PESTICIDE POST

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Ecofriendly Methods for Controlling Eriophyid Mite on Coconuts

Some of the eco-friendly alternatives suggested by Kerala Agriculture University, T-stanes Co. Ltd. and Vittal Mallya Scientific Research Foundation to control the menace of Eriophyid Mite in Coconut gardens are as follows.

1. Spray neem oil + garlic + soap emulsion (2%)
2. Spray pongamia oil + garlic + soap emulsion (2%)
3. Application of a fungus *Hirsutella thompsonii* wettable powder commercially named as BIO-CATCH. (a product of T-stanes and company.

Courtesy : LEISA INDIA, March 2000

Dr. I. Henry Louis, former professor of the Tamil Nadu Agricultural University (TNAU) and a coconut specialist, claims to have prepared a herbal medicine, a mixture of 10 herbs, to destroy the dreaded coconut mite. Demonstrating the efficacy of the medicine to the media persons said the mixture had been extracted from the leaves of 10 rare medicinal plants - Neem, *Vinca rosia, Camphor indica, Vitex negundo, Annona squamosa, Curcuma longa* and Garlic *(Allium sepa).*

He said the mixture mixed with water in the proportion of 1:10 should be sprayed on the female coconut flowers during maturity twice in a gap of 30 days. This controls Eriophyid mite and other insects. So far, tests had been conducted by spraying herbal medicine on 12,000 coconut trees in the area and the success rate was 100%. The farmers would have to spend Rs. 10 for each tree.

Source : Business Line, May 15, 2000

Eco-friendly Aphid Management

Aphids are small insects (1/8" long) with soft bodies and mouth adapted for sucking the nutrient rich juice of the plant tissue. They feed by sucking the sweet syrup from plants. Some aphids are capable of spreading plant diseases. Yellowing, leaf curl, puckering, distortion of new growth and weakened plant are the signs of aphid infestation. Aphids can be controlled without the use of chemicals.

Biological control and Natural enemies

Aphids have many natural enemies like ladybird beetles, green and brown lace wings, spiders, various flies, mini wasps etc. Lady bird beetles in both the adult and larval stages eat around 50 aphids a day. Beneficial insects can be attracted to the gardens by planting a variety of flowering plants like Marigold, Zinnia, Sunflower, Coriander etc.

Physical Controls

* Unhealthy plants attract pest population. Hence unhealthy plants should be removed to prevent further pest infestation.
* Aphids can be washed off with a strong stream of water. Washing should be done early in the day so that the plant can dry off before evening and this reduces risk of fungal disease.
* Small colonies of aphids can be wiped off using cloth. Infested parts of plants should be pruned. The clippings should be disposed of in soapy water.
* To maintain continuing supplies of aphids honey dew, an ant delicacy certain ant species protect aphids by killing their natural enemies. Sticky barriers should be applied to the stems or trunks of plants to prevent access of ants.

Ref: Least Toxic Aphid Management by Becky Long.
Published by : Northwest Coalition for Alternatives to Pesticides/NCAP.

Trap Crops - an Important tool of IPM

Crop plants more preferred by the pest for egg laying and feeding are grown as trap crop on the bunds of the main crop or one row after every 10 rows.

Crops	***Pests***	***Trap Crop***
Cotton, Groundnut	*Spodoptera*	Castor, Sunflower
Cotton, Chickpea	*Helicoverpa*	Marigold
Pigeon pea	*Helicoverpa*	Marigold
Groundnut, Sesamum	Red hairy Caterpillar	Cowpea Sunhemp

Courtesy : Non Pesticidal Management of Crop Pests, CWS, Secunderabad.

Agricultural Poisons

Cypermethrin

Cypermethrin is a synthetic pyrethroid insecticide used to kill insects on cotton and also to kill cockroaches, fleas and termites in houses and buildings. Cypermethrin is toxic to the nervous system. Symptoms of cypermethrin poisoning include facial burning and tingling, giddiness, headaches, nausea, anorexia, fatigue and loss of bladder control with greater exposures symptoms include muscle twitching, drowsiness, coma and seizures.

When exposed to cypermethrin during pregnancy rats gave birth to offspring with developmental delays. In male rats the proportion of abnormal sperms increase. It also causes genetic damage. Cypermethrin is classified as a possible human carcinogen because it causes an increase in the frequency of lung tumors in female mites.

After house hold treatments, it persists in the air and walls and furniture for about 3 months. Cypermethrin is also toxic to bees, other beneficial insects, earthworms, fish and shriumps. Birds in cypermethrin treated areas are less successful at raising nestlings because their insect food sources are killed.

Chlorpyrifos

This is a broad spectrum organophosphate insecticide. It affects the nervous system by inhibiting an enzyme that is important in the transmission of nerve impulses. Symptoms of acute poisoning include headache, nausea, muscle twitching and convulsions. Human birth defects have been associated with exposure to chlorpyrifos products. It also affects male reproductive system. Exposure to a chlorpyrifos product has caused death of cells in male rat testes

and decrease in sperm production in cattle. It also causes genetic damage in human blood and lymph cells, mice spleen cells, and hamster bone marrow cells. The immune system is also affected.

Chlorpyrifos contaminates air, ground water, rivers, lakes, rain water and fog water. The contamination has been found upto 15 miles from the site of application. It is toxic to a wide variety of beneficial arthropods including bees, ladybird beetles and parasitic wasps. It kills fishes at concentrations as low as a few parts per trillion. Birds are also susceptible. Besides death, reduced weight and deformities in nestlings have resulted from chlorpyrifos exposure.

Plants are also damaged by exposure to chlorpyrifos. Delayed seedling emergence, fruit deformities, and abnormal cell division are resulted from chlorpyrifos exposure.

Chlorpyrifos products contain a number of hazardous inert ingredients. One common inert ingredient is xylene which can cause nausea, vomiting, hearing and memory loss, reduced fertility and leukemia.

Ref : Insecticide factsheets produced by Northwest Coalition for Alternatives to Pesticide/NCAP.

Pesticides Harm Babies

An estimated 8,000 babies are born with neural defects every year in Rajasthan. Most of them die within a few months of birth. They are lucky. Because those who survive suffer from grave deformities. S G Kabra, physician at the Indian Institute of Health Management Research in Jaipur, links the malady to pesticide use. Pesticides are known to negate the action of folic acids, vital for brain development, he says. Pesticide residues in food can inhibit the intake of folic acid leading to birth of babies with congenital defects. The risk is higher if conceived at the time the kharif (summer) and rabi (winter) crops reach the market, a time when pesticide residue is very high, says Kabra's study. In November 1999, Kabra brought his findings to Down to Earth's notice. Though his findings have not been reviewed, he raises a doubt; pesticides abuse in India may be leading to the birth of deformed babies.

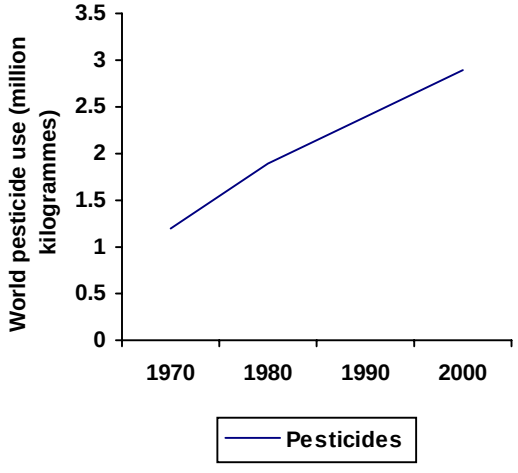
For more details: Refer Pesticides Harm Babies - Umblical Discord, Page No.38 - 41, Down to Earth, June 30, 2000.

Deadly Increase

Growing use of pesticides in agriculture has increased human consumption of chemicals. According to studies, around three new synthetic chemicals are introduced each day in the agricultural sector. Since almost nothing is known about the long term health and environmental effects of these pesticides, consumers are now faced with complications and health impacts of which they had not been forewarned. On the other hand, with increased use of pesticides, there has been an even greater evolution of pesticide-resistant pests. The situation calls for a shift to organic farming as well as the application of sufficient precautionary measures by the chemicals industry.

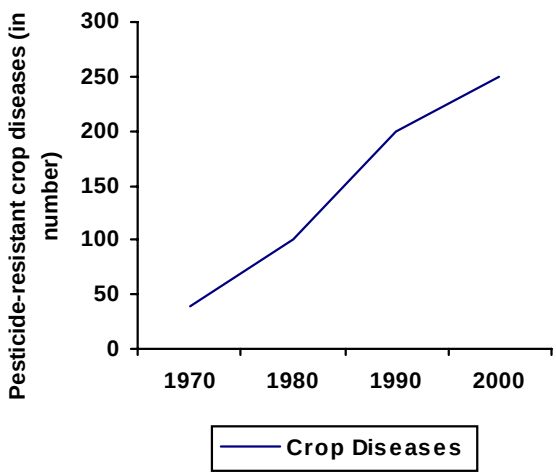
Poison in our food

Farmers are increasingly depending on pesticides to meet burgeoning market demands



Crops still suffer

The number of pesticide-resistant crop diseases have grown along with the number of new chemicals in agriculture.



Courtesy : June 15, 2000 Down to Earth

Newsline

NEEM PARK AT TAMIL NADU FARM VARSITY

A Neem park has been established in Tamil Nadu Agricultural University complex for extensive research on various Neem products. Several ecotypes of Indian Neem, Persian Neem are to be used along with tissue cultured neem seedlings in addition to the existing Neem trees in a 4 acre land. The park would be used for extensive research on developing products of neem for the management of crop pests, diseases and nematodes, University sources said.

Source: Business line, June 20,2000.

NEEM FOR COCONUT MALADIES

The neem products can be well employed in containing the maladies without any detrimental effect to the beneficial insects like pollinators, biocontrol agents and productive insects in the coconut plantations.

Regularly check the crown for the presence of rhinoceros beetle (*Oryctes rhinoceros*). Hook out the beetles from the crown and kill them. Apply 150 gram mixture ie. neem seed powder 50 gram plus fine sand 100 gram in the central three leaf axil bases of each palm crown once in three months. This prevents not only the rhinoceros beetle damage but also the asian red palm weevil's (*Rhyncophorus ferrugineus*)entry into the palm crown.

Spray either neem oil emulsion (NOE) 3% or neem seed kernel extract (NSKE) 5% on the leaves and tender nut bunches using a high volume sprayer. This controls scale insects (*Aspidiotus destructor*), the mealy bug (*Pseudococcus* sp.) and black/headed caterpillar (*Opisina arenosella).* Scrape the termite earthen galleries if any on palm trunk and spray on the trunk up to two metre height from the ground level with either NOE 3% or NSKE 5% and drench well the soil around the base of the palm trunk with the above solution. This controls the termite (*Odentotermes obesus*) infestation on coconut palm.

Application of neem cake at 5 kg per palm per year in the basin of coconut palm along with the recommended doses of organic manure and major NPK fertilizers, controls the Thanjavur (*Ganoderma*) wilt disease virulence in coconut palm.

Source: The Hindu, June 22, 2000

NEEM-AN ANSWER TO SEED STORAGE PROBLEMS

Research was undertaken to study the effect of neem leaf powder on seed storage of *Casuarina equisetifolia* seeds. Seeds were treated with leaf powders of neem (*Azadirachta indica*), arappu (*Albizia amara*), rhizome powders of vasambu (*Acorus calamus*) and turmeric (*Curcuma longa*), iodine mixture and acetyl salicylic acid. Biochemical and physiological analysis was done at bimonthly intervals to study the course of seed deterioration.

The results of the present experiment revealed the potential of neem leaf powder, which was better than any other botanical or chemical treatment.

Source: The Hindu June 8,2000.

PESTICIDE RISK IN CHILDREN'S FOODS

Favourite children's food such as grapes and apples have high level of toxic residues from pesticides. Consumers union, a non-profit advocacy group urged the U.S. Government to do more than to ban the use of dangerous chemicals. The U.S. Environmental Protection Agency is expected to ban the pesticide **Dursban** because of health risks including blurred vision and memory loss. The whole report is available at www.ecologic-ipm.com/PDP/Update-Childrens-Foods.pdf.

Source: Business Line June 8, 2000.

PESTICIDE "DURSBAN" BANNED

The federal Government of Washington, banned the most widely used pesticide "Dursban" on June 8th in the Nation. These are found in some 20 million homes. It leads to high level of risks including blurred vision and memory loss. The ban is part of an on-going efforts to implement the Food Quality Protection Act of 1996 which requires systematic Goverment review of all pesticides to ensure they meet tighter standards with the goal of protecting children.

Source : Business line June 10, 2000

Infants and Children Face Greater Risks!

Infants and children face greater risk from pesticides and other environmental toxins because they have greater exposure, and less ability to get rid of toxic chemicals from their bodies.

Greater Exposure : Infants and children absorb more into their bodies than adults. The major reasons for this are :

1) They have much more skin surface of their size.

2) They take in more breaths per minute.

3) They eat and drink much more for their weight.

4) They are much more likely to come in contact with contaminated surfaces and objects.

Less Ability to Get Rid of Chemicals : Once pesticides get into the bodies of infants and children, they are more vulnerable to toxic effects. The major reasons for this are :

1) Infants and children have less mature mechanisms in their body to break down chemicals into less harmful substances.

2) Infants and children have less mature mechanisms in their body to break down chemicals from their bodies.

3) Infants and children have less mature immune systems to protect them from toxic chemicals.

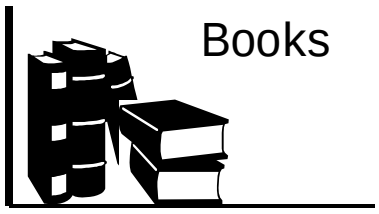
4) Infants and children are growing and developing and at a rapid rate putting many body cells and tissues at risk – especially the brain and nervous system, and the blood and immune system. This puts children at greater risk of cancer and other chronic diseases.

Brain Cancer : Studies done in the United States, Canada, France and Norway show that children whose parents are farmers or who live on farms have a three to seven fold increased risk for brain cancer. Two United States studies found that pesticide use in the home increased the risk of brain cancer in children six to eleven fold.

Leukemia : Studies done in the United States, Canada and China shows that children whose parents work with pesticides on farms have a two to eleven fold increased risk for leukemia. Studies done in the united States and Germany found that pesticide use in the home increased the risk of leukemia in children from three to nine years old. Other studies also found children to be at increased risk for non-Hodgkin lymphoma, Wilm's tumor, and soft tissue sarcoma.

Source : Dr. Marion Moses, Cancer in children and Exposure to Pesticides, Summary of Selected Studies, Pesticide Education Center, San Francisco CA. May 5, 1999.

Ref: Warning :Pesticides are Dangerous to your health, PAN Asia Network, Malaysia.



Traditional Water Harvesting Systems - An Ecological Economic Survey by Bhuban C. Barah

This book traces the existence of traditional water harvesting systems. Discusses various diversion systems, flood plain systems, storage structures, drinking water supply, and traditional water lift devices. It also explain the traditional ERY systems of South India. It also reveals the reasons for the decline of traditional water harvesting systems in detail.

Price : Not mentioned

Available from : New Age International Limited, 4835/24, Ansari Road, Daryaganj, New Delhi - 110 002.

Rodale's All-New Encyclopedia of Organic Gardening : The Indispensable Resource for Every Gardener by Marshall Bradley, Barbara W. Ellis Fern M. Bradley.

This all-new, authoritative edition of the 1978 classic—which sold more than 625,000 copies—provides practical, up-to-date information for every gardener, beginner and veteran alike. Includes hundreds of how-to illustrations and step-by-step techniques, and features an easy-to-use A-to-Z format with more than 420 entries.

Price: $15.96

Joining Farmers' Experiments : Experiences in Participatory Technology Development edited by Bertus Haverkort, Johan Van de Kamp and Ann Waters-Bayer, 1996, 269 pp.

Many researchers have found that small holders are often far ahead of them when it comes to developing appropriate technologies for rain-fed farming under difficult conditions. This book presents a varied collection of reports from researcher and field workers who are supporting the efforts of farmers in that huge research operation commonly known as "small-scale farming in diverse and risk prone areas", and linking up experimenting farmers so that they can learn from each other.

In the spirit of Farmer First, this book contributes to continuing process of exchanging experiences in Participatory Technology Development (PTD); the collaboration of local people and outsiders in exploring paths to sustainable development.

This book was written primarily for people who are working together with small-scale farmers in technology development and for the agencies in which they work. The case studies can be used in training and teaching within NGOs, governmental agencies, agricultural colleges and universities.

Available from : Intermediate Technology Publications, 103/105, Southampton Row, London WC1B 4HH UK.

Indian Agriculture Website : www.indiaagronet.com

This website provides information on latest agricultural technology and practices. Discusses new developments in various sectors of agriculture like seeds, fertilisers, crop management etc.

TIPS

PLANT GROWTH REGULATOR

Take 1-2 kg of cowdung and dilute it with 1 litre of water. Take 5 kg of Green leaves - neem, pongam, vitex, lantana and glyricidia (each equal quantity) in a mud pot and pour the diluted cowdung solution into the mudpot. Stir it daily at least once. After 16 days, add 200 gms of Jaggery solution to the mixture and keep on stirring it. After 21 days, filter the solution and spray it on the vegetable gardens. It increases the yield and the vegetative growth too. For 1 litre of this decoction, add 5 litres of water.

Courtesy : Mr. Mahadev & Mr. Mallik, Green Foundation, Bangalore

PLANT BASED BIO-PESTICIDE

Take 1 kg each of the following leaves - tobacco, mango, neem and adathoda. Take fresh turmeric ¼ kg and garlic 1 kg. Pound the leaves with water and make it into paste. Pound turmeric and garlic separately and mix all the ingredients together. Take the above mixture in a mud-pot filled with 3 litres of water and boil it for 15 minutes. Filter the extract and spray it on the crops. This effectively controls sucking pests, termites, root grubs etc. For 1 acre, 2 litres of extract is required for spraying.

Courtesy: Mr. Sannybabu , IDEA, Vishakapatnam

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No.30, Gandhi Mandapam Road, Kotturpuram, Chennai - 600085.
Phone: 4471087, 4475862 *Fax:* 4471114 *Email:* ciks@vsnl.com
Editorial Team: Dr.K.Vijayalakshmi, Subhashini Sridhar
Computer Assistance: S.Ramesh