

Pest surveillance database to improve Pakistan's external trade

ADB, WTO, Pakistan Virtual Seminar on Sanitary and Phytosanitary Measures
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Background

- **DPP** is designated as the National Plant Protection Organization (NPPO) under obligation of article 1 of IPPC.

with the mandate to:

- enhance the phytosanitary capacity of the country;
 - to check pest and disease spread on crops;
 - and to facilitate trade of agricultural commodities under WTO agreement on Sanitary and Phytosanitary (SPS).
- Establishing pest surveillance e-database is pre-requisite for SPS enhancement in Pakistan
 - ADB's ongoing technical assistance to establishing pest surveillance e-database

What is purpose of database?



- To protect Pakistan from quarantine pests that could damage Pakistan's crops.
- To identify pests present in the country that are quarantine pests for countries importing Pakistan's produce.
- To facilitate plant health interventions.

What data?

Current data resource:

- DPP database, Google, University and research institutes, Data collected by provincial extension departments through routine pest surveillance and Plantwise program
- **No single structured pest's data base available**

Pests identified in Pakistan from surveillance:

- **Taxonomic data:** CPC, research papers and web-sources
- **Photos and other graphics:** CPC, web-sources
- **Location(s) present:** Pest distributions maps. CABI and others
- **Crops affected:** DPP data, CPC and provincial departments data
- **Other information:** CPC, research papers and web sources

Pest Status



Quarantine pest listed by Pakistan with limited distribution

- Pests included in the A-1 List of the Asia and Pacific region are quarantine pests of Pakistan
- Insect pests, diseases and weeds names given Schedule I, II & V of Plant Quarantine Rules 2019
- List Available at IPPC website

Quarantine pest for another country

- Import requirement/ quarantine pests lists of importing country

Regulated non-quarantine pest

- Schedule I of Plant Quarantine Rules 2019

Non-regulated pest

What will database be used for?

1. Pest risk analysis

- Dedicated unit at DPP (4 experts are engaged).
- Completed and on going PRAs
- Conducting PRAs inconformity with ISPM 02 & 11
- Structured data will be available to conduct PRA against new or emerging pests and regulated pests of plants.

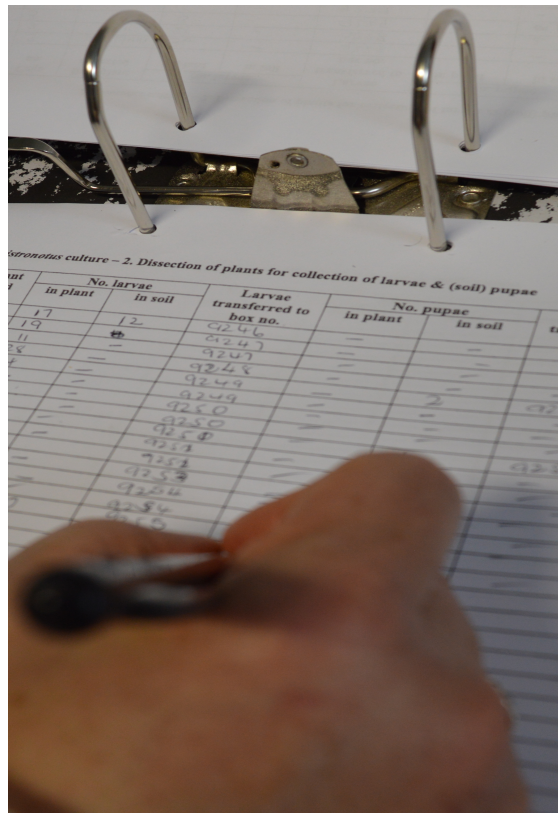
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What will database be used for?

2. Designation of pest-free areas

- Working with provincial departments for establishment and maintenance of pest free areas for Potato, Citrus, Mango
- On-farm supervision of Growers in Pest Free Areas (Fruit fly example)
- Registration of 341 mango orchards in Sindh and Punjab for export
- Survey of about 250 orchards for export of Kinnow in Bhalwal, Sargodha
- Data will help to identify low pest or pest free areas for specific commodities



How will data be collected and entered?



Field Staff



Digital innovations in agri-food trade - Pest surveillance data collection in Pakistan

Farmer's Information

- Farmer's name
- Father name
- Contact number
- Locality

Insect Pest Information

- Cropping season (4)
- Crop (7)
- Insect pest Category (3)
- Identified Insect pest

Field History

- Crop Area
- Crop Variety
- Previous Crop
- Previous Pest History
- Control measures

Submit Information to Cloud

(Accessible within Province until access provided)

Insect Pest List and Crop Coding

1	A	B	C	D	E	F	G	H	I	J	K	M	N
2	Season	Crop Categories	Crop	Pest Category	Pest's Name			Code upto 8 digits	Insect Stages		Code upto 9 digits	Links of Photographs	
3	Position I 1 Digit	Position II 1 Digit	Position III 3 Digits	Position IV 1 Digit	Position V 2 Digits		Position VI 1 Digit						
4	Cropping Season 1. Kharif 2. B/W Kharif & Rabi 3. Rabi 4. B/W Rabi & Kharif	Crop Categories 1. Cereals and grains 2. Fiber crops 3. Pulses 4. Sugar crops 5. Oil Seed 7. Vegetables	Crop Code	Crop name	Insect/Pest Category 1. Major 2. Minor 3. Other 4. Quarantine	Code	Pest's Common Name		Pest Scientific Name	Code			Insect Stages
5	1	1	1	RICE	1	1	Paddy Army worm	Mythimna separata	11001101	1	Egg	110011011	https://uk.inaturalist.org
6										2	Larva	110011012	http://insecta.pro/gallery
7										3	Pupa	110011013	https://gd.eppo.int/taxon
8										4	Adult	110011014	www.insectimages.org
9										5	Damage	110011015	https://www.gbif.org
10						2	Pink stem borer	Sesamia inferens	11001102	1	Egg	110011021	https://www.cabi.org
11										2	Larva	110011022	https://www.uniprot.org
12										3	Pupa	110011023	https://uk.inaturalist.org
13										4	Adult	110011024	http://insecta.pro/gallery
14										5	Damage	110011025	https://gd.eppo.int/taxon
15						3	Rice brown plant hopper	Nilaparvata lugens	11001103	1	Egg	110011031	www.insectimages.org
16										2	Nymph	110011032	https://www.gbif.org
17										3	Pupa	110011033	https://uk.inaturalist.org
18										4	Adult	110011034	http://insecta.pro/gallery
19										5	Damage	110011035	https://gd.eppo.int/taxon
20						4	Rice grasshopper	Hieroglyphus banian	11001104	1	Egg	110011041	www.insectimages.org
21										2	Nymph	110011042	https://www.gbif.org
22	Paddy Army worm			Mythimna separata			11001101		1	Egg	110011011		
23									2	Larva	110011012		
24									3	Pupa	110011013		
25									4	Adult	110011014		
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Cropping Seasons in Pakistan

- 1. Kharif (Summer crops)**
- 2. B/W Kharif & Rabi (Autumn crops)**
- 3. Rabi (Winter crops)**
- 4. B/W Rabi & Kharif (Spring crops)**

Limitations and need for expansion

Limited scope

- Insect pests only
- Covering few districts initially
- Commodities coverage (106).
- Inclusion of other facilities like storage houses, processing facilities etc.
- Data sharing between DPP and provincial department of agriculture



Resource limitations

- Financial resources at DPP's end and provincial departments of agriculture
- Logistical constraints
- Inadequate and untrained staff
- Different Plant Protection and Pest Warning Structures in Provinces

Next Steps

- Increase the scope
- Add plant diseases and stored grain pests
- Nationwide coverage
- Complete commodities including herbs and medicinal plants
- Data access and sharing among provinces
- Complete integration with quarantine function of DPP
- Financial support from Govt, provinces and development partners



Thank you

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