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ARID AGRICULTURE UNIVERSITY RAWALPINDI
Department of Plant Pathology

Self-Assessment Report (2022-2024)
M. Sc. (Hons.) Agriculture Plant Pathology

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Introduction

Plant pathology is an important major department of agriculture, where keeping in view the prominence of plant pathology the department started working with the establishment of the Barani Agricultural College in 1979. When the college was upgraded to the University of Arid Agriculture in 1994; Courses for M. Sc. (Hons.) Agriculture in Plant Pathology commenced in 2000. The Department gained striking response from here onward. The eminent plant pathologist produced by this department has been contributing to the nation in different capacities. The department is obligated to high standard teaching and advance research in the area of plant pathology. To develop the necessary skills in understanding problems in the pathological sector the program of plant pathology is established. Its curriculum highlights the coming forth issues of economically important plant protection aspects in Pakistan. Moreover, integrated disease management has been given substantial importance in the curriculum. Additionally, new and modern techniques have been introduced to conduct superior research.

Regarding the latest development in the plant pathology sector, the department improves its curriculum on regular basis and has incorporated the emerging tools of molecular approaches. The department is committed to providing a variety of study programs such as Post-harvest pathology, Crop protection, and Biotechnology, to enhance student's professional training skills and career opportunities. It holds national and international conferences, seminars, and training programs to exchange knowledge and views. The faculty is actively involved in several research projects; some of which are internationally collaborated and funded. This Self- Assessment Report (SAR) presents the progress of the Department at the post-graduate level, for the academic years 2022-24. Surveys were conducted at the end of each semester i.e. fall semester

(2022 – 2023), Spring semesters (2023-2024). This Self- Assessment Report (SAR) is based on eight criteria. The program mission and objectives are outlined in the first criterion. Criterion 2 provides information about the curriculum development. Criterion 3 catalogues the laboratories and other relevant information. The fourth criterion consists of the information about students support and advising. Information about process control, faculty characteristics, and institutional facilities and support is depicted in the last four criteria.

Criterion 1: Program Mission, Objectives and Outcomes

To meet the above-mentioned criterion of the self-assessment, some standards must be satisfied. This section describes how the standards of Criterion 1 are met.

Standard 1-1: The program must have documented measurable objectives that support institution mission statements.

Mission Statement

The goal of the Department of plant pathology is to bestow quality education and research-oriented training, extension of agricultural knowledge for self-sufficiency in quality food, and development of sustainable system for profitable production which can be environment friendly to make the future of Pakistan Prosperous. Strategic objectives of the program of Plant Pathology are:

1. Development of plant pathology structure on advance and innovative lines for teaching and research activities for the graduate and post-graduate students.

2. To contribute basic and applied high-quality knowledge and skills in the field of plant pathology applying highly advanced analytical techniques for crop management and improvement.

3. To lead students and conduct research on advanced scientific lines in the field of plant pathology.

4. To strengthen the discipline with the integration of knowledge and approach of related fields such as virology, Biotechnology, mycology, seed pathology, post-harvest pathology, bacteriology, and nematology.

5. To counter new problems in plant pathology.
6. Training of the teaching faculty and students on the basis of technological lines.

Main Elements of a Strategic Plan to Achieve Mission and Objectives

1. Developing a teaching structure based on the experience and vision assembled from the latest knowledge, proceedings, symposia etc to uplift the capabilities of the students.

2. Formatting and constantly updating the curricula involving core subjects, elective subjects, specialized areas, internship programs and study tours.

3. Setting up of well-equipped specialized research laboratories to facilitate the students.
4. Research-oriented postgraduate thesis.
5. Publication of scientific papers, guide books/booklets, fact sheets and manuals etc.
6. Coordination with other research organizations, universities, agriculture ministry and foundations for research matters.

7. Coherent linkages with national and international research organizations and universities to improve the research level.

The assessment of program objectives through different criteria is presented in Table 1.

Table 1. Program Objectives and their Assessment.

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	Development of plant pathology structure on advance and innovative lines for teaching and research activities for the M. Sc. (Hons.). students.	On the basis of recognition of integrated disease management in the area and determining their impact	It is a continuous & dynamic process	Facilities provided for teaching are not sufficient	Some steps have been taken to improve the teaching method
2	To contribute basic and applied high quality knowledge and skills in the field of plant pathology	Background information and status of knowledge of students through entry tests and student feedback	At the time of admission or semester	Some courses are to be added and the existing required to be revised in the curriculum	Curriculum changes have been made on a required basis
3	To lead students and conduct research on advanced scientific lines in the field of Plant Pathology	Evaluating the students demands and taking their feedback for the betterment	Before start-up projects	Students to participate in the class, assignments and report preparation	Improvement is still going on
4	To strengthen the discipline with integration of knowledge and approach of related fields	Through entry tests, interviews research interests	Subject/ courses attachment before start	The relevant subjects are emphasized and recommended in the study programs	Enhancement of knowledge and vision
5	To counter new problems in plant pathology	Through discussion, consultation and practical implementation with the farmers for better interaction	Regular activity	New courses to be included in curriculum, research on new problems	Recommendation of new curriculum is suggested
6	Training of the teaching faculty and students on the basis of technological lines	Through training courses in and outside the country	Regular activity	Finding the problem-oriented and solution oriented research along with new teaching	Improved better than before and continued

Standard1-2: The program must have documented outcomes for graduating students. It must be documented that the outcomes support the program objectives and that graduating students are capable of performing these outcomes.

Expected Outcomes of the Program

1. It will improve the basic structure of the department standardizing at part with advanced developed countries of the modern world.
2. The students‟ vision and in-depth approach will be more extensive.
3. The students will get a quality education.
4. The incorporated knowledge of allied fields will help to develop the confidence of students, consequently crop productions will increase.
5. The smooth, dynamic and problem-free progress will continue in the area of plant pathology.
6. The quality, confident and well equipped human resource development will be achieved in the field of plant pathology.

Table 2 shows that the outcomes of the program are aligned with each objective

Table 2: Program outcomes and their relationship with objectives.

		Objectives					
Outcomes		**1**	**2**	**3**	**4**	**5**	**6**
	1	+++	++	++	++	+++	++
	2	+++	++	+++	++	++	++
	3	++	+++	++	+++	+	+++
	4	+++	++	+	+++	+++	++
	5	++	+++	++	+++	+++	+
	6	+++	++	++	+++	++	+++

+ = satisfactory, ++ = moderately satisfactory, +++ = highly satisfactory

Program Outcome Measurement

Evaluation of the performance of the most concerned about achievement of the determined objectives; information was gathered from the target groups through proforma provided by the Quality Enhancement Cell of Pir Mehr Ali Shah, Arid Agriculture University, and Rawalpindi.

The proformas were filled in by the respective class students, faculty members, department alumni, and the graduates (previously passed out from the university) working in different organizations, research institutes, and agriculture departments in different positions at the national level.

Program Assessment Results

Teachers' Evaluation

The overall compiled results showed that the performance of teachers was satisfactory. It is obvious from the graph that Teacher 3 is on the top scoring 99 % followed by teachers 1, 2 and 4 respectively (Fig. 1). Whereas in spring semesters, the overall performance of all the teachers was graded as very good Teacher 3, however, was on top with 98 and 99% scoring followed by teacher 1, 2 and 4 (**Fig. 2**). This was during the Assessment which was conducted twice during each academic year 2022–2024 at the end of each semester: Fall, semesters 2022-2023 and spring semesters 2023-2024. All teachers, Dr. Tariq Mukhtar, Dr. Abid Riaz, Dr.M. Inam-ul-Haq, Dr.Farah Naz, Dr. Gulshan Irshad and Dr. Sajid Mehmood as 1-6 were evaluated by the students following Proforma-10. The cumulative result of fall semesters and spring semesters is presentedgraphically in **Fig. 1** and **Fig. 2**.

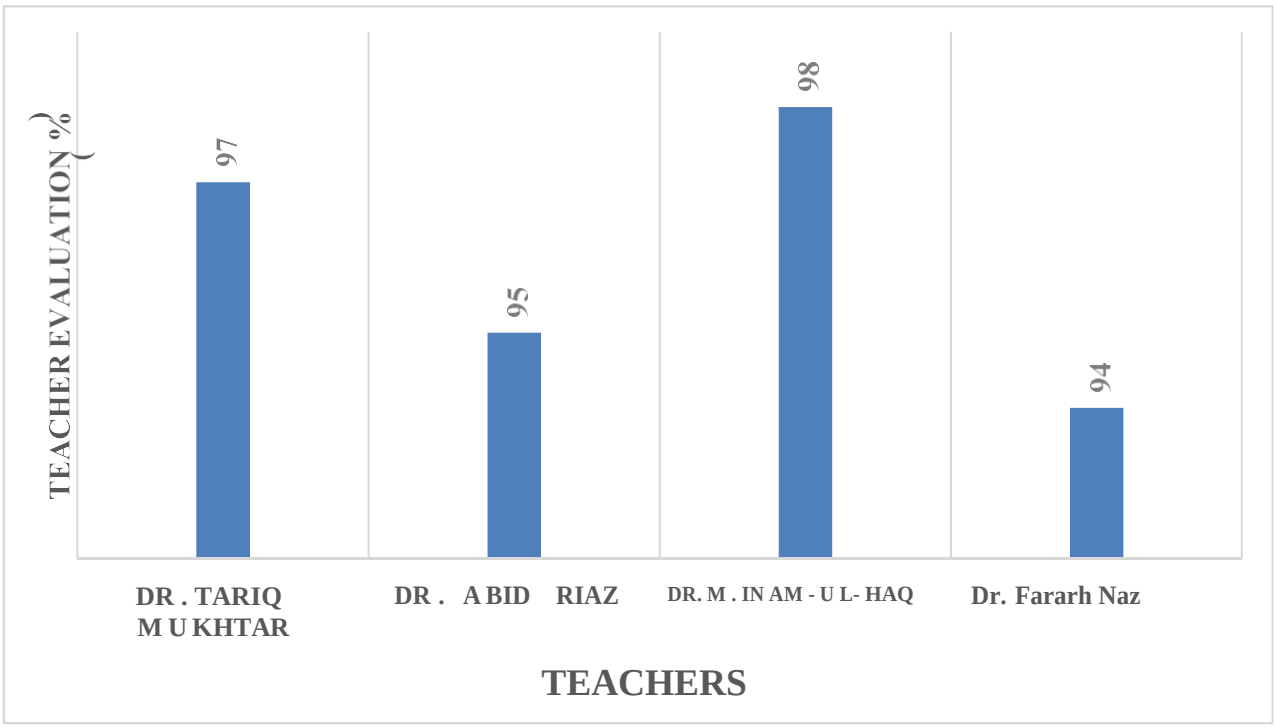


Fig. 1. Teacher Evaluation for M. Sc. (Hons.) Courses (Fall-22 to Spring-23).

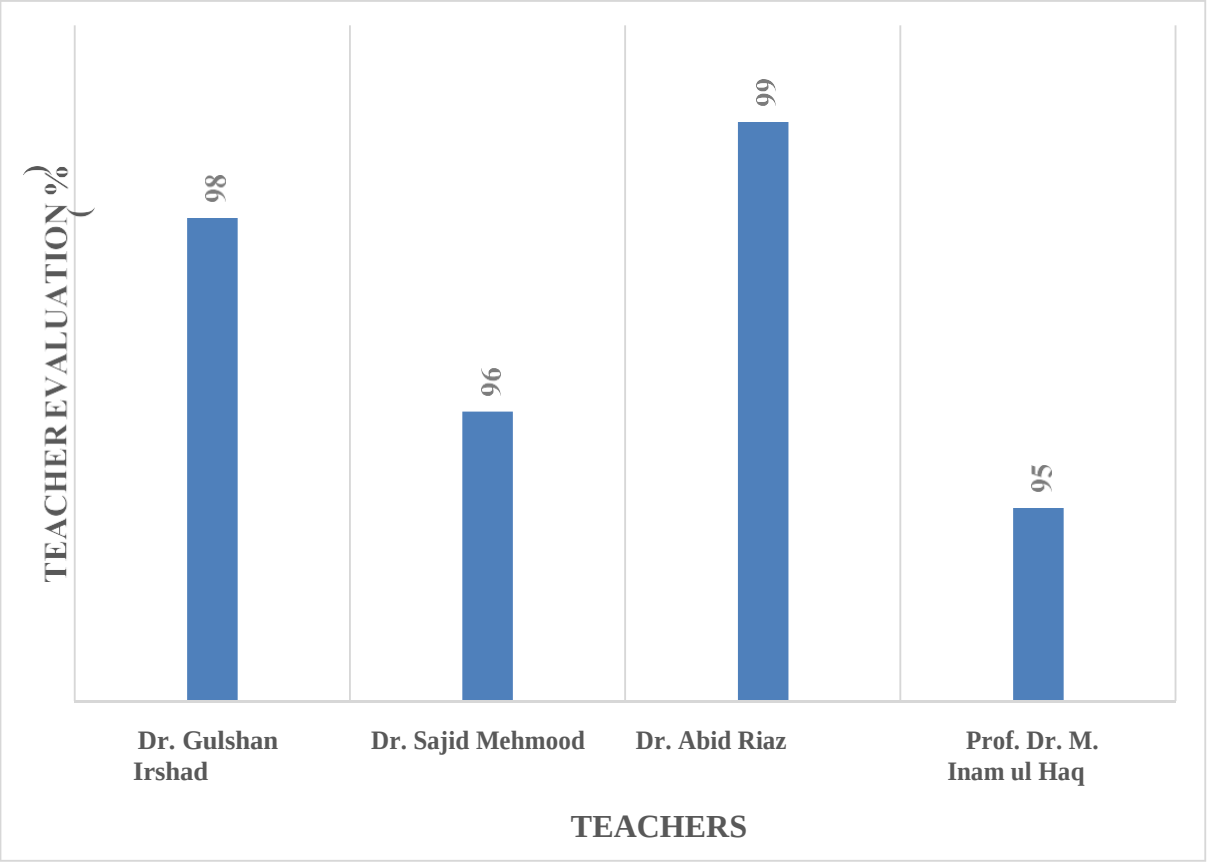


Fig. 2. Teaecher Evaluation for M. Sc. (Hons.) Agri-Plant Pathology (Fall-23 to spring-24).

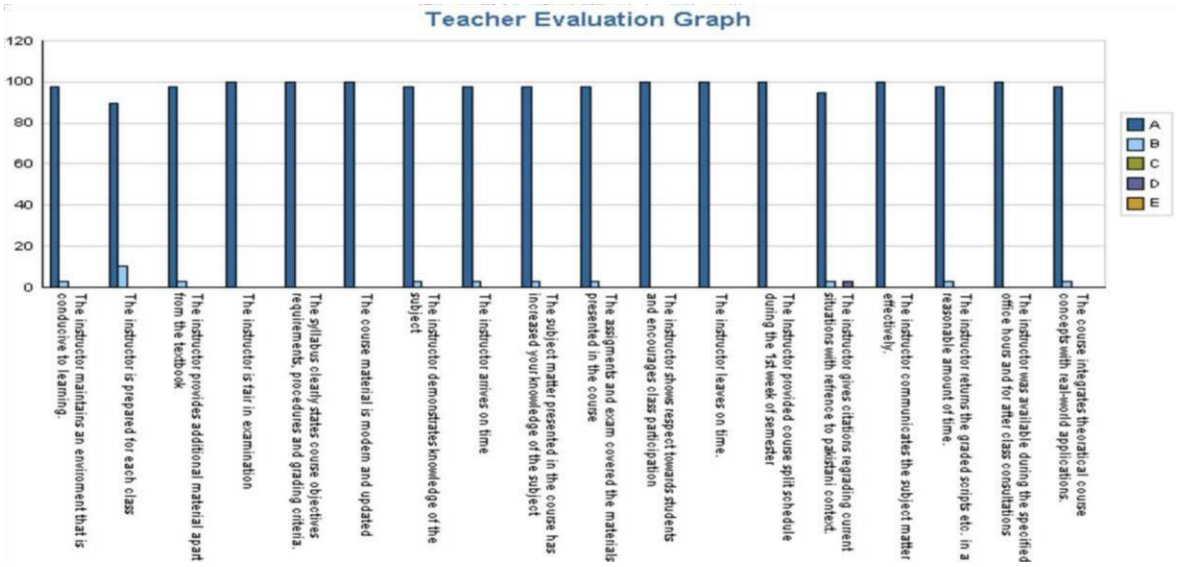
Detail of the individual performance of each teacher is obvious from the graphs & Pie-charts given ahead.

Graphs & Pie chart Showing Evaluation of Teachers in Detail (Teachers Evaluation Proforma 10)

Teacher: 3 (PP- 703)

Teacher evaluation graphs have been evaluated by the following **feedback; A: Strongly agree B: agree C: Uncertain D: disagree E: Strongly disagree**

Results showed that all the students were found agreed and the teacher‟s performance remained very good in the course regarding all parameters. While 10% agreed that the instructor is prepared for each class. Whereas, none of the students strongly disagree that the teacher‟s performance remained not very good in the course regarding all parameters

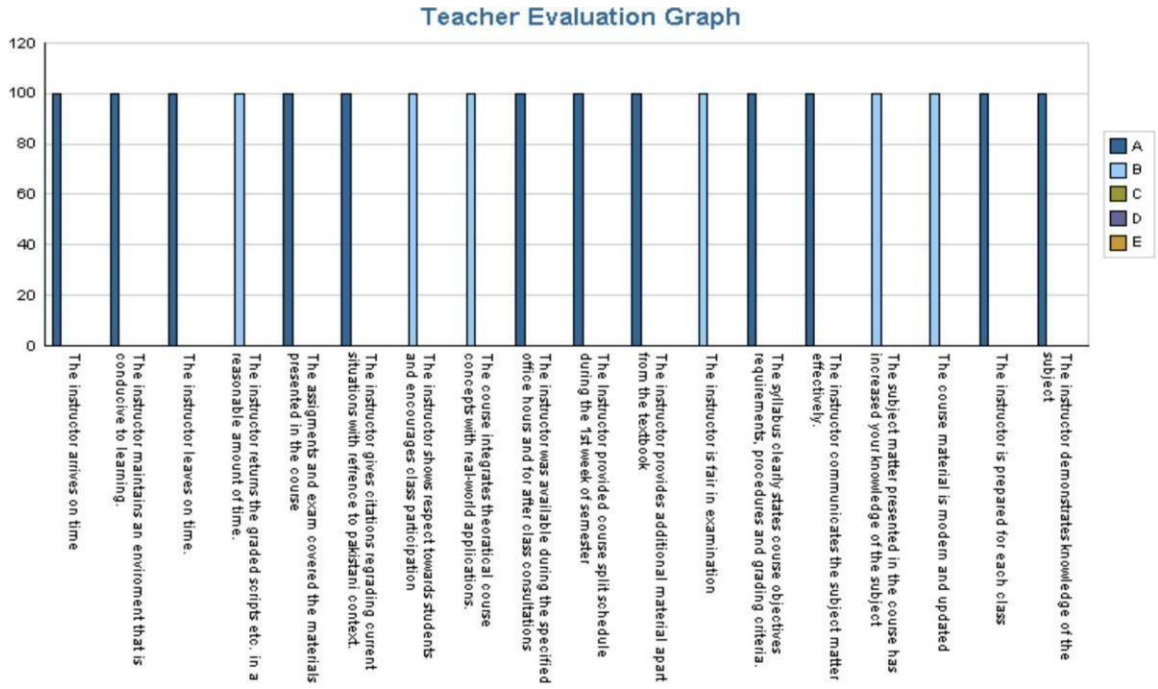


Teacher Evaluation (%)

Core Questions

Teacher 3 (PP-720)

Every student agreed that course objectives were clear, course load was manageable and the course was well organized, yet students have to be present all the time. Similarly, the ideas and concepts were presented in an ideal environment and the method of assessment was impartial.



Teacher Evaluation (%)

Core Questions

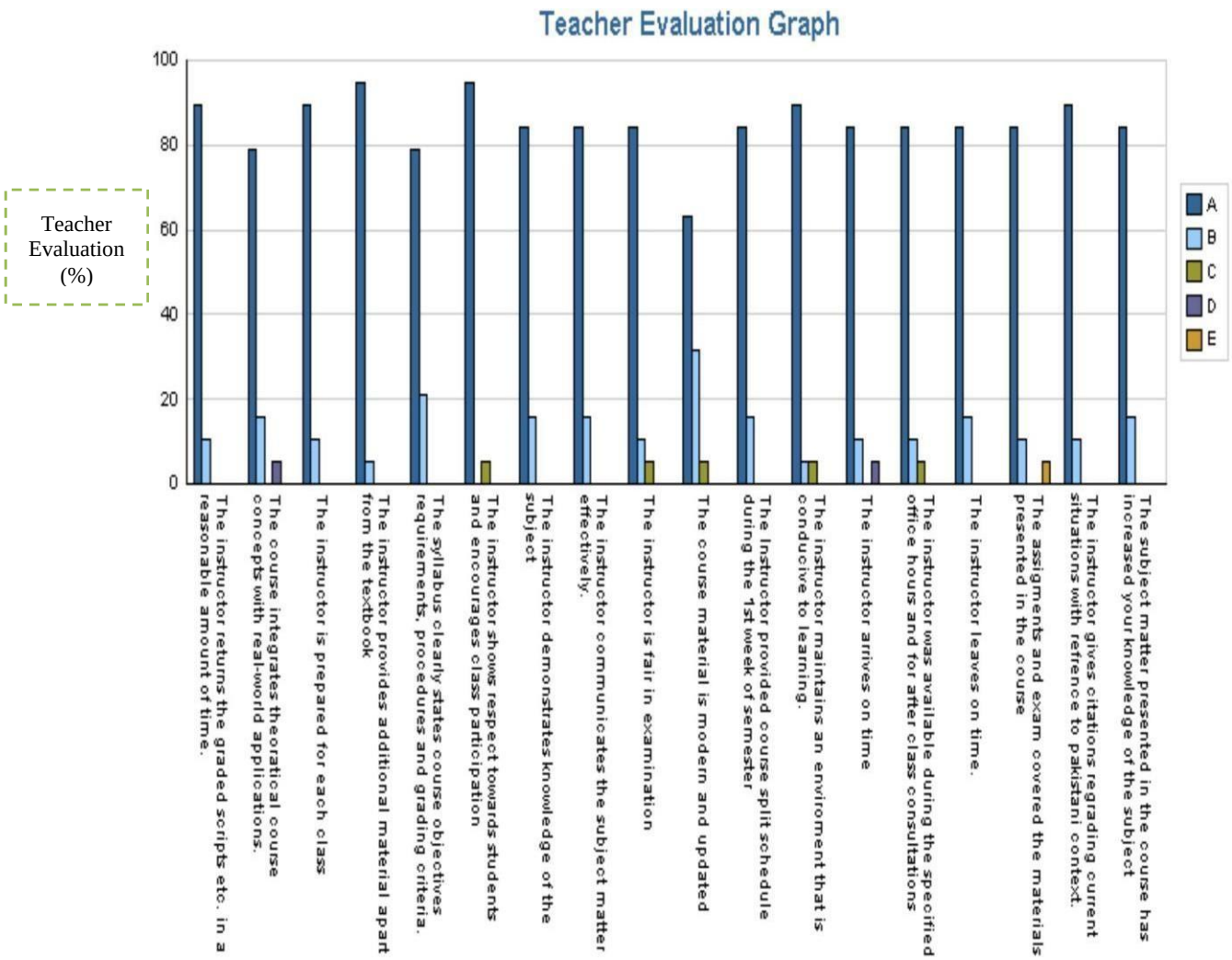
General Comments about the Teacher

Strengths:

- The teacher was friendly.

Teacher: 1 (PP- 704)

According to the assessment, all the students strongly agreed that course objectives were clear whereas 10% of students showed their uncertainty about the instructor maintains an environment that is conducive to learning. While 30% of the students were agreed about the course material is modern and updated.



Core Questions

General Comments of the Students about this Teacher

Weaknesses:

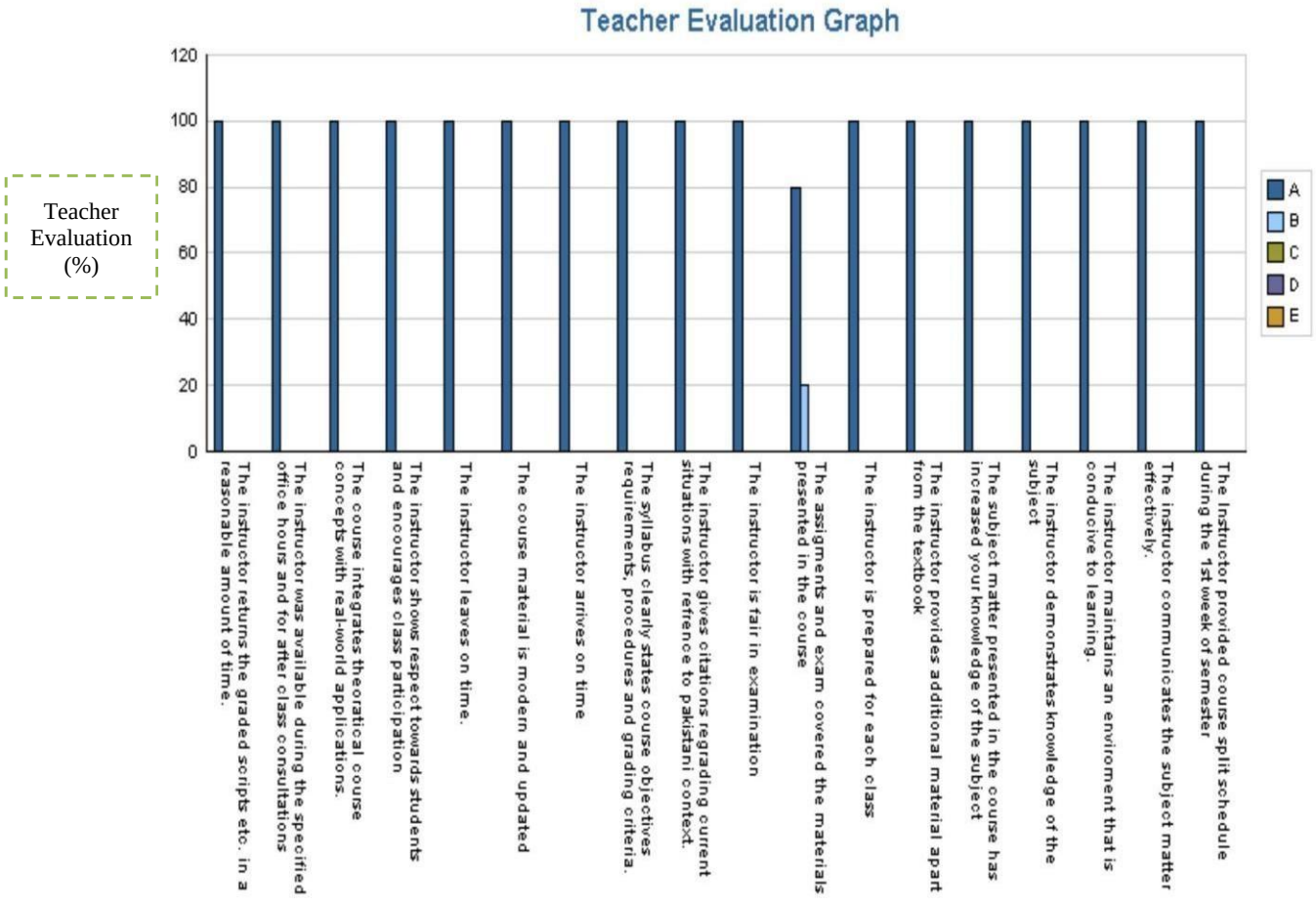
- Teacher should encourage class participation.

Strengths:

- Teacher completed the course within time. Teacher was punctual

Teacher: 2 (PP-714)

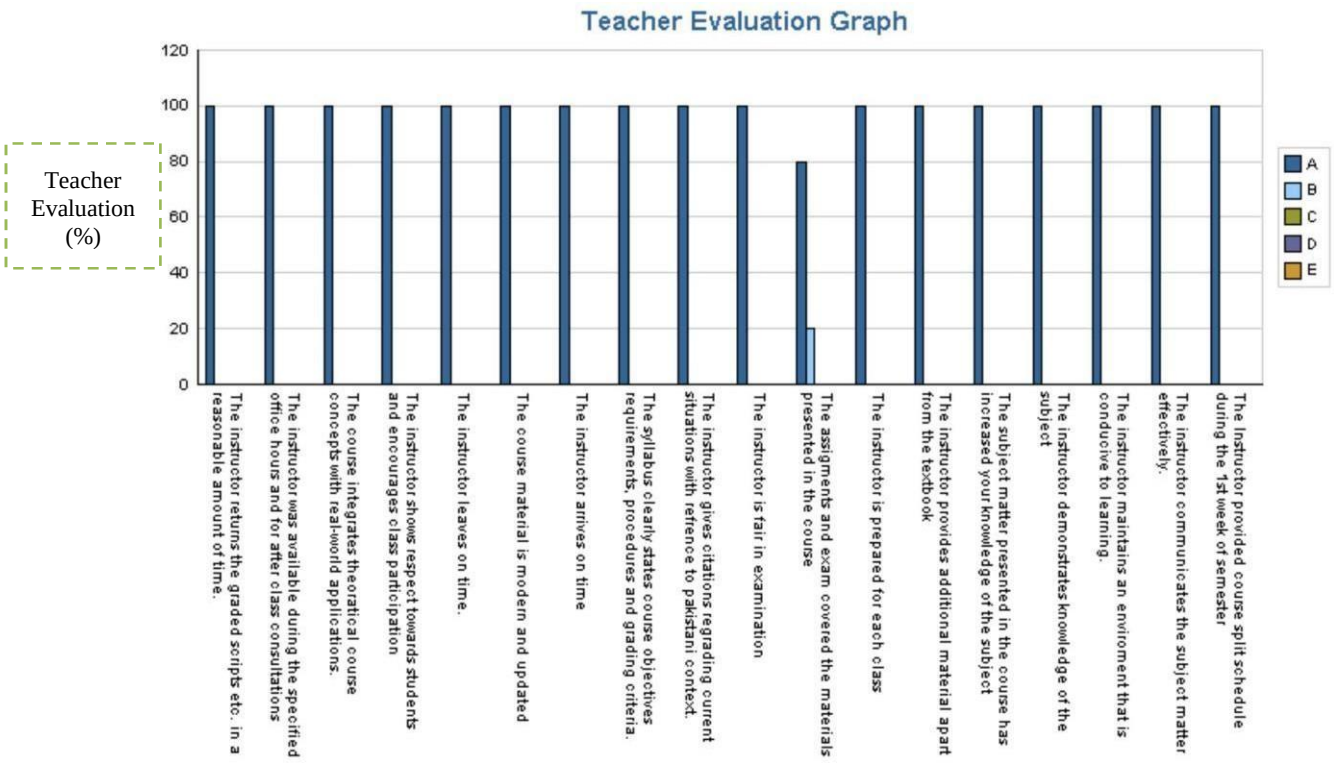
Almost all students were strongly agreed that the teacher demonstrates knowledge of the subject; the Teacher completed the whole course, the teacher used to communicate the subject matter effectively, the teacher arrives on time, the instructor leaves on time etc. While 20% of students agreed that assignments and exams covered the materials presented in the exams.



Core Questions

Teacher: 4 (PP-706)

Almost all students were agreed that the teacher demonstrates knowledge of the subject, the teacher completed the whole course, the teacher used to communicate the subject matter effectively, the course material is modern and updated, The instructor is fair in examination etc.



Core Questions

General Comments of the Students about this Teacher

Strengths:

- Teacher completed the course within time.
- Teacher was guiding.
- Teacher presented ideas and concepts clearly.

Student Course Evaluation

The courses of the respective teachers were also evaluated as per Proforma1 twice during each academic year 2022-24 at the end of each semester: Fall semesters (October, 2022- February, 2023) and Spring semesters (March, 2023- August, 2024). The results are shown in Fig-2 a. and

2 b. six courses were taught altogether during the two semesters. In Fall semester PP-703, PP-720 and PP-707 in spring semester PP-714, PP-706 and PP-720 were taught by four teachers (Dr. Farah Naz, Dr. M. Inam-ul-Haq, Dr. Abid Riaz and Dr. Tariq Mukhtar) numbered 1-4. It is clear from figure 3 that during the fall semester the course taught by the teacher 2, is in the top 98% and the course of Teacher 4 is in the second number scoring 96%. The course taught by teacher 1 was ranked at the bottom 89%. Similarly, in the spring semester, the course taught by the teacher is again on the top scoring 96% and the course taught by teacher 4 was ranked at the bottom securing 93% (Fig.4). The overall performance of all the courses were however can be ranked as of high-quality.

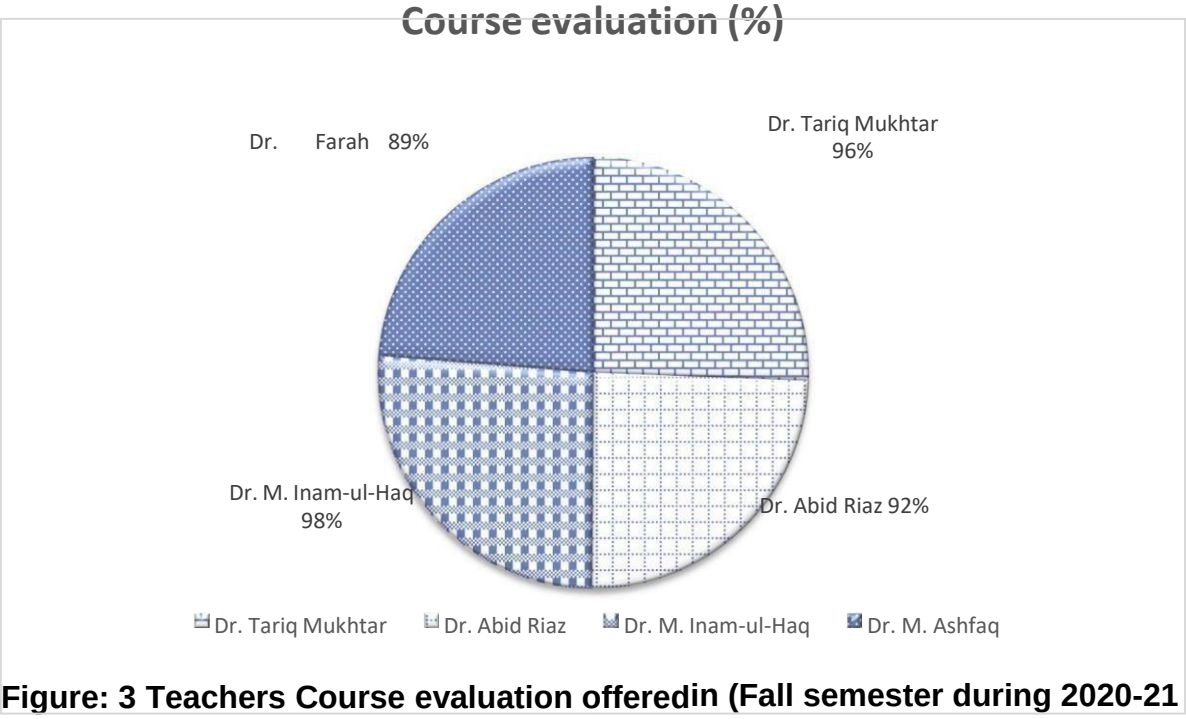


Figure: 3 Teachers Course evaluation offeredin (Fall semester during 2020-21 -

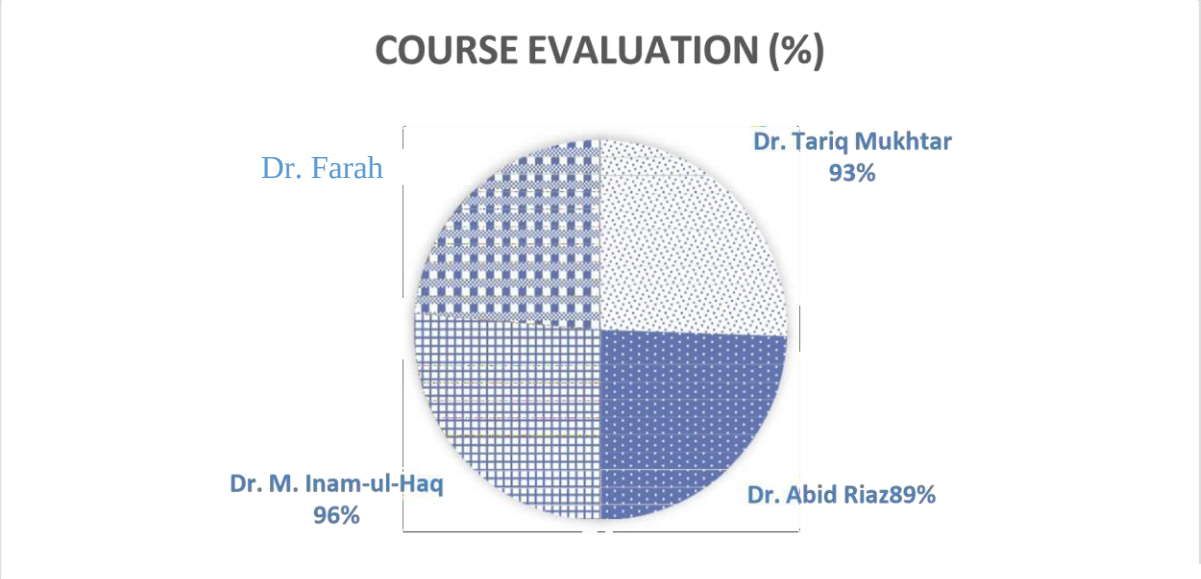
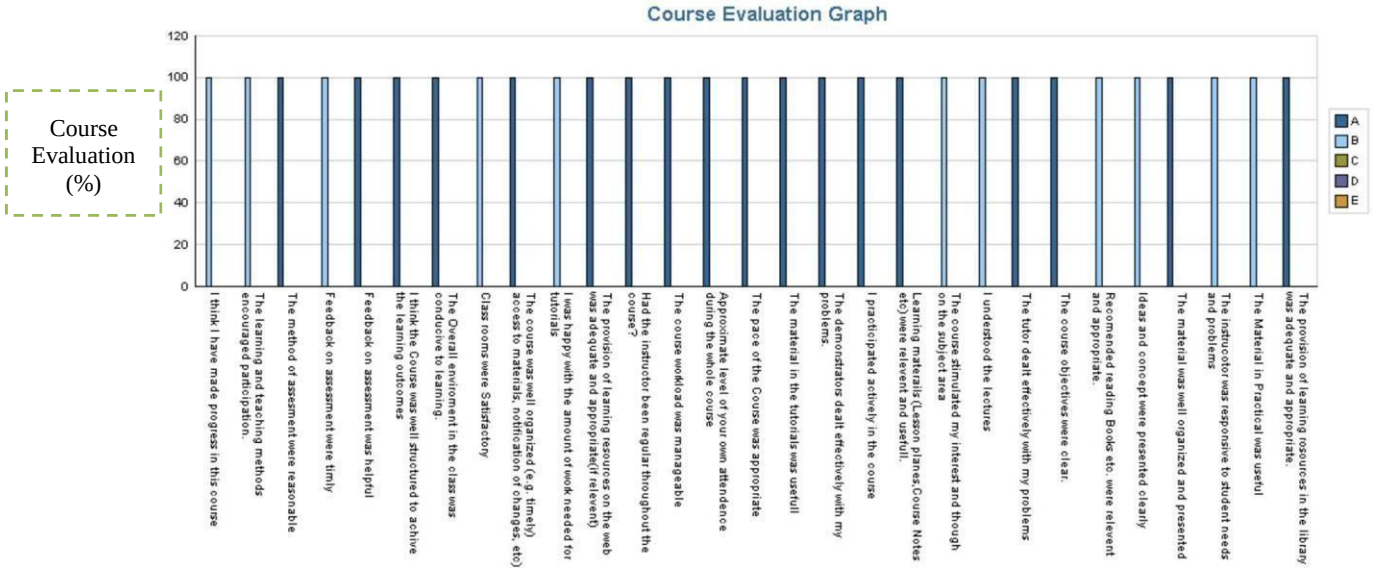


Figure: 4 Teachers course evaluation offered in (Spring semesters 2022-2021

PP-703: Teacher 2

Teacher evaluation graphs have been evaluated by the following **Feedback; A: Strongly agree B: agree C: Uncertain D: disagree E: Strongly disagree**

Many students have strongly agreed with the statement that course objectives were clear and course work was manageable. The participation of the students was adequate. Almost 100 % reported that they have made progress in this course.



Core Questions

Weaknesses:

- The teacher should take the lecture by himself.
- The course can be improved by performing the practical.

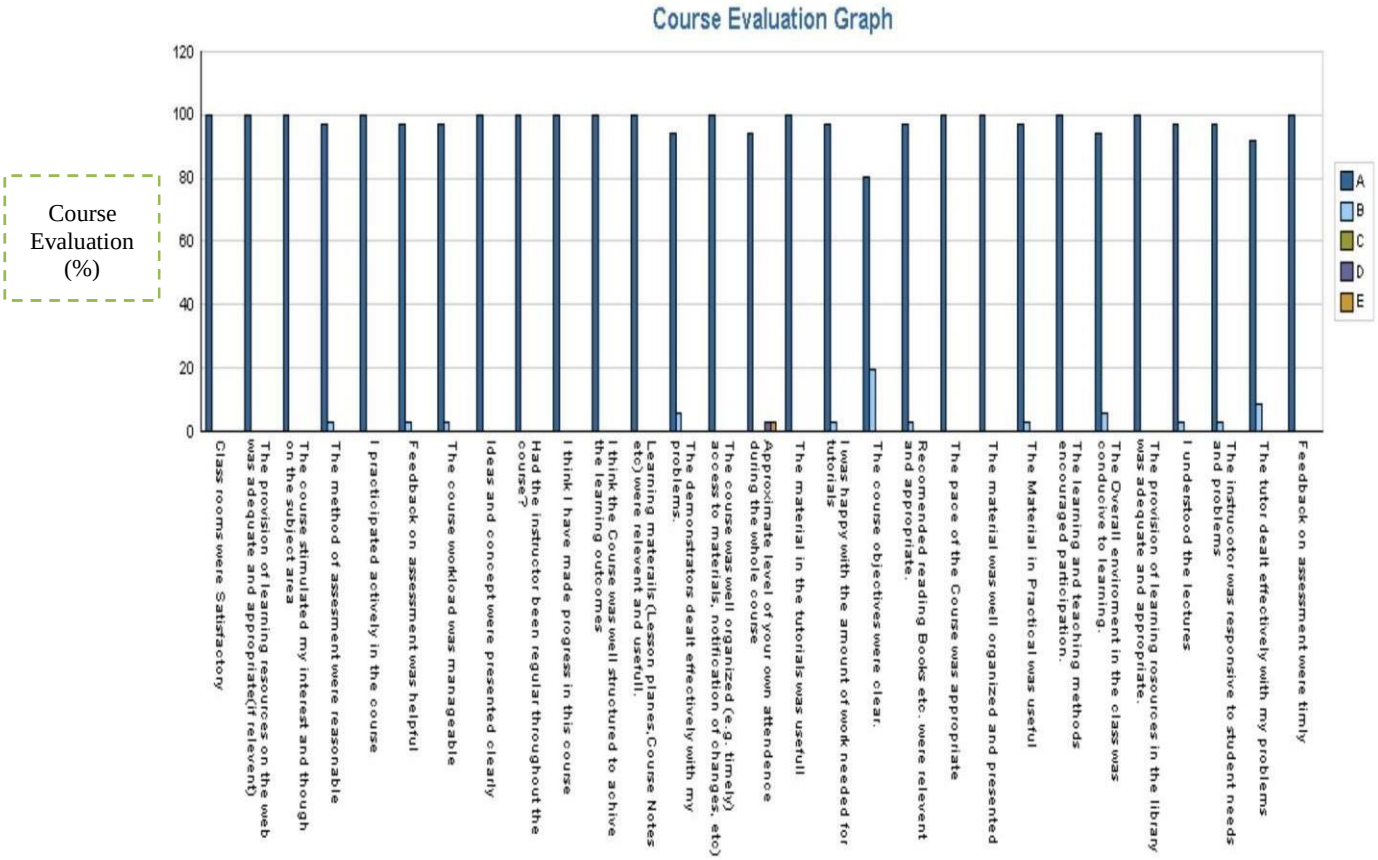
Strengths:

- The course was informative.

Teacher 2 (PP- 720)

Course evaluation graphs have been evaluated by the following **Feedback; A: Strongly agree B: agree C: Uncertain D: disagree E: Strongly disagree**

Many students have strongly agreed with the statement that course objectives were clear and course work was manageable. The participation of the students was adequate. Almost 85 % reported that they have made progress in this course. About 15 % disagreed regarding the provision of learning in the library was adequate.



Core Questions

Weaknesses:

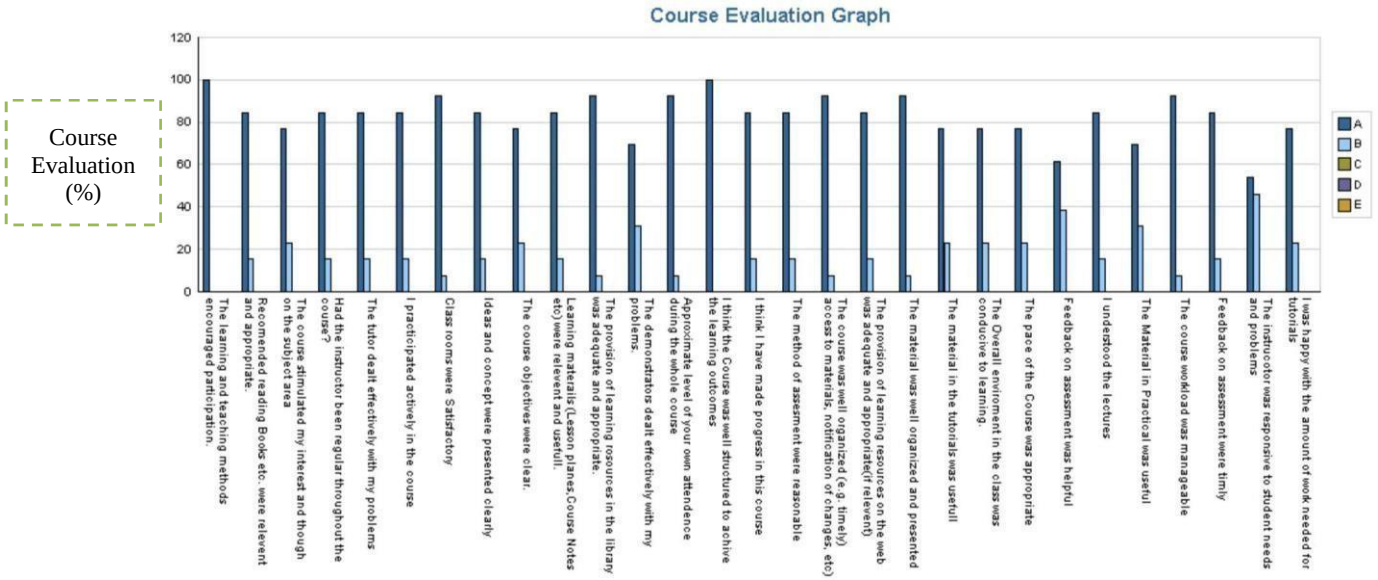
- The teacher should take the lecture by himself.
- The course can be improved by performing the practical.

Strengths:

- Course was informative

Teacher 3 (PP- 714)

Many students were strongly agreed with the statement that course objectives were clear and course work was manageable. Participation of the students was adequate. Almost 90 % reported that they have made progress in this course. About 10 % disagreed regarding the provision of learning in the library was adequate.



Core Questions

It is obvious from the graph that the overall performance of the teacher was very good. Almost all respondents agreed that the instructor was prepared for each class, demonstrates knowledge of the survey good way and returns the graded scripts etc.

Weaknesses:

- The teacher should take the lecture by himself.
- The course can be improved by performing the practical.

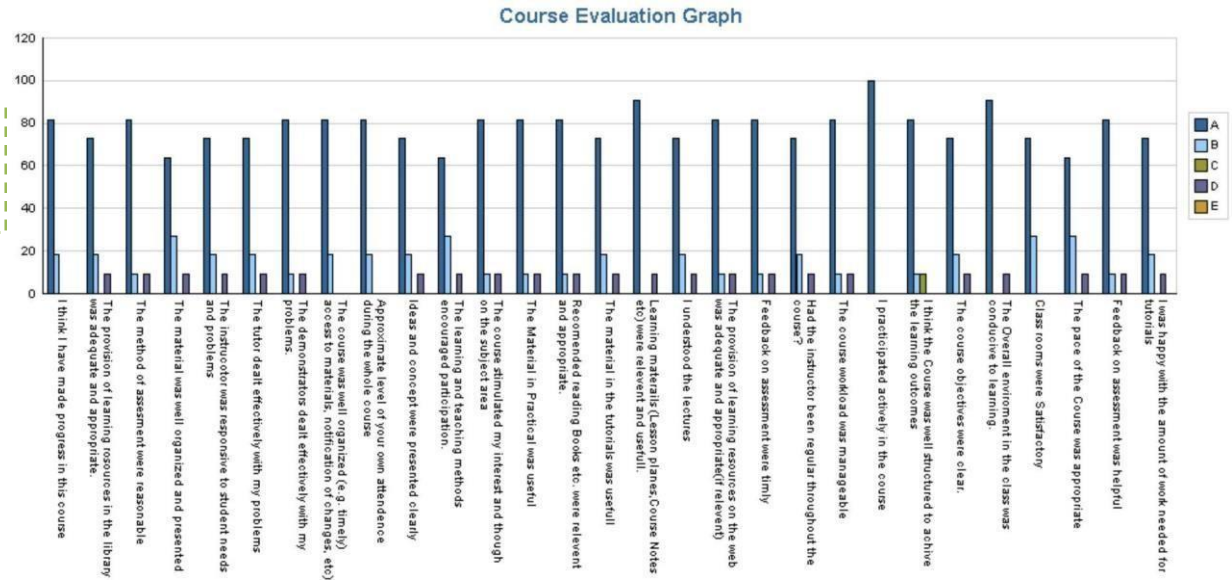
Strengths:

- Course was informative

Teacher 1 (PP- 706)

It can be envisaged from the graph that the overall performance of the instructor was good. Most of the indicators are categorized as strongly agreed and agreed by all the students

Course Evaluation (%)



Core Questions

Weaknesses:

- The Teacher should encourage class participation.

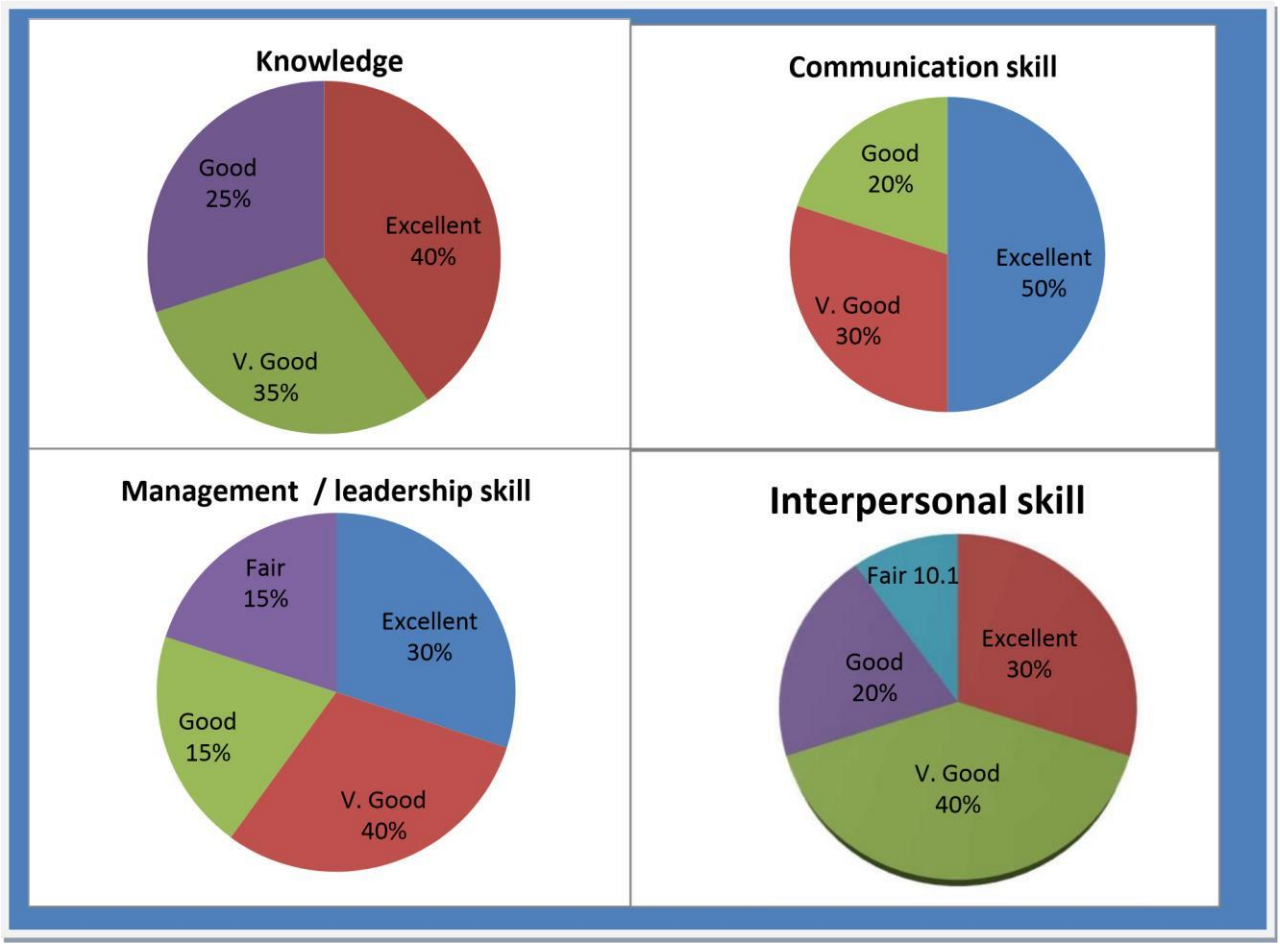
Strengths:

- The teacher completed the course within time.
- The course was informative.

Alumni Survey Results: After M.Sc. Hons. Degree most of the students joined research institutes, public or private sector organizations. Proforma 7 was sent to the heads of organizations for their

feedback about our graduates in their organizations. The overall results of the program assessment by the

Fig. 5. Results of the Alumni Survey Proforma**.**
Alumni are presented in Fig-5.



A = Excellent B= Very good C = Good D = Fair E= Poor

The pie chart shows 40% of alumni found that the knowledge received by the department was very good, whereas 30% found knowledge was excellent. The chart regarding communications skills showed that 50% of alumni found quality of education were excellent whereas 30 % possessed very good communication skill. Excellent interpersonal skill was shown by 30% of alumni students and 40% were graded as very good. However, 10 % of alumni students were graded poorly as for as interpersonal skill is concerned. It is evident from the pie chart that 30% of alumni students possessed excellent, 40% (very good) and 15% found good and fair management/ leadership skills.

Skills and Capabilities Reflected in Performance as Plant Pathologists

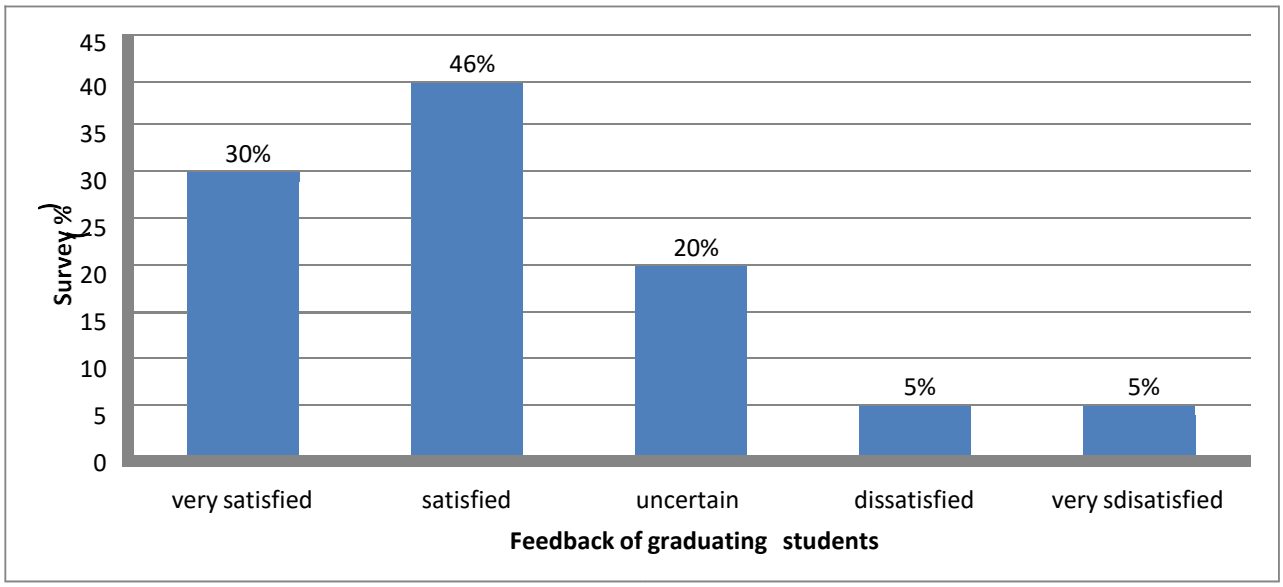


Fig. 6 Survey of Graduating Students Best Aspects of the Program

Students are trained in a way that they develop the ability to apply knowledge of plant pathology as professionals. They can exploit their confidence level and communication skills effectively in writing, discussion, use of modern tools, techniques and skills for their profession to formulate and design the experiments/ project and to work effectively in a team, to manage disease problems and exploit their abilities to recognize future needs.

Survey of Graduating Students

According to the results of Performa 3 which was a survey of graduating are given in Fig- 5. The graduating students in the last semester were surveyed before the award of the degree. 46% of students were satisfied, whereas 30% of the students surveyed were found very satisfied. Moreover, 20% (uncertain) and 5% of graduating students were dissatisfied and very dissatisfied by the quality of education regarding all information asked. The results of graduating students are summarized and given in Fig. 6.

1. Highly qualified faculty
2. Induction of national professors through the higher education commission
3. Helping attitude of the chairperson for all students in research and extra-curricular activities
4. Timely advice
5. Phytodoctor forum

Implementations:

1. Laboratories are not well equipped and research facilities such as ELISA, PCR etc are not available
2. Lecture rooms are not enough to take classes and sometimes teachers have to take classes in the laboratory where research students are working (UV/ autoclave is on)

Affectivity of Internship Experience

The internship experience was found effective in enhancing, ability to work in team, independent thinking, appreciation of ethical values, professional development, time

management skills, judgment and discipline Fig- 7.

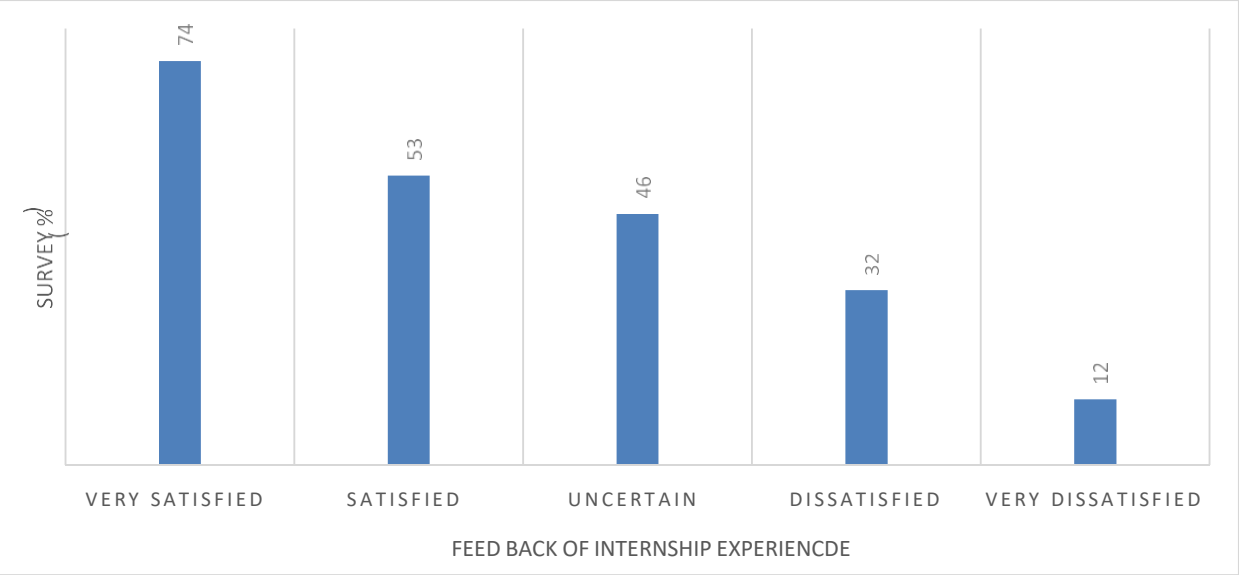


Fig. 7: Affectivity of Internship Experience

	Standard 1-3: The results of Program's assessment and the extent to which they	**are used**
	to improve the program must be documented.	

Strength of the Department

The main strength of the department is the availability of all expertise viz. Mycology,

Bacteriology, Nematology, Virology, Epidemiology and Disease management, with full acquaintance of their respective subjects, having vast knowledge of local agriculture production systems and disease problems. Two of our faculty members did post-doctorate from the world- renowned universities and

equipped themselves with the latest techniques in their respective fields of specialization. Most of the faculty members have local degrees and are experts in their fields. Their work has been published in national and international Journals (Annexure 11). They have also implemented national research projects and are highly conscious of the upcoming problems in the field of plant pathology. They are trying to highlight these problems through the survey of the farmer‟s fields so that the undergraduate students can pick up these problems in their postgraduate research.

Implementations in the Program

Advanced research is still handicapped due to lack of important equipment as ELISA Reader, plate washer, homogenizers, PCR equipment and ultracentrifuge also mentioned in the Latest literature and reviews are hardly available. There is a need for short term foreign training for young faculty members. Green-house and animal-house facilities are also lacking. Lecture rooms, common rooms, post-graduate laboratories, library and survey/field diagnostic aids are also lacking. The students‟ work indicates that there is some opportunity for improving communication skills and focusing on the practical aspects.

This is the first assessment report; the department is looking forward to seeing the implementation of the measures.

Standard 1-4: The department must assess its overall performance periodically using quantifiable measures.

The performance of the faculty members about research activities indicates that there are 252 research papers, 62 other publications and 12 projects in the credit of faculty members of the plant pathology department (Table-3).

Table 3 Present Performance Measures for Research Activities

Faculty	*Publications*	*Projects*
Dr. Tariq Mukhtar	138	3
Dr. M. Inam ul haq	81	3
Dr. Abid Riaz	50	2
Dr. Gulshan Irshad	53	2
Dr. Farah Naz	56	2
Dr. Sajid Mehmood	11	2
Total	**389**	**14**

Major Future Improvement Plans

- To impart quality education in Plant Pathology through audiovisual aids and modern tools along with the provision of latest literature, journals, books, reviews and access to the internet.
- To extend facilities for plant disease diagnosis, herbarium, museum, culture bank and develop extension material.
- To prepare hand-outs, brochures and pamphlets for the farmers and advisory services
- To equip the post-graduate laboratories (Mycology, Nematology, Bacteriology and Virology) with the modern and sophisticated equipments stated above.
- Human Resource Development in Plant Pathology to meet future challenges for sustainable agriculture leading to self-sufficiency in food
- To emphasize problem-oriented research on specific diseases prevalent in the arid ecology.
- Overall enhancement of knowledge and skills of faculty members in relation to the latest global advancements in this discipline through exchange programs, short training and collaborative research projects within and outside Pakistan.

Community Services Provided by the Department

The department is providing the following community services:

- Advisory services to the farmers as and when desired.
- Advisory services to protected farming in tunnels.

- Advisory services on disease diagnosis and management to the provincial agriculture department (local).
- Guidance and supervision of students in various departments.
- Supervision of students on internships in various organizations in the Punjab.

Evaluation of the Administrative Services Offered by the Department

- The department maintains a ratio of 4:1 for the academic (technical) and administrative non-technical staff which fulfills the standard set by the HEC (Table 6).
- Administrative meetings (departmental, university, academic council, and syndicate) are attended as and when required. Generally, two meetings of the academic council are held per month. The Board of studies of the department meets quarterly.
- Quick office disposal; no complaint on delay has ever been received from authorities.
- Proper records of individual students, their theses etc. are maintained.

Students are reasonably happy about the administrative services provided by the department as shown from the graduating student‟s survey.

Table 4. Quantitative Assessment of the Department at M. Sc. (Hons.) level

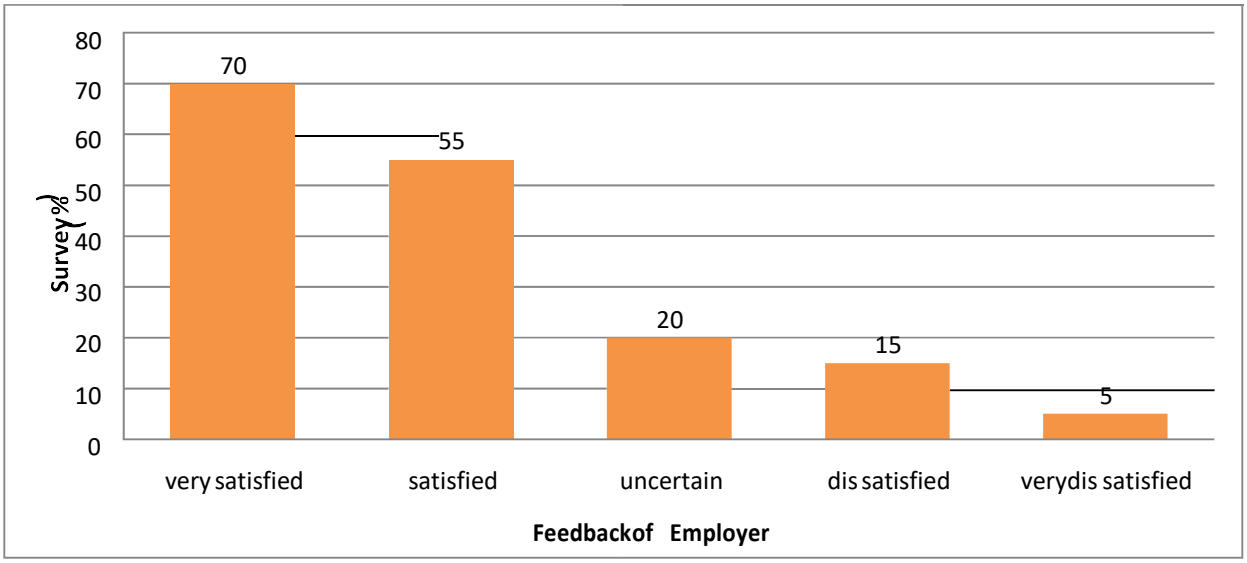
Sr. #	**Particular**	**No.**	**Remarks**
1	M.Sc (Hons.) Produces	30	70% started PhD 30% Started job
2	Students: Faculty ratio	1:1	
3	Technical: Non-technical ratio	4:1	
4	Average grade point	3	Fulfills HEC criteria

The evaluation process indicated high efficiency of system and satisfactory impact of outcomes. Almost all the M. Sc. (Hons.) graduates got jobs in various organizations (provincial department, universities, research organizations, banks and private sectors).

Employer Survey

A survey was conducted to get the employer's point of view about the working of our former students in their organizations. Feedback about 30 employees was obtained from organizations viz. National Agriculture Research Centre Islamabad (NARC), Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Federal Seed Certification Department, Islamabad, Bahaud Din Zakria University Multan and Department of Agricultural Extension Punjab. Their views are reflected graphically below. The major emphasis was to know the employers comment on the quality of education regarding: knowledge, communication skill, work skill and interpersonal skill these students have. The survey reflects that our M. Sc. (Hons.) graduates showed very satisfaction with up to 70% in all areas. This indicates that these graduates are adaptable to show their best potential in any given environment. Some employers gave general comments about some weaknesses in the practical workability. The employers in this survey, however, appreciated the practical skills shown by some of our M. Sc. (Hons.) graduates.

Fig. 8. Employer survey for the determination of students skills level proforma 2.



The Proforma pertains to the report of course review by the faculty members. These proforma were collected from each of the teachers who took an undergraduate course in the assessment year. In the following pages, soft copies sent by the teachers are reproduced.

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

M. Sc. (Hons.) graduates	Originally Registered	%Grade						No Grade	Withdrawal	
		A	B	C	D	E	F			Total
No. of Students	10	25.1%	60.7%	14.6%	-		-		-	10

Overview/Evaluation (Course Co-coordinator's Comments)
Feedback: first summarize, and then comment on feedback received from: (These boxes will expand as you type in your answer.)

4) Student (Course Evaluation) Questionnaires (Proforma-1) Informative course contains basic things

2)External Examiners or Moderators (if any)
--Nil

3) Student /Staff Consultative Committee (SSCC) or equivalent, (if any) –Nill

4) Curriculum: comment on the continuing appropriateness of the Course curriculum about the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines should be essential before taking Plant pathology as a major.

Yes, complies with HEC.

5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

6) Effective method should be continued

7) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports:
Not received.

Faculty Course Review Report

For completion by the course instructor and transmission to the Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant Pathology		Faculty:	FC & FS	
Course Code:	PP- 704	Title:	Seminar Plant Nematology		
Session:	2018-2020	Semester:	Spring ■	Autumn ☐	Summer ☐
Credit Value:	3(2-1)	Level:		Prerequisites:	
Name of Course Instructor:	Dr. Tariq Mukhtar	No. of Students:3 Contact Hours:03	Lectures	Other (Please State)	
			Seminars		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Midterm 12 marks (only theory) Final Theory 24 Practical 20 Assignment 04 Total: 60			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	F	No Grade	Withdrawal	Total
No. of Students	3	56.3%	38%	12%	-		-		-	3

Overview/Evaluation (Course Co-coordinator's Comments)
Feedback: first summarize, then comment on feedback received from: (These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires(Proforma-1) Informative course contains basic things
2) External Examiners or Moderators (if any) --Nil

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any) --nil

4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines Should be essential before taking pathology as a major. Yes, complies with HEC.

5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation 6) to the intended learning outcomes (Course objectives) 7)Effective method should be continued

7) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports: Not received.

Faculty Course Review Report

For completion by the course instructor and transmission to the Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant Pathology		Faculty:	FC & FS	
Course Code:	PP- 718	Title:	Advances in Plant Pathology		
Session:	2018-20	Semester:	Spring ■	Fall	Winter ☐
Credit Value:	3(3-0)	Level:		Prerequisites:	
Name of Course Instructor:	Dr.Farah Naz	No. of Students:3 Contact Hours:03	Lectures	Other (Please State)	
			Seminars		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Midterm 118 marks (only theory) Final Theory 36 Practical 00 Assignment 04 Total: 60			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	F	No Grade	Withdrawal	Total
No. of Students	3	56.3%	38%	12%	-		-		-	3

Faculty Course Review Report

For completion by the course instructor and transmission to the Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	F	No Grade	With-drawal	Total
No. of Students	03	40	35	30	-		-		-	03

Faculty Course Review Report

For completion by the course instructor and transmission to the Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant Pathology		Faculty:	FC & FS	
Course Code:	PP- 720	Title:	Seminar-II		
Session:	2018-2020	Semester:	**Autumn**	Spring	Summer
Credit Value:	1(1-0)	Level:		Prerequisites:	
Name of Course Instructor:	Dr. Abid Riaz	No. of Students:0 Contact Hours:03	Lectures	Other (Please State)	
			Seminars		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Midterm 12 marks (only theory) Final Theory 24 Practical 20 Assignment 04 Total: 60			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	F	No Grade	Withdrawal	Total
No. of Students	0	0	-	-	-		-		-	-

Overview/Evaluation (Course Co-coordinator's Comments)
Feedback: first summarize, and then comment on feedback received from: (These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires (Proforma-1). Informative course contains basic things
2) External Examiners or Moderators (if any) --Nil

4) Student /staff Consultative Committee (SSCC) or equivalent, (if any) --Nil
5) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines Yes, complies with HEC.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Effective method should be continued
7) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports: Not received.

Research student progress review

Research of M. Sc. (Hons.) is carried out in 3rd semester after the approval of the synopsis. The feedback from the research showed that students are mostly satisfied with facilities and supervision however, few pointed out that more emphasis must be given on the molecular side. Dates of Synopsis writeup, Synopsis defense, and comprehensive exam both (oral and written) are approved by the Controller of Examination and Directorate of Advanced studies. Most M. Sc. (Hons.) students are on HEC scholarships or their research is funded through different research grants. M. Sc. (Hons.). students are given chance to demonstrate in bachelor classes which is helpful for their grooming as future academicians or researchers. Almost every research student finishing his degree within stipulated time and adequate time and guidance given for manuscript writeup. Similarly, supervisor and their respective supervisory committee members also satisfied with their progress in research and is continuously monitored through lab meetings. Student feedback showed that students are involved in laboratory and field research. Students are confident that after finishing M. Sc. (Hons.) from the department, they can work independently and also contribute something positive to the discipline of plant pathology.

M. Sc. (Hons.) Agri-Plant Pathology Students Progress Review

Sr #	Student Name	Supervisor	Degree Status	Current Status
1	Hafiz Salman Ghuffar	Dr. Gulshan Irshad	Completed 2021	Assistant Professor
2	Farooq Aslam	Dr. Gulshan Irshad	Completed 2022	Business
3	Wajahat Azeem	Prof. Dr. Tariq Mukhtar	Completed 2022	Senior scientific Officer
4	Gull-e-Laala	Dr. Gulshan Irshad	Completed 2022	Assistant Professor
5	Ameer Afzal	Dr. Abid Riaz	Completed 2022	Director, BARI

Survey of department offering M. Sc. (Hons.) Programs

M. Sc. (Hons.) program was started in the Department of Plant Pathology in the year 2000 and successfully running since then. The latest issues of subject journals such as the Pakistan Journal of Botany, Pakistan Journal of Phytopathology, Pakistan Journal of Nematology are available in laboratories. All labs have their university WiFi and all the students have laptops as well as desktops, available in labs/offices. Department has 7 HEC approved supervisors who had ample experience in teaching and research. Eighteen students completed their M. Sc. (Hons.) from the department and currently, twenty-eight are enrolled. Out of 28, 9 are indigenous scholars while 8 are research associates. Since its inception department has completed research projects worth of 9.2 million rupees while projects of 57.132 Million Rupees are ongoing. The student ratio between applicants and acceptance for the M. Sc. (Hons.) program is 90%. Only those candidates are accepted for the M. Sc. (Hons.) program who had completed 18 years of education with one year of research. M. Sc. (Hons.) program is based on both taught and research and maximum 5 years given to complete M. Sc. (Hons.). Students are supposed to clear 5 courses along two seminars.

Strengths and implementations in the program

The department is having the faculty of all specialties regarding main components of plant pathology viz., Fungal plant pathology, Plant Bacteriology, Plant Nematology, Plant Virology, Plant Disease Epidemiology and Disease management, with full acquaintance of their respective subjects, having vast knowledge of local agriculture production systems and disease problems. Most of the faculty members did their post doctorate in recent past from the world renowned universities and equipped themselves with latest techniques in their respective fields of specialization. Most of the faculty members have local degrees and are experts in local field problems. Their work has been published in national and international Journals. They have also implemented national research projects and are highly conscious about the upcoming problems in the field of plant pathology. They are trying to highlight these problems through the surveys of the farmers' fields so that the undergraduate students can pick up these problems in their post graduate research. Induction (Interim placement by Higher Education Commission (HEC), Pakistan) of Assitant professor has further enhanced the performance of the department. Each of the major disciplines has an independent laboratory. Internet access to the faculty and the students has played important role in broadening their vision. Although department is making progress in teaching, research and community services but these is a need of some implementations in advanced research, by providing advanced equipments such as PCR machine, ELISA Reader, plate washer, homogenizers, and ultracentrifuge. Latest useful literature (full-text papers) and reviews should be provided. There is a need for short term foreign training to young faculty members. The students‟ work indicates that there is some room for improving communication skills and the focusing on the practical aspects. Green- house facilities, post-graduate laboratories, library and survey / field diagnostic aids should also have upgraded.

Criterion 2: CURRICULUM DESIGN AND ORGANIZATION

Degree Title: M. Sc. (Hons.). Agri-Plant Pathology

All the courses for degree program were developed by a committee constituted by the Higher Education Commission, Pakistan. The committee consisted of experts and talented professors, subject specialists from other universities and research organizations from Pakistan. When and if needed, curriculum for the Department of Plant Pathology is revised/updated through different bodies. At department level, Board of Studies, which comprised of senior faculty members, is responsible for updating the curriculum. This body is authorised to formulate syllabus and course content. The chairperson of the Department is the convener of this body. The courses are then sent to the Board of Faculty for approval. The Dean of the Faculty, who is also the Convener, conducts meeting. As per university rules courses after the approval from the Faculty Board, are placed before the University Academic Council for their approval.

Definition of credit hour

A student must complete a definite number of credit hours. One credit hour is one theory lecture or two hours laboratory (practical/week). One credit hour carries 20 marks.

Degree plan

M. Sc. (Hons.) degree program consists of minimum 2 academic years of 4 semester‟s duration**.**

Pre-requisites: minimum academic requirements

A candidates seeking admission to the courses for the degree of M. Sc. (Hons.) Agri-Plant Pathology must:

a. Have passed the B. Sc. (Hons.) degree or an equivalent examination in 1st division or 2.50/4.00 CGPA from a recognized institution in a field of study related to the subject, he desire to take up.

b. Meet all the requirements mentioned in these regulations.

c. Must have passed University Enterance Test.

Examination and Weightage

a) Theory

In theory paper, students‟ evaluation is done by mid-term examination, assignments/ quizzes and final examination. Both the mid-term and final examinations are compulsory. 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/she will 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%

b) Practical

For practical examination (if applicable) 100% weightage is given to practical in final examination

Eligibility for 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 undergraduate.

Standard 2-1: The curriculum must be consistent and support the program's documented objectives.

Following table depicts that the curriculum of the plant pathology department is consistent with the program objectives.

Table 5. Courses versus Outcomes.

Courses	Outcomes					
	1	**2**	**3**	**4**	**5**	**6**
PP- 701, 702, 703, 711, 712	++	+++	+	+++	+++	++
PP- 713, 714	+++	+++	+++	+	++	++
PP- 704, 705,	+++	+	++	+	++	+++
PP- 706, 707	+	+++	+	++	+++	++

+ = Moderately satisfactory; ++ = Satisfactory; +++ = Highly satisfactory

Assessment of the Plant Pathology Curriculum

The assessment of curriculum (the courses) has been done and every course is cross tabulated according to the program outcomes.

- The curriculum has been adopted from HEC, Pakistan with little modifications duly recommended by academic bodies of the university and fits very well and satisfies the core requirements for the program, as specified by the respective accreditation body.
- The curriculum satisfied the general arts and professional and other disciplines required for the program according to demands and requirements set by the Higher Education Commission of Pakistan.

Standard 2-2: Theoretical backgrounds, problem analysis and solution design must be stressed within the program's core material.

The table-7 indicates courses that play vital role in building theoretical background, problem analysis and solution design.

Table 6: Detail of courses representing theoretical background, problem analysis and solution design.

Courses	**Title of the Courses**
1	Mycology I
2	Mycology II
3	Fungal Plant Pathology
4	Plant Bacteriology
5	Plant Nematology
6	Plant Virology
7	Seed Pathology
8	Advances in Plant Pathology
9	Integrated Plant Disease Management
10	Molecular Plant Microbe Interaction
11	Special Problem
12	Seminar-I
13	Seminar-II
14	Research Thesis M. Sc. (Hons.) Agri-Plant Pathology

Standard 2-6: Information technology component of the curriculum must be integrated throughout the program

After the recommendation of National curriculum committee and subsequent approval of university academic bodies all aspects of information technology were considered and after a critical analysis, relevant aspects were integrated into the program as:

- Three computer and I.T. courses (6 credit hours) and two courses of statistics (6 credit hours) based on computer practical usage were included in the curriculum to fulfill the I.T. requirements for the students of M. Sc (Hons) Agric. degree.
- Internet facilities have been made available to the students at the campus and in hostels round the clock.

Standard- 2.7: Oral and written communication skills of the student must be developed and applied in the program.

- Assignments are essential part of the course and are given to M. Sc. (Hons) Agric. students on specific titles which are presented orally and are submitted as written report, to increase their oral and written communication skills.

Criterion 3: Laboratories and Computing Facilities

For undergraduate classes there is only one laboratory in the department. The facilities and shortcomings of this laboratory are listed as under.

a. **Laboratory Title**: General Laboratory

- **Location and Area**: Faculty of Agriculture and Food Sciences, B-Block, 2nd Floor, Main Campus
- **Objectives:** Used for practical exercise and demonstrations to graduate students in their major courses.
- **Facilities:** Almost all the facilities are shared with post graduate laboratories.
- **Implementations** Laboratory (including postgraduate laboratories) is not spacious and provided with inadequate facilities for general classes. Being on the top floor a lot of expensive material goes in vain because of contamination and high temperature as no cooling units are installed in laboratories. The standard requirements in view of equipment, chemicals and other

resources are also not enough. Major apparatus *viz*. microscopes, autoclave, incubator, deep freezer, refrigerators, laminar flow cabinet, pH meter, electric balance, slide and overhead projectors, shaker, pipettes are available but when become out of order, there is no in time /quick maintenance system. The department is located on the 2nd floor; there are no emergency exits for the labs. No fire extinguishers have been installed in any laboratory. The Lab attendant have not the relevant knowledge., there is a dire need of appointing a skilled technician and if one is there at the campus, he should be given training for handling specialized equipments intermittently. No first aid kits / facilities for minor hazards and accidents/injuries are provided in the laboratories/department. In nut shell there are no proper safety arrangements and no security plan is available in case of emergency. The laboratories are not spacious and inadequate. Equipments regarding molecular approaches are lacking e.g. Stereoscope, centrifuge, PAG-Electrophoresis apparatus, H.P.L.C. & relevant software, chemicals and biochemicals P.C.R and Spectrophotometer etc. All facilities should be provided to department for advanced research and safety point of view.

Standard-3.1: Laboratory manuals/documentation/instructions for experiments must be available and easily accessible to faculty and students.

Laboratory manuals for each subject (Mycology, Nematology, Virology, Bacteriology, disease diagnosis and diseases management) are now available.

Standard-3.2: There must be support personal for instruction and maintaining the laboratories.

Currently department is having three laboratory attendants and one laboratory assistant.

Standard-3.3: The University computing infrastructure and facilities must be adequate to support program's objectives.

- **Computing facilities support*:*** Available to some faculty members.
- **Shortcoming in computing infrastructure:** Computers with internet facilities should be available to all faculty members.

Criterion 4: Student Support and Advising

Our University organizes support programs for students and provide information regarding admission, scholarship schemes etc. Department has its own capacity arranges orientation and seminars about the department progress and future aspects. Director Students Affairs also communicates the problems being faced by the students to the concerned quarter's and helps them in their amicable solutions. This office also enhancing student's awareness and provide a platform for multi-cultural exchanges between students and encourages students to achieve the objective of building a balanced personality.

Standard-4.1: Courses must be offered with sufficient frequency and number for students to complete the program in a timely manner.

- Courses are taught as per criteria of HEC.
- At undergraduate level subjects/courses are offered as per scheme of study provided by the HEC and approved by Academic Council.
- Elective courses are offered as per policy of HEC and the University.

Standard-4.2: Courses in the major area of study must be structured to ensure effective interaction between students, faculty and teaching assistants.

Both theoretical and field/practical aspects are focused to prepare the students for field challenges. Theoretical problems are explained and assignments are also given to the students whereas, practicals are carried out in the labs and in field conditions. Field visits and study tours to various research organizations are also organized to keep them updated on the latest developments in the area and to stimulate them for discussion through teacher/student interaction.

- Courses are structured and decided in the board of studies meeting.
- At commencement of each semester, faculty members interact frequently among themselves and with students. Students are welcome to ask questions in class and even after the class.
- Emphasis is always given for an effective interaction between each section of B.Sc. (Hons) classes.

Standard-4.3: Guidance on how to complete the program must be available to all students and access to qualified advising must be available to make course decisions and career choices.

Several steps have been taken to provide guidance to students by different ways such as:

- Students are informed about the program requirement through the chairman office.
- Through the personal communication of the teachers with the students.

- Intermittent meetings are organized by the head of the department for counseling of the students. In addition, students can also contact with the relevant teachers whenever they face any problem.
- In case of some problem, Director Student Affairs appointed by the university helps the students. Tutorial System in all departments has also been introduced. Two periods on Thursday are reserved for extracurricular activities. Due to great significance, students must be motivated to participate in such activities. However, there is no such counseling cell in the department.
- Student can interact with the teachers/scientist in universities or research organization whenever they need and there is an open option for the students to get the membership in the professional societies like Pakistan Phytopathological Society, Mycology and Plant Pathology Society, Pakistan Society of Nematologists, Pakistan Botanical Society and otherrelevant professional societies.

Criterion 5: Process Control

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

Standard-5.1: The process by which students are admitted to the program must be based on quantitative and qualitative criteria and clearly documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

- The process of admission is well established and is followed under the relevant rules and criteria set by HEC. For this purpose an advertisement is published in the National News Papers by the Registrar Office.
- Admission criteria for M. Sc. (Hons) Agri. are B.Sc. (Hons.). Agriculture with CGPA of at least 2.50/4.00 and the candidate must have passed University Enterance Test.

Standard-5.2: The process by which students are registered in the program and monitoring of students progress to ensure timely completion of the program must be

documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

- The student name, after completion of the admission process, is forwarded to the Registrar Office for proper registration in the specific program and the registration number is issued to the student.
- Students are evaluated through Mid, Final and Practical exams and through assignments.
- Registration is done for one time for each degree but evaluation is done through the result of each semester. Only those students, who fulfill the criteria of the University, are promoted to the next semester.
- In general, the students are registered on competition bases keeping in view their academic standings.

Standard-5.3: The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation, promotion must be consistent with institution mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives.

Recruitment policy followed by the University is the same as recommended by the HEC. Induction of all posts is done as per rule.

- Vacant and newly created positions are advertised in the national newspapers, applications are received by the Registrar office, scrutinized by the scrutiny committee, and call letters are issued to the short-listed candidates on the basis of experience, qualification, publications and other qualities/activities as determined by the University.
- The candidates are interviewed by the University Selection Board, and Principal and alternate candidates are selected.
- Selection of candidates is approved by the Syndicate for issuing orders to join within a specified period.
- Induction of new candidates depends upon the number of approved vacancies.
- HEC also supports appointment of highly qualified members as foreign faculty Professors, National Professors and deputes them in concerned departments of the University.

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

- To provide high quality teaching, department periodically revises the curriculum in views of field requirements, innovations and new technology.
- With the emergence of new fields, new courses are introduced and included in the curriculum.
- Students usually buy cheap Asian editions of technology books. These are also available in the University library, where documentation, copying and internet facilities are available.
- Notes are also prepared by the teachers and given to the students.
- Most of the lectures are supplemented by overheads, slides and pictures. Department has also one multimedia which remains in use by the faculty for delivery of lectures/ demonstrations.
- All efforts are made that the courses and knowledge imparted meet the objectives and outcome. The progress is regularly reviewed in the staff meetings.

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

The controller of examinations announces the date regarding commencement of examination. After each semester, the controller office notifies results of the students. The evaluation procedure consists of quizzes, mid and final examinations, practicals, assignments, reports, oral and technical presentations. The minimum pass marks for each course is 40% for undergraduate in theory and practical, separately.

- In theory, weightage to each component of examination is as prescribed here under:

Mid Examination	30%
Assignments	10%
Final Examination	60%

- **Grade points are as follows**

Marks Obtained	Grade	Grade point	Remarks
80-100 %	A	4	Excellent
65-79 %	B	3	Good
50-64 %	C	2	Satisfactory
40-49 %	D	1	Pass
Below 40 %	F	0	Fail

- Gold, Silver and bronze medals are awarded to the students who secure highest marks on overall degree basis i.e., our students has to compete with students of other majors.

Degrees are awarded to the students on the convocation that is held every year.

Criterion 6: Faculty

Standard 6-1: There must be enough full time faculties who are committed to the program to provide adequate coverage of the program areas/courses with continuity and stability. The interests and qualifications of all faculty members must be sufficient to teach all courses, plan, modify and update courses and curricula. All faculty members must have a level of competence that would normally be obtained through graduate work in the discipline. The majority of the faculty must hold a M. Sc. (Hons.). in the discipline.

At present there are two professors, two associate professors; four assistant professors (one on ex-Pakistan leave) and one lecturer are working in the program. Except two all are having M. Sc. (Hons.). degree. Both (one assistant professor and one lecturer) are pursuing for M. Sc. (Hons.). Most of the Faculty having M. Sc. (Hons.). has done post doctorate studies in recent past. Their field of specialization is mycology, plant virology, phyto nematology and plant bacteriology (Table 8).

Table 7. Faculty Distribution by Program Areas in Plant Pathology.

Program area of specialization	**Courses in the area at undergraduate level and average number of sections per year**	**Number of faculty members in each area**	**Number of faculty with M. Sc. (Hons.). degree**
General Plant Pathology	20	-	-
Mycology	02	03	03
Plant Virology	01	01	01
Phyto nematology	01	01	01
Plant Bacteriology	01	02	02
Others	03	-	-
Total	28	07	07

Standard 6-2: All faculty members must remain current in the discipline and sufficient time must be provided for scholarly activities and professional development. Also, effective programs for faculty development must be in place. 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.
- In recent past, 04 faculty members did post doctoral fellowship sponsored by the HEC where as one member is doing his M. Sc. (Hons.). in UK.
- Incentives in the form of allowances to theses supervisors have been given to promote high standard research.
- Existing facilities include mainly internet access, which is available through local area network. In addition library facility with latest books is also available.
- A university-funded program of research projects is providing financial support to the young faculty members.

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

The young faculty is mobilized by timely back up and appreciation by the senior faculty members. Avenues for research funding are provided through university research fund. There should be the programs and processes in place to attract good faculty members e.g. teaching and research awards annually, reasonable teaching load and class size, social activities and better salary package.

Implemetations: Results of faculty survey employing Proforma 5 were summarized and are depicted in Fig.9 and table 8. Their satisfaction level upon the querries pertaining in proforma 5 revealed that all the teachers were found satisfied over most of the parameters. However, they had concern that the laboratory conditions should be improved, level of monitoring, and cooperation with colleagues and of teachers also needs to be addressed.

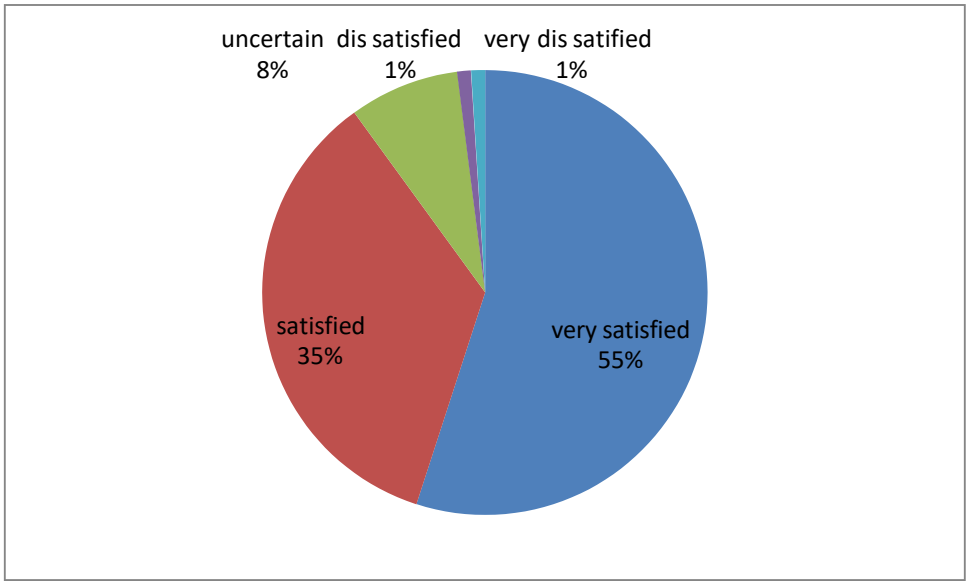


Fig 9. Faculty Survey as per parameters mentioned in proforma 5, conducted in April, 2021.

Table 8. Results of Faculty Survey.

S #	Parameter	Dr. Tariq Mukhtar	Dr.M.Inam-ul-Haq	Dr. Abid Riaz	Dr. Farah Naz	Dr. Gulshan Irshad
1	Your mix of research, teaching and community service	A	A	B	B	B
2	The intellectual stimulation of your work	A	A	A	A	A
3	Type of teaching/research you currently do.	B	B	A	A	B
4	Your interaction with students	B	B	A	A	A
5	Cooperation you received from colleagues	A	B	B	B	A
6	The mentoring available to you	A	B	B	B	B
7	Administrative support from the department	B	B	A	A	A
8	Providing clarity about the faculty promotion process	A	B	B	B	A
9	Your prospects for advancement and progress through ranks	B	A	C	B	B
10	Salary and compensation packages	B	B	A	A	A
11	Job security and stability at the department	B	A	A	A	A
12	Amount of time you have for yourself and family	B	A	A	C	C
13	The overall climate at the department	B	A	B	A	A
14	Whether the department is utilizing your experience and knowledge	B	A	B	A	A
15	what are the best programs/ factor currently available in your department that enhance your motivation and job satisfaction.	cooperation of the colleague s and the staff	knowledge at campus	Applied environment friendly environment	Descipline and	Friendly Working,
16	Suggest programs/factors that could improves your motivation and job satisfaction	High profile research & collaboration at international level	--	-- of major general performance.	for the practical facilities for better teaching should be	Budget Provide extra lab and classes increased

A: very satisfied
B: Satisfied
C: Uncertain
D: Dissatisfied
E: Very dissatisfied

Criterion 7: Institutional Facilities

Among the institutional facilities, the institution must have the amenities to support new trends in learning such as library, e-learning including digital publications, journals etc.

- The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professionals. Insufficient library‟s technical collection of books with increasing number of the students the recommended books and research journals of the programs are not enough for the students.
- These aspects need to be strengthened in number and space.
- Well-equipped class rooms and offices must be adequate to enable faculty to carry out their responsibilities**.**

Standard wise description of this criterion is given a under

Standard- 7.1: The institution must have the infrastructure to support new trends in learning such as e-learning.

Department is benefitting fully from HEC National Digital Library‟s e-resources of superior quality peer-reviewed, full text, academic and research material in the shape of e- journals as well as e-books. Our faculty has the access to Springer Link, Project MUSE, Cambridge Uni. Press, Science Online, Wiley, Inter science, IEEE, JSTOR, Ebrary, McGraw Hill Professional, ISI Web of Science, Science Direct and Emerald.

This is very helpful for the high quality education and producing research of international standard. They also have access to the internet. However the department has the following shortcomings/problems:

- Majority of the faculty members do not have access to the PCs. Ones who have some they have their own computer and are not provided by the university.
- The internet services provided by the university are very poor. The speed of internet is slow and often internet does not work. The intercom is connected with the internet and the services are often breached.
- Breach of power intermittently, due to which research and academic work both are suffered.

- The latest and modern molecular equipment or apparatus is lacking.
- Untrained supporting staff.
- Faculties lack practical knowledge of modern and molecular techniques.
- Minor electronic faults are not properly and timely removed.

Standard- 7.2: The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.

With recent Extension in its space, increasing no. of books and other facilities, University Central Library has more worth than before. It has a limited number of books, international journals and periodicals. It‟s a medium-sized library in terms of space and facilities with no catalogue systems. However, the department itself owns few books in its library.

Standard- 7.3: Class-rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

Currently, the classrooms are not enough and the space is not only limited but also some facilities are lacking. Multimedia is now available but due to the unavailability of the lecture room, it has no fixed place and is kept moving from one place to another thus sometimes become problematic Practical lab. space is also lacking. This affects the quality of teaching. The faculty offices are another serious problem of the department. Some faculty members are sharing small rooms and the others are having their desks in the laboratories.

- ## Criterion 8: Institutional Support

The university administration has been struggling hard to strengthen all the departments, upgrade them and establish new faculties and institutes. The university is also trying to attract highly qualified faculty.

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

- At present, the department is having a very meager financial resource from the university main budget to maintain the present needs of the department. Individual research grants

for students and faculty are mainly supporting the departmental research activities. Senior faculty members have research projects supporting the needs of the department partially. There is a dire need for increasing the financial resources allocated to the department to establish a departmental library, laboratories and computer facilities. Suggestions and factors that can contribute to the motivation of the faculty are given as follows:

- Research grants for young faculty members may be allocated.
- Foreign trainings should be arranged for the faculty members.
- Department‟s share from the university budget should be increased.

Standard 8-2: There must be an adequate number of high-quality graduate students, research assistants and M. Sc. (Hons.). students.

The intake of M.Sc. (Hons) students is once in a year. A strict merit policy is applied during admission. The option to take the major subjects in the third Semester is provided to the students. Preference of the subject of choice is taken from every student based on merit cum choice.

Standard- 8.3: Financial resources must be provided to acquire and maintain Library holdings, laboratories and computing facilities.

The total budget of the department in 2022-23 was just Rs 150,000/- Rs. which was amplified up to 1,50,000/- Rs. in 2023-24. Which has improved the financial condition of the department and thedepartment can now purchase the equipments and chemicals for laboratories which are used for conducting the practical. Some books are also purchased for the department library.

Conclusion:

- Unfortunately, some aspects of institutional support are very weak such as; Unavailability of classrooms, classes are taken in the labs.
- Faculty offices are inadequate and therefore, two teachers (in some cases) have one office room.
- Space limitation is the major constraint in the development and strengthening of discipline.
- The department at present avails all the human resources assigned with the addition of one interim placement. Moreover, the up-gradation of the existing teaching is also provided an added advantage in retaining the present faculty.

- Insufficient technical staff and office equipment are among major constraints.

Proforma - 1

Student Course Evaluation Questionnaire

(To be filled by each Student at the time of Course Completion)

Department _____ _____Course No _____
Course Title _____Teacher Name_____
Year of Study _____Semester / Term_____

Please give us your views so that Course quality can be improved. You are encouraged to be frank and constructive in your comments

CORE QUESTIONS

Course Content and Organization	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1. The course objectives were clear	☐	☐	☐	☐	☐
2. The Course workload was manageable	☐	☐	☐	☐	☐
3. The Course was well organized (e.g. timely access to materials, notification of changes, etc.)	☐	☐	☐	☐	☐
4. Comments					

Student Contribution					
5. Approximate level of your own attendance during the whole Course	☐<20%	☐21-40%	☐41-60%	☐61-80%	☐>81%
	Strongly Agree	Agree	uncertain	Disagree	Strongly Disagree
6. I participated actively in the Course	☐	☐	☐	☐	☐
7. I think I have made progress in this Course	☐	☐	☐	☐	☐
8. Comments					

Learning Environment and Teaching Methods	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
9. I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)	☐	☐	☐	☐	☐
10. The learning and teaching methods encouraged participation.	☐	☐	☐	☐	☐
11. The overall environment in the class was conducive to learning.	☐	☐	☐	☐	☐
12. Classrooms were satisfactory	☐	☐	☐	☐	☐
13. Comments					

Proforma - 1

Student Course Evaluation Questionnaire

(To be filled by each Student at the time of Course Completion)

Department _____ Course No _____
Course Title _____ Teacher Name_____
Year of Study _____ Semester / Term_____

Please give us your views so that Course quality can be improved. You are encouraged to be frank and constructive in your comments

CORE QUESTIONS

Course Content and Organization	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1. The course objectives were clear	☐	☐	☐	☐	☐
2. The Course workload was manageable	☐	☐	☐	☐	☐
3. The Course was well organized (e.g. timely access to materials, notification of changes, etc.)	☐	☐	☐	☐	☐
4. Comments					

Student Contribution					
5. Approximate level of your own attendance during the whole Course	☐<20%	☐21-40%	☐41-60%	☐61-80%	☐>81%
	Strongly Agree	Agree	uncertain	Disagree	Strongly Disagree
6. I participated actively in the Course	☐	☐	☐	☐	☐
7. I think I have made progress in this Course	☐	☐	☐	☐	☐
8. Comments					

Learning Environment and Teaching Methods	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
9. I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)	☐	☐	☐	☐	☐
10. The learning and teaching methods encouraged participation.	☐	☐	☐	☐	☐
11. The overall environment in the class was conducive to learning.	☐	☐	☐	☐	☐
12. Classrooms were satisfactory	☐	☐	☐	☐	☐
13. Comments					

Learning Resources	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
14. Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful.	☐	☐	☐	☐	☐
15. Recommended reading Books etc. were relevant and appropriate	☐	☐	☐	☐	☐
16. The provision of learning resources in the library was adequate and appropriate	☐	☐	☐	☐	☐
17. The provision of learning resources on the Web was adequate and appropriate (if relevant)	☐	☐	☐	☐	☐
18 Comments					

Quality of Delivery	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
19. The Course stimulated my interest and thought on the subject area	☐	☐	☐	☐	☐
20. The pace of the Course was appropriate	☐	☐	☐	☐	☐
21. Ideas and concepts were presented clearly	☐	☐	☐	☐	☐
22.Comments					

Assessment	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
23. The method of assessment were reasonable	☐	☐	☐	☐	☐
24. Feedback on assessment was timely	☐	☐	☐	☐	☐
25. Feedback on assessment was helpful	☐	☐	☐	☐	☐
26. Comments					

Additional Core Questions

Instructor / Teaching Assistant Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
27. I understood the lectures	☐	☐	☐	☐	☐
28. The material was well organized and presented	☐	☐	☐	☐	☐
29. The instructor was responsive to student needs and problems	☐	☐	☐	☐	☐
30. Had the instructor been regular throughout the course?	☐	☐	☐	☐	☐

Tutorial	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
30. The material in the tutorials was useful	☐	☐	☐	☐	☐
31. I was happy with the amount of work needed for tutorials	☐	☐	☐	☐	☐
32. The tutor dealt effectively with my problems	☐	☐	☐	☐	☐

Practical	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
33. The material in the practicals was useful	☐	☐	☐	☐	☐
34. The demonstrators dealt effectively with my problems.	☐	☐	☐	☐	☐

Overall Evaluation

35.The best features of the Course were:

36.The Course could have been improved by:

Equal Opportunities Monitoring (Optional)

37. The University does not tolerate discrimination on any irrelevant distinction (e.g. race, age, gender) and is committed to work with diversity in a wholly positive way. Please indicate below anything in relation to this Course which may run counter to this objective:

Demographic Information: (Optional)

38. Full/part time study: Full Time ☐ Part Time ☐

39.Do you consider yourself to be disabled: Yes ☐ No ☐

40. Domicile:

41.Gender: Male ☐ Female ☐

42. Age Group: less than 22 ☐ 22-29 ☐ over 29 ☐

43. Campus: Distance Learning/ Collaborative ☐

THANK YOU

Proforma 2

Faculty Course Review Report

(To be filled by each teacher at the time of Course Completion)

For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:			Faculty:		
Course Code:		Title:			
Session:		Semester:	Autumn ☐	Spring ☐	Summer ☐
Credit Value:		Level:		Prerequisites:	
Name of Course Instructor:		No. of Students Contact Hours	Lectures	Other (Please State)	
			Seminars		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)					

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	F	No Grade	Withdrawal	Total
No. of Students										
Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	No Grade		Withdrawal	Total
No. of Students										

Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:
(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires

2) External Examiners or Moderators (if any)

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)

4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines

5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports

7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt

Name: _____ Date: _____ *(Course Instructor)* Name: _____ Date: _____ *(Head of Department)*

Proforma 3

Survey of Graduating Students

(To be filled out by graduating students in last semester/year before the award of degree)

The survey seeks graduating students' input on the quality of education they received in their program and the level of preparation they had at university. The purpose of this survey is to assess the quality of the academic programs. We seek your help in completing this survey.

A: Very satisfied B: Satisfied C: Uncertain D: Dissatisfied E: Very dissatisfied

1. The work in the program is too heavy and induces a lot of pressure

   A B C D E

2. The program is effective in enhancing team-working abilities.

   A B C D E

3. The program administration is effective in supporting learning.

   A B C D E

4. The program is effective in developing analytical and problem solving skills.

   A B C D E

5. The program is effective in developing independent thinking.

   A B C D E

6. The program is effective in developing written communication skills.

   A B C D E

7. The program is effective in developing planning abilities.

   A B C D E

8. The objectives of the program have been fully achieved

   A B C D E

9. Whether the contents of curriculum are advanced and meet program objectives

   A B C D E

10. Faculty was able to meet the program objectives

    A B C D E

11. Environment was conducive for learning

A B C D E

12. Whether the Infrastructure of the department was good.

A B C D E

13. Whether the program was comprised of Co-curricular and extra-curricular activities

A B C D E

14. Whether scholarships/ grants were available to students in case of hardship

A B C D E

Answer question 9 if applicable.

9. The internship experience is effective in enhancing

a.	Ability to work in teams	(A)	(B)	(C)	(D)	(E)
b	Independent thinking	(A)	(B)	(C)	(D)	(E)
c.	Appreciation of ethical Values	(A)	(B)	(C)	(D)	(E)
d.	Professional development	(A)	(B)	(C)	(D)	(E)
e.	Time management skills	(A)	(B)	(C)	(D)	(E)
f	Judgment	(A)	(B)	(C)	(D)	(E)
g.	Discipline	(A)	(B)	(C)	(D)	(E)
h.	The link between theory and practice	(A)	(B)	(C)	(D)	(E)

10. What are the best aspects of your program?

_____

_____

_____

_____

_____

_____

11. What aspects of your program could be improved?

_____

_____

_____

_____

_____

_____

You may use additional sheets for questions 10 & 11 if needed.

Proforma 4

RESEARCH STUDENT PROGRESS REVIEW FORM

(To be filled out by Master/ M.Phil / Ph.D Research Students on six monthly basis)

To be submitted by the HoD / Dept. Quality Officer to the QEC

For Research Student to Complete:

1. Date of admission to the department
2. Date of initiation of research
3. Date of completion of Course work
4. Number of credit hours completed
5. Date of Synopsis Defense
6. Cumulative Grade Point Average (CGPA) secured
7. Please outline details of progress in your research since your last review (including any research publications):

8. Do you have any comments on the level of supervision received?

9. What do you plan to achieve over the next 6 months?

10. Do you have any comments on generic or subject-specialist training you may have received or would like to receive internally and / or externally?

11. Do you have easy access to sophisticated scientific equipment?

12. Do you have sufficient research material / commodities available?

Student _____ Date: _____

Supervisory Committee Comments

(Please comment on and benchmark the student's progress against your University's internal and external HEC Quality Criteria for Master/PhD/MPhil Studies)

Principal Supervisor: _____ Date: _____

Co-Supervisor: _____ Date: _____

Co-Supervisor: _____ Date: _____

Head of Department Comments:

Signature: _____ Date: _____

Director, Board of Research Studies (or equivalent) Comments:

Signature: _____ Date: _____

Dean/Director, QEC Action: (including monitoring of Follow-up action) Date: _____

Proforma 5

Faculty Survey

(To be submitted on annual basis by each faculty member)

The Purpose of this survey is to assess faculty members' satisfaction level and the effectiveness of programs in place to help them progress and excel in their profession. We seek your help in completing this survey and the information provided will be kept in confidence. **Indicate how satisfied are you with each of the following aspects of you situation at your department?**

A: Very satisfied B: Satisfied C: Uncertain D: Dissatisfied E: Very dissatisfied.

1. Your mix of research, teaching and community service.

   A B C D E

2. The intellectual stimulation of your work.

   A B C D E

3. Type of teaching / research you currently do.

   A B C D E

4. Your interaction with students.

   A B C D E

5. Cooperation you receive from colleagues.

   A B C D E

6. The mentoring available to you.

   A B C D E

7. Administrative support from the department.

   A B C D E

8. Providing clarity about the faculty promotion process.

   A B C D E

9. Your prospects for advancement and progress through ranks.

   A B C D E

10. Salary and compensation package.

    A B C D E

11. Job security and stability at the department.

A B C D E

12. Amount of time you have for yourself and family.

A B C D E

13. The overall climate at the department.

A B C D E

14. Whether the department is utilizing your experience and knowledge

A B C D E

15. What are the best programs / factors currently available in your department that enhance your motivation and job satisfaction:

_____
_____
_____
_____
_____
_____
_____
_____

16. Suggest programs / factors that could improve your motivation and job satisfaction?

_____
_____
_____
_____
_____
_____
_____

Information about faculty member

i. Academic rank:

A: Professor B: Associate Professor C: Assistant Professor D: Lecturer
E: Other

ii. Years of service:
A: 1-5 B: 6-10 C: 11-15 D: 16-20 E: >20

Name: _____ Signature: _____ Date: _____

Proforma 6

SURVEY OF DEPARTMENT OFFERING Ph.D. PROGRAMS

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

1	**General Information:**	
1.1	Name of Department	
1.2	Name of Faculty	
1.3	Date of initiation of Ph.D. program	
1.4	Total number of academic journals subscribed in area relevant to Ph.D. program.	
1.5	Number of Computers available per Ph.D. student	
1.6	Total Internet Bandwidth available to all the students in the Department.	
2	**Faculty Resources:**	
2.1	Number of faculty members holding Ph.D. degree in the department.	
2.2	Number of HEC approved Ph.D. Advisors in the department.	
3	**Research Output:**	
3.1	Total number of articles published last year in International Academic Journals that are authored by faculty members and students in the department.	
3.2	Total number of articles published last year in Asian Academic Journals that are authored by faculty members and students in the department.	
3.3	Total number of ongoing research projects in the department funded by different organizations	
3.4	Number of post-graduate students in the department holding scholarships/fellowships.	
3.5	Total Research Funds available to the Department from all sources.	
3.6	Number of active international linkages involving exchange of researchers/students/faculty etc. (Attach Details).	

4	**Student Information:**	
4.1	Number of Ph.D. degrees conferred to date to students from the Department during the past three academic years.	
4.2	Number of Ph.D. students currently enrolled in the department.	
4.3	Ratio of number of students accepted to total number of applicants for Ph.D. Program.	
5	**Program Information**	
5.1	Entrance requirements into Ph.D. Program (M.Sc. / M.Phil.) Indicate subjects or M.Sc. / M.Phil.	
5.2	Is your Ph.D. program based on research only? (Y/N)	
5.3	Maximum number of years in which a Ph.D. degree has to be completed after initial date of enrollment in Ph.D. program.	
5.4	Total number of post M.Sc. (16 year equivalent) courses required for Ph.D.	
5.5	Total number of M.Phil. level courses taught on average in a Term / Semester.	
5.6	Total number of Ph.D. level courses taught on average in a Term / Semester.	
5.7	Do your students have to take/write:	
	a. Ph.D. Qualifying examination (Y/N)	
	b. Comprehensive examination (Y/N)	
	c. Research paper in HEC approved Journal	
	d. Any other examination (Y/N)	
5.8	Total number of International examiners to which the Ph.D. dissertation is sent.	
5.9	How is the selection of an examiner from technologically advanced countries carried out?	
5.10	Is there a minimum residency requirement (on campus) for award of Ph.D. degree?	
6	**Additional Information**	
6.1	Any other information that you would like to provide.	

Proforma 7

Alumni Survey

(To be filled by Alumni - after the completion of each academic year)

The purpose of this survey is to obtain alumni input on the quality of education they received and the level of preparation they had at University. The purpose of this survey is to assess the quality of the academic program. We seek your help in completing this survey.

A: Excellent B: Very good C: Good D: Fair E: Poor

I. Knowledge

1. Math, Science, Humanities and professional discipline, (if applicable) (A) (B) (C) (D) (E)
2. Problem formulation and solving skills (A) (B) (C) (D) (E)
3. Collecting and analyzing appropriate data (A) (B) (C) (D) (E)
4. Ability to link theory to practice. (A) (B) (C) (D) (E)
5. Ability to design a system component or process (A) (B) (C) (D) (E)
6. IT knowledge (A) (B) (C) (D) (E)

II Communications Skills

1. Oral communication (A) (B) (C) (D) (E)
2. Report writing (A) (B) (C) (D) (E)
3. Presentation skills (A) (B) (C) (D) (E)

III Interpersonal Skills

1. Ability to work in teams. (A) (B) (C) (D) (E)
2. Ability to work in arduous /Challenging situation
3. Independent thinking (A) (B) (C) (D) (E)
4. Appreciation of ethical Values (A) (B) (C) (D) (E)

IV Management /leadership Skills

1. Resource and Time management skills (A) (B) (C) (D) (E)
2. Judgment (A) (B) (C) (D) (E)
3. Discipline (A) (B) (C) (D) (E)

V General Comments

Please make any additional comments or suggestions, which you think would help strengthen our programs. (New courses that you would recommend and courses that you did not gain much from)

_____

_____

_____

_____

_____

_____

VI. Career Opportunities

VII. Department Status:

1. Infrastructure	(A)	(B)	(C)	(D)	(E)
2. Faculty	(A)	(B)	(C)	(D)	(E)
3. Repute at National level	(A)	(B)	(C)	(D)	(E)
4. Repute at international level	(A)	(B)	(C)	(D)	(E)

VIII Alumni Information

1. Name (Optional)_____
2. Name of organization_____
3. Position in organization_____
4. Year of graduation_____

Proforma 8

Employer Survey

(To be filled in by Employer - after the completion of each academic year)

The purpose of this survey is to obtain employers' input on the quality of education University of **Arid Agriculture, Rawalpindi** is providing and to assess the quality of the academic program. The survey is with regard to University of_____ graduates employed at your organization. We seek your help in completing this survey.

A: Excellent B: Very good C: Good D: Fair E: Poor

I.	**Knowledge.**					
1.	Math, Science, Humanities and professional discipline, (if applicable)	(A)	(B)	(C)	(D)	(E)
2.	Problem formulation and solving skills	(A)	(B)	(C)	(D)	(E)
3.	Collecting and analyzing appropriate data	(A)	(B)	(C)	(D)	(E)
4.	Ability to link theory to Practice	(A)	(B)	(C)	(D)	(E)
5.	Ability to design a system component or process	(A)	(B)	(C)	(D)	(E)
6.	Computer knowledge.	(A)	(B)	(C)	(D)	(E)
II.	**Communication Skills**					
1.	Oral communication	(A)	(B)	(C)	(D)	(E)
2.	Report writing	(A)	(B)	(C)	(D)	(E)
3.	Presentation skills	(A)	(B)	(C)	(D)	(E)
III.	**Interpersonal Skills**					
1.	Ability to work in teams	(A)	(B)	(C)	(D)	(E)
2.	Leadership	(A)	(B)	(C)	(D)	(E)
3.	Independent thinking	(A)	(B)	(C)	(D)	(E)
4.	Motivation	(A)	(B)	(C)	(D)	(E)
5.	Reliability	(A)	(B)	(C)	(D)	(E)
6.	Appreciation of ethical values	(A)	(B)	(C)	(D)	(E)
IV.	**Work skills**					
1.	Time management skills	(A)	(B)	(C)	(D)	(E)
2.	Judgment	(A)	(B)	(C)	(D)	(E)
3.	Discipline	(A)	(B)	(C)	(D)	(E)

V. **General Comments**

Please make any additional comments or suggestions, which you think would help strengthen our programs for the preparation of graduates who will enter your field. Did you know as to what to expect from graduates?

_____

_____

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VI. **Information About Organization**

1. Organization Name_____
2. Type of Business_____
3. Number of Graduates (specify the program) in your Organization:

Proforma 9

Faculty Resume

Name	
Personal	*May include address(s) and phone number(s) and other personal information that the candidate feels is pertinent.*
Experience	List current appointment first, each entry as follows: *Date, Title, Institution.*
Honor and Awards	List honors or awards for scholarship or professional activity.
Memberships	*List memberships in professional and learned Societies, indicating offices held, committees, or other specific assignments.*
Graduate Students Postdocs Undergraduate Students *Honour Students*	*List supervision of graduate students, postdocs and undergraduate honors theses showing:* **Years Degree Name** Show other information as appropriate and list membership on graduate degree committees.
Service Activity	*List University and public service activities.*

Brief Statement of Research Interest	*May be as brief as a sentence or contain additional details up to one page in length.*

Publications	*List publications in standard bibliographic format with earliest date first.* o Manuscripts accepted for publication should be included under appropriate category as "in press;" o Segment the list under the following standard headings: • Articles published by refereed journals. • Books. • Scholarly and / or creative activity published through a refereed electronic venue. • Contribution to edited volumes. • Papers published in refereed conference proceedings. • Paper or extended abstracts published in conference proceedings. (refereed on the basis of abstract) • Articles published in popular press. • Articles appearing in in-house organs. • Research reports submitted to sponsors. • Articles published in non-refereed journals. • Manuscripts submitted for publication. (include where and when submitted).
Research Grants and Contracts.	*Entries should include:* **Date Title Agency / Organization** **Total Award Amount** **Segment the list under following headings:** • Completed • Funded and in progress • In review
Other Research or Creative Accomplishments	*List patents, software, new products developed, etc.*
Selected Professional Presentations	

Proforma 10

Teacher Evaluation Form

(To be filled by the student)

Course Title and Number: _____
Name of Instructor: _____Semester_____
Department: _____Degree_____

Use the scale to answer the following questions below and make comments

A: Strongly Agree B: Agree C: Uncertain D: Disagree E: Strongly Disagree

Instructor:					
1. The Instructor is prepared for each class	A	B	C	D	E
2. The Instructor demonstrates knowledge of the subject	A	B	C	D	E
3. The Instructor has completed the whole course	A	B	C	D	E
4. The Instructor provides additional material apart from the textbook	A	B	C	D	E
5. The Instructor gives citations regarding current situations with reference to Pakistani context.	A	B	C	D	E
6. The Instructor communicates the subject matter effectively	A	B	C	D	E
7. The Instructor shows respect towards students and encourages class participation	A	B	C	D	E
8. The Instructor maintains an environment that is conducive to learning	A	B	C	D	E
9. The Instructor arrives on time	A	B	C	D	E
10. The Instructor leaves on time	A	B	C	D	E
11. The Instructor is fair in examination	A	B	C	D	E
12. The Instructor returns the graded scripts etc. in a reasonable amount of time	A	B	C	D	E
13. The Instructor was available during the specified office hours and for after class consultations	A	B	C	D	E
14. Course:					
15. The Subject matter presented in the course has increased your knowledge of the subject	A	B	C	D	E
16. The syllabus clearly states course objectives requirements, procedures and grading criteria	A	B	C	D	E
17. The course integrates theoretical course concepts with real-world applications	A	B	C	D	E
18. The assignments and exams covered the materials presented in the course	A	B	C	D	E
19. The course material is modern and updated	A	B	C	D	E

Comments:
Instructor:_____

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Course:_____

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Faculty Resume-1

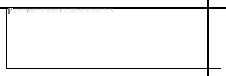
CURRICULUM VITAE

Personal Information

1. **Name:** **Dr. Tariq Mukhtar**
2. **Father's Name:** **Mukhtar Ahmad**
3. **Designation:** **Professor**
4. **Date of Birth:** **24.06.1966**
5. **Nationality:** **Pakistani**
6. **NIC No.** **33102-1820003-7**
7. **Marital Status:** **Married**
8. **Official Address:** **Department of Plant Pathology, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi.**
9. **Phone No. (Res.)** **+ 92 51 4936392**
10. **Phone No. (Off.)** **+ 92 519292123**
11. **Cell No.** **+ 92 3017194205**
12. **E-mail:** **drtmukhtar@uaar.edu.pk**

Identifiers

http://www.uaar.edu.pk/fcfs/faculty_details.php?dept_id=3&fac_id=106

	**https://www.scopus.com/authid/detail.uri?authorId=23482217000** **Author ID: 23482217000**
	**http://orcid.org/0000-0002-0379-3320**
	**https://www.mendeley.com/profiles/tariq-mukhtar/**
	**publons.com/a/1183214/**
	**https://www.researchgate.net/profile/Tariq_Mukhtar2**
	**https://www.linkedin.com/in/professor-dr-tariq-mukhtar-21a0b2116/**
Web of Science Researcher ID	**D-3201-2011**
	**https://scholar.google.com.pk/citations?user=Qc0YgxkAAAAJ&hl=en**
	**https://uiit.academia.edu/DrTariqMukhtar**
	**https://www.facebook.com/tariq.mukhtar.92**
	**https://twitter.com/drtmukhtar**
	**http://loop.frontiersin.org/people/449005/overview**
	**https://www.reviewercredits.com/user/tarimukh/**

Educational Qualifications

(a) University Education

Sr. #	Institution Attended	Degree obtained	Major Subject	Year of Passing	Marks / CGPA	Div.
1	University of Reading, UK	Post Doc	Plant Pathology/ Plant Nematology	2010	-	-
2	University of Agriculture, Faisalabad.	Ph. D	Plant Pathology	2000	421/520	1st
3	University of Agriculture, Faisalabad.	M.Sc.	Plant Pathology	1992	3.85/4.00 658/840	1st
4	University of Agriculture, Faisalabad.	B.Sc.	Plant Pathology	1989	3.01/4.00 2581/3940	1st

(b) Secondary School and Intermediate Examination

Sr. #	Institution Attended	Certificate obtained	Major Subject	Year of Passing	Marks	Div.
1	Government College, Faisalabad.	F. Sc.	Pre-Medical	1985	690/1100	1st
2	Government New Model High School, G. M. Abad, Faisalabad.	Matriculation	Science	1982	660/850	1st

(c) Academic Distinction

First position in M.Sc. (Hons) Plant Pathology in 1992.

(d) Diploma/Certificate

S. No.	Diploma/Certificate	Institution	Period/Year	Marks
1.	N.C.C	Govt. College, Faisalabad	Oct. 10th to 29 Feb., 1984	-
2.	Diploma in Arabic	University of Agriculture, Faisalabad	1986	140/200

III. Professional Experience

Sr. #	Post held	Department / Institution	Period	
			From	To
1	**Professor**	University of Arid Agriculture, Rawalpindi	**27-06-2014**	**To date**
2	**Associate Professor**	University of Arid Agriculture, Rawalpindi	**04-11-2006**	**26-06-2014**
3	**Assistant Professor**	University of Arid Agriculture, Rawalpindi	**06-10-2006**	**03-11-2006**
4	**Agricultural Officer**	Agriculture, Pest Warning & Quality Control of Pesticides (Plant Protection)	**30-05-1991**	**05-10-2006**

Total experience: 28 years of research and teaching

(a) University Education

(b) Secondary School and Intermediate Examination

(c) Academic Distinction

First position in M.Sc. (Hons) Plant Pathology in 1992.

(d) Diploma/Certificate

IV. Membership of Societies

Life member of the following societies

a) Zoological Society of Pakistan (ZSP)

b) Pakistan Society of Nematologists (PSN) (**President**)

c) Pakistan Phytopathological Society (PPS) (**President**)

d) Pakistan Botanical Society (PBS)

e) Myco-Phytopathological Society of Pakistan (MYCOPS)

f) Weed Science Society of Pakistan (WSSP)

g) Pakistan Association for the Advancement of Science (PAAS)

h) American Phytopathological Society (Member) (APS) Member ID: 233448

i) International Society for Plant Pathology

j) International Society for Development and Sustainability (ISDS)

k) Pakistan Society for Microbiology

l) Pakistan Society of Plant Protection (**President**)

m) Asian Council of Science Editors (ACSE) (Member)

V. Awards

Best Reviewer of 2020 (**Reviewer Credits**)

Publons Peer Review Award **(Top Reviewers in Agricultural Sciences 2019)**

Publons Peer Review Award **(Top Reviewers for Agricultural and Biological Sciences 2017)**

Research Productivity Award **2015** by **Pakistan Council of Science and Technology**

Research Productivity Award **2014** by **Pakistan Council of Science and Technology**

Productive Scientist of Pakistan **2016** by **Pakistan Council of Science and Technology**

Productive Scientist of Pakistan **2013** by **Pakistan Council of Science and Technology**

VI. External Examiner

Evaluated theses of more than 50 M. Sc. and M. Sc. (Hons.). students of Department of Plant Pathology, University of Agriculture, Faisalabad, Institute of Agricultural Sciences, Punjab University, Lahore, Bahauddin Zakaria University, Multan, University of the Poonch, Rawalakot, Sargodha University, Sargodha, Quaid-i-Azam University, Islamabad, National University of Science and Technology, Islamabad, National Agricultural Research Centre, Islamabad and conducted their viva as external examiner.

VII: Research Projects (As Principal Investigator)

Sr #	**Name of project**	**Funding Agency**	**Amount in Rs. M**	**Status**
1	Distribution and Management of Root-	Endowment Fund, UAF	2.222	Completed

	knot nematodes			
2	Genetic diversity and phylotyping of *Ralstonia solanacearum* strains causing bacterial wilt of chilies in major chili growing areas of Pakistan	Higher Education Commission of Pakistan	5.347	In progress
3	Nematodes infecting temperate fruits in Pakistan and their management	Pakistan Science Foundation	5.246	In progress
4	Development of nematicidal formulation	Pakistan Science Foundation	6.289	Under review

	of novel bacterial strains against root knot nematodes			

As Co-Principal Investigator

Sr #	Name of project	Funding Agency	Amount in Rs. M	Status
1	Nutritional quality assessment and comparison of commonly consumed rainfed arid cereal varieties of Pakistan for their effective marketing and commercialization	Higher Education Commission of Pakistan	5.55	In progress
2	Expression of pathogenesis related (PR) proteins to acquire systemic	Higher Education Commission of Pakistan	3.36	In progress

	resistance against fungal pathogens (*Alternaria* and *Fusarium*) of sesame			
3	Bio-management of *Meloidogyne incognita*	Higher Education Commission of Pakistan	0.48	In progress
4	Incidence, detection and characterization of Badnavirus in Potohar region	Higher Education Commission of Pakistan	0.48	In progress

VIII: Supervision Experience

(1): As Supervisor

Sr.No.	Degree	No. of Students completed	No. of Students in progress
1	**M. Sc. (Hons.).**	**5**	**5**
2	**M.Sc. Hons**	**25**	**5**
3	**B. Sc. Hons**	**32**	**3**

(2): As Co-Supervisor

Sr.No.	Degree	No. of Students completed	No. of Students in progress
1	M. Sc. (Hons.).	10	8
2	M.Sc. Hons	22	15

IX: Editorships

1. **Editor-in-Chief** (Plant Protection)
2. **Editor-in-Chief** (Pakistan Journal of Phytopathology)
3. **Editor** (Archives of Phytopathology and Plant Protection)
4. **Editorial Board Member** (Physiological and Molecular Plant Pathology)
5. **Review Editor** (Frontiers in Plant Science: Plant Pathogen Interactions)
6. **Senior Editor** (Plant Bulletin)
7. **Editor (**International Journal of Phytopathology**)**
8. **Editor** (Mycopath)
9. **Section Editor** (Pakistan Journal of Agricultural Sciences) **till November, 2019**
10. **Member Editorial Board** (Pakistan Journal of Nematology)
11. **Member Editorial Board** (EC Bacteriology and Virology Research)
12. **Editor** (Agricultural Research & Technology)
13. **Member Advisory Board** (Journal of Rural Development and Agriculture)
14. **Member Editorial Board (**International Journal of Biology and Biotechnology)
15. **Member Reviewer Board** (Toxins)
16. **Member Editorial Advisory Board** (Jammu Kashmir Journal of Agriculture)

X: Peer review activities

Conducted peer-review of many research papers of international and national journals.

For detail see Publons Review Record at https://www.webofscience.com/wos/author/record/D-3201-2011

XI. Research Interests

My interests are in applied and basic research in Plant Pathology. My basic research efforts are on the identification of plant pathogenic bacteria and nematodes by using conventional, biochemical and molecular approaches. Pathogens of interest include root-knot nematodes, citrus nematode, wheat seed gall nematode, *Ralstonia solanacearum*, *Macrophomina phaseolina*, *Ceratocystis* spp.

My applied interests have focused on managing diseases of various crops particularly vegetable crops using Integrated Management Practices. My efforts have focused on the numerous disease management practices including resistance, cultural practices, and chemical and non-chemical methods of disease control. Crops which I have had considerable experience with include numerous vegetables (particularly cucumber, tomato, okra, eggplant, potato, chili and cucurbits), fruit (apple, peach, mango, citrus, plum), and filed crops (wheat, cotton and rice).

XII. Other Duties

- Served as technical advisor (Plant Pathology) of selection boards of
  - Institute of Agricultural Sciences, Punjab University, Lahore
  - The Islamia University, Bahawalpur
  - Sargodha University, Sargodha
  - The University of Poonch, Rawalakot, AJK
  - Bahauddin Zakaria University, Multan
  - Punjab Public Service Commission
- Member Academic Council, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi (PMAS-AAUR).
- Chairman, Department of Plant Pathology, PMAS-AAUR (18-08-2014 to 17-08- 2017).
- Member Faculty Board, Faculty of Crop and Food Sciences, PMAS-AAUR.
- Member Board of Studies, Department of Plant Pathology, PMAS-AAUR.
- Member Self-Assessment Team, Department of Plant Pathology, PMAS-AAUR.
- Member Gown Committee, PMAS-AAUR.
- Member Computer Management System (CMS), Department of Plant Pathology, PMAS-AAUR.
- Member Management Team, Hydroponic System, PMAS-AAUR.
- Member Academic Council, Bahauddin University, Multan.
- Member Board of Studies, Department of Plant Pathology, Bahauddin University, Multan (05-11-2015 to date).
- Member Board of Studies, Department of Plant Pathology, The University of Poonch, Rawalakot.
- Member Board of Studies, National Agriculture Research Council, Islamabad.
- Member DTRC, Kohat University of Science and Technology, Kohat
- Member DTRC, University of Haripur, Haripur

- Member DTRC, Bahauddin Zakaria University, Multan
- Member DTRC, Ghazi University, Dera Ghazi Khan
- Member DTRC, Department of Plant Pathology, The University of Poonch, Rawalakot
- Principal Officer (Student Affairs) PMAS-AAUR (11-02-2019 to date).
- Member Disciplinary Committee, PMAS-AAUR (11-02-2019 to date).
- Member Campus Committee, PMAS-AAUR (11-02-2019 to date).
- Member BF management committee
- Member Students Fund Utilization Committee
- Research Coordinator (Plant Pathology, PMAS AAUR)
- Chief Administrator of Advisory Board of Naveed-e-Baraan
- Member Programs Management Committee for the celebration of Silver Jubilee 2019
- Convener, Programs Coordination Committee for the celebration of Silver Jubilee 2019
- Member, Board of Studies, Department of Agricultural Extension, PMAS AAUR.
- Member Faculty Board, Institute of Biochemistry and Biotechnology, PMAS AAUR

XIII. Trainings received/workshops

S. No	Name of course/ workshop attended	Period	Institution
1.	5th International Workshop for Capacity Building in Nematology	February 12-22, 2018	National Nematological Research Centre, University of Karachi, Karachi.
2	One day farmers workshop biological management of root knot	October 10, 2012	Punjab Agricultural Research Board and Department of Plant Pathology,

	nematodes on vegetables		University of Agriculture, Faisalabad	
3	1st National Workshop on "Cutting-edge issues and quality concerns in the emerging agricultural scenario".	03-03-2008 to 04-03-2008	University College of Agriculture, University of Sargodha, Sargodha.	
4	International Training workshop on Nematode Identification	22-10-2007 to 03-11-2007	National Nematological Research Centre, University of Karachi, Karachi.	
5	Controlled and modified atmospheres to preserve post-harvest quality of stored grains.	30-07-2007 to 31-07-2007	Department of Entomology, University of Arid Agriculture, Rawalpindi.	
6	Basic tools for isolation and identification	27-12-2006 to 30-12-2006	Department of Plant Pathology,	

	of micro-organisms.		University of Arid Agriculture, Rawalpindi.
7	Biological Control of Plant Parasitic Nematodes	18-08-1997 to 31-08-1997	National Nematological Research Centre, University of Karachi, Karachi

XIV. Conferences/Symposia

S. No.	**Conferences/ Symposia**	**Dates**	**Organizer/Venue**
1	7th International Conference On Climate Smart Agriculture: Innovations and Adaptations	June 15-17, 2022	University of Poonch, Rawalakot, AJK, as invited speaker.
2	International Conference on Plant Science and	June 1-2, 2022	Department of Botany, University of Baluchistan, Quetta as invited speaker on zoom

	Management of Drylands for Agriculture and Biodiversity – Step towards Sustainable Development		
3	National Symposium on Chili Diseases	May 30, 2022	Sindh Agriculture University, Tandojam, Pakistan Society of Nematologists and Pakistan Phytopathological Society Agriculture Research Sindh
4	1st International Conference on Plant Protection Sciences (ICPPS-2022)	March 29-30, 2022	Sindh Agriculture University, Tandojam, Pakistan
5	4th Online International Conference on Environmental Sustainability and Climate Change	March 28-29, 2022	Coalesce Research Group LLC

6	6th Edition of Global Congress on Plant Biology and Biotechnology | Online Event	March 24-26, 2022	Organizer: Magnus Group 150 South Wacker Drive #2400, Chicago, IL 60606, USA Website: https://www.magnusgroup.org/
7	International conference on "New Trends in Biological Sciences"	March 21-22, 2022	Organized by Institute of Pure and Applied Zoology (IPAZ), School of Applied Biology (SAB), Faculty of Life Sciences, University of Okara, 2-km Multan Road Renala Khurd Campus, Punjab, Pakistan
8	2nd International Conference on Smart Plant Protection	March 9-10, 2022	Institute of Plant Protection, MNS University of Agriculture, Multan, Pakistan
9	31st all Pakistan Food Science Conference 2022 "Transformation of the food system on a	February 21-22, 2022	Pakistan Society of Food Scientists and Technologists at the Institute of Food and Nutritional Sciences, PMAS-Arid Agriculture University

	sustainable food future"		Rawalpindi-Pakistan
10	International Conference on Food Security through Sustainable Plant Protection Strategies	January 16-20, 2022	Organized by Department of Plant Protection, The University of Agriculture, Peshawar
11	The First Virtual Congress of Zoology (40^{th} Pakistan Congress of Zoology-International)	December 14, 17-19, 2021	Department of Parasitology, Sindh Agriculture University, Tandojam
12	7^{th} International Conference of Pakistan Phytopathological Society "Phytopathology: Current Scenario and	November 21-23, 2021	Department of Plant Pathology, University of Agriculture Faisalabad and Ayub Agricultural Research Institute, Faisalabad

	Future Prospects"		
13	Training Workshop on "How to Become a Plant Doctor"	November 18-19, 2021	Department of Plant Pathology, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi and CABI, Plantwise Program
14	16th National Weed Science Congress of Weed Science Society of Pakistan	July 08-10, 2021	Department of Weed Science and Botany, The University of Agriculture Peshawar, Pakistan
15	16th Nematological Event: Present Era of Ecofriendly Nematode Management Strategies	June 17-18, 2021	Pakistan Society of Nematologists and National Nematological Research Centre (NNRC), University of Karachi
16	Training Workshop on "Integrated Disease Management"	June 07-09, 2021	Department of Plant Pathology, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, PPS and PSN

17	Seminar on "Integrated Prevention and Control of Locust and other Plant Diseases and Pests for Pakistan"	March 13-27, 2021	National Agricultural Technology Extension and Service Center, Beijing, People's Republic of China
18	Scientific conference for the renaissance of Palestine	January 28, 2021	Palestine's liberation Organization, State of Palestine
19	Critical Issues in the Youth Researchers Development	January 22, 2021	Palestine's liberation Organization, State of Palestine
20	Improvement of Research Skills of Students and Youth Researchers During The Pandemic	October 9-10, 2020	Organized by Biosciences Research Support Foundation (BRSF), Egypt
21	1st International Online Conference Entitled:	September 24-27, 2020	Organized by Biosciences Research Support Foundation (BRSF) in collaboration

	(Maintenance of a Safe Life during the Pandemic)		with Diabetic Youth Care Association (DYCA) and Eastern Mediterranean NCD Alliance at Cairo, Egypt
22	40th Pakistan Congress of Zoology (International)	March 10-12, 2020	Department of Zoology, Sindh Agriculture University, Tandojam and Zoological Society of Pakistan
23	International Horticulture Conference 2020	February 26-28, 2020	Pakistan society for Horticultural Sciences and Institute of Agricultural Sciences, University of the Punjab Lahore
24	15th Nematological event and annual meeting of the General Body of Pakistan Society of Nematologists	December 30-31, 2019	Pakistan Society of Nematologists and National Nematological Research Center, University of Karachi, Karachi
25	6th International Conference on	June 19-21, 2019	Faculty of Agriculture, University of the Poonch Rawalakot,

	"Sustainable Agriculture in Changing Climate: Strategies and Management"		Azad Jammu and Kashmir
26	1st International Conference on Sustainable Agriculture: Food Security under Changing Climate Scenarios	April 3-5, 2019	Faculty of Agricultural Sciences, Ghazi University, Dera Ghazi Khan
27	1st International Conference on "Agricultural and Biological Sciences" Focusing Food Security and Climate Change	March 27-30, 2019	Faculty of Basic & Applied Sciences, the University of Haripur, Pakistan
28	1stAus-Pak International Conference on Pulses for Food Security	March 27, 2019	MNS University of Agriculture, Multan, Pakistan
29	1stAus-Pak International Conference	March 25, 2019	Institute of Plant Breeding and Biotechnology, MNS

	on Wheat for Food Security		University of Agriculture, Multan
30	International Horticulture Conference Pakistan	February 26-28, 2019	Department of Horticulture, Bahauddin Zakaria University, Multan
31	Conference on Innovations in Agriculture: Nourishing Pakistan in Changing Climate	February 13-15, 2019	Institute of Soil & Environmental Sciences University of Agriculture Faisalabad, Pakistan & Pakistan Agricultural Scientists Forum (PAS)
32	6thInternational Conference on Biological and Computational Sciences (C-BICS 2018)	December 13, 2018	Department of Bioinformatics & Biosciences, Capital University of Science and Technology, Islamabad
33	2ndInternational Conference	December 5-7,2018	Department of Botany, GC University Lahore

	of Plant Sciences		
34	National conference on Agricultural Problems and Food Security in the Changing Climate	November 14-17, 2018	University of Agriculture, Peshawar
35	International Conference on Biological Control of Pests & Diseases: Progress & Prospects"	July 09-11, 2018	Department of Agriculture & Agribusiness Management, University of Karachi, Karachi
36	International Horticulture Conference	April 25-27, 2018	Department of Horticulture, University of Arid Agriculture, Rawalpindi.
37	1st International and 2nd National Conference on "Challenges and Opportunities to Boost Agriculture in Changing	March 26-28, 2018	College of Agriculture, BZU, Bahadur Sub Campus, Layyah

	Climate”		
38	14th National Weed Science Congress of Weed Science Society of Pakistan	March 24-25, 2018	Islamia College Peshawar,
39	7th International and 16th National Conference on “Plant Resources: Current Trends, Challenges and Solutions”	March 23-26, 2018	Islamia College Peshawar University of Peshawar, Pakistan Botanical Society
40	38th Pakistan Congress of Zoology (International)	February 27 – March 1, 2018	University of the Punjab, Lahore
41	11th International Biennial	18-20 December, 2017	Institute of Food Science and Nutrition, Bahauddin Zakaria

	Conference of Pakistan Society for Microbiology "Applied Microbial Genomics in Public Health, Food, Pharma and Agriculture"		University, Multan, Pakistan
42	1st International Conference on "Conventional and modern approaches in plant sciences" (CMAPS-2017)	November 27-29, 2017	Department of Botany, University of the Punjab, Lahore, Pakistan
43	6th International Conference of Pakistan Phytopathological	November 20-22, 2017	Department of Plant Pathology, Bahauddin Zakaria University, Multan & Central Cotton Research Institute,

	Society on "Plant Health for Sustainable Agriculture"		Multan
44	6th International and 15th National Conference on "Dynamic Trends in Plant Sciences-Fostering Environment and Food Security"	May 9-11, 2017	Sardar Bahadur Khan Women's University in collaboration with Pakistan Botanical Society
45	37th Congress of Zoology (International)	February 28 to March 2, 2017	GC University, Faisalabad
46	Conference on "sustainable crop and animal	December 8-10 2016	University of Haripur, KPK, Pakistan

Name	**Prof. Dr. M. Inam-ul-Haq**

	production systems"		
47	International Conference Asia-Pacific Policy Dialogue on Water, Energy and Food Security for Poverty Alleviation in Dryland Regions	November 23 - 25, 2016	UNESCO & PMAS Arid Agriculture University Rawalpindi-Pakistan
48	International conference on major environmental constraints to plants: Assessment & reclamations MECP-2016	March 28-30, 2016	Department of Botany, Government College University Faisalabad, Pakistan
49	2nd international conference on Horticultural Sciences: Production challenges and food security	February 18-20, 2016	Institute of Horticultural Sciences, University of Agriculture, Faisalabad

50	14th national and 5thinternational conference of Botany: Climate change and phytodiversity: challenges and opportunities	January 15-18, 2016	Department of Botany, University of Karachi, Karachi.
51	5th international and 10th national conference of Pakistan Phytopathological Society: Crop Protection for Sustainable Agriculture	November 23-25, 2015	Institute of Agricultural Sciences, University of the Punjab, Lahore.
52	International Conference on Citriculture: Challenges and Management	February 11-13, 2015	Department of Horticulture, Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan, Pakistan.
53	International Conference on Plant Sciences	September 22-24, 2014	Botany Department, GC University, Lahore, Pakistan.
54	5th International Conference on Agriculture, Food Security and Climate Change	September 9-11, 2014	Faculty of Agriculture, The University of Poonch Rawalakot, Azad Jammu and Kashmir-Pakistan, PAS Forum and HEC.

55	World Mango Conference	June 24-25, 2014	University College of Agriculture & Environmental Sciences The Islamia University, Bahawalpur.
56	International Conference on Stress Biology and Biotechnology Challenges & Management	May 21-23, 2014	Institute of Agricultural Sciences, University of the Punjab, Lahore
57	34th Pakistan Congress of Zoology (International)	February 25-27, 2014	Bahauddin Zakariya University, Multarn, Pakistan
58	3rd International Conference of Pakistan Phytopathological Society, Climate Change and Plant Diseases: Challenges and	January 23-25, 2014	University of Karachi, Karachi, Pakistan

	Opportunities		
59	Annual Convention of Canadian Hemp Trade Alliance	November 24-27, 2013	Canadian Hemp Trade Alliance, Saskatoon, Saskatchewan, Canada
60	33rd Pakistan Congress of Zoology (International)	April 2-4, 2013	Pakistan Museum of Natural History (PSF), PMAS Arid Agricultural University, Rawalpindi
61	12th National and 3rd International Conference of Botany	September 1-3, 2012	Quaid-i-Azam University, Islamabad organized by Pakistan Botanical Society and Quaid-i-Azam University.
62	32ndPakistan Congress of Zoology (International)	March 6-8, 2012	Zoological Society of Pakistan. Government College University, Lahore.
63	National Science Conference Roadmap of Cutting Edge Technologies	January 10-12, 2012	Organized by Pakistan Academy of Sciences, Islamabad and Hosted by Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi.

64	International Workshop on Medicinal Plants: Conservation and Sustainable Use	December 8-10th , 2011	Department of Biotechnology, Quaid-i-Azam University, Islamabad.
65	8th National Conference of Pakistan Phytopathological Society (Challenges and Options for Plant Health Management)	November, 28-29, 2011	Department of Plant Pathology, University of Agriculture, Faisalabad
66	31stPakistan Congress of Zoology (International)	April 19-21, 2011	Zoological Society of Pakistan. University of Azad Jammu and Kashmir, Muzaffarabad.
67	Meeting of the Post Graduate Forum	February 3-4, 2010	Royal Entomological Society, Endcliffe Village, University of Sheffield, Sheffield, UK.
68	Advances in Nematology	December 15, 2009	Association of Applied Biologists, Linnean Society of London, UK

69	National Conference on " Recent Advances in Agricultural Biotechnology"	18-19 March, 2008	National Commission on Biotechnology, Islamabad.
70	International Conference on Biological Resources of Pakistan: Problems, Success and Future Perspectives.	25-27 April, 2007	Department of Botany, University of Arid Agriculture, Rawalpindi.
71	International conference on "Trade Liberalization & SAFTA: Opportunities, Concerns and Challenges".	29-31 March, 2007	Department of Economics, University of Arid Agriculture, Rawalpindi.
72	International Symposium on prospects of Horticultural	28-30 March, 2007	Institute of Horticultural Sciences, University of Agriculture, Faisalabad

		industry in Pakistan		
73		International Conference on Role of allelopathy in sustainable agriculture	22-24 March,2007	Department Agronomy, University of Arid Agriculture, Rawalpindi
74		International Symposium on Sustainable Crop improvement and integrated management	14-16 September, 2006	Faculty of Agriculture, University of Agriculture, Faisalabad
75		6th National Nematological Conference in Pakistan & Workshop in some Cereals, Fruits and Vegetables in Pakistan	April, 25-27, 2006	NNRC University of Karachi, Karachi
76		National Symposium	December 20-22, 2005	University of Karachi, Karachi

	on Recent Trends in Plant Disease Management		
77	International Symposium on Biodiversity of Nematodes in Pakistan	17-19 May, 2004	National Nematological Research Centre, University of Karachi, Karachi
78	Fourth International Symposium of Plant Pathology	14-16 October, 2003	University of Arid Agriculture, Rawalpindi
79	National Symposium on Nematology	7-9 January, 2002	National Nematological Research Centre, University of Karachi, Karachi
80	Third National Conference of Plant Pathology	1-3 October, 2002	National Agriculture Research Centre, Islamabad
81	Second International Symposium	27-29 March,1999	University of Agriculture, Faisalabad

	of Plant Pathology		
82	First International Symposium of Plant Pathology	6-7 March, 1996	University of Agriculture, Faisalabad

XV: Organization of Webinars

Title of Webinar	**Date**	**Guest Speaker**	**Organized by**	**Role**
The Bacterial Wilt of Cucurbits: Ecology, Genetics, and Management	June 07, 2022	**Prof. Dr. Mark L. Gleason** IOWA state University of Science and Technol	Department of Plant Pathology, PMAS, Arid Agriculture University, Rawalpindi and Pakistan	Coordinator

			ogy (ISU) Ames, IOWA, USA	Phytopathological Society	
	The occurrence and rhizosphere microbial regulation of soybean root rot by maize-soybean relay strip intercropping	May 27, 2022	**Dr. Xiaoli Chang** Associate Professor, Department of Plant Protection, Sichuan Agriculture University, China	Department of Plant Pathology, PMAS, Arid Agriculture University, Rawalpindi	Coordinator
	3The valuable e4xpertise of w5orld	October 05, 2021	**Prof. Dr. Jeffrey B. Jones**	Department of Plant Pathology Faculty of Agriculture &	Guest of Honor

	’s ren6owned plant bacteriologist		Department of Plant Pathology University of Florida, USA	Environment, IUB and Pakistan Phytopathological Society	
	One Health approaches to managing crop diseases in rural villages	September 16, 2021	**Prof. David Guest AM** School of life & Environmental Sciences, Sydney Institute of Agriculture, Sydney, Australia	Department of Plant Pathology, Bahauddin Zakariya University Multan, and Pakistan Phytopathological Society	Guest of Honor
	Preparing a Successful	September	**Dr. Stephen Wegulo**	Department of Plant Pathology, Bahauddin	Guest of Honor

	Manuscript for Submission to a Refereed Journal	08, 2021	Chair Editor, Crop Protection, Department of Plant Pathology, University of Nebraska-Lincoln, USA	Zakariya University, Multan and Pakistan Phytopathological Society	
	Development of Biopesticide Technology & Future Crop Protection	August 27, 2021	**Dr. Minshad A. Ansari** Founder & CEO @ Bionema Limited Swansea, Wales, Uk	Department of Plant Pathology, Bahauddin Zakariya University, Multan and Pakistan Phytopathological Society	Guest of Honor

			Dr. Mudassir Iqbal Department of Plant Protection Biology, Swedish University of Agricultural Sciences, Sweden		
Biological Control of Plant Pathogens: A Way Forward to Sustainable	July 30, 2021	**Mattew Gates** Expert & Agriculture Consultant, Zenthanol Consulting, San Diego,	Department of Plant Pathology, Bahauddin Zakariya University, Multan and Pakistan	Guest of Honor	

	Agriculture		California, USA	Phytopathological Society	
	Identifying Arthropods in Cultivation: Pest, Biocontrol, and Other Natural Forces	June 30, 2021	**Mattew Gates** Expert & Agriculture Consultant Zenthanol Consulting San diego, California, USA	Department of Plant Pathology, Bahauddin Zakariya University, Multan and Pakistan Phytopathological Society	Guest of Honor
	Host Pathogen Interactions	June 08, 2021	**Prof. Dr. Gitta Coaker** University of California Davis, USA	Department of Plant Pathology, Faculty of Agriculture and Environment, The Islamia University of	Guest of Honor

			Bahwalpur and Pakistan Phytopathological Society		
The Nature of a Cyst Nematode Population Suppression	May 25, 2021	**Prof. Dr. Ole Becker** Department of Nematology, University of California Riverside, USA	Department of Plant Pathology, Faculty of Agriculture and Environment, The Islamia University of Bahwalpur Pakistan Phytopathological Society	Guest of Honor	

XVI. Publications: **More than 150** in approved Journals, Proceedings of Conferences mentioned above etc.

XVII. List of Publications

(a) Published in Journals

1. Seerat, W., Akram, A., Qureshi, R., Yaseen, G., **Mukhtar, T.,** Hanifn N.Q. **2022**. Light and scanning electron microscopic characterization of aflatoxins producing *Aspergillus flavus* in the maize crop. Microscopy Research and Technique. https://doi.org/10.1002/jemt.24139 **(IF= 2.769).**

2. Haq, M.A., **T. Mukhtar**, M. I. Haq, A. Khalid. **2022**. Reproduction of root-knot nematode, *Meloidogyne incognita*, on *Solanum melongena* genotypes determines their host status. **Pakistan Journal of Zoology, 54 (5): 2097-2103. DOI: https://dx.doi.org/10.17582/journal.pjz/20200430140411**

3. Shahbaz, M., Akram, A., Raja, N.I., **Mukhtar, T.**, Mashwani, Z.R., Mehak, A., Fatima, N., Sarwar, S., Haq, E.U., Yousaf, T. 2022. Green synthesis and characterization of selenium nanoparticles and its application in plant disease management: a review. **Pakistan Journal of Phytopathology, 34 (01): 189-202.**

DOI: 10.33866/phytopathol.034.01.0739

3. Muhammad, W., Ammar, M., **Mukhtar, T.,** Hamza, A.M. **2022.** Comparative efficacy of some new chemistry foliar insecticides against cotton whitefly, *Bemisia tabaci* (Hemiptera: Aleyrodidae). **Asian Journal of Agriculture and Biology, DOI: 10.35495/ajab.2021.02.075**

4. Fatima, M., Gulzar, A., Ahmed, M., Shaheen, F.A., Tariq, M**., Mukhtar, T. 2022.** Effect of workers density on insect pest incidence and colony development of bumblebees, *Bombus terrestris* (L.) (Hymenoptera: Apidae). **Philippine Agricultural Scientist, 105 (1): 85-91. (IF = 0.250).**

5. Jabbar, A., M. Tariq, A. Gulzar, **T. Mukhtar**, T. Zainab. **2022**. Lethal and sub lethal effects of plant extracts and green silver nanoparticles against *Culex pipiens* mosquitoes. **Pakistan Journal of Zoology, 54(3): 1259-1267. DOI: https://dx.doi.org/10.17582/journal.pjz/20191226161232**

6. Fateh, F.S., **Mukhtar, T.,** Mehmood, A., Ullah, S., Kazmi, M.R. **2022.** Occurrence and prevalence of mango decline in the Punjab province of Pakistan. **Plant Protection, 6 (1): 11-18.**

7. Nisa, T, M.I. Haq, **T. Mukhtar**, M.A.Khan and G. Irshad. **2022**. Incidence and severity of common scab of potato caused by *Streptomyces scabies* in Punjab, Pakistan. **Pakistan Journal of Botany, 54(2)**: 723-729. DOI: http://dx.doi.org/10.30848/PJB2022-2(36)

8. Shehzad, M., M. Tariq, Q. Ali, A. Aslam, **T. Mukhtar**, M.F. Akhtar, A. Gulzar and M. Faisal. **2022**. Evaluation of insecticidal activity of *Beauveria bassiana* against different instar larvae of *Plutella*

xylostella by using two different methods of application. **International Journal of Tropical Insect Science**, **42:1471–1476 https://doi.org/10.1007/s42690-021-00665-7 (IF = 0.774).**

9. Saeed, M., **T. Mukhtar**, M.I. Haq, M.A. Khan. **2021**. Assessment of nematicidal potential of *Cannabis sativa* and *Azadirachta indica* in the management of root-knot nematode (*Meloidogyne javanica*) on peach. **Pakistan Journal of Agricultural Sciences, 58(5): 1555-1561**. **DOI:10.21162/PAKJAS/21.1282**

10. Khan, H.S., M. Tariq, **T. Mukhtar**, A. Gulzar. **2021**. Insecticidal toxicity of plant extracts and green silver nanoparticles against *Aedes albopictus*. **Pakistan Journal of Zoology, 53(6): 2123-2128. DOI: https://dx.doi.org/10.17582/journal.pjz/20191214051208**

11. Mubashar, S., **T. Mukhtar** and N.A. Khan. **2021**. Coronavirus disease (COVID-19) with special reference to Pakistan: a review on its different aspects. **Pakistan Journal of Zoology, 53(5): 1947-1959. DOI: https://dx.doi.org/10.17582/journal.pjz/20201004161050**

12. Ajmal, M., Akram, A., Hanif N.Q., **Mukhtar, T**., Arshad, M. **2021**. Mycobiota isolation and aflatoxin B1 contamination in fresh and stored sesame seeds from rainfed and irrigated zones of Punjab, Pakistan. **Journal of Food Protection, 84 (10): 1673-1682. doi: 10.4315/JFP-21-060**

13. Muhammad, W., H. Javed, M. Ahmad, **T. Mukhtar. 2021.** Economical impact of some selected cultural practices on population build-up of leucinodes orbonalis in brinjal crop. **Fresenius Environmental Bulletin, 30(06B): 7346-7354. [Impact factor = 0.79].**

14. Shehzad, M., Tariq, M., Mukhtar, T., Gulzar, A. 2021. On the virulence of the entomopathogenic fungi, *Beauveria bassiana* and *Metarhizium anisopliae* (Ascomycota: Hypocreales), against the diamondback moth, *Plutella xylostella* (L.) (Lepidoptera: Plutellidae). Egyptian Journal of Biological Pest Control, 31(1), 86

15. Ahmed, M.H., Ashfaq, M., **Mukhtar, T.,** Khan, M.A. **2021.** Categorization of available cucumber genotypes against Zucchini yellow mosaic virus and root-knot nematode (*Meloidogyne incognita*). **International Journal of Agriculture & Biology, 25 (5): 955–961. [Impact factor = 0.79]. DOI: 10.17957/IJAB/15.1751**

16. Muhammad, W., H. Javed, M. Ahmad, **T. Mukhtar. 2021.** Optimizing transplanting dates for the management of brinjal shoot and fruit borer and better crop yield under field conditions. **Pakistan Journal of Zoology, 53(3): 967-973. DOI: https://dx.doi.org/10.17582/journal.pjz/20200103180112**

17. Mukhtar, T., Tariq-Khan, M. and Aslam, M.N. **2021**. Bioefficacy of *Trichoderma* Species against Javanese Root-Knot Nematode, *Meloidogyne javanica* in Green Gram. **Gesunde Pflanzen, 73(3): 265–272. 10.1007/s10343-021-00544-8**

18. Azeem, W., **T. Mukhtar** and Hamid, T. **2021**. Evaluation of *Trichoderma harzianum* and *Azadirachta indica* in the management of *Meloidogyne incognita* in Tomato. **Pakistan Journal of Zoology, 53(1): 119-125. [Impact factor = 0.79]. DOI: https://dx.doi.org/10.17582/journal.pjz/20190905100940**

19. Ahsan, M., Ashfaq, M., **Mukhtar, T.** and Abbasi, N.A. **2020.** Current status and genetic variability of cucumber mosaic cucumovirus (cmv) isolates infecting major cucurbits and solanaceous vegetables in Pothwar region of Pakistan. **Pakistan Journal Agricultural Sciences, 57(5): 1353-1361.**

20. Asghar, A., **T. Mukhtar**, M.U. Raja, and A. Gulzar. **2020**. Interaction between *Meloidogyne javanica* and *Ralstonia solanacearum* in chili. **Pakistan Journal of Zoology, 52(4): 1525-1530.**

DOI: https://dx.doi.org/10.17582/journal.pjz/20190501030529 [Impact factor = 0.79].

21. Iqbal, U. and **T. Mukhtar. 2020.** Evaluation of biocontrol potential of seven indigenous *Trichoderma* species against charcoal rot causing fungus, *Macrophomina phaseolina*. **Gesunde Pflanzen, 72(2): 195–202. DOI: 10.1007/s10343-020-00501-x [Impact factor = 0.789].**

22. Mukhtar, T. and M.Z. Kayani. **2020.** Comparison of the damaging effects of *Meloidogyne incognita* on a resistant and susceptible cultivar of cucumber. **Bragantia, 79(1): 83-93. https://doi.org/10.1590/1678-4499.20190359 [Impact factor = 1.058].**

23. Gulzar, A., **T. Mukhtar** and D.J. Wright. **2020.** Effects of entomopathogenic nematodes *Steinernema carpocapsae* and *Heterorhabditis bacteriophora* on the fitness of a Vip3A resistant subpopulation of *Heliothis virescens* (Noctuidae: Lepidoptera). **Bragantia, 79(2): 281-292. https://doi.org/10.1590/1678-4499.20190501 [Impact factor = 1.058].**

24. Tariq-Khan, M., **T. Mukhtar**, A. Munir, J. Hallmann, H. Heuer. **2020**. Comprehensive report on the prevalence of root-knot nematodes in the Poonch division of Azad Jammu and Kashmir, Pakistan. **Journal of Phytopathology, 168: 322–336. DOI: 10.1111/jph.12895 [Impact factor = 1.097].**

25. Iqbal, U. and **T. Mukhtar. 2020.** Inhibitory effects of some fungicides against *Macrophomina phaseolina* causing charcoal rot. **Pakistan Journal of Zoology, 52(2): 709-715. DOI: https://dx.doi.org/10.17582/journal.pjz/20181228101230. [Impact factor = 0.79].**

26. Ahsan, M., M. Ashfaq, **T. Mukhtar**, N.A. Abbasi, Z. Asad. **2020.** First report of cucurbit aphid borne yellows virus (CABYV) infecting melon in Pakistan. **Journal of Plant Pathology, 102(2): 563–564. https://doi.org/10.1007/s42161-019-00450-z. [Impact factor = 0.818].**

27. Javed, K., H. Javed, **T. Mukhtar** and D. Qiu. **2019**. Pathogenicity of some entomopathogenic fungal strains to green peach aphid, *Myzus persicae* Sulzer (Homoptera: Aphididae). **Egyptian Journal of Biological Pest Control, 29: https://doi.org/10.1186/s41938-019-0183-z. [Impact factor = 0.381].**

28. Fakhar-ud-Din, **T. Mukhtar. 2019.**Morphological characterization of Ganoderma species from Murree hills of Pakistan. **Plant Protection, 3(2): 73-84. DOI: 10.33804/pp.003.02.0128.**

29. Saeed, M., **T. Mukhtar** and M.A. Rehman. **2019**. Temporal fluctuations in the population of citrus nematode (*Tylenchulus semipenetrans*) in the Pothowar region of Pakistan. **Pakistan Journal of Zoology, 51(6): 2257-2263.**

DOI: http://dx.doi.org/10.17582/journal.pjz/2019.51.6.2257.2263. [Impact factor = 0.79].

30. Khan, M.T.A., **T. Mukhtar** and M. Saeed. **2019.** Resistance or susceptibility of eight aubergine cultivars to *Meloidogyne javanica.* **Pakistan Journal of Zoology, 51(6): 2187-2192.DOI: http://dx.doi.org/10.17582/journal.pjz/2019.51.6.2187.2192. [Impact factor = 0.79].**

31. Asad, Z., M. Ashfaq, **T. Mukhtar** and M. Tariq. **2019.** Incidence and distribution of *Zucchini yellow mosaic virus* (ZYMV) infecting Cucumber (*Cucumis sativus* L) crop in Pothowar, Pakistan. **Pure and Applied Biology. 8(3): 2036-2043. http://dx.doi.org/10.19045/bspab.2019.80148 [HEC recognized in Y category)].**

32. Nazir, K., **T. Mukhtar** and H. Javed. **2019.***In vitro* effectiveness of silver nanoparticles against root-knot nematode (*Meloidogyne incognita*). **Pakistan Journal of Zoology, 51(6): 2077-2083, 2019.**

DOI: http://dx.doi.org/10.17582/journal.pjz/2019.51.6.2077.2083. [Impact factor = 0.79].

33. Mukhtar, T. and M.A. Hussain**.2019.** Pathogenic potential of Javanese root-knot nematode on susceptible and resistant okra cultivars. **Pakistan Journal of Zoology, 51(5):1891-1897**. DOI**: http://dx.doi.org/10.17582/journal.pjz/2019.51.5.1891.1897. [Impact factor = 0.79].**

34. Mukhtar, T. and M.Z. Kayani. **2019.** Growth and yield responses of fifteen cucumber cultivars to root-knot nematode (*Meloidogyne incognita*). **Acta Scientiarum Polonorum Hortorum Cultus. 18(3) 2019, 45–52.**

DOI: 10.24326/asphc.2019.3.5. [Impact factor = 0.443].

35. Javed, K., H. Javed, **T. Mukhtar** and D. Qiu. **2019**. Efficacy of *Beauveria bassiana* and *Verticillium lecanii* for the management of whitefly and aphid. **Pakistan Journal of Agricultural Sciences, 56(3): 669-674.**
DOI: 10.21162/PAKJAS/19.8396. [Impact factor = 0.618].

36. Hussain, M.A. and **T. Mukhtar**. **2019**. Root-knot nematodes infecting okra in major vegetable growing districts of Punjab, Pakistan. **Pakistan Journal of Zoology, 51(3): 1137-1143.**
DOI: http://dx.doi.org/10.17582/journal.pjz/2019.51.3.1137.1143. [Impact factor = 0.79].

37. Aslam, M.A., K. Javed, H. Javed, **T. Mukhtar** and M.S. Bashir. **2019**. Infestation of *Helicoverpa armigera* Hübner (Noctuidae: Lepidoptera) on soybean cultivars in Pothwar region and relationship with physico-morphic characters. **Pakistan Journal of Agricultural Sciences, 56(2): 401-405.**
DOI: 10.21162/PAKJAS/19.6979. [Impact factor = 0.618].

38. Kassi, A.K., H. Javed and **T. Mukhtar. 2019.** Relationship of physico-morphic characters of okra cultivars with their resistance to *Helicoverpa armigera*. **Pakistan Journal of Zoology. 51(3): 835-841.**

DOI: http://dx.doi.org/10.17582/journal.pjz/2019.51.3.835.841. [Impact factor = 0.79].

39. Hadri, S.H., M.J. Asad, M.Z. Hyder, S.M.S. Naqvi, **T. Mukhtar**, M. Zafar, S.H. Shah, R.T. Mehmood, J.H. David Wu. **2019.** Characterization of a novel thermophilic endopolygalacturonase produced by *Bacillus licheniformis*IEB-8. **BioResources. 14(2): 2873-2884. [Impact factor = 1.396].**

40. Rahoo, A.M., **T. Mukhtar**, B.A. Bhugio and R.K. Rahoo. **2019.** Comparison of infectivity and productivity of *Steinernema feltiae* and *Heterorhabditis bacteriophora* in *Galleria mellonella* and *Tenebrio molitor*. **Pakistan Journal of Zoology, 51(2): 717-724.**

DOI: http://dx.doi.org/10.17582/journal.pjz/2019.51.2.717.724. [Impact factor = 0.79].

41. Kassi, A.K., H. Javed and **T.Mukhtar. 2019.** Screening of different aubergine cultivars against infestation of brinjal fruit and shoot borer (*Leucinodes orbonalis* Guenee). **Pakistan Journal of Zoology.51(2): 603-609.**

DOI: http://dx.doi.org/10.17582/journal.pjz/2019.51.2.603.609. [Impact factor = 0.79].

42. Rahoo, A.M., **T. Mukhtar**, B.A. Bughio and R.K. Rahoo. **2019**. Relationship between the size of *Galleria mellonella* larvae and the production of *Steinernema feltiae* and *Heterorhabditis bacteriophora*. **Pakistan Journal of Zoology. 51(1): 79-84.**

DOI: http://dx.doi.org/10.17582/journal.pjz/2019.51.1.79.84. [Impact factor = 0.79].

43. Aslam, M.N., **T. Mukhtar**, M. Jamil and M. Nafees. **2019.** Analysis of aubergine germplasm for resistance sources to bacterial wilt incited by *Ralstonia solanacearum.* **Pakistan Journal of Agricultural Sciences. 56(1):119-122.**

DOI:10.21162/PAKJAS/18.6082. [Impact factor = 0.618].

44. Raja, M.U., **T. Mukhtar**, F.A. Shaheen, I. Bodlah, A. Jamal, B. Fatima, M. Ismail, I. Shah. **2018.** Climate change and its impact on plant health: a Pakistan's prospective. **Plant Protection, 2(2): 51-56.**

45. Hadri, S.H., M.J. Asad, M.Z. Hyder, S.M.S. Naqvi, **T. Mukhtar**, R.T. Mahmood, J.H. David Wu. **2018.**Response surface methodology for the production of endopolygalacturonase by a novel *Bacillus licheniformis*. **Advancements in Life Sciences. 5(4): 204-210.**

46. Iftikhar, A., M.A. Aziz, M. Naeem, M. Ahmad and **T. Mukhtar. 2018.** Effect of temperature on demography and predation rate of *Menochilus sexmaculatus* (Coleoptera: Coccinellidae) reared on *Phenacoccus solenopsis* (Hemiptera: Pseudococcidae). **Pakistan Journal of Zoology. 50(5): 1885-1893.**
DOI: **http://dx.doi.org/10.17582/journal.pjz/2018.50.5.1885.1893. [Impact factor = 0.79].**

47. Kayani, M.Z. and **T. Mukhtar. 2018.** Reproductivity of *Meloidogyne incognita* on fifteen cucumber cultivars. **Pakistan Journal of Zoology. 50(5): 1717-1722.**

DOI: http://dx.doi.org/10.17582/journal.pjz/2018.50.5.1717.1722. [Impact factor = 0.79].

48. Mukhtar, T. 2018. Management of root-knot nematode, *Meloidogyne incognita*, in tomato with two *Trichoderma* species. **Pakistan Journal of Zoology. 50(4):1589-1592. DOI: http://dx.doi.org/10.17582/journal.pjz/2018.50.4.sc15.[Impact factor = 0.79].**

49. Riaz, T., M. Ashfaq, A.H. Malik, **T. Mukhtar** and I.A. Hafiz. **2018.** An insight into genetic variability and host response of Pakistani isolate of Chilli veinal mottle virus (ChiVMV) infecting chilli pepper. **International Journal of Biosciences. 12 (4): 302-312.**

50. Shahjahan, M., M. Inam-ul- Haq, **T. Mukhtar** and A. Khalid. **2018**. Biochar as a carrier of antagonistic rhizobacteria suppressing *Macrophomina phaseolina*. **Transylvanian Review, XXVI (28):7469-7476.**

51. Mukhtar, T., A. Jabbar, M.U. Raja, H. Javed. **2018.** Re-emergence of wheat seed gall nematode (*Anguina tritici*) in Punjab, Pakistan. **Pakistan Journal of Zoology, 50(3): 1195-1198. DOI: http://dx.doi.org/10.17582/journal.pjz/2018.50.3.sc4**. **[Impact factor = 0.79].**

52. Rahoo, A.M., **T. Mukhtar**, A.M. Jakhar and R.K. Rahoo. **2018**. Inoculum doses and exposure periods affect recovery of *Steinernema feltiae* and *Heterorhabditis bacteriophora* from *Tenebrio molitor*. **Pakistan Journal of Zoology, 50(3): 983-987.**

DOI: **http://dx.doi.org/10.17582/journal.pjz/2018.50.3.983.987. [Impact factor = 0.79].**

53. Rahoo, A.M., **T. Mukhtar**, S.I. Abro, B.A. Bughio and R.K. Rahoo. **2018**. Comparing the productivity of five entomopathogenic nematodes in *Galleria mellonella*. **Pakistan Journal of Zoology, 50(2): 679-684.**

DOI: http://dx.doi.org/10.17582/journal.pjz/2018.50.2.679.684. [Impact factor = 0.79].

54. Kayani, M.Z., **T. Mukhtar** and M. A. Hussain. **2018**. Interaction between nematode inoculum density and plant age on growth and yield of cucumber and reproduction of *Meloidogyne incognita*. **Pakistan Journal of Zoology, 50(3): 897-902.**

DOI: http://dx.doi.org/10.17582/journal.pjz/2018.50.3.897.902. [Impact factor = 0.79].

55. Nabeel, M., H. Javed and **T. Mukhtar. 2018.** Occurrence of *Chilo partellus* on maize in major maize growing areas of Punjab, Pakistan. **Pakistan Journal of Zoology, 50(1): 317-323**.

DOI: http://dx.doi.org/10.17582/journal.pjz/2018.50.1.317.323. [Impact factor = 0.79].

56. Kassi, A.K., H. Javed and **T. Mukhtar. 2018.** Screening of okra cultivars for resistance against *Helicoverpa armigera*. **Pakistan Journal of Zoology, 50(1): 91-95. DOI: http://dx.doi.org/10.17582/journal.pjz/2018.50.1.91.95. [Impact factor = 0.79].**

57. Jahan, M.S., M. Inam-ul-Haq, T. Mukhtar, and A. Khalid. **2017**. Biochar effect to enhance nodulation and suppress root pathogenic fungi in chickpea. **Mycopath, 15(2): 71-79.**

58. Rehman, F.U., A. Gulzar, M. Ahmad, **T. Mukhtar** and M. Ali. **2017.** Efficacy of new chemistry insecticides against brinjal shoot and fruit borer (*Leucinodes orbonalis* Guenee). **Pakistan Entomologist, 39(2): 33-36. (HEC recognized)**

59. Javed, H., S. S. Hussain, K. Javed, **T. Mukhtar** and N. A. Abbasi**. 2017.** Comparative infestation of brinjal stem borer (*Euzophera perticella*) on six aubergine cultivars and correlation with some morphological characters. **Pakistan Journal of Agricultural Sciences, 54(4): 753-758.**

DOI: 10.21162/PAKJAS/17.6523. [Impact factor = 0.677].

60. Ahmad, A., M. Ashfaq, **T. Mukhtar** and S. I. Malik. **2017**. An insight into recombination in CP gene of tomato infecting Chilli veinal mottle virus isolate from Pakistan. **International Journal of Biosciences, 11 (4): 48-54.**

61. Javed, H. and **T. Mukhtar. 2017.** Population dynamics of diamond back moth (*Plutella xylostella* L.) on five cauliflower cultivars. **Plant Protection, 1(1): 11-16.**

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159. Mukhtar,T., R. Ahmad and N. Javed, **2001**. Control of *Meloidogyne javanica* by two antagonistic plants and a nematophagous fungus and effects of antagonistic plants on the activity of fungus. **Proceedings of 3rd Conference of Plant Pathology, pp. 129-132.**

160. Javed, N., S. R. Gowen, **T. Mukhtar** and M. Ashfaq. **2002**. Effect of neem products on hatching, mobility, mortality and development of juveniles of *Meloidogyne javanica*. **Proceedings of National Symposium of Nematology, 67-75.**

161. Javed, N., R. Ahmad and **T. Mukhtar**. **2001**. Nematode control: biological approach. **Proceedings of 3rd Conference of Plant Pathology, pp. 116-121.**

162. Mukhtar, T., R. Ahmad and H. U. Khan. **1999**. Effect of leaf extracts of some plants on the growth of nematophagous fungus *Verticilliumchlamydosporium.* **Proceedings of 2nd Conference of Plant Pathology, 179-182.**

163. Mukhtar,T., R. Ahmad and S. R. Gowen. **1999**. Effect of a cropping sequence on the management of *Meloidogyne javanica* and *Pasteuriapenetrans* build up. **Proceedings of 2nd Conference of Plant Pathology, pp. 175-178.**

(c) Technical articles

164. Mukhtar, T.2000. Biological control of root-knot disease. **The Sun International, 1(131):11.**

165. Chaudhry, N.A., M.A. Ansari and **T. Mukhtar**.**1992**. Diseases infecting citrus plants and their control. **Progressive Farming, 12 (6): 27-34**

Personal	**Present Position & Address**: Professor & Chairman Department of Plant Pathology Faculty of crop & food sciences PMAS Arid Agriculture University Rawalpindi-46300 **Telephone:** Office: 051-9292123 Fax: e. mail: dr.inam@uaar.edu.pk

Date From	To	Title	Institution
03-03-2008	To-date	Professor	Department of Plant Pathology, Faculty of Food and Crop Sciences, PMAS- Arid Agriculture University, Rawalpindi
28-01-2011	11-12-2013	Director Advanced Studies	Directorate of Advance Studies PMAS- Arid Agriculture University, Rawalpindi
27-12-2013	27-12-2014	Manager, Business Incubation Centre	ORIC, PMAS- Arid Agriculture University, Rawalpindi
23-09-2008	02-03-2015	Associate Professor	Department of Plant Pathology, Faculty of Food and Crop Sciences, PMAS- Arid Agriculture University, Rawalpindi

23-12-2006	22-09-2008	Associate Professor	Department of Plant Pathology, Faculty of Food and Crop Sciences, PMAS- Arid Agriculture University, Rawalpindi
23-10-2000	22-12-2006	Assistant Professor	Department of Plant Pathology, Faculty of Agriculture, University of Agriculture Faisalabad
27-2-1992	22-10-2000	Lecturer	Department of Plant Pathology, Faculty of Agriculture, University of Agriculture Faisalabad

Honor and Awards

Memberships

i) Life member of Pakistan Phytopathological Society ii) Life member of Pakistan Botanical Society iii) Life member of Asian PGPR Society iv) Reviewer: Canadian Journal of Microbiology

v) Reviewer: Pakistan Journal of Agricultural Sciences

Graduate Students
Postdocs
Undergraduate Students

Honour Students

:

Years Degree Name

Show other information as appropriate and list membership on graduate degree committees.

Years	Degree	Name	Contributed as
2014	M.Sc.(Hon)	Adeela Altaf	Supervisor
2014	M.Sc.(Hon)	Muhammad Sufiyan	Supervisor
2013	M.Sc.(Hon)	Shagufta Bibi	Supervisor
2013	M.Sc.(Hon)	Sundas Shakoor	Supervisor
2012	M.Sc.(Hon)	Farooq Azam	Supervisor
2012	M.Sc.(Hon)	Muhammad Nasir	Supervisor
2012	M.Sc.(Hon)	Saima Sadiq	Supervisor

Service Activity

- Teaching courses to M.Sc., M. Phil. and M. Sc. (Hons.). Student
- Supervision of Research Theses of M.Sc., M. Phil. & M. Sc. (Hons.). students
- Development and Execution of donor funded Research & Development Projects.
- Management of the Department of Plant Pathology

Brief Statement of Research Interest

May be as brief as a sentence or contain additional details up to one page in length.

- Bacteriology and Biological Control

Publications **Articles published by refereed journals**

1. Khan, N.A., M. Ajmal, M. Inam-ul-haq, N. Javed, M. Asif Ali, Rana Binyamin and S.A. Khan. 2012. Impact of sawdust using various woods for effective cultivation of Oyster mushroom. Pak. J. Botany 44(1): 399-402.

2. Naqvi, S.F., M.Inam-ul-Haq, M.I.Tahir and S.M.Mughal. 2012. Screening of sesame germplasm for resistance against the bacterial blight caused by *Xanthomonas campestris* pv. *sesami*. Pak. J. Agri. Sci. 49(2):131-134.

3. Iqbal, S., M. Ashfaq, H. Shah, M. Inam-ul-Haq and Aziz-ud-Din. 2012. Prevalence and distribution of Cucumber Mosaic Virus (CMV) in major chilli growing areas of Pakistan. Pakistan Journal of Botany 44(4):1749-1754.

4. M. Inam-ul-Haq, S. Mehmood, H. M. Rehman, Z. Ali and M.I. Tahir. 2012. Incidence of root rot diseases of soybean in Multan Pakistan and its management by the use of plant growth promoting rhizobacteria. Pak. J. Bot. 44(6):2077-2080.

5. Naqvi, S.F., M. Inam-ul-Haq, M. Ahsan Khan, M. Ibrahim Tahir, Zahid Ali and H.M. Rehman. 2013. Morphological and biochemical characterization of *Xanthomonas campestris* (Pammel) Dawson pv. *sesami* and it's management by bacterial antagonists. Pak. J. Agri. Sci., 50(2): 229-235

6. Rashid, A., M. Shahjahan, M. Inam-ul-Haq, M. Shahid, M. Ehetisham-ul-Haq, I. H. Waris, M. Farooq, E. Perveez and M. Ashraf. 2013. Distribution of black chaff disease of wheat caused by *Xanthomonas campestris* pv. *translucens* in different ecological zones of Pakistan and its management through plant extracts and bio-products. European Journal of Experimental Biology, 3(4): 261-266.

7. Tahir, M.I., M. Inam-ul-Haq, M. Ashfaq, N.A. Abbasi. 2014. Surveillance of *Ralstonia solanacearum* infecting potato crop in Punjab. Pak. J. Phytopathol., 26(1): 43-50.

Books

Papers published in refereed conference proceedings:

1. Khan, M.M., M.A. Khan, M. Inam-ul-Haq, R. Ahmad and I. Aziz. 1992. Incidence of citrus canker caused by *Xanthomonas campestris* pv. *citri* in kinnow orchards in Faisalabad. District. Proceedings of the First International Seminar on Citriculture in Pakistan, 2-5. December 1992, Page 311-314.

2. Ahmed, R., M. Z. Kayani, N. Javed and M. Inam-ul-Haq. 1992. Effect of different inoculum levels of citrus nematode *Tylenchulus semipenetrans cobb*. on the growth of seedlings. Proceeding of the First International Seminar on Citriculture in Pak., 2-5. December 1992, Page 319-320.

3. Ahmad. R., M.Z. Kayani, M. Inam-ul-Haq and N. Javed. 1992. Effect of seasonal fluctuation on the population dynamics of citrus nematode (*Tylenchulus semipenetrans*

cobb.) Proceedings of the second international Workshop on plant Nematology. November 22-26 1992, Karachi University Pakistan.

4. M.Inam-ul-Haq, R. Ahmad and M.Y. Khan. 1999. Evaluation of various concentrations of *Pseudomonas fluorescens* for the biological control of chickpea wilt. Proceeding of 2nd National Conference of Plant Pathology, Sept. 27-29, Univ, Agri. Faisalabad. Pages. 293-295.

5. M.Inam-ul-Haq, and R. Ahmad. 1999. Evaluation of various methods of application of plant growth promoting rhizobacteria for the biological control of chickpea wilt. Proceeding of 2nd National Conference of Plant Pathology, Sept. 1999. Univ, Agri. Faisalabad. Pages. 296-300.

6. M. Inam-ul-Haq, M.I. Khawar, M.I. Tahir, S. KR. Yellareddygari and M.S. Reddy. 2011. Induction of systemic resistance by rhizobacteria for the management of root-knot nematodes in tomato. Proceedings of the 2nd Asian PGPR Conference. Plant Growth-Promoting Rhizobacteria (PGPR) For Sustainable Agriculture: August 21-24, 2011, Beijing, P.R. China. pp. 308-321.

7. Shahid, A.A., Yasin, S., Inam-ul-Haq, M., Ali, M. and Saleem Haider, M. 2013. "Use of Rhizobacteria for the Management of Soft Rot Disease of Potato" Athens: ATINER'S Conference Paper Series, No: AGR2013-0770.

8. M. Ibrahim Tahir, M. Inam-ul-Haq, Farooq Azam and M.S. Reddy. 2013. Utilization of *Pseudomonas fluorescens* and *Bacillus subtilis* for the root knot nematode management of chili and their effect on chili growth. In: Recent Advances in Biofertilizers and Biofungicides (PGPR) For Sustainable Agriculture. Proceedings of 3rd Asian Conference on Plant Growth-Promoting Rhizobacteria (PGPR) and other Microbials Manila, Philippines April 21-24, 2013. Chapter 30. pp. 366-377.

9. M. Inam-ul-Haq, M. Ibrahim Tahir, M.S. Reddy. 2013. Disease suppression of fungal root pathogens of chickpea using antagonistic rhizobacteria and neem cake. In: Recent Advances in Biofertilizers and Biofungicides (PGPR) For Sustainable Agriculture. Proceedings of 3rd Asian Conference on Plant Growth-Promoting Rhizobacteria (PGPR) and other Microbials Manila, Philippines April 21-24, 2013. Chapter 31. pp. 378-392.

ABSTRACTS (Papers Presented in Conferences)

RESEARCH/TECHNICAL REPORTS (unpublished)

POPULAR ARTICLES/BOOKLETS

1. Some recommendations to get rid from cotton leaf curl virus 1993. Zari Digest. 27(3): 15-16.

2. Mango diseases and their control 1996. Zari Digest 29/330 (4/1): 48-50.

3. Controlling chickpea diseases. Article published in the daily Newspaper, „The Nation"

Faculty Resume-3

DR. GULSHAN IRSHAD

(Impact Factor 73.09)

CURRICULUM VITAE

Date of birth: Jan 7th, 1979

Organization (main): PMAS Arid Agriculture University Rawalpindi

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ACADAMIC QUALIFICATION

M. Sc. (Hons.). (Plant Pathology) PMAS AAUR, Pakistan. 2013

M.Sc. (Hons), Plant Pathology, PMAS-AAUR, Pakistan. 2004

B.Sc. (Hons), Plant Pathology, PMAS-AAUR, Pakistan. 2002

EXPERIENCE AND EMPLOYMENT RECORD

Lecturer (Plant Pathology), PMAS-AAUR Pakistan, 2004 to 2015

Assistant Professor (Plant Pathology) PMAS-AAUR, Pakistan 2015 to 2021

Associate Professor (Plant Pathology) PMAS-AAUR, Pakistan 2021 to date

RESEARCH INTEREST

- Fungal Post harvest pathology
- Seed Pathology
- Beneficial Microorganisms
- Mushroom cultivation

COMPUTER TRAINING

- Mainframe and Microcomputer Operation:
- Word Perfect,
- Microsoft Word,
- Word Star,
- Write Now,
- Cricket Graphics,
- MSTAT-C

PROFESSIONAL SOCIETY MEMBERSHIP

1. Pakistan Phytopathological society
2. Pakistan Botanical society
3. American Phytopathological society
4. International society for Plant Pathology

ADMINISTRATIVE REPSONSIBILITIES

Member of PMAS-AAUR syndicate (Lecturer) 2006-2011

Member of PMAS-AAUR syndicate (Assistant Professor) 2017 to 2020

Member of PMAS AAUR Finance and Planning 2017 to 2020

Deputy senior tutor 2021 to date

Member of Self-Assessment Report PMAS-AAUR	2015- to date
Focal person in PM Laptop Scheme	2016 to 2020
Secretary of Board of studies (Department Of Plant Pathology)	2018 to 2020
Secretary of Board of studies (Department of Plant Pathology)	2005-2010
Member of Dramatic society PMAS-AAUR 2004-2010	
Member of debating society PMAS-AAUR 2004-2010	
Tutor, tutorial group-I 2013-2014	
Tutor, tutorial group-C	2021 to date
Member of sports Board	2021 to date
Member Academic council 2021 to date	
Member of Outreach Activity	
Departmental Focal Person	18-04-2022 to date

FOR THE ACADEMIC COMMUNITY

1. Working as reviewer for Pakistan journal of Phytopathology which is one of the top rated Journal of Pakistan in the field of Plant Pathology.
2. Working as reviewer for Asian Journal of Agriculture and Biology.
3. Working as reviewer for Plant protection.
4. Working as reviewer of Plant Cell Biotechnology and Molecular Biology.

FOR THE FACULTY AND/OR DEPARTMENT

1. Research Coordinator
2. Laboratory in charge (Plant Pathology) PMAS-AAUR 2004-2011
3. Secretary Departmental Board of Studies committee.
4. An Active Member of Departmental Self-Assessment Team on behalf of Quality Assurance Department.
5. Departmental Laboratories in charge responsible for Physical Verification of stocks at all labs.
6. Focal Person for Departmental (course evaluation, faculty course review report, research student's progress review form, faculty survey and survey of department offering M. Sc. (Hons.) program, and preparation of self-assessment Report of the department, examination date sheet & time table.)
7. Convener for Young Phyto Doctor Forum.
8. Committee member for 03 PHD students.
9. Committee member for 14 MSc. Students.

FOR OTHER ORGANIZATIONS

Working as consultant with various departments, Agriculture Department, Federal Seed Certification Department.

RESEARCH STUDENTS SUPERVISED (PhD & MSc.)

Number of postgraduate students supervised

Degree	Completed	Currently working
M. Sc. (Hons.)	01	02
M.Sc. (Hons.)	18	07

Name	Degree	Title of Research	Status
Salman Ghaffar 14-arid-970	PhD	Characterization of post-harvest decay causing pathogens of grapes and their management through selected essential oil.	Completed
Gull-e-Laala (14-arid -08)	PhD	Management of major post-harvest fungal pathogens of peach fruit with selected essential oils	In Progress
Farooq Aslam 08- arid -97	Phd	Non-Hazardous Management of Loquat (*Eriobotrya japonica*) Fruit Post Harvest Fungal Pathogens	Thesis for Final viva
Muhammad Abdullah	M.Sc(Hons)	Comparison of mycotoxins – producing fungi between field and stored sorghum seeds from	Completed
Syed Haroon Shah 03-arid 163	M.Sc(Hons)	Biological Control of Late blight Tomato by Using Rhizobacteria.	Completed

Nasir Abbas 05-arid-117	M.Sc(Hons)	Studies on Mycoflora associated with seeds of different Citrus spp.	Completed
Zeeshan Haider 06-arid 213	M.Sc(Hons	Post-harvest loss Assessment in Tomato fruits in local Market and its chemical Control.	Completed
Farooq Aslam 08 arid -97	M.Sc(Hons)	Identification of seed borne fungi on farmer red chillies and estimate afaltoxin.	Completed
Wajid Aurangzeb 07-arid 177	M.Sc(Hons)	Incidence of airborne concentration and influence of weather variables on severity of fungal diseases on vegetables crops.	Completed
Ashan Nawaz sajjid	M.Sc(Hons)	Comparison of Mycotoxins producing fungi between field and stored chillies from Potohar Region.	Completed
Syed Zulfiqar 13-arid-21	M.Sc(Hons)	Prevalence of Field pathogens of sorghum under	Completed

		subtropical Rainfed Environment.	
Asfand Iqbal 10 – arid-1107	M.Sc(Hons)	Studies on Isolation and characterization and management of pea wilt pathogens	Completed
Shahana Anwar	M.Sc(Hons)	Pervasiveness and characterization of fungal foliar pathogens of grapes (*Vitis vinifera*)	Completed
Nawab zada (14-arid -11)	M.Sc(Hons)	Characterization of post harvest decaying pathogens of grapes and their management through essentinal plant oil s for augmentation of grapes shelf life	Completed
Abdul Ghaffar 11-arid - 201	M.Sc(Hons)	Isolation and characterization of post harvest fungal pathogens of peach	Completed
Sadia Noureen 11-arid-488	M.Sc(Hons)	Isolation and characterization of post harvest fungal pathogens of pear	Completed

SyedArslan Haider 15- arid-3303	M.Sc(Hons)	Antifungal activity of mushrooms of bagh azad kashmir against post harvest fungal pathogens of grapes	Completed
Muhammad Azar 10-arid-1111	M.Sc(Hons)	Morphologic characteristics of Mushroom in Punch area (Azad Kasmir)	Completed
Aamir bashir 12-arid-166	MSc(Hons)	Essential oil as botanical – pesticides against grapes anthracnose	Completed
Muddasir saeed 12- arid -240	MSc(Hons)	Assessment and characterization of post harvest fungal pathogens of onion(*Allium cepa*)	Completed
khadija yasin 12- arid -377	MSc(Hons)	Evaluation of various fungitoxic effects on anthracnose pathogen with selected essential oils.	Completed
Maleeha Maryam 13-Arid-556		Bio management of post-harvest fungal pathogens of apricot	Completed

Muhammad Zunair Karamat 13-Arid-591		Bio management of *Penicillium expansum* causing fruit rot of grapes with selected essential oils under different packaging material	Completed
Faraz Ahmed 12-Arid-201		Application of essential oil under different packaging material for the management of Botrytis cinera in grapes	Completed
Muhammad Awais Sajjid 13-Arid-379		Bio management of *Alternaria* species causing fruit rot in Grapes	Completed

Amar Mehmood 16-arid-2959		Digital Disease mapping of selected citrus orchards in Pothwar	In progress
Tamina Akbar 16-arid-3268		Management of post-harvest pathogens of Citrus *spp.*	In progress
Muhammd Hassan 16-arid-3640		Evaluation of fungal flora and Natural occurrence of Aflatoxins in Plum	In progress
Maria Rabnawaz 20-arid-2646		Efficacy of *Trichoderma harzianum* for the control of rice blast.	In progress

Khalid Hamza		Bio-management of Post-harvest fungal disease (*Botrytis cineria*) of Grapes through Essential oils.	In progress
Muhammad Irfan Hameed		Identification of toxigenic strains of Aspergillus flavus for mitigation of Aflatoxin from Maize.	In progress

Patent/ Commercialization

1. Patent applied with application NO. 62/2022,RECIPT NO 2203044810 (Filling Date: 01/02/2022) "Antimicrobial packaging aromatic sachets encapsulated with essential oil tablets against post-harvest decay control of perishable fruits.

The collaboration with industry is under progress and MOUS are signed soon for the commercialization of the essential oil sachet tablets.

RESEARCH PROJECTS

1. Screening of substrate mass production of biological control agent.
   2008-2009 Completed (**PMAS AAUR**)
2. Induction of systemic resistance through Rhizobacteria in tomato.
   2010-2011 Completed (PMAS **AAUR)**
3. Evaluation and optimization of botanicals for the management of grapes anthracnose
   2018 Completed **(PMAS AAUR)**
4. Also won in NRPU/HEC funded Project 4,780,343 as Co PI (Ongoing)
5. Appointed as Co PI in Establishment of National Centre of Industrial Biotechnology (NCIB) for Pilot Manufacturing of Bio Products using Synthetic Biology and Metabolic Engineering Technologies in Tissue culture unit. (Ongoing)
6. Development of essential oil sachets for the bio-management of post-harvest decaying fungi of dry fruits for the augmentation in their shelf life. Punjab Agriculture Research Board. (2020). (Submmitted)
7. Studies on storage conditions and packing material for improvement in planting value of major vegetables crop seeds in Punjab. Pakistan Science Foundation. 2022 (Pipeline)

LIST OF PUBLICATIONS **Total publication 58**

Total impact factor 73.09

Total publication with impact factor: 35

Total publication with HEC recognized: 11

1. M. F. Aslam , **Gulshan Irshad**, Farah Naz and Muhammad Azam *Khan* .Evaluation of the antifungal activity of essential oils against *Alternaria alternata* causing fruit rot of *Eriobotrya japonica.* 2022. Turkish Journal of Biochemistry, https://doi.org/10.1515/tjb-2021-0225. **[Impact factor 0.35].**
2. Zohaib Asad, M. Ashfaq, M Inam Ul Haq, **Gulshan Irshad**, M. Azam Khan, Current status and Molecular Characterization of Zucchini Yellow Mosaic Virus (ZYMV) Infecting Ridge group

(Luffa Acutangula L.) in different region of Punjab,Pakistan.2022. Pak. J. Bot., **54(2):** DOI:http://dx.doi.org/10.30848/PJB2022-2(21)**. [Impact factor 0.97]**

3. Tahira Nisa, Muhammad Inam-ul-haq , Tariq Mukhtar , Muhammad Azam khan and **Gulshan Irshad**. Incidence and severity of common scab of potato caused by streptomyces scabies in punjab, pakistan. 2022. Pak. J. Bot., **54(3)**: 723-729, 2022. Doi: http://dx.doi.org/10.30848/pjb2022-2(36)**. [Impact factor 0.97].**

4. Beenish Gul, **Farah Naz,** Aliya Tariq, Zain Haider, Gulshan Irshad and Ali Meesam, first report of powdery mildew caused by Podosphaera xanthii on round zucchini in Pakistan". 2022. Journal of Plant Pathology. **[Impact Factor=0.81].**

5. Salman Ghuffar, **Gulshan Irshad**, Farah Naz and Muhammad Azam Khan. Studies of *Penicillium* species associated with blue mold disease of grapes and management through plant essential oils as non-hazardous botanical fungicides. 2021. The journal Green Processing and Synthesis. https://doi.org/10.1515/gps-2021-0007. **[Impact factor 2.83]**

6. M. Z. Ahmed, S. Ghuffar, **G. Irshad,** B. Parveen, M. U. Yasin, N. Mehmood, M. Asif, U. Sabtain, A. Qayyum, Z. Hassan., Identification of Elsinoeampelina Associated with Grapevine causing Anthracnose disease in Pothwar Region of Pakistan. 2021. Journal of Plant cell biotechnology and molecular biology. 22(49): **[Impact Factor 0.39].**

7. G. irshad, M. maryam, S. ghuffar, M. S. Saeed, M. Shehzad, S. sardar, M. Naeem, A. mehmood, T. akbar, X. chang. Synergistic effect of chitosan with selected plant essential oil to inhibit the aspergillus niger development in apricot (*Prunus armeniaca l.*). 2021. Journal of Plant cell biotechnology and molecular biology. 22(57): **[Impact Factor 0.39]**

8. M. Naeem, M. Munir, H. Li, M. A. Raza, C. Song, X. Wu, **G. Irshad**, M. H. B. Khalid, W. Yang, X. Chang. Transcriptional Responses of *Fusarium graminearum* Interacted with Soybean to Cause Root Rot. 2021. Journal of Fungi**. [Impact Factor 4.6]**

9. S. Ghuffar, M. Z. Ahmad, **G. Irshad,** M. A. Zeshan, A. Qadir, H. A. Anwaar, M. Z. Mansha, H. M. Asadullah, U. Farooq, A. Abdullah. 2020. First Report of **Aspergillus niger** Causing Black Rot of Grapes in Pakistan. **Plant Disease** Accepted. **[Impact Factor. 4.43]**

10. S. Ghuffar, **G. Irshad**, M. Z. Ahmed, M. A. Zeshan, R. Ali, E. U. Haq, H. A. Anwaar, A. Abdullah, F. Ahmad, K. Haque. First Report of *Aspergillus flavus* causing fruit rots of Grapes (*Vitis vinifera*) in Pakistan. Plant Disease. 2020.**[Impact Factor. 4.43]**

11. H. Ayub, A. Ahmed, R. M. Amir, **G. Irshad**. Multivariate analysis of peach quality treated with essential oil coating. Food Processing and Preservation,. 2020 **[Impact Factor- 1.28]**.

*12. A. Iqbal, **G. Irshad**, F. Naz, S. Ghuffar, R. Khursheed, A. Bashir, M. Z. Mustafa, A. Mehmood, N. U. Hassan,*. Characterization of *Fusarium solani*, Causal agent of Pea wilt and its Bio-management. 2020. Pakistan Journal of Phytopathology. **(HEC Recognized)**

13. **Farah Naz,** A. Tariq, I. A. Hafiz, N. A. Abbasi, Irfan Ali, Gulshan Irshad, Muhammad Azam Khan and M.

Shahid. First Report of *Colletotrichum gloeosporioides* Causing Anthracnose on *Citrus limetta* in Pakistan. 2020. ***Plant Disease***, https://doi.org/10.1094/PDIS-10-17-1632-PDN. **[Impact Factor=4.43]**

14. S. Ghuffar, **G. Irshad**, M. Z. Ahmed, M. A. Zeshan, R. Ali, E. U. Haq, H. A. Anwaar, A. Abdullah, F. Ahmad, K. Haque. 2020. First Report of **Aspergillus flavus** causing fruit rots of Grapes (Vitis vinifera) in Pakistan. **Plant Disease** DOI: https://doi.org/10.1094/PDIS-04-20-0863PDN. **[Impact Factor=4.43]**

15. Karamat M Z., **Irshad G.**, Riaz A., Ghuffar S., Naz F., Ashfaq H M., Raja M U., Qadir A., Mehmood K., Yang H and Guo J. 2020. Efficacy of different plant essential oils against *Penicillium expansum* causing fruit rot of grapes. International Journal of Biosciences. http://dx.doi.org/10.12692/ijb/4.12.1-8). International journal of biosciences 16 (02) 516-522.

16. M. Inam-ul-haq, syed afraz ali, **Gulshan Irshad,** m. Azam khan and sohaib ismail. Morphological and biochemical characterization of rhizobacteria associated with peach plant and evaluation of these rhizobacteria against its fungal pathogens. **Pakistan journal of botany.** Doi: http://dx.doi.org/10.30848/pjb2020-6(2). **[Impact Factor=0.97]**

17. Sajid A., **Irshad G**., Naz F., Ghuffar S., Hassan I., Mahmood N., Rani K., Manzoor M F., Meesam A., Hamzah A M and Karamt M Z. 2020. In vitro Evaluation of Plant essential oils against *Alternaria alternata* causing fruit rot of grapes. **Asian journal of Agriculture and Biology** 8(2):168-173. **[Impact Factor=0.36]**

18. A Qadir, G Irshad, S Ghuffar, M Shahid, K Mehmood, A Sattar, M A Zeshan, A M Hamzah, H M Asadullah, M F Manzoor. 2020. Symptom-based indexing of Barley Yellow Dwarf Disease infecting wheat in Pakistan. Journal of Biodiversity and Environmental Sciences. **[Impact Factor=0.56]**

19. Aftab A., Hassan I., Ashfaq H M., **Irshad G**., Mahnoor S H., Hussan A and Rabbani G. 2019. Effect of calcium chloride on growth and production of Antirrhinum flower. Sarhad journal of Agriculture. **[Impact Factor=0.47]**

20. Aslam M F., **Irshad G**., Gondal A S., Sajid M N., Naz F., Karamat M Z., Bashir A., Hyder S and Ahmed R. 2019. First report of *Rhizopus stolonifer causing* post-harvest fruit rot of loquat (*Eriobotrya japonica)* from Pakistan. Plant Disease. 103 (6) 1410 [**Impact Factor=3.17**]

21. Naeem M., Hongju L., Yan L., Raza M. A., Chen G G H., Yang C., Zhang M., Shang J., Liu T., Chen W., Abbas M F., **Irshad G**., Khaskheli M I., Yang W and Chang X. 2019. Characterization and Pathogenicity of *Fusarium Species* Associated with Soybean Pods in Maize/Soybean Strip Intercropping. **Pathogens**. 8, 245 [**Impact Factor=3.4**]

22. Ghuffar S., **Irshad G**., Gondal A S., Ahmed R., Rosli H., Zhang X., Aslam H M U., Iqbal M A and Gleason M L. 2019. First report of *Rhizopus stolonifer* causing Rhizopus bunch rot on grapes in Pakistan. **Plant Diseases.** 8 (1) 29-30. [**Impact Factor=3.17**]

23. Ghuffar S., **Irshad G**., Naz F., Rosli H B., Hyder S., Mehmood N., Zeshan M A., Raza M M., Mayer C G and Gleason M L. 2018. First report of two *Penicillium* spp. causing post-harvest fruit rot of grapes in Pakistan Plant Disease 102(5): 1037 IF: 3.17 [**Impact Factor=3.17**]

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PREECIDINGS/CONFRENCES AND OTHERS

1. International workshop on "Sanitary and phytosanitary measures in the wake of trade liberation: challenges to agriculture in developing countries. 12-14 January, 2005.
2. Workshop on gender issue and environment concerns on May 12, 2005. Fatima Jinnah women university
3. Workshop on Mycotoxin in food grain organized by crop disease research program institute of plant and environmental protection 14-15 June, 2006.
4. Seed pathology and seed health testing under "Establishment of seed testing laboratories, existing seed testing laboratory" project, organized by FSC&RD from May 16-20, 2006.
5. Role of alleopathy in sustainable agriculture department of agronomy march 22-24, 2007 in university of arid agriculture Rawalpindi.
6. Biological resource of Pakistan: problems, success and future perspective 25th to 27th April, 2007. Department of Botany University of Arid Agriculture Rawalpindi.
7. International workshop on carbon and water exchange in plants under changing climatic conditions (Nov 5-6, 2007).Department of Environmental Sciences, PMAS AAUR.
8. National workshop on "Role of biotechnology in Economic development of Pakistan 13 Nov, 2008. College of Agriculture, Sargodha.
9. Professional competency "Enhancement program for teachers by national academy of higher education held at Pir Mehr Ali Shah Arid Agriculture University Rawalpindi. (July 27 to August 22, 2009).
10. Workshop on "Exploring the jigsaw assessment held at higher education Commission Islamabad.(Jan,25-26), 2011
11. National and International conference of Botany 1-3rd Sep 2012.Quaid.i.Azam.

12. National training course in Seed Mycology &Nematology on 16-19 June 2014 at Federal seed certification &Registration Department.
13. International training "Utilization of indigenous food resources for indigenous food" on 1-27 september 2014.Thailand
14. International training "hands on training on Decision support system for agro-technology transfer " 18-19 August 2015.University of Agriculture Faisalabad.
15. 14th National & 5th International Conference of Botany "Climatic Change and Phytodiversity challenges and opportunity" Jan15-18,2016. University of Karachi.
16. 6th International Conference of Pakistan Phytopathological Society "Plant Health For Sustainable Agriculture" November 20-22.Bahauddin Zakariya University Multan and Central Cotton Research Institute Multan, Pakistan.
17. Seminar on Youth for Sustainable Development Goals on 31 December 2017 at Agriculture Complex Rawalpindi, Pakistan.
18. 7th International and 16th National conference on "Plant Resources: Current trends, challenges and solutions (March 23-26). Islamia College Peshawar
19. Hands-on VRT Spray Training, 15-19, DEC 2020.
20. International Conference on Smart Plant Protection (online) January 27-28, 2021.
21. International Conference of Chemical and Life Sciences ICCLS-2020, (online) 3-4, September 2020.
22. Hands-on VRT Spray Training, 15-19, December 2020.
23. International Conference on Smart Plant Protection (online) January 27-28, 2021.
24. Management Tool for Sustainable Smart Agriculture, 25th June 2021.
25. Conduct a Training Workshop Integrated Disease Management, 07-09, June 2021. **As Focal person.**
26. Smart Potato Cultivation and Strategies for Value Chain Development, 30th Aug-01Sep 2021
27. International training on Capacity Building of Faculty Members/Professional in Crop Yield Gap/Produce in the Areas of Agriculture, Livestock and Allied Disciplines HKNU. By **KOICA, 08-15 September 2021.**
28. Training Workshop on "How To Become A Plant Doctor" in collaboration with Centre of Agriculture and Bioscience International (CABI) Plantwise Program. On 18,19 Nov 2021. As a **Focal Person.**
29. Training Course on "Environmental Impact Assessment For Development Projects" (March 14-18, 2022) held at AHK, NCRD, Islamabad.
30. Hands-on-Training on "Digital Detection of Citrus Canker in Pothowar Region." 12 June 2022. As A **Focal Person.**

ABSTRACTS PUBLISHED

1. **Abstract in International Conference on** Plant Health for Sustainable Agriculture" A focused approach for food security under changing climate November 20-22, 2017 **Prevelance of fungal pathogens of sorghum under subtropical rainfed environment**

2. **Abstract in International Conference on** Plant Health for Sustainable Agriculture" A focused approach for food security under changing climate November 20-22, 2017 **Antagonistic potential of *Trichoda* isolates against *Phytophthora nicotianae.***

3. **Abstract in International Conference on** Plant Health for Sustainable Agriculture" A focused approach for food security under changing climate November 20-22, 2017 **Morphologica; and characterization of *Fusarium proliferatum* causing Fusarium rot of grapes in Pakistan and its ecofriendly management through plant essential oil**

4. **Abstract in International Conference** On Tackling Climate Change Through Plant Breeding 13-15 November 2017 "**Climate Change and Plant Health : An unprecedented challenges"**

5. 7th International and 16th National conference on "Plant Resources: Current trends, challenges and solutions (March 23-26). Islamia College Peshawar.

6. Gull e lala, Dr. Gulshan Irshad, Dr. Mark l. Gleason, Jose Fernandas. Identification and biologically based management of post-harvest spoilage fungi of peaches. 2022. Plant health Conference.

CURRICULUM VITAE

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ACADEMICS

PhD (Plant Pathology) Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Pakistan

M.Phil (Cell Biology) Quaid-i-Azam University Islamabad,

Pakistan BSc.(Hons) (Plant Pathology) Univ. of Agriculture Faisalabad

Pakistan

FSc. (Pre. Med) PAF Intermediate College Chaklala, RWP. (FBISE) Federal Board

EMPLOYMENT RECORD

Assistant Professor (Plant Pathology) PMAS- Arid Agriculture University Rawalpindi (1-4-2010 to date).

Lecturer (Plant Pathology) PMAS- Arid Agriculture University Rawalpindi (7-5-2007 - 31-3-2010).

Research Associate: PSF/ PMAS UAAR Project No 69: Titled "Management of Black scurf of potato". PMAS- Arid Agriculture University Rawalpindi (1-11-2003 - 31-10-2006).

Lecturer (Biology) Rawalpindi Public College for boys 17 Block C Satellite town Rawalpindi. (7-1-2000 - 31-10-2000).

PUBLICATIONS

Total publications: 50

Publications in IF Journals: 31 (IF)

51.562 Publications in without IF Journals:

19

M. Iqbal, F. A.Shaheen, R. Mahmood, M. K. Rafique, I. Bodlah, **Farah Naz** and Muhammad Usman Raja. **2019**. Synergistic Effect of Entomopathogenic Fungi and Bacteria against Pulse Beetle, *Callosobruchus chinensis. **Pakistan J. Zool.**, vol. 51(5), pp 1685-1691, 2019.* DOI: http://dx.doi.org/10.17582/journal.pjz/2019.51.5.1685.1691

Amjad Shehzad Gondal, Abdul Rauf and **Farah Naz**. **2019**. Anastomosis Groups of *Rhizoctonia solani* associated with tomato foot rot in Pothohar Region of Pakistan. March 2019. ***Scientific Reports*** 9(1):3910 DOI:

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M. Iqbal, F. A. Shaheen, I. Bodlah, **Farah Naz** and Muhammad Fiaz. **2019**. Effectiveness of *Photorhabdus temperata* and *Xenorhabdus nematophila* against *Callosobruchus chinensis* attacking stored chickpea grains. ***Pak. Entomol***., 40(2):95-103.

Farah Naz, Aliya Tariq, Choudary Abdul Rauf, Muhammad Fahim Abbas, Emily Walsh, Jing Luo, kathryn kingsley, Ning Zhang, and Joan W Bennett. **2019.** First Report of *Botrytis cinerea* Causing Gray Mold Disease of Bell Pepper (*Capsicum annuum* L.) fruit in Pakistan. ***Plant Disease***,

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M. Hussain**, Farah Naz,** M. Iqbal**,** S. Aslam**. 2018.** Green synthesis and characterisation of silver nanoparticles and their effects on antimicrobial efficacy and biochemical profiling in Citrus reticulate. ***IET Nanobiotechnology*, 8 pp.** DOI: 10.1049/iet-nbt.2017.0153**, [IF=1.586]**

Abbas, M.F. & **Farah Naz**. **2018**. First report of *Diplodia seriata* causing fruit rot of loquat in Pakistan. ***Journal of Plant Pathology***. Print ISSN1125-4653 Online ISSN2239-7264. https://doi.org/10.1007/s42161-018-0048-4 **[IF=1.381]**

S. Ghuffar, G. Irshad, M. Shahid, **Farah Naz**, A. Riaz, M. A. Khan, N. Mehmood, A. Sattar, H. M. Asadullah and M. L. Gleason. **2018.** First Report of *Alternaria alternata* Causing Fruit Rot of Grapes in Pakistan. ***Plant Disease***. 102(8) 1659.

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Gondal A. S., C. A. Rauf, **Farah Naz** , N. A. Abbasi. **2018**. Surveillance of tomato foot rot caused by *Rhizoctonia solani* in Pothohar Region of Pakistan. ***Mycopath***. (2017) 15(1): 47-50.

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harvest Fruit rot of grapes in Pakistan. ***Plant Disease***, Volume 0, Number. https://doi.org/10.1094/PDIS-10-17-1616-PDN **[IF=3.02]**

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Altaf R. **Farah Naz**, Chaudhary Abdul Rauf And Muhammad Kausar Nawaz Shah. **2017**. The scenario of lentil anthracnose in the Punjab. ***Pak. J. Bot.***, 50(1): 407-413, 2018. **[IF=0.69]**

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http://dx.doi.org/10.12692/ijb/9.6.271-281. **[IF=0.553]**

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Rafique K., C. A. Rauf, **Farah Naz** and G. Shabbir. (2016). Management of vascular wilt of lentil through host plant resistance, biological control agents and chemicals. ***Pak. J. Bot.,*** 48(5): 2085-2092. [**IF=0.822]**

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Khola Rafique, Chaudhary Abdul Rauf, **Farah Naz**, Ghulam Shabbir. (2016). DNA Sequence analysis, morphology and pathogenicity of *Fusarium oxysporum* f. sp. Lentis isolates inciting lentil wilt in Pakistan. ***International Journal of Biosciences.,*** 7 (6) 74-91. http://dx.doi.org/10.12692/ijb/7.6.74-91

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Hassan S., M. I. Haque, **F. Naz**, M. I. Tahir and Zahid Ali. (2016). *In vitro* investigations on host specificity of *Ralstonia solanacearum* among Solanaceous crops and its biological control in tomato. ***Pak. J. Bot***., 48(3): 1279-1287. **[IF=0.822]**

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C. A. Rauf, **Farah Naz**, Iftikhar Ahmad, Irfan Ul Haque and Abid Riaz. (2015). Management of Black Scurf of Potato with Effective Microbes (EM), Biological Potassium Fertilizer

(BPF) and *Trichoderma harzianum*. ***International Journal of Agriculture & Biology***. 17(3), 601-606. **[IF=0.902]**

Shazia S. **F. Naz,** A. Rauf, M.I.Haque. (2015). Characterization of *Streptomyces scabies* isolates From potato tubers, its pathogenic variations in Rawalpindi district. ***International Journal of Advances in Biology (IJAB)*****:** 2(3), DOI : 10.5121/ijab. 2303 29

Muhammad F. Aslam, Gulshan Irshad**, Farah Naz**, Muhammad N. Aslam, Raees Ahmed. (2015) Effect of seed-borne mycoflora on germination and fatty acid profile of peanuts. ***Pak. J. Phytopathol.,*** Vol. 27 (02). 131-138. **(HEC Recognized Journal)**

Aliya Tariq, **Farah Naz***, Chaudhary A. Rauf, Gulshan Irshad. (2015) Long term and least Expensive preservation methods for various fungal cultures. ***Pak. J. Phytopathol.,*** Vol. 27 (02) 147-151. **(HEC Recognized Journal)**

Tayyaba Sultana, **Farah Naz**, M. IrfanUl-Haque, Shahid Butt and M. Fahim Abbas (2014) Characterization and relative contribution of fungal and bacterial pathogens involved in Sudden Death Syndrome of chillies. ***Pak. J. Phytopathol.,*** 26 (01):53-61. **(HEC Recognized Journal)**

Rubab Altaf, Ch.A.Rauf, **Farah Naz**, Ghulam Shabbir. (2014) Surveillance and characterization of Fusarium isolates associated with lentil wilt. ***Pak. J. Phytopathol***., 26 (01):83-90. **(HEC Recognized Journal)**

Muhammad Fahim Abbas**, Farah Naz**, Gulshan Irshad. (2013). Important fungal diseases of potato and their management-a brief review. ***Mycopath*** 11 (1), 245-47

Ahmed, R., Riaz, A., Zakria, M. & **Naz, F**. (2013). Incidence of karnal bunt (*Tilletia indica* Mitra) of wheat (*Triticum aestivum* l.) in two districts of Punjab (Pakistan) and identification of resistance source. ***Pak. J. Phytopathol.***, 25(1), 01-06. **(HEC Recognized Journal)**

Gulshan Irshad***, Farah Naz**, Muhammad I. U. Haq, Chaudhary A. Rauf. (2013). Population dynamics of aeromycoflora at three sites of Rawalpindi by evaluating twosampling methods**.** ***Pak. J. Phytopathol***., 25 (01) 31-36. **(HEC Recognized Journal).**

Zia-Ul-Hussnain, S., C. A. Rauf, M. I. Haque, S. Afghan, T. Mukhtar , **F. Naz**, M. K. N. Shah and A. Shahzad. (2013) Comparison of DAC-ELISA and tissue blot immunoassay for the detection of *Acidovorax avenae* subsp. *avenae*, causal agent of red stripe of sugarcane. ***J Plant Pathol Microb.,*** 2013, 4:4 http://dx.doi.org/10.4172/2157-7471.1000172 **[IF=0.47]**

Abid Riaz, J. Nicklin, I. Haque, C.A.Rauf, G.Qadir and **Farah Naz. (**2013). Toxicity induced by solanapyrone in chickpea shoots and its metabolism through glutathione/ glutathione-s-transferase system. ***Pak.J. Bot.,*** 45(1): 135-139. **[IF=1.207]**

Khola Rafique, Awais Rasheed, Alvina Gul Kazi, Hadi Bux, **Farah Naz.** 2012. Tariq Mahmood and Abdul Mujeeb-Kazi. 2012. Powdery mildew resistance in some new wheat amphiploids (2n = 6x = 42) derived from A- and S-genome diploid progenitors. **Plant *Genetic Resources:Characterization and Utilization* 10(3):**165-170. **[IF=0.728]** doi:10.1017/S1479262112000202

Kishwar Sultana, Chaudhary Abdul Rauf, Abid Riaz, **Farah Naz**, Gulshan Irshad and Muhammad Irfan Ul-Haque. (2011). Check list of *Agarics* of Kaghan Valley-I. ***Pak.J. Bot***. 43(3):1777-1787. **[IF=0.907]**

Aqsa Aslam, **Farah Naz**, Muhammad Arshad, Rahmatullah Qureshi and C.A.Rauf. (2010). *In vitro* antifungal activity of selected medicinal plant diffusates against *Alternaria solani, Rhizoctonia solani* and *Macrophomina solani*. ***Pak.J. Bot.***, 42(4): 2911 – 2919. **[IF=0.947]**

Farah Naz, C. A. Rauf., N.A. Abbasi., I. Ahmad, and I. Haque. (2008) Influence of inoculum levels of *Rhizoctonia solani* (AG 3) and susceptibility on new potato germplasm. ***Pak.J. Bot***., 40(5): 2199 - 2309). **[IF=0.47]**

Khola Rafique, **Farah Naz**, A G Kazi, S.A, Iqbal A. Khan, and A. M. Kazi. (2010). Evaluation of wheat A- and B-genome-based amphiploids for powdery mildew resistance: morpho-molecular characterization, diversity, and utilization potential for wheat improvement. ***Annual Wheat News letter***. Vol. 56:132-140

Farah Naz and M. Ashraf. (2005). Karyological studies of three cultivars of sunflower (*Hellianthus annuus)*. ***Int. J. Biol. Biotech***., 2(4):989-994

Farah Naz and M. Ashraf. (2006). Histopathology of sunflower seedlings infected with *Macrophomina phaseolina*. ***Int. J. Biol. Biotech***., 3(1):107-112

Farah Naz, C. A. Rauf., I. Haque. and I. Ahmad. (2006) Management of *Rhizoctonia solani* with plant diffusates and chemicals**.** ***Pak. J. Phytopathol***., 18(1):36-43. **(HEC Recognized Journal).**

Abid Riaz, Abdul Rauf, M.I.Haque and **Farah Naz.** 2006. Effect of Plant age and inoculum concentration on Ascochyta blight development in chickpea. ***Pak. J. Phytopathol***., 18(1):47-50. **(HEC Recognized Journal)**

PARTICIPATION IN TRAININGS

- Participated in 6 th International Conference on "Sustainable Agriculture in Changing Climate: Strategies and Management". June, 19-21, 2019 Rawalakot, Azad Jammu & Kashmir Pakistan

- Participated in **"6th International Conference of Pakistan Phtytpathololological Society" "Plant Health for Sustainable Agriculture". November 20–22, 2017.** Jointly organized by Department of Plant Pathology, Bahauddin Zakariya University, Multan & Central Cotton Research Institute, Multan

-
- Participated in "**7th International and 16th National Conference on Plant Resources: Current Trends, Challenges and Solutions**. **March 23-26 2018.** Department of

Botany, Islamia College Peshawar & Department of Botany, University of Peshawar.

- Participated in "14th national training course on modern techniques in biotechnology" **April 18-22 2016.** National Institute for Biotechnology & Genetic Engineering. (NIBGE), P.O. Box-577, Faisalabad Pakistan

- Completed on line Training on "The Impact Factor and other bibliometric indicators" 24 May, 2015. Elsevier Publishing Campus.

- Participated in FSC & RD-NAPHIS "National training course in seed **Mycology and Nematology" 16-19 June 2014a**t Islamabad.

- Attended National Training Course on Seed Virology Organized by FSC&RD / NAPHIS, Ministry of Food and Agriculture, Govt. of Pakistan, held from 22nd to 24th December 2008.

- Participated in "14th national training course on modern techniques in biotechnology" **April 18-22 2016.** National Institute for Biotechnology & Genetic Engineering. (NIBGE), P.O. Box-577, Faisalabad Pakistan
- Participated in **14th National & 5th International Conference of Botany** "**Climate Change and Phytodiversity: Challenges and Opportunities". January 15-18, 2016** Department of Botany, University of Karachi, Karachi, Pakistan

- Participated in **"5th International Conference of Pakistan Phytopathological Society.** "Crop Protection for Sustainable Agriculture". **November 23-25, 2015**. **Institute of Agricultural Sciences, University of the Punjab, Lahore**

- Completed on lineTraining on "The Impact Factor and other bibliometric indicators" 24 May, 2015. Elsevier Publishing Campus.

- Participated in FSC & RD-NAPHIS "National training course in seed **Mycology and Nematology" 16-19 June 2014a**t Islamabad.

- Participated in **3rd International Conference of Pakistan Phytopathological Society**. Department of Agriculture and Agribusiness Management, University of Karachi, Pakistan **January 23-25, 2014**

- Oral Presentation in **12th National and 3rd International Conference of Botany**" Quaid-i-Azam University Islamabad (1/9/2012-3/9/2012)

- Participated in **International Conference of Plant Scientists** organized by Pakistan Botanical

Society held from 21-24th April 2007 in Faisalabad AgricultureUniversity

- Poster Presentation in **Third National Conference of Plant Pathology** on "Histopathology of sunflower seedlings infected with *Macrophomina phaseolina*", NARC, Islamabad, Pakistan, October 1-3, 2001.

- Attended National Training Course on **Seed Virology** Organized by FSC&RD / NAPHIS, Ministry of Food and Agriculture, Govt. of Pakistan, held from 22nd to 24th December 2008.

- Sultana T. , F. Deeba, **Farah Naz**, Ray J. Rose and S. M. Saqlan Naqvi. (2016). Expression of a rice GLP in *Medicago truncatula* exerting pleiotropic effects on resistance against *Fusarium oxysporum* through enhancing FeSOD-like activity. ***Acta Physiologiae Plantarum,*** 38(11), 255-259. **DOI** 10.1007/s11738-016- 2273-9. **[IF=1.584].**

RESEARCH STUDENTS SUPERVISED (PhD & MSc.)

Number of postgraduate students supervised

Degree	Completed	Currently working
M. Sc. (Hons.)	**2**	4
M.Sc. (Hons.) Agric.	26	4
Total	**28**	**8**

Number of postgraduate students co-supervised

Degree	Completed	Currently working
M. Sc. (Hons.)	1	06
M. Phil	2	10
M.Sc. (Hons.) Agric.	16	11
Total	**19**	**27**

PhD

S.No.	Name	Title of Research	Status	Year
1	Gulshan Irshad	Population dynamics of aeromycoflora at selected sites of Rawalpindi and their impact on major crop	Completed	2013
2	Fahim Abbas	Surveillance and Characterization of Fungal Pathogens Associated with Loquat. Res Associate in PSF Funded Project	Completed	2019
3	Aliya Tariq	Characterization and bio management of fruit and root rot pathogens of Bell pepper (HEC Awardee)	Completed	2019

4	Alveena Mumtaz	Characterization and management of Pathogens causing twig blight / die back of Loquat (*Eryobotrya japonica*)	4th Semester	In Progress
5	Muhammad Shahid	Surveillance and characterization of foliar fungal pathogens associated with apple in major apple growing districts of Balochistan	5th Semester	In Progress
6	Syed Kamil Husnain	Surveillance and characterization of fungal pathogens associated with olive in Pothwar, Pakistan	4th Semester HEC Awardee	In Progress
7	Beenish Gul	Characterization and management of powdery mildew of some selected cucurbit crops	2nd Semester	In Progress
		Msc. (Hons)		
1	Muhammad Noman	Biological approach for the management of collar rot (Sclerotium rolfsii) in Lentil (Lens culinaris)	Completed	2009
2	Sania Jaleel	Induction of systemic resistance in potato against potato virus Y (PVY) by chemicals	Completed	2009
3	Imran Idris	Epidemiology of citrus canker (Xanthomonas axonopodis in Pothwar Region	Completed	2009
4	Aqsa Aslam	Antifungal activity of selected medicinal plants of Pind Dadan Khan	Completed	2009
5	Khola Rafiq	Evaluation of A, B and C wheat genome derived germplasms for powdery mildew resistance Morpho-molecular Characterization, Diversity and Utilization Potential for Wheat Improvement	Completed	2009
6	Muhammad Irfan	Biological Characterization of Bacterial leaf spots of mango in Rawalpindi areas	Completed	2010
7	Aiysha Irfan	Assesment, varietal resistance and histopathology of Sesamum phyllody disease (SPD)	Completed	2010
8	Shazia Shahzaman	Pathogenic variations and characterization of Streptomyces scabies isolates fron potato tubers in Rawalpindi District	Completed	2011
9	Kashif Nazir	Association of soil mycoflora with potato fields in Rawalpindi District	Completed	2011
10	Sania Shaukat	Assessment of resistance variability in potato germplasm against *Streptomyces scabies* causing common scab of potato	Completed	2012

11	Sidra Hafeez 07-arid-147	Characterization of toxigenic fungi in *Elettaria* and *Amomum* spp.	Completed	2013
12	Aliya Tariq	Incidence and characterization of pathogen associated with loquat leaves.	Completed	2014
13	Alveena Mumtaz	Incidence and characterization of pathogens associated with loquat fruits	Completed	2014
14	Muhammad Shahid	Prevalence and characterization of Foliar fungal pathogens on lentils	Completed	2015
15	Sumera Saeed	Characterization of fungal pathogens associated with fruit and root rot of bell pepper	Completed	2015
16	Mirza Asif Ahmad	Prevalence and characterization of *Colletotrichum* spp. Causing anthracnose of brassicaceae family	Completed	2015
17	Abdul Nasir	Prevalence and characterization of Fungal pathogens associated with edible mushrooms	Completed	2016
18	Sughra	Morphological and molecular characterization of bacterial pathogens associated with Loquat (*Eriobotrya japonica*)	Completed	2016
19	Amna Ashraf	Prevalence and management of the fungal pathogens associated with Rose in University garden	Completed	2016
20	Imtiaz Hussain 11-arid-344	Isolation and characterization of foliar fungal pathogens associated with wheat in District Rawalpindi	Completed	2017
21	Muhammad Nabeel 15-arid-3300	Surveillance and characterization of foliar pathogens associated with peach	Completed	2017
22	Mursaleen Shahid 10-arid-99	Surveillance and characterization of aerial fungal pathogens associated with fruit trees located in PMAS-AAUR	Completed	2017
23	Beenish Gul	Morpho-molecular Characterization of	Completed	2018
	12-arid-196	Powdery mildew of grapes in Rawalpindi		
24	Rida Fatima 12-arid-284	Surveillance and characterization of soil-borne pathogens of chilli in selected fields of Rawalpindi	Completed	2018
25	Rafia Asghar 16-arid-614	Surveillance and characterization of powdery mildew of cucumber in Rawalpindi	Completed	2018
26	Sajjad Hussain 17-arid-53	Bio-management and molecular confirmation of *Fusarium* species associated with tomato roots	Completed	2019

27	Awais Butt 13-arid-295	Incidence and etiology of foliar fungal pathogens of olive.	In Progress	Thesis submitted
28	M.Adeel Zahid 17-arid-1145	Bio-management of *Rhizoctonia* associated with Bell pepper.	In Progress	Thesis submitted
29	Nadeem Shah 13-arid-422	Morpho-molecular characterization of fungal pathogens of chili.	In Progress	Thesis submitted
30	Shahzad Rasool 13-arid-447	Management of *Colletotrichum* species infecting bell pepper.	In Progress	Thesis submitted

RESEARCH PROJECTS

1 "**Inhibition of *Rhizoctonia solani* with Isothiocyanates produced by Brassicaceae Species** " sponsored by PMAS UAAR, (2008 -2009)**(Completed)**

2 "**Management of black scurf of potato**" sponsored By**:** Pakistan Science Foundation. (PSF) **as Research Associate** (01/12/2003 - 11/30/2006) **(Completed)**

3 "**Surveillance and Characterization of Pathogens Infecting Loquat in Pakistan**". sponsored By**:** Pakistan Science Foundation. PSF/NSLP/P-UAAR
(501) Rs. 2.4 Million (10/03/2014 - **(Completed)**

4 "Surveillance, Nucleotide evidence and management of Powdery Mildew of grapes". Agricultural Linkages Program:ALP. Rs. 5.11 Million **(In pipeline)**

6. Optimization of organic mushroom technology at Koont Farm (Chakwal); Income Generation and poverty alleviation through transfer technology. PARC – ALP Rs.3.19 Million. (**Submitted**)."

5 "Characterization of tomato root pathogens and their management" PMAS-UAAR/ORIC/74 09-12-2016 (**Ongoing**)."

7 "Characterization & Management of Powdery mildew pathogen of cucumber". PMAS AAUR. (**Submitted**)."

8 "Morpho-molecular Characterization and Management of Powdery and Downy Mildew of grapes"PARB. Rs. 8.7 Million. (**Submitted**)."

9 "Morpho-molecular characterization and management Powdery mildews of cucurbits". **No: 9902/Punjab/ NRPU/R&D/HEC.** Rs. 4,780,343. **Awarded** on 1**4.03.19**

RESEARCH INTRESTS

- Fungal Molecular Biology,
- Fungal plant pathology,
- Genetic variation in plant pathogenic fungi,
- Soil-borne diseases,
- On-farm participatory research,
- Integrated disease management,
- Plant disease diagnosis.

MEMBERSHIPS / OFFICE HOLDER OF PROFESSIONAL SOCIETIES

Member "**American Phytopathological Society**"	2018-2019
Member "**American Phytopathological Society**"	2017-2018
Member "**American Phytopathological Society**"	2015-2016
Life Member, "**Pakistan Phytopathological Society**".	
Life Member, "**Pakistan Botanical Society**".	
Councilor, **Pakistan Phytopathological Societ**y Pakistan	2010-2011
Councilor, **Pakistan Phytopathological Society** Pakistan	2016-2017

ADMINISTRATIVE RESPONSIBILITIES

Library Incharg, Department of Plant Pathology PMAS UAAR	April, 2009 - to date
Member of Self Assessment Program Team, Department of Plant Pathology PMAS- UAAR.	May, 2007-May 2013
Tutor, Tutorial Group "W"	2008 – to date
Faculty representative, Faculty Board of studies	2016 - 2019

Faculty Resume-5

Name	Muhammad Usman Raja
Personal	Department of Plant Pathology, PMAS-Arid Agriculture University Rawalpindi, Pakistan Faculty of Crop & Food science Off: Tel. +92 051 9292123 Cell: +92 51 345 0538643 Email: usman2012@uaar.edu.pk

Experience
List current appointment first, each entry as follows:

Date, Title, Institution.

Date		**Title**	**Institution**
From	**To**		
06-11-2006	To-date	A ssistant P rofessor	Department of Plant Pathology, PMAS-Arid Agriculture University Rawalpindi, Pakistan
24-11-2001	06-11-2006	L ecturer	. Department of Plant Pathology, PMAS-Arid Agriculture University Rawalpindi, Pakistan

Honor and Awards

i) Received outstanding student scholarship for pursuing M.Phil. degree.

Memberships

i. Life member of Pakistan Society of Plant Pathology ii.
Life member of Pakistan Botanical society

Graduate Students
Postdocs
Undergraduate Students

Honour Students

:
Years Degree Name
Show other information as appropriate and list membership on graduate degree committees.

Years	**Degree**	**Name**
2014	M.Sc.(Hon)	Komal Zafar

Service Activity

List University and public service activities.
Teaching and Research
Major Area of Interest: Phytobacteriology, Plant Disease Resistance, Post Harvest diseases Undergraduate and Post-graduate student advisor
Tutorship

	Member of department team for quality control Provide diagonostic and advisory services to farmers of peripheral area
Brief Statement of Research Interest	*May be as brief as a sentence or contain additional details up to one page in length.* • Plant disease resistance • Post- harvest disease management • Phyto-bacteriology

Publications

Publications with Impact factor

Publications in peer reviewed journals:

Abstract

1. Raja, M.U. and Ali M.W. Screening of commericial PEA (*Pisum sativum* L.) varieties against *Pseudomona syringae pv pisi* through different pathogenicity assays. 5th International conference of Pakistan Phytopathology Society, November 23-25, 2015, Lahore
2. Gul-e-lalah, Raja, M. U.,Gardezi, S R,A., Irshad,G., Akram,A.2015. A morel story of Poonch district AJK. 5th International conference of Pakistan Phytopathology Society, November 23-25, 2015, Lahore

Research Grants and Contracts.

Control of post-harvest diseases of fruits and vegetables by unconventional methods

(resistance inducers, botanical and antagonist) **Ongoing**

Faculty Resume-6

Dr. Sajid Mehmood

Pir Mehr Ali Shah Arid Agriculture University
Rawalpindi-Pakistan
Mobile: +92-321-6604598
Email: sajidm1529@gmail.com

Education

- **M. Sc. (Hons.) (Plant Pathology)** June 2019
Northwest A&F University, China
- **M. Sc. (Hons.) Agriculture (Plant Pathology)** July 2008
University of Agriculture Faisalabad, Pakistan
- **B. Sc. (Hons.) Agriculture (Plant Pathology)** July 2006
University of Agriculture Faisalabad, Pakistan

Professional Experience

04.2022 – to date	**Assistant Professor (BS-19)**, Department of Plant Pathology, Faculty of Crop and Food Sciences, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Pakistan
09.2014 – 07.2019	**M. Sc. (Hons.) Studentship,** State Key Laboratory of Crop Stress Biology for Arid Areas, College of Plant Protection, Northwest A&F University, Yangling 712100, Shaanxi, China
05.2010 – 08.2014	**Assistant Research Officer** (BS-17), Government of the Punjab Agriculture Department (Research Wing) Ayub Agricultural Research Institute (AARI) Faisalabad
07.2008 – 05.2010	**Assistant Research Officer** (BS-17), Plant Protection, Government of the Punjab Agriculture Department Directorate of Floriculture (T&R) Lahore-Pakistan
06.2006 – 07.2008	**Research Associate**, Department of Plant Pathology, University of Agriculture, Faisalabad-Pakistan

Publications IF. 31.85]

1. **Mehmood S**, Sajid M, Zhao J, Huang L, Kang, Z. 2020. Alternate Hosts of *Puccinia striiformis* f. sp. *tritici* and Their Role. *Pathogens*. 9(6): 434. https://doi.org/10.3390/pathogens9060434

[IF. 4.53]

2. Mehmood S, Sajid M, Huang L, Kang Z. 2020. Alternate hosts and their impact on genetic diversity of *Puccinia striiformis* f. sp. *tritici* and disease epidemics. *Journal of Plant Interactions*. 15(1): 153-165. https://doi.org/10.1080/17429145.2020.1771445 **[IF. 4.20]**

3. **Mehmood S**, Sajid M, Husnain S K, Zhao J, Huang L, Kang Z. 2020. Study of Inheritance and Linkage of Virulence Genes in a Selfing Population of a Pakistani Dominant Race of *Puccinia striiformis* f. sp. *tritici*. *International Journal of Molecular Sciences*. 21(5): 1685. https://www.mdpi.com/1422-0067/21/5/1685

[IF. 6.20]

4. **Mehmood S**, Sajid M, Khan T, Zhao J, Huang L, Kang Z. 2018. Identification of *Berberis* species Collected from the Himalayan Region of Pakistan Susceptible to *Puccinia striiformis* f. sp. *tritici*. *Plant Disease*. 103: 461–467.

https://doi.org/10.1094/PDIS-01-18-0154-RE
[IF. 4.43]
5. Sajid M, **Mehmood S**, Niu C, Yuan Y, Yue T. 2018. Effective Adsorption of Patulin from Apple Juice by Using Non-Cytotoxic Heat-Inactivated Cells and Spores of *Alicyclobacillus* Strains. *Toxins*, 10: 344

https://doi:10.3390/toxins10090344
[IF. 5.07]
6. Sajid M, **Mehmood S**, Yuan Y, Yue T. 2019. Mycotoxin patulin in food matrices: occurrence and its biological degradation strategies. *Drug Metabolism Reviews*. 51(1): 105–120. https://doi.org/10.1080/03602532.2019.1589493

[IF. 5.35]
7. Inam-Ul-Haq M, **Mehmood S,** Rehman H M, Ali Z, Tahir M I. 2012. Incidence of root rot diseases of soybean in Multan Pakistan and its management by the use of plant growth-promoting rhizobacteria. *Pakistan Journal of Botany*. 44(6): 2077-2080. https://www.pakbs.org/pjbot/PDFs/44(6)/40.pdf

[IF. 0.97]

Inam-Ul-Haq M, Javed N, Cheema S U, **Mehmood S**, Sahi S T. 2006. Incidence of Bacterial Blight of Rice (*Oryza sativa*) in Gujranwala and Sialkot Districts and *In-vitro* Evaluation of various chemicals against *Xanthomonas campestris* pv. *Oryzae*. *Pakistan Journal of Phytopathology*. 18(2): 124-128. http://agris.fao.org/agris-search/search.do?recordID=PK2008000988
[IF. 0.31]
9. Mustafa A, Saleem IY, **Mehmood S**, Hannan A, Akhtar M. 2013. Field evaluation of new fungicides against Rice (*Oryza sativa* L.) diseases. *Pakistan Journal of Phytopathology*. 25(2): 141-145.

https://www.pjp.pakps.com/index.php/PJP/article/view/43/27
[IF. 0.31]
10. Hussain M, Anwar S A, Sehar S, Zia A, Kamran M, **Mehmood S**, Ali Z. 2015. Incidence of Plant-Parasitic Nematodes Associated with Okra in District Layyah of the Punjab, Pakistan. *Pakistan Journal of Zoology*. 47(3): 847-855. http://zsp.com.pk/pdf47/847-855%20(31)%20PJZ-1540-13%207-5-15%20final.pdf
[IF. 0.79]

11. Mustafa A, Akhtar M, Safdar A, **Mehmood S**. 2011. Paddy diseases and their management (Dhan ki bimaryan aor un ka insdad). *Zirat Nama*, Lahore, September Edition, p. 6-9. [URDU ARTICLE]

[IF: 0.00]

Projects Handled

1. Enhancing Productivity of Flowers in Periurban Lahore. Government of Punjab, Directorate of Floriculture (R&D), Lahore. 2008-2010
2. Utilization of Plant Growth Promoting and Nodule Forming Rhizobacteria in the Integrated Control of Root Infecting Fungi of Sunflower and Soybean. Funded by the Higher Education Commission (HEC) Pakistan. 2006-2008

International Conferences/Presentations/Workshops

No. = 10

Reviewer of Scientific Journals

1. Archives of Phytopathology and Plant Protection (Taylor and Francis Ltd. UK)

2. Journal of Plant Sciences and Crop Protection, JPSCP (Annex Publishers, Virginia) .

SUMMARY

The plant pathology department initiated functioning during 2000 within the shortest possible time; the department achieved the possible success in the area of teaching, research, and training. The degree courses of B. Sc. (Hons.), M. Sc. (Hons.), and Ph. D. Plant Pathology are being offered with the ratio of 20:20:5 each year respectively. Different research projects have been completed/ approved or in the pipeline for higher degree programs. Problem-oriented research matters are emphasized for better sharing of plant Pathology discipline in the agriculture section. Several constraints and their solution have also been reported in the report for efficient improvement of the department which consequently will bring a positive change in the coming years. More than 25 scholars who are currently enrolled M. Sc. (Hons.). degree which is a huge success for department. M. Sc. (Hons.). supervisors of department of plant pathology are HEC approved with papers in good impact factor and encouraged students to publish paper in good journals during degree. There is certain implementation that should be focused on such as the department doesn‟t have a glasshouse to perform practical *in vivo* and in control conditions which sometime not only affect results but also time as wasted. There must be more emphasis on the incorporation of new innovative research. M. Sc. (Hons.) students should be given chance to demonstrate in bachelor classes which will be helpful for their grooming as future academicians or researchers. Almost every research student finishing his degree within stipulated time and adequate time and guidance given for manuscript writup. Similarly, supervisor and their respective supervisory committee members also satisfied with their progress in research and is continuously monitored through lab meetings. Students feedback showed that students are both involved with laboratory and field research. Students are confident that after finishing their masters and M. Sc. (Hons.) from the department they can work independently and also contribute something positive to discipline of plant pathology.