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## Focus

### Non-chemical Control of Major Pests in Cotton



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### 5. American Bollworm (*Helicoverpa armigera*)

#### Symptoms

Presence of bore holes on the pods, flowers and defoliation in the early stages are the main symptoms. The young caterpillar is green in colour. It feeds on tender leaves, buds, flowers and later bores into the pods. It feeds on the seeds with its head and part of the body inside and remaining part outside the pods. This is a major symptom of American bollworm. Fully grown caterpillar is greenish with dark brown lines on the sides of the body. The adult moth is medium in size and grey to brown in colour. Dark spots are seen in the forewings.

### 6. Spotted Bollworm (*Earias vittella*, *Earias insulana*)

#### Symptoms

This pest generally attacks 5 - 6 weeks old cotton crop. The larva bores into the shoot of the plant and causes wilting of the shoot. After the formation of bolls, they bore into the bolls which do not shed. Such bolls do not open well. Also it causes shedding of the buds. Young bolls have small bore hole with excreta inside. The fully grown larvae is brown in colour with longitudinal white stripes on the dorsal surface of the body.

### 7. Pink Bollworm (*Pectinophora gossypiella*)

#### Symptoms

Shedding of the flower buds and the bolls are the initial symptom. Bore hole is not visible. The larva enters the boll through the tip portion and the entrance hole gets closed up as it matures. It feeds on the seeds and moves to adjacent locules by making a hole through septum. Infested bolls open prematurely and the lint is stained. Larva is pink in colour with the brown head.

## 8. Army worm (*Spodoptera lithura*)

The larva feeds the leaves completely defoliating the plant. They normally attack in large numbers and hence produce grazing symptom. The caterpillar is green in colour in the initial stages and later turn dark brown or grey in colour. Mostly these larva attack the plants in the night hours.

### Management

1) Grow castor as a border crop in a row. This attracts the caterpillars which feed on the leaves of cotton. We can see the castor plant infested with all kinds of bollworms during the growth stages.

2) Grow bhendi, sunflower, black gram, cowpea as the trapcrop in the cotton field. Sow these seeds alongwith the cotton after each 5 rows. This attracts the bollworms in larger numbers. Also they harbour natural enemies such as spiders, lady bird beetles which feed on the egg and the larval stage of the bollworms.

3) Set up pheromone traps at the rate of 2/acre. Fix the lure based upon the nature of the pest damage. Do not forget to change the lure every fortnight.

American bollworm - *helilure*

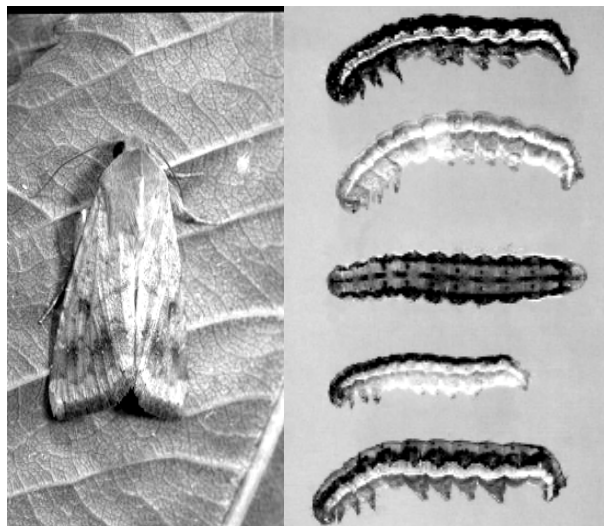
Spotted bollworm - *erilure*

Pink bollwork - *gossylure*

Army worm - *spodolure*

The sex pheromones can be used as a masstrapping, monitoring and mating distrupting agent.

4) Spray NPV (Nuclear Polyhedrosis Virus) at the rate of 100 LE (Larval Equivalent) per acre. Before spraying add 250 gms of jaggery and 100 ml of khadi soap solution. Spray NPV only in the evening hours using hand sprayer.



5) Release the following during the growth phase.

i) *Trichogramma chilonis* - egg parasite - 50,000 / acre at 10 days intervals.

ii) *Chrysoperla carnea* - 2 larva / plant.

These insects feed on the eggs of *Helicoverpa*, *Earias* and *Spodoptera*.

6) Take 5kg of Neem Kernel powder and put in a cloth pouch. Soak this pouch in 3-4 litres of water overnight. Next day, squeeze the pouch and filter the extract. To this add 100 litres of water and 100 ml of Khadi soap solution. Spray this solution during morning or evening hours. This controls all the bollworms, leaf folders, defoliators and sucking pests.

7) Take 3 kg of green chillies and remove the pedicel. Grind this thoroughly into paste and soak it in 10 litres of water overnight. Take ½ kg. garlic, grind thoroughly soak it over night in 10 litres of water. Prepare 2 extracts separately and add khadi soap solution at the rate of 5 ml/litre. Filter the solution and add 80 litres of water and spray immediately. This controls all the bollworms and the army worms.

**If the above management measures are followed correctly, it is possible to control the dreaded pests of cotton crop.**



## Newsline

### Organic cotton yield higher : Study

Farmers in the country can fetch a higher yield of 36% in cultivation of organic cotton than the conventional cotton farming. This was revealed by a 5 year comparative study undertaken by a swiss firm in villages of Madhya Pradesh near Indore. Mr. Patrick's firm in association with Maikal group of mills has persuaded 1100 farming families in villages near indore to organic cotton cultivation in several hectares. They use compost made with farm and household wastes at negligible cost against the conventional inputs like pesticides and fertilisers. Mr. Patrik urged the Indian cotton producers and traders to promote organic cotton cultivation which is eco-friendly and beneficial to the consumers and the cultivators.

**Source : Businessline 20.11.2000**

### Workshop on Revival of Organic Farming

A workshop on revival of organic farming was conducted by the

Murugappa Chettiar Research Centre on 2nd & 3rd November. Dr. Vijayalakshmi of CIKS was invited as a resource person for this workshop. She gave a talk on traditional pest management techniques. This workshop was attended by nearly 150 participants from all over Tamil Nadu.

### CONSULTATION ON GLOBALISATION AND FOOD SECURITY

As a part of the peoples caravan organised by the Pesticide Action Network, Malaysia CIKS in collaboration with PREPARE had organised a one day consultation on globalisation and food security on November 19th at the Madras School of Social Work Auditorium. Dr. Romy, Director, PAN Philippines, Dr. Gopal from Centre for Environmental Science, Hyderabad, Prof. Varadarajan from Vivekananda College from Madras were invited as resource persons. Dr. K. Vijayalakshmi of CIKS talked in detail about how farmers are coping with the problems of globalisation in the CIKS Programmes.

## Brinjal Yield

A RECENT research study conducted by Dr. K. P. Prasanna, College of Horticulture, Kerala Agricultural University has revealed the superiority of poultry manure in improving the yield in Brinjal when compared to inorganic fertilizers. It has been found that application of higher doses of poultry manure (around 13 t/ha) can maximise the yield up to 15 t/ha, which is far better than the usual yields.

Moreover brinjal crop grown with organic manures as found to be less susceptible to major pests like shoot and fruit borer (*Leucinodes orbonalis*) and Epliachna beetle (*hamosepilachna spp.*) Application of organic manures also considerably improves the physical and chemical properties of the soil like bulk density, organic carbon content, total nitrogen and available phosphorus and potassium. An increase of Rs.10,000 can be earned by substituting poultry manure for the chemical fertilizers usually used.

**D. Radhakrishnan, Ranjan S. & Karippai**  
Kerala Agricultural University Vellanikkara, Kerala



Books

**Techniques for Reducing Pesticide Use : Economic and Environmental Benefits, edited by David Pimentel. U.K.: John Wiley & Sons, Ltd., England. 1997. pp. 444**

This book provides options to regain the 40% loss in the potential food production, by not using pesticides. This explains that cost of production must be lowered by reducing pesticides input and at the same time we able to increase or at least maintain the annual yield. There are technologies that can reduce the pesticides input upto 50%. The various pest management techniques available are discussed in detail in this book. This will help policy makers, scientists and the public to understand the options with regard to the use of pesticides.

**Available from : John Wiley & Sons, Inc. 9th floor, 605, Third Avenue, New York, NY 10158-0012, U.S. E-mail : [custserv@wiley.com](mailto:custserv@wiley.com)**

**Price : US \$ 99.00.**

**Keep Your Home Pesticide Free! by Dr. K. Vijayalakshmi, Subhashini Sridhar, 2000, pp.14**

Over the last few years there has been a growing world wide concern on the adverse effects of many pesticides. Everyday we consume food that is highly contaminated with pesticides. Besides this in our household we use a large number of pesticides to get rid of common household pests such as houseflies, mosquitoes, cockroaches etc. This booklet provides certain guidelines for making your home free of pesticides. Information on avoiding pest attack during storages is also provided.

**Available from : CIKS, 30, G.M. Road, Kotturpuram, Chennai - 600 085.**

**Price : Rs.10.00**

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