant Sciences No.12-0194.
9. Ansar, M. S.S. Ijaz, M.A. Malik, F. Sheraz, A. Sher and G. Shabbir. 2012. Yield and quality of sugarbeet genotypes as influenced by cultivation methods in a subtropical</td></tr>
</table>

climate. Submitted in Pak. J. Bot.

B- INTERNATIONAL PUBLICATIONS

10. Sher, A., **M. Ansar**, G. Shabbir, M. A. Malik, A. Wasaya and [illegible] H. Qureshi. 2012. Variability of hydrocyanic acids in fresh leaves of forage sorghum (Sorghum Bicolor (L.) Moench) grown under different soil moisture regimes. Archive Des Sci., 65(11): 752-762.
11. Jabeen Z., A. Riaz, K. Sultana, A. Ikram, **M. Ansar,** I. Hassan and I. Ahmad 2012Incidence of *Aspergillus flavus* and extent of aflatoxin contamination in peanut samples of Pothwar region of Pakistan. African Journal of Microbiology Research Vol. 6(9), pp. 1942-1946.
12. Sher A., Lorenzo. B., **M. Ansar,** A. Manaf and S. Kaleem**.** 2011. Late harvest associated with P and S fertilization enhances yield and quality of forage sorghum (*Sorghum bicolor* (L.) Moench), grown as a rainfed crop in Pakistan. African Journal of Agricultural Research. 29 (6):6232-6239.
13. Umair A., S. Ali, **M. Ansar**, R. Hayat. 2011. Evaluation of seed priming in mung been vigna radiate for yield, nodulation and biological nitrogen fixation under rainfed conditions. African Journal of Biotechnology. 79 (10) 18122-18129.

E-Book Published

14. Zahid, A., A. khunam, and **M. Ansar**. 2011. Sorghum Hydrogen Cyanide-cutting and post cutting effect. VDM Verlag Publishers, Germany.

Research Grants and Contracts.

Date	Title	Agency / Organization	Status	Duration
	cut and carry Fodder	USAID	Completed	200-08
	Feed livestock	IFAD	Completed	2007-2009
	comparison of different cereal-legume fodder mixtures	PMAS-AAUR	completed	2009-2010
	Development of On-Farm Students Research Facilities (at Koont Gujar Khan)		In progess	2007 To-date

Proforma 9

Irfan Aziz

Name	Irfan Aziz

Personal	Residence: House No.SA870/D Street No 2 Sadiqabad, Rawalpindi, Pakistan. Phone: +92-51-4845917 Mobil 03005336016

ACADEMIC QUALIFICATIONS.

DEGREE	INSTITUTE	YEAR
Professional Master	ITC, The Netherlands	2000
M.SC.(Hons.)Agri.	University of Agri.Faisalabad	1991
B.SC.(Hons.)Agri.	University of Agri.Faisalabad	1988

MASTER DEGREE IN GEO-INFORMATIOM SCIENCES AND EARTH OBSERVATION, THE NETHERLANDS.

I did my Professional Master (Specialization Sustainable Agriculture) in Geo-Information Sciences and Earth Observations from International Institute for Aerospace Survey And earth Sciences, Enschede, The Netherlands, during 1999-2000.

Professional Courses:

My Master degree courses included the following courses.

- Natural Resources Management.
- Remote sensing.
- Maps and Geographic Databases.
- Data Acquisition.
- Data Analysis and Modelling.
- Land use survey techniques, Land use impact analysis.
- Surveying and mapping land use, prepar land use data sets.
- Agro-Ecological Zoning (AEZ) land Evaluation and modeling.
- Land use planning (LUP).
- Land cover/use map of Twente district (field work).

COMPUTER APPLICATION/SOFTWARE USED:

I have good knowledge and experience of following computer packages.

- ILIWIS 2.2 (GIS Database, Analysis,Visualization/Presentation).
- Windisp (Handling of NOAA Data/NDVI).
- Eeccrop. (Crops Ecological Requirements).
- Cropwat. (Crop water Requirement).
- PS123. (Simulation Crop growth Modelling).
- Manitab. (Data Analysis).
- SPSS (Data Analysis).
- Arc view (GIS operations).
- Windows NT (Report writing, presentations).
- MS.Excel (Data entering /Database/Analysis).
- Internet surfing (Extracting Informations).

Experience	Lecturer of Agronomy 15-8-1997 to 06-01-2005 University of Arid Agriculture Rawalpindi Pakistan. Assistant professor Agronomy, 07-01-2005 todate. University of Arid Agriculture Rawalpindi Pakistan EXPERIENCE RESEARCH • Land cover and land use mapping. • Change detection in land use/cover. • Accuracy assessment of the map. • Advanced Remote Sensing and GIS techniques for monitoring and early warning in agriculture. • Estimation of biomass production in relation to food demand of Caprivi Region. (Individual Final Assignment of Professional Master programme). • Effect of irrigation frequencies and fertilizer application on yield and quality of Maize. (M.Sc.Hons.Agri Thesis). • Quality Analysis of Cotton crop seeds. Research publication: • Comperative study of different weed management techniques in wheat (Triticum aestivum) under rainfed conditions. Pak.j .arid, 4(1-2): 19-23, 2001. • Feasibility of Intercropping Lentil and lathyrus in wheat under rainfed condition. Pak. j. arid, 5(1) 13-16, 2002. FIELD WORK: • Collection of land cover/used Data of Twente District, The Netherlands. • Collection of field Data for accuracy assessment. Sweden. • Use of Global Position system.
Honor and Awards	• National convention of Scientists and Engineers 27 may 1999, at Islamabad. • Media war and Role of PTV on 14 June 2001 at UAAR. • Atomic Energy for Economic Development on14 Nov 2001 at UAAR. • Corporate Agriculture: Issues and Option on 27 July 2001 at UAAR. • All Pakistan Food Science conference on 12 Jan 2001 at UAAR. • Tenth Meeting of OIC Ministerial standing Committee on Scientific and Technological Cooperation (COMSTECH) 18 Feb. 2002 at Islamabad. • 3rd International Science Conference on 26 Sep 2002 at UAAR. IN-SERVICE TRAININGS: • In-service Training workshop in Weed Science for Teachers of Agricultural Universities/colleges of the country on 1 June 2001 at NWFP Agricultural University, Peshawar. • In –service Training course in Designing Crop Experiment of Agricultural universities/colleges of the country on 6-11 Jan 2003 at NWFP Agricultural University, Peshawar. • In-service Training course in Conducting Crop Experiments and Experimental Techniques universities/colleges of the country on 13- 18 Jan 2003 at NWFP Agricultural University, Peshawar.

	Application of Satellite Remote Sensing/GIS Techniques for land Resources Mapping 5-9 Jan 2004 at SUPARCO Islamabad.
Service Activity	Teaching and Research.

Proforma 9: Faculty *Resume*

Name	Dr. Muhammad Rasheed
Personal	*Assistant professor,* Department of Agronomy, PMAS Arid Agriculture University, Rawalpindi. Cell #0334- *5204364*
Experience	16-03-1988 to 29-03-2005 Agriculture Officer- In Agri. Ext. Deptt. 30-03-2005 to 22-09-2006 *Lecturer - PMAS-AAUR* 23-09-2006 to onward *Assistant professor PMAS-AAUR*
Honor and Awards	i. Award of post doctorate fellowship by HEC for the year 2007.
Memberships	*i. Life membership of Society of Agronomy of Pakistan.* *ii. Program Team Member for Self Assessment Report of Agronomy Department* *iii. Secretary board of study of the department*
Graduate Students Postdocs Undergraduate Students *Honour Students*	**Imran Ali Shah**- M.Sc. (Hons.)- Yield and yield attributes of rain fed lentil as influenced by various phosphorus fertilizer levels (Completed, 2010). **Sajjad Ahmad**- M.Sc. (Hons.)- Enhancing phosphorus use efficiency in mungbean by co-application of fertilizers and compost (Completed, 2010) **Marium Maqsood** M.Sc. (Hons.)-Enhancing bioavability of Phosphorus through acidulation of rock phosphates(Completed, 2011) **Awais Ali**- M.Sc. (Hons.)-Enhancing Solublisation of Phosphorus through acidulation of Farmyard manure (Completed, 2011)
Service Activity	*i. Informal wheat seed supply to the farmers in two locations of district Rawalpindi and Chakwal districts.*

	ii. Self-assessment reports compilation and submission to University QEC.
Brief Statement of Research Interest	*Crop Nutrient management, Stress physiology/Stress tolerance in plants and cropping patterns*
Publications	*List publications in standard bibliographic format with earliest date first.* 1. Ling XU., U. Najeeb, W.Q. Shen, G. Jilani, **M. Rasheed** and W.J. Zhou .2010 Establishment of *Agro bacterium*-mediated BT gene transformation system in mat rush (*juncus effusus* l.)***Pak. J. Bot.*, 41(5): 2615-2624. (Impact factor: 0.937).** **2. Rasheed, M**., G. Jilani, I. A. Shah, N. Ullah and T. Iqbal. 2010. Improved lentil production by utilizing genetic variability in response to phosphorus fertilization. **Acta Agri. Scandinavica, Section B - Plant Soil Science, 60(6):485-493 (Impact factor: 0.699).** **3.** Jinking Z. L., F. Zhang, Z. I. Ahmad, **M. Rasheed,** L. Lu, Q. F. Ye, W. J. Zhou. 2010. Differential morphological and physiological responses of two oilseed Brassica species to new herbicide ZJ0273 used in rapeseed fields. Pesticide Biochemistry and Physiology 98 (2010) : 295-302. **(Impact factor**: **2.064)** 4. M.S. Naeem,**M. Rasheed**, D. Liu, Z.L. Jin, D.F. Ming, K. Yoneyama, Y. Takeuchiand W.J. Zhou.2011. 5-Aminolevulinic Acid Ameliorates Salinity Induced Metabolic, WaterRelated and Biochemical Changes in *Brassica napus* L Acta Physiol Plantarum. 33:517–528. (**Impact factor**: **1.639).** 5. Najeeb, U., L. Xu, Z.I. Ahmed, M. Rasheed, G. Jilani, M.S. Naeem, W.Q. Shen and W.J. Zhou . 2011. Ultraviolet-mediated physiological and ultra structural alterations in Juncus effusus shoots, Acta Physiologiae Plantarum, 33: 481–488 **(Impact factor 1.639).** 6. Arshadullah, M., **M. Rasheed**, S. I. Hyder, and M. Anwar.2011. Screening of panicum antidotal grass species under spring and monsoon seasons in the mesic climate of Pothowar plateau (Pakistan), J. Ani. Plant Sci., 21(3): 531-534 **(Impact factor 0.585).** 7. Arshadullah, M., M. Anwar, S. N. Mirza, **M. Rasheed**. 2012. Forage production and nutritional quality of grasses in mesic climate of Pothwar plateau, Rawalpindi, J. Ani. Plant Sci., 22(3): 781-784 **(Impact factor 0.585).** 8. Awan, F. K., **M. Rasheed,** M. Ashraf, M. Y. Khurshid **.**2012 **.**Efficacy of brassica sorghum and sunflower aqueous extracts to control wheat weeds under rainfed conditions of Pothowar, PakistanJ. Ani. Plant Sci., 22(3): 715-721**(Impact factor**

	0.585).. 9. Arshadullah, M. **M. Rasheed** , S. Bano and S. A. R. Zaidi.. 2012. Salinity shocks to rice (oryzasativa l.) at different growth stages, Accepted for J.Ani. Plant Sci. 22(4):2012 **(Impact factor 0.585).** 10. Arshadullah, M., M.A.Malik, **M. Rasheed**, G. Jilani ,F. Zahoor, and Shoaib Kaleem, 2010**.** Seasonal and Genotypic VariationsInfluence theBiomass and Nutritional Ingredients of *Cenchrus ciliaris* Grass Forage. **Internat. J. Agric. Biol. 13(1):120-124 (Impact factor 0.940)** 11. H. Ali, N. Tariq, S. Ahmad, **M. Rasheed**, T. H. Chattha and A. Hussain. 2012. Growth and radiation use efficiency of wheat as affected by different irrigation levels and phosphorus application methods. J. Ani. Plant Sci. 22(4):1118-1125 **(Impact factor 0.585).** 12. Razzaq A., A. Rehman, M. Jabeen,H.M. Jhanzeb**, M. Rasheed** and A. Hafeez.2012.Role of silver and gold nano particles in germination and seedling growth of wheat. African J. Biotech**. (Accepted on 30-05-2012 withprevious impact factor=0.573)** 13. **M. Rasheed,** Kaleem, S., F. Zahoor, G. Jilani and M. Arshadullah.2012. Physio- morphic traits in mungbean (*Vigna radiata* l.) as influenced by varying phosphorus levels and sources under rainfed conditions **(Submitted in Journal of animal and plant Sciences (JAPS)for publication**). 14. Munaf A, E.Ahmad, **M. Rasheed**, A.Wasaya and A. Razzaq**.2012.** Morphological attributes in mungbean (V*igna radiata* l.) as influenced by seasonal variation under rainfed conditions **(Submitted in J. Ani. Plant Sci., vide #12-0741 for publication).** 15. Muhammad Arshadullah, Nazir Hussian, Helge Schemisky and Muhammad Rasheed.2012. Inoculation and intercropping of legumes in established grass for increasing biomass of fodder (**submitted in the JAPS).** 16. Muhammad Arshad ullah, Nazir Hussain, Helge Schemisky and Muhammad Rasheed.2012. Improving fodder quality through intercropping and inoculation **(submitted in Journal of chemical society of Pakistan).** 17. Muhammad Arshadullah, Nazir Hussain, Helge Schimesky and Muhammad Rasheed.2012.Fodder quality improvement through intercropping and fertilizer application. (**Submitted journal agricultura tropica et subtropica).** 18. Muhammad Arshadullah, Nazir Hussain, Helge Schimesky and Muhammad Rasheed.2012. Enhancing soil fertility through intercropping, inoculation and fertilizer application.

(**Submitted in journal soil science & plant nutrition).**

19. Mahmood, I., A. Razzaq, **M. Rasheed,** A. Qayyum, M. Ahmad, M. M. Q. Baig. 2012. Tissue culture induced somaclonal variation: A potential source of genetic variability for developing drought tolerant plants of wheat. Pak. J. Bot. **(Submitted for publication).**
20. Mahmood I**.,** A. Razzaq, **M. Rasheed**, A. Qayyum, M. Ahmad. 2012. Comparative study of somaclones and their donor parents for drought tolerance in wheat (Triticum aestivum L.). Aust. J. Crop Sci. **(Submitted for publication**).
21. Faisal Z, R. Zaheer, M. H. Kazmi , M. Hussain M. Ramzan Anser. M. Rasheed. S. H. Raza.2012. Wheat yield and phosphorus (P) use efficiency with various organic and inorganic P amendments under sub-humid climatic conditions (**Submitted for publication** in.**TAR-1212-79).**
22. Anser, M. R., F. Zahoor, M. A. Malik, K. Mahmood, M. Ansar, M. Rasheed and S. H. Raza .2012. Wheat response to various tillage-herbicide interactive systems under semi-arid climate. (**Submitted for publication Pak J. Bot**.)
23. Arshadullah M., M. Anwar, A.S. Rana, M. Rasheed, A. Ali .2012.Assessment of promising exotic forage grasses at Faisalabad, Pakistan, Pak.J. Agric. Sci. 49(2):339-343.
24. **Rasheed, M**., S. Kaleem, F. Zahoor, Imran Mahmood and Faiz Kareem.2011.Effect of phosphorus levels and sources on the growth and yield of mungbean (***Vigna radiata*** **L**.)**-Submitted in AJAR** for publication.
25. Arshadullah, M., **M. Rasheed** and S. A. R. Zaidi.2011. Salt tolerance of different rice cultivars for their salt tolerance under salt-affected soils **Internat. Res.J. Agr. Sci.and Soil Sci.**1-5:183-184 .
26. Arshadullah, M., **M. Rasheed** and S. A. R. Zaidi . 2011. Influence of toxicity thresh hold levels of sodium chloride in rice (Oryza sativa L.). **Agric. Sci. Res. J.** 1(6):126 – 128.
27. Kaleem S., M. Ahmad alias, H. A. Bukhsh, **M. Rasheed**, A. Wasaya, M.Ishaque and G. Qasim. 2010. Seed quality comparison of chickpea (Cicer arietinum l.) for the estimation of field planting values. **Life Sci Internat. J**. 4(4):1852-56.
28. M. Arshadullah, **M. Rasheed**, S. Bano and K.H: Abbasi .2011. Effect of salt stress on the growth and yield of digitaria grass (digitaria decumbens) in-vitro .**Pak: J. Live Sci**.3 (3): 192-196.
29. Malik M. A., F. Zahoor, M.R. Anser, **M. Rasheed**, U.Aslam, K. Mehmood and S. H. Raza.2012 Weed biomass and economic yield of wheat (*Triticum aestivum L.*) as influenced by chemical weed control under rainfed conditions. **African J. Biotech.** 11 -7- 1567-1573.

	30. Faisal, Z., M. A. Malik, Khalid Mehmood, **M. Rashed**, Ramzan Ansar, Muzammil Hussain, Mushtaq H. Kazmi1 and M. Jamil1 2012. Optimizing herbicide use in wheat (*Triticum aestivum* L.) under rain-fed conditions **African J of Agric Res** 7 (35): 4858 4866 31. A booklet published entitled " **Quality seed production techniques of Wheat"** with financial help" Strengthening Informal Seed Supply System at Two Locations in Pothwar Through Participatory Technology Transfer in 2012. 32. A booklet published entitled " **Importance of Groundnut seed and its production technology"** with financial help" Strengthening Informal Seed Supply System at Two Locations in Pothwar Through Participatory Technology Transfer in 2012. **<u>Booklets</u>** A booklet published entitled " **Quality seed production techniques of Wheat"** with financial help" Strengthening Informal Seed Supply System at Two Locations in Pothwar Through Participatory Technology Transfer in 2012 A booklet published entitled " **Importance of Groundnut seed and its production technology"** with financial help" Strengthening Informal Seed Supply System at Two Locations in Pothwar Through Participatory Technology Transfer in 2012.
Research Grants and Contracts.	**Title;** Enhancing Phosphorous Efficiency (PUE) in mungbean through acidulation of Phosphatic fertilizer with organic manures **Date :** 2010 **Agency / Organization :** PMAS-Arid agriculture University, Rawalpindi **Total Award Amount:** 0.100 Million **Completed :** Yes

Proforma 9

Dr. Abdul Manaf

Name	DR. ABDUL MANAF Assistant Professor
Personal	Name DR. ABDUL MANAF Date of Birth 20-02-1970 Father's Name Ghulam Muhammad

	Permanent Address House # B2-17-S-11, Gondal Street, Machine Mohallah # 3 Jhelum Punjab, Pakistan Postal Address Department of Agronomy, PMAS- Arid Agriculture University Shamsabad, Murree Road, Rawalpindi, PAKISTAN E-mail: munafawan@yahoo.com drmunaf@uaar.edu.pk.
Experience	1.As Assistant Professor Agronomy(PMAS-Arid Arid Agriculture University, Rawalpindi) (Present Position) 01-04-2010 to date (BPS-19) 2.As Lecturer Agronomy (PMAS-Arid Agriculture University, Rawalpindi) (19-02-2007 to 31-03-2010) (BPS-18) As Assistant Director (Punjab Seed Corporation Lahore) 10-11-1996 to 14-09-2003
Honor and Awards	Got HEC Post Doctorate Fellowship in 2010
Memberships	Member Pakistan Society of Agronomy.
Service Activity	Teaching and Research.
Brief Statement of Research Interest	Oil Seed Production, Crop Physiology, Seed Technology.
Publications	1. Allah Wasaya, Muhammad Tahir, Abdul Manaf, Mukhtar Ahmed, Shuaib Kaleem and Ijaz Ahmad. 2011. Improving maize productivity through tillage and nitrogen management. Afr. J. Biotechnol., 10(81): 19025-19034.

Proforma 9 *Faculty Resume*

Name	**Mukhtar Ahmed**
Personal	PMAS, Arid Agriculture University Rawalpindi-46300 Pakistan Telephone: +92-51-9290757 Cell: +92-300-5173896
Experience	List current appointment first, each entry as follows: ***Date, Title, Institution.*** **2011 - to-date** *Assistant Professor* PMAS Arid Agriculture University Rawalpindi, Pakistan

	2005-2011 Lecturer PMAS Arid Agriculture University Rawalpindi, Pakistan **2004-2005** Agricultural Officer Farmer trainings and dissemination of research at Extension Department of Punjab Rawalpindi, Pakistan **2003-2004** Research Associate ALP Research Project (Sustainable cropping pattern for Pothwar Plateau) PMAS Arid Agriculture University Rawalpindi, Pakistan
Honor and Awards	✓ PIARN Australian Scholarship ✓ HEC Indigenous ✓ APCC Young scientist Scholarship S. Korea Busan ✓ Research Productivity Award 2012 By Pakistan Council for Science and Technology (PCST)
Memberships	✓ Australian Society of Agronomy ✓ American Society of Agronomy ✓ Pakistan Botanical Society ✓ Pakistan Society of Agronomy ✓ International Society for Agrometeorology (INSAM)
Graduate Students Postdocs Undergraduate Students *Honour Students*	**Years Degree Name** **Show other information as appropriate and list membership on graduate degree committees.** 1. 2010 M.Sc (Hons) Studies on climatic factors for sustaining wheat (*Triticum aestivum*) yield in rainfed conditions. 2. 2011 M.Sc (Hons) Comparison of different modeling approaches for simulating wheat growth kinetics 3. 2011 M.Sc (Hons) Evaluation of Silicon Enhanced Drought Tolerance in Wheat 4. 2012 MS (Biotechnology) Modeling QTL effects for Drought Stress Adaptation in Spring Wheat 5. 2012 M.Sc (Hons) Modeling NUE in wheat 6. 2012 MS Bioinformatics Modeling Disease Dynamics of Spring Wheat 7. In process Modeling PUE in Wheat
Service Activity	Faculty representative at DSA office in the organization of faculty activities, Counseling to students
Brief Statement of Research Interest	*Crop modeling and physiology. Use and recommendation of model as decision support tool.* The top interest will be practical application of models to quantify the impact of different climatic variables and management practices on sugar crop yield and its quality. As Climatic variation has many facades including changes in rainfall pattern and distribution, temperature variability and ultimately prevailing extreme events on global scale. This variability had significant impact upon agricultural production and sustainability. The frequency of extreme events such as high temperatures is predicted to increase in a future warmer climate. Heat stress severely restricts plant growth and productivity and is classified as one of the major abiotic adversities for many crops particularly when it occurs during reproductive stages, which led to substantial yield. Therefore, I

	am determined to develop and validate model in response to climatic variables and management options. Furthermore recommendations of best management practices on longterm basis to ensure food security and yield sustainability under changing climate. Meanwhile conduction of sensitivity analysis to prove model as a decision support tool.
Publications	*List publications in standard bibliographic format with earliest date first.* 1. Floris van Ogtrop, **Mukhtar Ahmed**, Carina Moeller. Sea surface temperatures as predictors of seasonal rainfall in rainfed wheat growing areas of Pakistan. Accepted in Meteorological applications 2. Zohra Aslam, **Mukhtar Ahmed**,Muhammad Sajad, Muhammad Asif, Muhammad Akmal, Fahad Karim Awan, Waqas Ijaz, Raseela Ashraf, and Jabar Zaman Khan Khattak. **A Comparison of Statistical and Dynamic Modeling of Wheat (*Triticum aestivum* L.) Fungal Diseases under the Climate Change.** Accepted in Journal of Food Agriculture and Environment 3. Mukhtar Ahmed, Muhammad Asif, Muhammad Sajad, Jabar Zaman Khan Khattak, Waqas Ijaz, Fayyaz-ul-Hassan, Allah Wasayaand Jong Ahn Chun. **Could agricultural system be adapted to climate change? A Review.** Accepted in Australian Journal of Crop Sciences 4. Mukhtar Ahmed, Atif Kamran, Muhammad Asif, Ummara Qadeer, Zammurad Iqbal Ahmed, Aakash Goyal. Silicon priming: a potential source to impart abiotic stress tolerance in wheat: A review. (2013). Australian Journal of Crop Sciences. 7(4): 484-491 5. Nazima Batool, Muhammad Asif, Muhammad Arshad, Fayyaz-ul-Hassan, Mukhtar Ahmed and Saikat Basu. Effects of siliqua position on physico-chemical composition of canola (*Brassica napus* L.) seed. (2013). Plant Knowledge Journal.2(1):51-55 *6. Mukhtar Ahmed, Arvind H. Hirani, Muhammad Asif, Muhammad Sajad. Modeling soil water dynamics under rainfed agriculture to mitigate climate change. (2013). Journal of Agriculture Science.5(3):90-104* 7. Mukhtar S., Arshad M., Basu S., Hassan F.U., Ahmed M., Asif M. Influence of capsule position on seed traits and oil content of linseed (*Linum usitatissimum* L.). (2012). Plant Knowledge Journal. 1(2): 52-56. 8. Ahmed M., Hassan F.U., Asif M "Physiological response of bread wheat (*Triticum aestivum* L.) to high temperature and moisture stresses" (2012) Australian Journal of Crop Sciences Vol:6(4) pp:749-755. 9. Ahmed M., Hassan F.U., Aslam M., Aslam M.A "Physiological Attributes Based Resilience of Wheat to Climate" (2012) International Journal of Agriculture & Biology Vol: 14(3) pp:407-412.

10. Hassan F.U., Ahmad M “Oil and Fatty Acid Composition of Peanut Cultivars Grown In Pakistan " (2012) Pakistan Journal of Botany Vol:44(2) pp:627-630.
11. Hayat R, Iftikhar-ul-Hassan M, Akram S, Sheirdil RA, Ahmed M (2012) Evaluation of compost application for improving legumes yield and N2-fixation. African J Biotec. 11(41):9758-9764.
12. Ahmed M, Hassan FU (2011) APSIM and DSSAT models as decision support tools. 19th International Congress on Modelling and Simulation, Perth, Australia. pp:1174-1180. http://mssanz.org.au/modsim2011.
13. Ahmed M., Hassan F. U, Khurshid Y "Does silicon and irrigation have impact on drought tolerance mechanism of sorghum" (2011) Agricultural Water Management Vol:98 pp:1808-1812.
14. Ahmed M and Hassan F.U. "Cumulative effect of temperature and solar radiation on wheat yield" (2011) Notule Botanicae Horti Agrobotanici Cluj-Napoca Vol:39(2) pp:146 -152.
15. Ahmed M., Hassan F.U., Aslam M.A., Akram M.N., Akmal M "Regression model to study sole and cumulative effect of temperature and solar radiation on wheat yield " (2011) African Journal of Biotechnology Vol:10(45) pp:9114-9121.
16. Wasaya A., Tahir, M., Manaf, A., Ahmed, M., Kaleem, S, and Ahmad, I "Improving maize productivity through tillage and nitrogen management" (2011) African Journal of Biotechnology Vol:10(81) pp:19025-19034.
17. Ahmed. M., F.U.Hassan., A.Razzaq., Akram. M.N., Aslam. M., S.Ahmad., M.Zia-ul-Haq "Is Photothermal Quotient Determinant Factor for Spring Wheat Yield" (2011) Pak. J. Bot Vol:43 pp:1621-1627.
18. Hassan F.U., Kaleem S., Ahmad M "Oil and fatty acid distribution in different circles of sunflower head" (2011) Food Chemistry Vol:128 pp:590-595.
19. Ahmed M., Hassen F.U., Qadeer U., Aslam M.A "Silicon application and drought tolerance mechanism of sorghum" (2011) African Journal of Agricultural Research Vol:6 pp:594-607.
20. Ahmed. M., F.U.Hassan., Aslam. M., Akram. M.N., Aslam. M.A "Photosynthesis of spring wheat (*Triticum aestivum*) in rainfed ecology of Pakistan" (2010) African Journal of Biotechnology Vol:9 pp:7495-7503.
21. Ahmed. M., F.U.Hassan., Asim. M., Aslam. M.A., Akram. M.N "Correlation of photothermal quotient with spring wheat yield" (2010) African Journal of Biotechnology Vol:9 pp: 7869-7876.
22. Ahmed. M., Hassen.F.U., Aslem. M (2010). Climatic Resilience of Wheat Comparing Modeled and Observed Crop Yields in Pothwar/East Pakistan. The International Journal of Climate Change: Impacts and Responses Vol:2(2) pp:31-48

Research Grants and Contracts.	✓ "Evaluation of Silicon Enhanced Drought tolerance in *Sorghum Bicolor*"(University funded). ✓ "Allelopathic crop residue use for weed management in rainfed areas of Punjab" Co-P.I. (HEC funded).
Other Research or Creative Accomplishments	GAM model for rainfall forecasting, APSIM parameterization
Selected Professional Presentations	1. Simulation Modeling: A Decision Support System for Agro-technology Tranfer for Improving the Standards of Research" Department of Agronomy, Bahauddin Zakariya University Multan from 04-05 March, 2013. National Invited Speaker Given two days training about APSIM 2. United Nations/Pakistan International Workshop on Integrated use of Space Technology for Food and Water Security (11-15 March 2013), Islamabad Pakistan 3. Water Policy Modeling Workshop by Pakistan Strategy Support Program and IFPRI at University of Agriculture Faisalabad (January 28-Febrauary 1, 2013) 4. International Conference on Crop Management in Changing Climate (Feb 11-13,2013) at University of Agriculture Faisalabad 5. Modeling Water futures Using Environment sustainability approach by National University of Sciences and Technology (NUST) (22-23 January 2013) 6. 12th National and 3rd International Conference of Botany (1st – 3rd September 2012) at Quaid-i-Azam University, Islamabad, Pakistan 7. International Conference on Climate, Water and Policy (ICCWP) 2012 11 - 13 September 2012 in Busan, Republic of Korea 8. International Symposium on Managing Soils for Food Security and Climate Change Adaptation and Mitigation, 23-27 July 2012. Vienna, Austria Conference Code: D1-CN-191 9. The 19th International Congress on Modeling and Simulation (MODSIM2011) Perth Convention and Exhibition Centre in Perth, Western Australia, from 12 to 16 December 2011 10. International Seminar on Crop Management: Issues and Options, 01-02 June, 2011 Department of Agronomy, University of Agriculture Faisalabad, Pakistan, Titles of Papers Presented: (i) "Modeling as a tool for crop management" (ii) "Forecasting of intermittent rainfall as risk management strategy" 11. The CCRSPI Conference 2011, The National Climate Change

	Research Strategy for Primary Industries Feb, 15-17, 2011, MCG, Australia. 12. PIARN Postgraduate Professional Development Workshop, Feb, 14, 2011, MCG, Australia. 13. Pakistan Metrological Department. National Conference on Global Warming Impact on Agriculture and Adaptation Strategies 8th July, 2010. 14. ASA, CSSA, SSSA, 2010, International Annual Meeting Oct31-Nov 4 Long Beach CA USA (Poster presentation Video Conferencing) Title: ENSO Cycle Effects on Rainfed Wheat of Pakistan. 15. The Second International Conference on Climate Change: Impacts and Responses, University of Queensland, Brisbane, Australia, 8 -10 July 2010. **www.Climate-Conference.com**. Title of presented: Climatic Resilience of Wheat: Simulation Modeling in Pothowar. (Presented Online)

Proforma 9 *Faculty Resume*

Name	Dr Allah Wasaya
Personal	Father's name Haji Ahmad Yar Date of Birth 13-10-1982 Phone Number +92-51-9290757, +92-300-6765024
Experience	Assistant Professor: Department of Agronomy, Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi, Pakistan, 03/10/2012 to date. Lecturer: Department of Agronomy, Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi, Pakistan, 01/10/2009 to 31/08/201231/08/2012
Honor and Awards	List honors or awards for scholarship or professional activity.
Memberships	Life member of Pakistan Society of Agronomy Annual member of Pakistan Botanical Society (2011)
Graduate Students Postdocs Undergraduate Students *Honour Students*	**Name Year Title** 1. Muhammad Affan. 2012. "Enhancing drought tolerance in maize by potassium application"
Service Activity	❖ *Teaching and Research,* ❖ Coordinator of departmental time table/date sheet ❖ Member of department Self-Assessment Report (SAR) team
Brief Statement of	Nutrient Management in field crops, stress physiology and Tillage

Research Interest	
Publications	**Papers published in HEC recognized journals** 2. **Allah Wasaya**, Muhammad Tahir, A. Tanveer and M. Yaseen. 2012. Response of maize to tillage and nitrogen management. J. Anim. Plant Sci. 22(2): 452-456. **(Impact Factor: 0.585)** 3. Sher, A., M. Ansar, M. A. Malik, **A. Wasaya,** G. Shabbir and R. H. Qureshi. 2012. Variability of hydrocyanic acids in fresh leaves of forage sorghum (*Sorghum bicolor* (L.) Moench) grown under different soil moisture regimes. Archive De Sci. 65(11): 752-762. 4. **Allah Wasaya**, Muhammad Tahir, Abdul Manaf, Mukhtar Ahmed, Shuaib Kaleem and Ijaz Ahmad. 2011. Improving maize productivity through tillage and nitrogen management. Afr. J. Biotechnol., 10(81): 19025-19034. 5. Shuaib Kaleem, Fayyaz- ul- Hassan, M. Ahmad, Imran Mahmood, **Allah Wasaya**, M. A. Randhawa and Pervaiz Khaliq. 2011. Effect of growing degree days on autumn planted sunflower. Afr. J. Biotechnol. 10(44): 8840-8846. 6. Kaleem, S., F. U. Hassan, M. A. A. H. A. Bukhsh, I. Mahmood, R. Ullah, M. Ahmad and **A. Wasaya**. 2011. Oil and oil quality in different circles of mature sunflower head as influenced by varying environments. Pak. J. Nutr., 10 (x): xx-xx, 2011.
Research Grants and Contracts.	**Date Title Agency / Organization** 2012. Enhancement of drought tolerance in maize by potassium application" PMAS-Arid Agriculture University, Rawalpindi.
Selected Professional Presentations	1. **Wasaya, A.**, M. Tahir and A. Tanveer. 2011. Role of different tillage systems and nitrogen levels in improving maize yield. Abstract of the "*International seminar on Crop management: issues and options"* Faisalabad, Pakistan, June 01-02, 2011. 2. **Wasaya, A.,** F.U. Hassan, M. Tahir, M. Ansar and A. Manaf. 2012. Pyysiological expression and dry matter production of maize in response to tillage and nitrogen application. Abstarct of the "*12th National and 3rd International Conference of Botany*" Islamabad, Pakisatan Sep. 01-03, 2012.

Proforma 9 *Faculty Resume*

<table>
<tr><td>Name</td><td>SAFDAR ALI</td></tr>
<tr><td>Personal</td><td>Lecturer, Department of Agronomy, Faculty of Crop and Food Sciences, Pir Mehr Ali Shah, Arid Agriculture University Rawalpindi.

Mobile: +923085261880

Email: safdarali@uaar.edu.pk / safdaraliarid@yahoo.com</td></tr>
<tr><td>Experience</td><td>
<table>
<tr><th>Date</th><th>Title</th><th>Institution</th><th>Responsibilities</th></tr>
<tr><td>September 20, 2007 till to date</td><td>Lecturer</td><td>PMAS-Arid Agriculture University, Rawalpindi</td><td>Teaching and Research</td></tr>
<tr><td>November 2009 to date</td><td>Hostel Superintendent</td><td>Jinnah Hall for Boys Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi.</td><td>Management and look after of the Hostel and Student Affairs</td></tr>
<tr><td>17-02-2004 to 26.10.2006</td><td>Area Manager</td><td>Ali Akbar Enterprises Pakistan Ltd.</td><td>Management of field staff, Provision of Technical Advisory services to Agricultural Farmers for crop maximization and conducting research trials of different seeds fertilizers and pesticides on different crops</td></tr>
<tr><td>23-12-2000 To 17-02-2004</td><td>Technical Sales Officer</td><td>Syngenta Pakistan Ltd.</td><td>Management of field staff, Provision of Technical Advisory services to Agricultural Farmers and conducting research trials of different seeds fertilizers and pesticides on different crops Agricultural Inputs on different crops</td></tr>
</table>
</td></tr>
<tr><td>Honor and Awards</td><td>1. HEC PhD Scholar
2. HEC Master Trainer
3. KOICA Master Trainer</td></tr>
<tr><td>Memberships</td><td>1. Life Member of Pakistan Society of Agronomy
2. Life Member of Pakistan Society of Weed Science
3. Member of Syndicate of PMAS-AAUR for the duration of 12-08-2011 to 11-08-2014.</td></tr>
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<td>Graduate Students
Postdocs
Undergraduate Students

Honour Students</td>
<td>Graduate Students Supervised
<table>
<tr><th>Sr. No.</th><th>Name</th><th>Degree</th><th>Year</th><th>Thesis Title</th></tr>
<tr><td>1</td><td>Tauqir Ahmad</td><td>M. Sc. (Hons.) Agriculture</td><td>2013-14</td><td>Response of soil weed seed bank to different tillage systems in rainfed wheat</td></tr>
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<tr>
<td>Service Activity</td>
<td>Technical Advisory Services to the Farmer Community Through Telecom.</td>
</tr>
<tr>
<td>Brief Statement of Research Interest</td>
<td>RESEARCH INTERESTS
• Weed science
• Seed bank dynamics
• Conservation agriculture
• Tillage systems
• On-farm crop production
• Fodder crops
• Crop nutrition</td>
</tr>
<tr>
<td>Publications</td>
<td>Articles published by refereed journals.

Ali. S., Sahiba., M. A. Malik., F. U. Hassan., and M. Ansar. 2012. Growth of rainfed fodder maize under different levels of nitrogen and phosphorus. Pak. J. Agri. Res. 25 (3):196-205.
Papers under review:
1. Qualitative response of maize fodder to different levels of N & P under rainfed conditions.
2. Yield and quality of rainfed sorghum fodder under different levels of nitrogen and potash
3. Growth response of wheat and weed flora to different tillage systems at developmental stage
4. Response of Convolvulus arvensis to different tillage combinations in rainfed wheat
5. Dynamics of Fumaria indica under different tillage systems in rainfed wheat
6. Dynamics of Chenopodium album under different tillage systems in rainfed wheat</td>
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