



Plant Pathology Research Institute (PPRI), Faisalabad is before all else working on all doable management approach against diseases of economically important crops by finding genetic resistance in available crops germplasm, select antagonistic microbes, opt for proper/effective chemicals along with integrated approaches against these crops maladies.

The main objectives of PPRI are, to carry out diagnostic studies on the causes of plant diseases and there management; virus free basic seed production of newly approved potato varieties and identification of resistant crops germplasm from advance breeding material against diseases. Similarly imparting training in modern techniques of Plant Protection to in-service Agri. Extension personnel, sugar mill's field staff and other stakeholders is a regular feature. Evaluation of new chemicals for management of plant diseases and weeds for standardization purpose is also mandate of the Institute.

Genetic resistance in crop's germplasm against diseases:

Generated information will be helpful in the development of disease resistant varieties

WHEAT:

Karnal bunt :



Fresh culture suspension was prepared from bunted wheat grains. 38 varieties/lines were inoculated at booting stage by syringe method. The data on the basis of infected/bunted grains of each variety/line were recorded at maturity. 4

varieties/ lines viz. **NW7-20, 12266, 13013, GALAXY** were found resistant.

Peas

Powdery Mildew (*Erysiphe polygoni*):



Among 20 varieties/lines tested; 1 (**Triplet**) were found highly resistant against the disease.

Root Knot (*Meloidogyne incognita*)



8 varieties/ lines were sown in sick fields. 2 (PTL-1, SAMRINA ZARD) lines were found moderately resistant against the disease.

Tomato Late Blight



14 Hybrids/lines were sown in tunnel. 7 (LITTH-710, LITTH-809, LITTH-707, Sahel F₁, LITTH-691, LITTH-811, LITTH-779) Hybrids/lines were found moderately resistant against the disease.

Root Knot (*Meloidogyne incognita*)



10 varieties were transplanted in sick field. 2 lines 10142 & 10139 were found moderately resistant against the disease.

Gram

Stem rot (*Sclerotinia minor*)



Gram germplasm along with susceptible check (CM-2006, FG0902, A-01020) was sown in sick field. Sclerotia of the pathogen @ 100 Sclerotia/ m² were added in soil. Among 20 varieties/lines tested, 2 (BRC-424, CM-1036/9) were found resistant against the disease.

viruses in potato germplasm through ELISA

29 varieties/ lines of potato were screened against major potato viruses including, potato leaf roll virus (PLRV) and potato virus Y (PVY). 1 V/L FD 76-67 was found Resistant (R) against PVY and PLRV.

EVALUATION OF BOTTLE GOURD VARIETIES/ LINES AGAINST CUCUMBER MOSAIC VIRUS

CMV symptomatic leaves were collected and confirmation was done by ELISA Method. Out of 8 varieties 2 G-AMROOL & CKD-786 were found resistant



SCREENING OF DIFFERENT GENOTYPES/ LINES OF ONION AGAINST IRIS YELLOW SPOT VIRUS

Methodology:



Symptoms of iris yellow spot virus

Out of 29 genotypes only 1 Marvi was found highly resistant (HR).

SCREENING OF DIFFERENT GENOTYPES/ LINES OF ONION AGAINST IRIS YELLOW SPOT VIRUS

Out of 29 varieties only 1 Marvi was found highly resistant (HR) and 1 VRIO-8 was found resistant (R).

Virus free pre basic seed potato

Virus free micro tubers: Virus free micro tubers (9533) of 5 varieties (SH-5, FD 35-36, FD 69-1, Karoda & Cardinal) were produced at Faisalabad and Murree.

ELIMINATION OF POTATO VIRUSES FROM MICRO PROPAGATING POTATO VARIETIES

8742 micro tubers were produced from 6 varieties (SH-5, Simply Red, Mosica, Asterix, Karoda and Cardinal).

PRODUCTION OF VIRUS FREE MINI TUBERS FROM MICRO PROPAGATED POTATO VARIETIES AT FAISALABAD.

METHODOLOGY



FD 69-1 Plants in Tunnels



SH-5 Plants in Tunnels

56662 mini tubers (ELISA tested) of potato varieties i.e. SH-5, FD 69-1, Karoda, Cardinal & FSD were produced during the year 2015-16.

PRODUCTION OF PRE-BASIC SEED POTATO

10300 kg pre-basic virus free seed potato was produced through tissue culture during 2016-2017 (SH-5, Cardinal and Asterix).

Chemical control of crops diseases

Generated information will help the farmers to control plant diseases through chemicals and bio chemicals

POMEGRANATE

BACTERIAL BLIGHT (*Xanthomonas axonopodis* pv. *Punicae*)



Pruning followed by Flare (Streptomycine sulphate) @ 1gm/lit. of water was proved most effective to manage the disease when sprayed after each early moon soon rain.

STRAWBERRY

White mold (*Sclerotinia sclerotiorum*)



The trial was conducted in sick field under tunnel. Among the four chemicals Amistar Top reduced the disease 93.55%.

Evaluation of Herbicides

Screening of herbicides to control broad leave weeds of wheat

Four herbicides i.e. Lancelot 45% WG @ 12.5 g / acre, Selector 40EC @ 500ml / acre, Clean wave 15 % EC @ 320ml/ acre and Starane _ M 50 % EC @ 300 ml/ acre were tested ,Clean wave 15 % EC @ 320ml/ acre gave the maximum weed control of 92 % regarding broad leave weeds of wheat.

Screening of herbicides to control narrow leave weed of wheat

Four herbicides i.e. Axial 50% EC @ 332 ml/acre, puma super 75% EW @ 400 ml /acre , Certain plus 14.5 EC % @ 500 ml/acre and Foxtrot Extra 13.5 % EC @ 150ml/acre were tested , Axial 50% EC @ 332 ml/acre gave the maximum weed control of 86% regarding narrow leave weeds of wheat.

Screening of herbicides to control broad leave and narrow leave weeds of wheat

Four herbicides i.e. Findus 3.6 %WG @ 160 gm/acre, Findus xtra 6% WG @ 100 g/ Acre and Atlantis 3.6 % WG @ 160 gm/ acre, Affinity `Ultra 12.4 % WP @ 225 gm / acre

were tested , Affinity `Ultra 12.4 % WP @ 225 gm / acre gave the maximum weed control of 81 % and 86% regarding broad leave weeds and narrow leave weed, respectively.

Transfer of plant protection technology

Plant Protection Trainings: Plant protections training courses were arranged for In-Service Agri. Extension staff, Pest Warning & Quality Control of Pesticides wing, Sugar Mills field staff Master Trainers and other stakeholders engaged in agri. sector in 15 sessions during the year 2016-17. 38 Agriculture Officers, 54 Master Trainers, 54 of Sugar Mills were trained. Total 145 personnel were trained in the field of plant protection.



Training participants



Training participants' Laboratories and Research area visits



Certificate distribution to training participants

RUNNING PROJECTS

PARB Project No.190 "Development of tomato hybrids suitable for sowing in tunnels and open fields of Punjab".

ADP No. 8989 "DEVELOPMENT OF INTEGRATED MANAGEMENT OF CITRUS

ORCHARDS TO ENHANCE THE YIELD AND IMPROVEMENT OF FRUIT QUALITY"

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SALIENT ACHIEVEMENTS FOR THE YEAR 2016-2017

NAME OF INSTITUTE: PLANT PATHOLOGY RESEARCH INSTITUTE FAISALABAD		
Salient Achievements		
<ul style="list-style-type: none"> • Out of 38 Wheat varieties/lines tested against Karnal bunt four varieties/lines viz NW7-20, 12266, 13013, GALAXY were found resistant. • Out of twenty varieties/lines of Peas, "TRIPLET" was found highly resistant against powdery mildew. • 10300 Kg of disease free pre basic potato seed of three V/L viz. SH-5, Austerix & Cardinal were produced. • Pruning followed by sprayed with Flare (Streptomycine sulphate) @ 1gm/lit. of water was proved most effective to manage the disease when sprayed after each moon soon rain. • 145 personnel of Agri. Extension, PW&QCP and Sugar mills were trained on Plant Protection measures of crops and fruit plants. • Spray with Fosetyl-AI was found the most effective against downy mildew of cucurbits. • Application of Rugby in the soil proved effective against Root Knot Nematode. 		
No. of Experiments Conducted		Total
Kharif 2016	Rabi 2016-2017	93
40	53	