



Agricultural Production monitoring , Forecasting Networks and IPM in I.R. of Iran

by :

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Different crops can be cultivated in Iran .The total area is more than 14.5 million hectares that 82% of which belongs to field crops and 18% to orchard crops.

- The number of major plant pests are 607.
- 50 percent are insects, mites, rodents and birds
- 27% are diseases (bacteria, fungi, nematodes, viruses, mycoplasmas, etc)
- 13% are weeds.

The area under chemical control against plant pests is 16 million ha.

- 88% belongs to field Crops
- 12% go to orchard crops

- 26000 tons of pesticides are used every year on field and orchard crops taking a share of 73% and 27%, respectively.

251 kinds of pesticides are registered in Iran .

9% of the registered pesticides used belong to the hazard group I

27% To the hazard group II

64% to the hazard groups III, IV and V.

In 1996

16% of the registered pesticides belong to the hazard group I

47% To the hazard group II

37% to the hazard groups III, IV and V.

Until 2005, governmental sector was the major actor for the agricultural pesticides purchasing activities

This method had the following problems including:

- Pesticide production was not competitive.
- Pesticide distribution was not sufficient due to the limited government funding.
- There was little pesticide diversity due to lack of market competition.

Pesticide purchase and distribution was handed over to the private sector in 2005 with the following objectives:

- To enhance Pesticide quality.
- To have a competitive production.
- To register and supply pesticides under brand name
- To make the private sector involved.
- To orient pesticide subsidies towards promotion of non-chemical control and strengthening of agricultural production monitoring and forecasting networks.
- To reduce dose and application in view of higher-priced pesticides while making professional recommendations available to farmers.
- To prevent obsolete pesticide build up.
- To develop agricultural pesticides exports
- To encourage private sector to invest .
- To diversify pesticides to prevent pest resistance.
- To reduce government involvement.
- To make possible timely provision of sufficient amounts of pesticides to farmers.
- To enhance pesticide quality in view of a competitive market.
- To make the private sector involved in a competitive arena.

The subsidies on pest control chemicals were channeled in the following services to the farmers:

- Setting up privately-owned monitoring and forecasting networks and constant tracing of plant pathogens.
- Studying the biology of plant pests for best timing and method of control.
- Promoting non-chemical control materials in farms, orchards and greenhouses.
- Purchasing non-chemical control materials and agents and making them available to the farmers free of charge.

- Using an online system of pesticide monitoring and tracing (from production to use) throughout the country
- Holding workshops for 4500 private plant protection experts.
- Setting up monitoring and forecasting networks in an area of 2 million ha through putting to work the 4500 trained plant protection experts in private plant protection clinics.
- Introducing new IPM methods in farms, orchards and greenhouses.

Activities that must be carried out by monitoring and forecasting networks:

- **Regular monitoring of fields and orchards to study the biology and life cycle of pests in the context of regional climatic conditions.**
- **Preparing identification documents for infected regions defining the level of infection in different seasons.**
- **Filling out information forms.**
- **Identifying the time and method of pest control to be transmitted to farmers.**
- **Preventing calendar – based and untimely use of pesticides in order to raise effectiveness of control.**

- Observing the rules of IPM in fields and orchards leading to minimized pesticide use and applications and making use of biological materials and agents instead.
- **Supervising complete observance of optimized agriculture as well as non-chemical control methods such as mechanical, cultural and biological control methods and use of pheromone and adhesive traps from the time of planting until harvest.**
- Encouraging farmer participation and training.

Status of biological control programs:

- Biological control is being carried out in an area of 165000 ha during the current cultivation year (2007-2008).
- 147500 ha of the controlled area belongs to field crops such as rice, cotton, maize, tomato, Soya, sugar cane and rain fed chickpea
- 18000 ha of orchard crops such as citrus, tea, mulberry, pomegranate, pistachio and apple
are under biological control.

Biological Control Agents in Farming Crops (2008)

Crop	Target pest	Bioagent
Rice	<i>Chilo suppressalis</i>	<i>Trichogramma brassicae</i>
Cotton	<i>Heliothis armogera</i> <i>Heliothis armogera</i> Mites & sucking pests	<i>Trichogramma</i> spp <i>Habrabracon</i> spp <i>Chrysoperla carnea</i>
Corn	<i>Ostrinia nubilalis</i> <i>Heliothis armogera</i>	<i>Habrabracon hebetor</i> <i>Trichogramma</i> spp
Tomato	<i>Heliothis armogera</i>	<i>Habrabracon hebetor</i>
Soybean	<i>Heliothis armogera</i>	<i>Trichogramma</i> spp <i>Habrabracon</i> spp
Pea	<i>Heliothis armogera</i>	<i>Habrabracon hebetor</i>

Biological Control Agents in Horticulture Crops

Crop	Target pest	Bioagent
Citrus	<i>Pseudococcus maritimus</i>	<i>Cryptoleamus montrouzieri</i>
Tea	<i>Pseudococcus maritimus</i>	<i>Cryptoleamus montrouzieri</i>
Mulberry	<i>Pseudococcus pentagoni</i>	<i>Prospaltella belesi</i>
Pomegranate	<i>Spectrobates ceratoniae</i>	<i>Trichogramma embrophayum</i>
Pistachio	<i>Aganoscena pistachiella</i>	<i>Chrysoperla carnea</i>
Apple	<i>Laspeyresia pomonella</i>	<i>Trichogramma spp</i>

Pesticide privatization, monitoring and forecasting networks and biological control have resulted in 3000 tons pesticide use-reduction.

Plant protection Organization of **the I.R. of Iran** plans to expand the IPM area to:

1. **Cover freshly – consumed strategic crops which have not had chemical control before.**
2. Minimizing agricultural pesticides use in fields, with best timing, to result in minimum pesticide residue.
3. **Monitoring pesticides and hazardous chemicals residue in the framework of monitoring networks from planting, until harvest.**



Thank you