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Focus : Non-chemical Pest Control in Cotton



## Non-chemical Control of Major Pests in Cotton

Cotton is one of the major crops affected by 150 species of insects at various stages. Pests normally account for 60% of loss in production of cotton crop. To combat these problems, farmers resort to repeated application of pesticides of the total pesticides used, more than 50% is used in cotton crop alone. Indiscriminate use of pesticides has led to problems such as pest resurgence, resistance to insecticides, environmental pollution etc. In this issue, we share our experiences with non-chemical alternatives to cotton cultivation.



### 1. Leaf hopper (*Amrasca devastans*)

#### Symptoms

Nymphs and Adults remain on the under surface of the leaves and suck the cell sap. As a result leaves crinkle and become cup shaped. The edges of the leaves become brown in colour and is referred as "hopper burn". The adults are yellow in colour.

#### Management

Take 1 kg of tobacco stalk and cut it into pieces. Soak these pieces in a vessel with 2 litres of water and allow this to remain for a day. Take 5 litres of hot water and soak the same tobacco stalk pieces in it for a night. Next day morning filter the solution and add 60 litres of water. This can be sprayed for an acre. Before spraying, add 100 ml of khadi soap solution as an emulsifier. If the infestation is severe, add 800 ml of kerosene to the above mixture and spray using power sprayer.

## 2. Aphids (*Aphis gossypii*)

### Symptoms

Nymphs and adults remain on the under surface of the leaves and suck the sap. As a result, the leaves started drying up and the plant growth is stunted. Adults are yellow in colour and occasionally green or brownish in colour.

## 3. Thrips (*Scirtothrips dorsalis*)

### Symptoms

Nymphs and adults remain on the under surface of the leaves and suck the sap. As a result, the leaves curl upwards and become crumpled. The plants also become stunted in growth. Adult is pale yellowish in colour.

### Management

Pound neem seeds gently so that the outer coat is removed. Then pound the neem kernel into fine powder. Take 5 kgs of the powder in a pouch and soak it in 5 litres of water overnight. Next day morning squeeze the pouch and filter the extract. To this, add 100 litres of water and spray it on an acre of cotton. Before spraying, add 100ml of khadhi soap solution as emulsifier. This is the control measure for both Aphids & Thrips.

## 4. Whitefly (*Bemisia tabaci*)

### Symptoms

Nymphs and adults remain on the lower surface of the leaves and suck the sap. This results in shedding of squares and bolls, reduced quality of the lint and oil. Accumulation of honeydew occurs due to the whitefly attack which results in development of sooty mould fungus. Moreover, whitefly acts as a vector of leafcurl, yellow vein clearing and yellow mosaic virus diseases.

### Management

Practice crop rotation in whitefly endemic areas. For example, cereals, pulses etc.

Avoid ratooning in whitefly endemic areas.

Monitor the pest population with yellow sticky trap. This can be made with iron board which is triangular in shape. It can be painted in yellow colour. We have to smear a few drops of castor oil in the evening hours. This attracts the adults and the nymphs of whitefly. This can be placed in intervals at the rate of 3 per acre.

*(to be continued...)*

## FACTS AND FIGURES

- ✱ Of all pesticides used globally each year, pesticides used in cotton alone ranges upto 25%.
- ✱ Pesticide usage all over the world accounts for \$26 million annually.
- ✱ Number of active ingredients in pesticides used in cotton found to cause cancer in human beings and animals is 107.
- ✱ Total cotton cultivation area in more than 60 countries is 80 million hectares.
- ✱ In India, cotton is cultivated in 8 million hectares.
- ✱ Total pesticide consumption in third world countries accounts for about 300 million kilograms. Out of the 300 million kilograms, 150 million kilograms is consumed in cotton crop.



## Newsline

### **BAJRA TRADERS BEHIND PEACOCK DEATHS**

Madhyapradesh Police have registered a case against the traders who distributed chemically treated bajra seeds to the farmers in Morena district, resulting in death of more than 80 peacocks last month. Official resources told PTI that the postmortem and visera reports suggested that the peacocks died due to consumption of “endosulphan” treated bajra seeds in the fields in Maharajpur and neighbouring areas last month.

“The chemical is banned but some local seed distributors are using it defying ban, which resulted in the tragedy”, the sources added.

**Source: Indian Express, August 13, 2000.**

### **PANEL MOOTED ON ORGANIC COTTON**

A suggestion has been made to the centre to appoint a high level committee to look into various aspects of organic cotton cultivation in the country by Dr. K. Venugopal, Project Coordinator at the Centre Institute for Cotton Research (CICR). Considering the scope and importance of organic cotton, the Government should appoint a technical committee of experts drawn from the Indian Council for Agriculture Research (ICAR), agricultural universities, Cotton Corporation of India and representatives of mill owners and organic cotton farmers to study the issue, Dr. Venugopal said.

Stating that cotton played an important role in the country’s economy, he said

more than one-third of foreign exchange earnings were from export of cotton and cotton textiles. He said there was strong preference in recent years for eco-friendly organic and coloured cotton in Europe, the US, Australia, New Zealand and other developed countries.

Even otherwise, there was a dire need to minimise the use of hazardous pesticides in sustaining cotton production, he added.

**Source: Business Line, August 16, 2000**

### **AGREEMENT SIGNED TO PRODUCE ORGANIC MANURE**

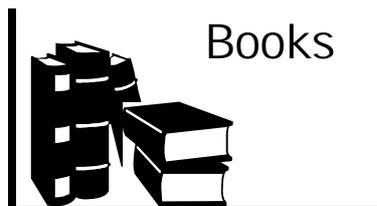
A formal agreement leasing out the use of the ‘company yard’ at suburban Pallikaranai to make organic manure from the garbage collected from the Alandur Municipality area was entered into here today between the local body and a Chennai-based company Messrs Healing Medicals (Private) Limited. The lease will be in force for a 15 year period and the document was handed over to the company’s Managing Director at the Secretariat here.

For the garbage collected, the municipality would earn a revenue of Rs.84,000 annually, at the rate of Rs.3.50 per tonne. The firm will begin construction work at the allotted site from September 1 and start organic manure production from March 1, 2001.

**Source: The Hindu, August 23, 2000.**

#### **[www.ikisan.com](http://www.ikisan.com)**

ikisan is an agricultural portal, aimed at the Indian farmer. ikisan has information on crops, crop management techniques, fertilisers & pesticides and a host of other agriculture related material. It provides details on major pests of rice and soya alongwith the management practices in detail.



## Books

### Organic Cotton Briefing Kit (Packet)

It includes information on pesticide use on cotton and impacts on human health and the environment, risks of genetically-engineered cotton, and organic cotton farming success stories around the world.

**Price : US \$ 5**

**For more details, contact :**  
[www.panna.org](http://www.panna.org)

### Organic Cotton: Working toward Sustainable Agriculture (Video)

It is an organic cotton promotional video in Spanish and English. The video, is designed for consumers, retailers and farming communities. It introduces and promotes the production and use of

organic cotton throughout America.

**Price : US \$ 10**

**For more details, contact :**  
[www.panna.org](http://www.panna.org)

## COTTON WEBSITES

### Native Cotton Project

Since 1986, the Native Cotton Project in Peru has represented an ideal example of sustainable agriculture and organic cotton production. Their work has highlighted the importance of reviving naturally pigmented and organically cultivated forest cotton for ecological textile markets.

<http://www.interplace.com.pe/pakucho.htm>

### Sustainable Cotton Project

Since 1994, SCP has been building bridges between farmers, manufacturers and consumers to pioneer markets for certified organically grown cotton.

<http://www.sustainablecotton.org/>

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