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PESTICIDES AND  
TOXIC CHEMICALS  
CONTROL BOARD

# PESTICIDES NEWS

January - June 2012 VOLUME 1

# THE GOOD THE BAD

# THE UGLY THAT'S PEST CONTROL

**A** pest control operator uses special equipment, treatments and preventive measures to eradicate or control the infestation of detrimental animals and insects from homes, commercial buildings and land. The most common insects pest control operators in Guyana deal with are cockroaches, ants and termites. Hives and nests of bees and wasps are other common targets for extermination. Animal pests often include rats, mice and other types of rodents. Occasionally, birds or snakes that have nested in buildings are eliminated by pest control operators.

Almost 50 participants from various pest control operators (urban and domestic) on the 16th March, 2012 graduated from the Basic Proficiency Training for Pest Control Applicators. The course which lasted for two weeks provided pest control operators and technicians with the essential knowledge required by professional pest controllers. The course will be conducted annually by the Pesticides and Toxic Chemicals Control Board and allows professionals in this field to be certified in the Basic, Intermediate and Advanced Proficiency Levels.

The course, the first of its kind in Guyana was aimed at <sup>1</sup> equipping pest control applicators with the necessary knowledge to make them competent in execution of their mandates, <sup>2</sup> raise awareness of pest control operators safety in execution of their duties, <sup>3</sup> allow pest control applicators to be cognizant of the environment in which they operate and the need for them to safe guard that environment, and <sup>4</sup> be knowledgeable of domestic pest management strategies.

Ridding your home or office etc. of pests can bring you peace, but choosing the wrong person to do the job can bring you many sleepless nights.

All companies performing pest control operations must be registered by the Pesticides and Toxic Chemicals Control Board. Any company providing pest control services where the said company is not registered under the Pesticides and Toxic Chemicals Control Regulations 2004 (No.8 of 2004) is in breach of the afore-stated Regulations and will be prosecuted in accordance with the Regulations.

***Any person or company hiring or utilizing the services of any individual or company to perform any Pest Control Operation where the said company is not registered by the Pesticides and Toxic Chemicals Control Board is acting in contravention of the Pesticides and Toxic Chemicals Control Regulation 2004 (No.8 of 2004) and will be prosecuted in accordance with the said Regulations.***



# FUNGICIDES



**F**ungicides are pesticides used to control fungi, microorganisms that include yeasts and molds. Fungi can cause serious damage in agriculture, resulting in critical losses of yield, quality and profit. Fungicides are used both in agriculture and to fight fungal infections in animals.

Fungicides may act as contact, translaminar or systemic poisons. **Contact fungicides** are not taken up into the plant tissue, and only protect the plant where the spray is deposited. **Translaminar** poisons are however redistributed from the upper, sprayed leaf surface to the lower, unsprayed surface, while **Systemic fungicides** are taken up and redistributed through the xylem vessels to the upper parts of the plant. New leaf growth is protected for a short period.

Pathogens respond to the use of fungicides by evolving resistance. In the field several mechanisms of resistance have been identified. The evolution of fungicide resistance can be gradual or sudden. **Products should not be used in isolation but rather as mixtures, or alternate sprays, with another fungicide with a different mechanism or action.** The likelihood of the pathogen developing resistance is greatly decreased by the fact that any resistant isolates to one fungicide will hopefully be killed by the other – in other words two mutations would be required rather than just one.

Fungicides should only be applied when absolutely necessary. **Manufacturers' doses should always be followed.** These doses are normally designed to give the right balance between controlling the disease and limiting the risk of resistance development.

**Higher doses** increase the selection pressure that confer resistance, as all strains but those that carry the mutation will be eliminated, and thus the resistant strain will propagate. **Lower doses** greatly increase

the risk of polygenic resistance, as strains that are slightly less sensitive to the fungicide may survive.

It is also recommended that where possible fungicides are only used in a protective manner, rather than to try to cure already infected crops. Far fewer fungicides have curative/eradication ability than protectant. It is better to use an **Integrated Pest Management** approach to disease control, rather than relying on fungicides alone. This involves the use of resistant varieties and hygienic practices.

## COMMON FUNGAL DISEASES



Fungal Root Rot



Black Sigatoka



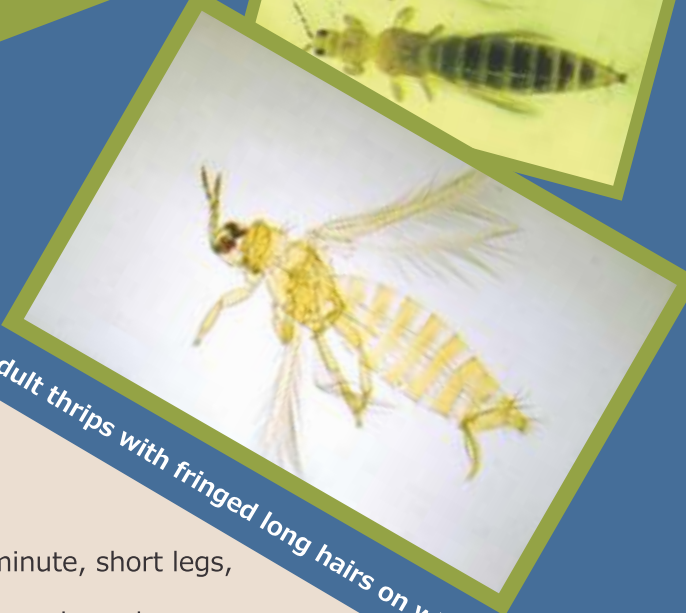
Sooty Mold



# KNOW YOUR PESTS:

# THRIPS

ORDER: Thysanoptera (thigh-san-NOP-ter-ra)



Adult thrips with fringed long hairs on wings

## INTRODUCTION

Thrips are small slender bodied winged or wingless insects. If the wings are fully developed they are four in number. When present the wings are thin and fringed (bordered with hairs) , which is why they were named **Thysanoptera**.

They are abundant in all regions of the world and approximately 5,000 species have been described. Thrips have rasping sucking mouthparts, and are of economic importance, for some species may transmit plant viruses, reduce productivity of plant, reduce flowers and fruits, or skeletonize (rasp) plant leaves. Thrips may be found in flowers, foliage, fruits, bark, fungi, and in debris.

## IDENTIFICATION

- narrow-bodied elongated insect up to 1.5mm long,
- adult usually brownish-black in colour,
- adult has two pairs of slender wings, fringed with long hairs,
- banded appearance, because of whitish to brown or black areas on wings and abdomen,
- short antenna,
- mouthparts are modified for rasping plant surfaces and sucking up sap, leaving silvery- white mottled discolouration,
- immature nymphs are wingless, and creamy-yellow in colour,

- minute, short legs,
- immature stages resemble the adults.

## LIFE CYCLE

Thrips have a metamorphosis that is intermediate between complete and gradual. The male thrips is on average 0.9-1.0 mm long, while the females are slightly bigger (1.5 mm). The eggs are invisible to the naked eye and the life cycle is divided into six phases of development:

1. Eggs are elongated, cylindrical to kidney-shaped and are laid in the parenchymal cells of the flowers and of the leaves. In addition this egg laying is peculiar to this insect, since the female covers the eggs with blackish drops of excrement.
2. 1st Instar larval phase - larvae immediately begin to feed on leaves, flower and pollen.
3. 2nd Instar larval phase – mobility increases, most destructive phase feeds on leaves, flower, pollen etc.
4. Propupa – non feeding phase, not very mobile.
5. Pupa - non feeding phase, completely immobile.
6. Adult- the cycle takes about 21 days to be completed. This is totally dependent on the temperature.

### CONTACT US FOR MORE INFORMATION:

Pesticides and Toxic Chemicals Control Board, NARI Compound, Mon Repos, East Coast Demerara Guyana, S.A.  
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## DAMAGE

Thrips will readily feed from the upper leaf surface, unlike most sap-feeding pests that feed on the underside of the leaves. Thrips prefer to feed in rapidly growing tissue. Their feeding typically causes tiny scars on leaves and fruits called stippling, and can stunt growth. Damaged leaves may become papery and distorted. Infested terminals may discolor, become rolled, and drop leaves prematurely. Petals may exhibit "color break," which is pale or dark discoloring of petal tissue that was killed by thrips feeding before buds opened. Thrips cause a silvery to brownish, scabby scarring on fruit and leaf surface, but this cosmetic damage does not harm the internal fruit quality. Thrips because of its rasping – sucking mouthparts is famous for the ability to transmit the dangerous virus of the Tomato Spotted Wilt Virus (TSWV) and infect all species of vegetables.



**Thrips (far right) and eggs covered with black feces (top and bottom left) on leaf with silvery patches (damage symptoms)**

## MANAGEMENT

An integrated program of control strategies that combines the use of good cultural practices with chemical and other forms of control is recommended.

## BIOLOGICAL CONTROL

Predatory thrips and other beneficial insects and mites, including pirate bugs and predaceous mites, help to control certain plant-feeding thrips species. Conserving naturally occurring populations of beneficials by avoiding persistent pesticides is the most important way to encourage biological control of thrips. Locally available azadirachtin (bio neem) can be used to control. Monitoring of adult thrips populations on your farm can be done by using bright yellow sticky traps.

## CULTURAL CONTROL

Thrips species feed on many different plant species, avoid planting susceptible plants next to weed infested areas, weeds are alternate hosts of certain thrips. Vigorous plants normally outgrow thrips damage; keep plants well

irrigated, but avoid excessive applications of nitrogen fertilizer which may promote higher populations of thrips.

Good field sanitation is recommended by removing and disposing of plant residues. Investigate the availability of resistant cultivars. Regular pruning of infested parts can also be effective. The use of reflective mulch also helps as this confuses and repels thrips, because reflected ultraviolet light interferes with the insects' ability to locate plants. Liquid reflective mulches can also be sprayed on the soil.

## CHEMICAL CONTROL

Thrips are difficult to control effectively with insecticides. Reasons include thrips' tiny size, great mobility, hidden feeding behavior, and protected egg, prepupae and pupae are in the soil. Improper timing of application, failure to treat the proper plant parts, and inadequate spray coverage are also common mistakes and can be more important in influencing the effectiveness of treatment than choosing which pesticide to apply. Before using a pesticide, learn more about your specific plant situation and the biology of your pest species.

Sprays must be applied to thoroughly cover susceptible plant tissue, such as new leaf growth and buds. On plants with a history of severe, unacceptable damage, begin treatment early when thrips or their damage is first observed. Repeat applications (usually 5 to 10 days apart, are usually required because these insecticides only kill newly hatched thrips and recently emerged adults.

Locally available insecticides with the following Active Ingredients can be used: Acetamiprid, Cypermethrin, Diafenthiuron, Abamectin, Chlorfenapyr and Alpha-cypermethrin. Products with these active ingredients can give some relief when used correctly or in keeping with label directions. Check the Active Ingredient on the labels' so that they are not the same when rotating your insecticides. No pesticide treatment will restore the appearance of injured tissue; plants will remain damaged until leaves drop, injury is pruned off, or new unblemished fruit is produced.

**THINK FIRST, SPRAY LAST!!!**

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# Stop the Trade in Illegal Pesticides



The Pesticides and Toxic Chemicals Control Board's, Inspection and Enforcement Unit recently conducted a series of inspections and seizure exercises countrywide which resulted in the confiscation of significant quantities of illegal pesticides. Over four (4) million dollars of illegal agricultural pesticides were confiscated along with numerous illegal household use products.

The global trade in illegal and counterfeit pesticides is growing and endangering agriculture, human health, the environment and the economy. Tests have shown that these illegal pesticides often contain banned substances or do not satisfy labelling requirements.

Since legitimate pesticides go through years of testing to prove safety to human health and the environment, Illegal pesticides are very risky; they do not go through any form of safety testing or even verification of their contents. Illegal or fake pesticides can pose a serious threat to human health and the environment, endanger good farming practices, result in the destruction of farmers' crops and livelihoods, and undermine the growth and sustainability of the agricultural sector.

The Pesticides and Toxic Chemicals Control Board is facilitating joint action and heightened awareness within the agricultural community to protect the pesticides market and especially farmers and consumers alike from illegal pesticides.

There are three main types of illegal products that farmers may encounter:

1. Counterfeits in high quality packaging made to look like original products and very difficult to distinguish from original product by looking at the pack; they may have a different smell or colour from the same product previously purchased.

2. Products with limited labelling or in different packaging from the original product, claiming to be the same as "product X". It's all about supply chain integrity. What's in the containers should be what it claims to be!

3. Some products may be repackaged and this may pose a higher risk of containing non-original ingredients. No repackaging is allowed in Guyana.

- To avoid accidentally buying illegal or counterfeit pesticides, farmers should keep the following points in mind:
- Always buy products from registered vendors, distributor suppliers or importers and avoid other offers that seem "too good to be true" as they might not be original high quality products. Beware of illegal mobile sellers.
- All pesticides vendors, distributors or suppliers must be in possession of a valid Pesticides and Toxic Chemical Vending Licence.
- Ensure that the products have proper labels with complete instructions in English. This is a legal requirement and one of the guarantees of authentic product.
- Never buy pesticides from anyone who refuses to give a receipt stating the product name as displayed on the label and the quantity purchased.
- Farmers who have any suspicions about the quality or origin of pesticides that they are offered or have purchased should immediately contact the Pesticides and Toxic Chemicals Control Board on tel. #(s): 220/8880/8838/7887.



# COMMON PESTICIDES QUESTIONS

"Take Home Message"

## Dirty work clothes

### How should I wash out pesticides?

Some *pesticide product labels* have specific washing instructions for contaminated clothing. Some general rules of thumb for washing out pesticide contaminated clothing are as follows:

- Wear chemically resistant gloves to handle pesticide-soiled clothes.
- Store and Wash contaminated clothing separately from the family laundry to avoid transfer of residues.
- Clothes that are soaked with pesticides should be thrown away rather than washed.
- Wash work clothing each day to maximize removal of chemicals. Clothing can keep pesticides away from the skin during work hours; however, that same clothing can become a source of contamination if pesticides aren't laundered after each use.

- Pre-rinse contaminated clothing by hosing them down outdoors, soaking in a separate tub or agitating in the washing machine.
- Wash only a few items at a time.
- Use hot water - the hotter the better.
- Use heavy duty laundry detergent.

Laundry additives such as chlorine bleach or ammonia do not improve removal of pesticide residues.

Line dry, if possible. Sunlight breaks down many pesticides and it can prevent residues from collecting in the dryer.

Published by: National Pesticide Information Center (NPIC). NPIC is a cooperative agreement between Oregon State University and the U.S. Environmental Protection Agency.

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# LEGAL

## Household used Pesticides



The general public is advised to always use household pesticides products that are registered/legal in Guyana. Anyone who engages in the importation, distribution, vending, storage, and use of illegal pesticides (including agricultural pesticides, rat, fly, ant, roach baits, mosquito coils and aerosols) is liable to prosecution in the courts of Guyana, and shall be **Fined and Imprisoned** under the Pesticides and Toxic Chemicals Act 2000 (No.13 2000).



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# ILLEGAL

## Household used Pesticides

PESTICIDES AUTHORITIES  
SEIZED MASSIVE QUANTITIES  
OF ILLEGAL PESTICIDES

Some of the Illegal  
Household Pesticides  
Products confiscated.



The Pesticides and Toxic Chemicals Control Board wishes to notify the general public that the following household use pesticides are illegal and should not be imported, distributed and used in Guyana. **Using products that are illegal can pose sever risk to human health, the environment and the overall wellbeing of the nation.**



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# New Film Reveals Child Farmworkers' Exposure to Pesticides

A new film highlights North Carolina farmworker children's stories about being sprayed with toxic pesticides while working in the field. *Overworked & Under Spray: Young Farm Workers' Pesticide Stories* features interviews with six high school-age children about their experiences working in the fields in eastern NC. Most of the children's stories involve incidents of pesticide exposure that are illegal according to NC law.

"You could see the spray coming at you...but we kept on working. The next day I didn't feel so good," said Felix Rodriguez, one of the high school-age farm workers featured in the film. "I wouldn't feel comfortable talking about pesticides to the owner or supervisor because they'll see you as nagging. They just really want you to work."

Farm work is demanding and dangerous physical labor. A 2008 study by a National Institute for Occupational Safety and Health (NIOSH) researcher finds that the incidence rate of pesticide poisoning is extremely high among U.S. agricultural workers. Young farmworkers and children of farmworkers are especially at risk. Children are much more vulnerable than adults to the injuries and illnesses brought on by this type of work. Due to children's higher rate of metabolism, they take in more pesticides per unit weight than adults, and their developing organ systems are more sensitive to the effects of pesticides.



"Hearing these kinds of stories from youth is especially compelling, because we know that exposure to pesticides can have an even more profound health impact on a child than it can on an adult," said Toxic Free NC Executive Director Fawn Pattison. "It is our hope that by getting these stories out there, we can urge the state to do a better job of enforcing its pesticide laws."

While we work to strengthen our state and national laws, consumers can also make a difference at the grocery store or farmers market. Our food choices have a direct effect on those who grow and harvest what we eat around the world. In addition to serious health questions linked to actual residues of toxic pesticides on the food we eat, our food buying decisions support or reject hazardous agricultural practices, protection of farmworkers and farm families.

**Source: Beyond Pesticides, April 13, 2012**



Find The Following in The Scene:

Spray suit, Cap, Long boots, Knapsack Spray can, Goggles, Gloves, Respirator, Bee, Ant, Caterpillar, Butterfly, Lizard, Rat, Rabbit, Fly, Earthworm, Bird, Snail & Spider.

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## PESTICIDES AND TOXIC CHEMICALS LABORATORY (PTCL)

The Pesticides and Toxic Chemicals Laboratory continues to make strides in the execution of its mandate by further enhancing laboratory capabilities through specific training aimed at benefiting laboratory personnel. In January 2012, the PTCL benefited from training on the lab's major analytical equipment:

- Thermo Accela Liquid Chromatograph (LC) with Surveyor Ultra Violet (UV) Detector and MSQ Plus Mass Spectrometer (MS)
- Thermo Trace GC Ultra Gas Chromatograph (GC) coupled with a DSQII Mass Spectrometer (MS)

The training was facilitated by Western Scientific Company Limited and provided specific training on the following:

- ✔ theory of gas and liquid chromatography
- ✔ fundamentals of mass spectrometry
- ✔ set-up and basic maintenance of DSQII
- ✔ basic maintenance of the GC and LC instruments
- ✔ library search, custom reports and probe analysis
- ✔ LC/MS basic method development and method validation introduction.

The increased understanding of these analytical instruments will be of great benefit to the development of the PTCL's analytical capacity, so as to effectively and efficiently execute its mandate in managing pesticides and toxic chemicals in Guyana.

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