



# Pakistan – CABI PARTNERSHIP

59 Years Service to Pakistan and Asia

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**RESEARCH FOR PROSPERITY**

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**KNOWLEDGE FOR LIFE**

# CABI - Pakistan

- 1957: Established with Colombo Plan at Rawalpindi, near Islamabad as **Pakistan Station of Commonwealth Institute of Biological Control (CIBC)**
- 1980s: PARC-IIBC International Institute of Biological Control
- 2000: Renamed as CAB International, Regional Bioscience Centre, Pakistan
- 2006: Renamed as CABI South Asia
- 2011: Renamed as **CABI Central & West Asia**

# CABI - Pakistan

- **1957-2015:** CABI CWA has implemented 234 research and development projects in Pakistan
- 69 Staff members
  - 38 Professionals (including Regional Director)
  - 10 Technicians
  - 14 Administration and support
  - 06 Finance



# Agro-biodiversity Inventory

## 1957-1980

### Landmark Projects

1959-69:	Cultivated and useful plants
1960-65:	Studies on natural enemies of noxious weeds
1961-66:	Insect pests of West Pakistan forests
1961-66:	Investigations on natural enemies of corn borers
1961-66:	Scale insects, fruit flies, mites & their natural enemies
1961-65:	Studies on natural enemies of insect pests of rice
1967-72:	Natural enemies of forage and grain legume aphids
1978-83:	Survey and evaluation of effectiveness of the parasites, predators and pathogens of cutworms

# Achievements

## 1957-1983

- Recorded > 6000 species of insects from crops, fruits, vegetables and forests
- Insect Collection
  - Phytophagous insects, natural enemies and associated host records still stored at CABI CWA
  - This research benefitted in managing several key species in several countries
- Biology and Ecology of pests and their biological control agents studied
- ~ 125 species of noxious weeds recorded

# Stepping off the Pesticide Treadmill

## 1996-2005

- Implementation of IPM through Training of Trainers and Farmers Field School (FFS) **A success story**
  - “The Vehari Model”; a farmer participatory technology development and dissemination experiment **(1996-1998)**
- Four year EU/FAO Cotton IPM project **2001-2004**
  - Trained 90 master trainers
  - Developed quality assurance management system for FFS Programme

# Implementation of Best Agricultural Practices 2004-2010

For Sustainable Fruits and Vegetables Production



# Implementation of Best Agricultural Practices 2004-2010

## For Sustainable Fruits and Vegetables Production

- **KPK -Malakand Area (fruits, livestock management )** **2004-2007**
  - Trained 100 master trainers,
  - Covered 210 villages,
  - 8000 farmers beneficiary
- **Punjab (11 districts)** **2005-2010**
  - Master Trainers Trained: 828
  - Number of farmers Trained: 22000
  - Demonstrated farmer managed protected agricultural production of vegetables in all districts



# Fruit Flies Management

- Recorded **11** species of fruit flies, **12** parasitoids and **8** predators
- Demonstrated new techniques and materials for management of fruit flies in mango, citrus, guava and musk melons
- Demonstrated management of fruit flies in Punjab province
- Infestations reduced to 0.1 % in target areas as compared with 20-60% in non target areas
- Certified presence/absence of quarantine fruit flies
- Mango and Citrus exports facilitated



# Sugarcane pests

## Bio-control projects with sugar industry

- Habib Sugar Mills, NawabShah (1986-1994).
- Consolidated Sugar Mills, Rani Pur (1987-1993)
- Faran Sugar Mills, Sheikh Bhirkio (1990-1994)
- Dewan Sugar Mills, Thatta (1999-2002)
- Bannu Sugar Mills (1992-94)
- Hyesons Sugar Mills, Khanpur (1994-1995)
- Jamal Din Wali Sugar Mills, Rahim Yar Khan (1993-95)
- Tandlianwala sugar Mill, Kanjwani (1994-95)



# Bio-control of cotton pests in Pakistan

- Identified natural enemies of bollworms, army worms, white flies, jassids, mealy bug (1986-2010)
- Developed techniques of mass production and conservation of parasitoids and predators of mealy bug on farmers fields
- About 18.16 million predators and parasitoid of 185 Rs million cost produced and released at farmers farms (2008-2010)
- Mealy bug hot spots reduced from 43% in 2007 to 9% in 2010
- Reduced crop losses through bio-control of the mealy bug in 2008-2010

# BAP Package for Wheat Aphid Management

- Timely sowing of wheat crop (10 – 20 November)
- Apply balanced fertilizers (N:P:K=69:46:25)
- *Brassica* /Canola intercropping
  - 3 lines of *Brassica* after 100 ft distance (~4 kanals)
  - 1 kanal *Brassica* compact block after 400 ft distance (~2 acres)
- Cold water spray with “Power Sprayer” when aphid population crosses ETL
- Pesticide spray of Hydrocarbons + mineral oil (Diver®) and imidacloprid (Confidor®) as a last resort when aphid population crosses the ETL level



# Early Agricultural Recovery in Flood Affected Area of Muzaffargarh

- Nov 2010 – September 2011
- In Support of Food Security of 7000 farming households
- Implemented after emergency relief and Food distributions by Welthungerhilfe
- First step: 7000 bags each of Certified Wheat Seed and DAP fertilizer distributed for 1 acre/family.
- Second step: 150 tube-wells and 230 water courses damaged by Floods will be installed/repared in Feb-April.
- 3500 bags of Urea will be distribute in Feb-March
- Farmer training in support of the material distributions

# Current Activities

- Value chain focus, Sanitary and Phytosanitary compliance
- Promoting GAP and SPS compliance, supporting NPPO
- Improving youth skills in agriculture and value addition including postharvest
- Supply chain management in Cotton and Rice
- Rural agro-based industries especially cotton
- Horticulture industry development

# Current Activities

- Technology transfer between member countries & stakeholders,
- mobile advisory services,
- sharing knowledge among stakeholders - Facebook Agriculture,
- agribusiness development,
- expert exchange

# Initiatives

- IPM in high value crops
- Early warning systems for newly emerged / key pests & diseases
- Reduction in pesticide inputs
- Managing range of stressors including pests, water, soil nutrients
- organic agriculture
- Microbial resource collection,
  - *characterization and utilization,*
  - *invasive species management,*
  - *habitat manipulation / agro-biodiversity enrichment*



# Future Thrusts

- Managing Invasive Alien Species like Fruit Flies and Parthenium in Pakistan. A unique window for CAB International.
- Effects on pest and disease distribution / life cycles and Green technologies for crops
- Carbon credit management strategies
- Post-disaster management and mitigation strategies for sustainable agriculture
- Nutrition Agriculture and Food safety
- Managing cropping patterns & precision agriculture



# *Thank You*



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