



KENTUCKY PEST NEWS

ENTOMOLOGY & PLANT PATHOLOGY & WEED SCIENCE

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PESTICIDE TRAINING MEETINGS

Here are some educational meetings that have been approved for continuing certification credit in various categories. A complete listing is available at the Kentucky Department of Agriculture web site at www.KYAGR.COM/index.htm

Nov 15 - Categories 6, 10, and 12 Ky Arborists Meeting, Holiday Inn Cincinnati Airport, Erlanger, KY Gary Ressler (800) 616-4221

***Nov 29 Categories 1, 10, and 12** Annual CCA Meeting, UK Research and Education Center, Princeton, KY (approval pending as of publication date)

Dec 6 - Categories 3, 10, 12 Turf and Ornamental Pest Training, Fayette Co Extension Office, Lexington. (9 am - 3:30 pm). There is limited seating at this location; call the extension office, (859) 257-5582, to register. (Certification testing may not be available following this meeting.)

***Dec 6-7 - Categories 1, 10, 12** Kentuckiana Crop Production Seminar, Executive Inn, Owensboro, KY (approval pending as of publication date)

Dec 12 - Categories 1, 3, 10, and 12 Pesticide Certification Training, Agriculture Building, Morehead State University, Morehead, KY (9 am - 3:30 pm) Darlene Thorpe (859) 257-5955 (Certification testing may not be available following

TOBACCO

TOBACCO MOSAIC VIRUS - DON'T ALLOW IT TO BECOME A REEMERGING DISEASE OF BURLEY!

By William Nesmith

Tobacco Mosaic Virus (TMV) was once the single most important virus disease of burley tobacco. Fortunately, TMV has been under near total control in burley tobacco for about 50 years through the widespread use of highly resistant varieties that derive their resistance from *Nicotina glutinosa*, a wild tobacco from Peru. This source of resistance has performed outstandingly since its introduction; which was initially in the variety Kentucky 35 but which has been passed down since to most, but not all, public and private burley varieties released since the mid 1950's. However, the number of seriously damaging cases of mosaic have been increasing in recent years, with the increased use of TMV-susceptible varieties, especially Tennessee 86 and Kentucky 8959. Let's all please understand that this trend does not have to continue, because there are TMV-resistant varieties available that match well agronomically for each of the TMV-susceptibles in burley. Except for personal preferences, I foresee no logical reason why a TMV-susceptible burley tobacco should be planted with the range of varieties available today.



Don't under estimate the potential of TMV. With uniform infections of the plant population, which can easily happen with the transplant production methods in use today, yield reduction exceeding 60% can occur with TMV infections of susceptible varieties prior to transplanting; while those occurring after transplanting, but prior to layby, result in about a 50% reduction in yield, and those occurring at topping can reduce yield from 0 to 25% depending on the virus strain and other factors. If you do not believe this is possible, you might visit with the few "old timers" still around, but realize they may have called the disease by another name. TMV was known by several names, including: "TMV", "mosaic", "walloon", "black french", "dry weather frenching", and "burn".

The disease is characterized by a mosaic or mottling of leaves, with or without distortion, and with or without stunting. However, due to many strains of the virus being present in Kentucky, symptoms are highly variable. The most typical color pattern is of light and dark-green areas in infected leaves with some level of distortion of the new growth. Other color patterns also occur with some strains causing yellow blotches and white portions of the leaf - resembling Alfalfa Mosaic. Sometimes a mosaic burn develops on a few leaves in the top of the plant shortly after infection, especially when the disease is spread during topping operations. Losses also result from stunting and reduced leaf quality. Necrotic spotting, necrotic midribs/veins, and necrotic stem cankers can occur when TMV is introduced into resistant varieties from nearby infected susceptibles; the greater the virus load the greater the extent of necrosis and damage.

The *Nicotina glutinosa* resistance works by the development of a small dead spot at the point of entry for each virus. At the entry point, rapid death occurs in a few cells surrounding the cells that becomes infected with the virus, trapping the virus in dead cells before it can move to adjacent ones. This reaction occurs within a few days after inoculating and can be observed as small necrotic spots on the infected tissues - usually appearing on the leaves as small white to tan spots with dark halos associated with the area of the leaf contaminated with the virus. As a result of the sacrifice of a few cells the virus remains localized keeping the remainder of the plant healthy, under normal conditions.

In recent years the burley industry has began to use TMV-susceptible varieties. And guess what is happening? Yes, TMV is returning. Heavy losses have been observed in some greenhouses and fields, plus development among other crops when a commercial greenhouse becomes contaminated and the disease is spread with the distribution of transplants. Some popular susceptible varieties including: Tennessee 86, Ky 8959, Virginia 509, Hybrid 502, and N-777. Substituting TMV-resistant varieties for these is the best way I know to control TMV.

The best way to control TMV in burley is through resistant varieties. Because of the nature of the resistance mechanism - cell death at the virus infection site - serious damage can occur in the resistant varieties where mixed plantings of susceptible and resistant varieties are involved, both in greenhouses and fields. Basically what happens is the virus builds up in the susceptible variety, then is spread in large dosages during clipping, transplanting, or topping to the resistant plants. Where large volumes of virus are spread to the resistant variety, death occurs to larger areas of young stems, midribs, and leaves when the resistance mechanism is activated. We have observed several such cases during the past two cropping seasons. If TMV susceptible varieties are used, produce the plants in separate greenhouses from resistant varieties, and do not plant them adjacent to resistant varieties. Several such cases of TMV damage in resistant varieties were observed this past season.

LIVESTOCK

CATTLE LICE CONTROL - PART OF A TOTAL HERD HEALTH PROGRAM

by Lee Townsend

Biting and sucking lice can cause slow weight gain or even a gradual loss, louse-induced anemia, or lowered resistance to stresses, such as cold, wet weather. Additional losses can occur if control programs are not planned carefully and executed in a timely and economical manner.

Mixed infestations of biting and chewing lice can occur in a herd. Typically, only a small number of animals are heavily infested. A few lice survive the hot summer months on these "carrier" animals, usually bulls or old cows. The bull's longer, more dense coat and heavier neck and shoulders prevent him from grooming efficiently. Self-grooming helps to reduce louse numbers. Older cows can have a complex of interactions involving nutrition, general health, and the immune system that may contribute to their potential to maintain louse infestations.

During the cool fall and cold winter months, lice numbers increase. They spread from carrier or reservoir animals to the rest of the herd as the animals bunch together. In time, the whole herd may become infested but usually only a few animals become extremely lousy. Infested animals rub and scratch excessively in response to the irritation caused by lice.

Confirm a suspected louse infestation by a careful examination of the most agitated animals. Part the hair at points along the neck, head and around the eyes, on the withers, brisket, and shoulders to look for nits (eggs) and lice. Sucking lice can occur in patches. They have narrow,

pointed heads and tend to remain attached to the animal. Chewing lice are more active and have a wider, triangular head.

There are several control options for lice but the list of options narrows, especially at this time of year.

- We are beyond the treatment date for cattle grubs, so a systemic insecticide (fenthion, prolate) should not be used unless a grub treatment was applied earlier.
- A whole animal spray gives the good coverage needed for effective louse control and is also one of the cheapest treatments.

This leaves pour-ons and dusts as relatively "dry" alternatives. The information below summarizes some of the factors to consider when making a choice.

Check the label carefully before you buy. For example, you may find different costs for products containing the same concentration a specific active ingredient. Also, look at the application rate and method. Some products have an applicator or measuring device to help deliver accurate doses. This is very helpful when dose rates are just a few cc's per head. Note other cautions or restrictions on the label. Especially important are the time to wait between applications (two are needed for louse control because the egg or nit stage is not killed) and protective equipment to be used during application.

DUSTS

Brand name (common name)
Co-Ral 1%, Zipcide 1% (coumaphos)
Permethrin 0.25% (permethrin)

POUR-ONS

Delice 1% Poupon, Brute 10% RTU (permethrin) Synergized Expar (permethrin + piperonyl butoxide)
CyLence 1% RTU (cyfluthrin)

Delice is a ready to use formulation that is to be poured along the back of the animal. A second application is recommended 14 days later. This synthetic pyrethroid insecticide is non-systemic and is not a cholinesterase inhibitor. This product can be used on lactating and non-lactating dairy cattle.

Brute contains the same active ingredient as in Delice but is more concentrated. A 500 pound animal would receive 1/4 ounce of the product. The same characteristics listed for Delice apply for this product.

Synergized Expar contains the same active ingredient as in Delice, along with a synergist (piperonyl butoxide). It is applied at the same rate and in the same manner. This product can be used on lactating and non-lactating dairy

cattle.

CyLence, a synthetic pyrethroid insecticide, is non-systemic and is not a cholinesterase inhibitor. Doses are very low, 8 cc for a 400-800 pound animal. This product can cause substantial but temporary eye injury so applicators should wear goggles, a face shield, or safety glasses. A second treatment should be made in 3 weeks. This product can be used on lactating and non-lactating dairy cattle.

SHADE TREES & ORNAMENTALS

DISEASES AND CULTURAL PROBLEMS OF HOUSEPLANTS

by John Hartman

Homeowners often place their houseplants in the back yard on a patio or a deck for the summer. Now these houseplants have been brought inside for the winter. Homeowners need to be aware that houseplant diseases and cultural problems can sometimes disappoint gardeners attempting to bring the garden indoors for the winter.

Contagious diseases. Although some contagious diseases can be found on houseplants, if plants are purchased or brought in disease-free, fungi and bacteria generally cause little trouble indoors. Most homes and offices lack the high humidity necessary for the development of foliar diseases. Some diseases, such as powdery mildew, can develop on plants growing in a bathroom or kitchen window since these rooms may have periods of high humidity. Houseplants left out of doors in the summer may have acquired contagious root decay disease problems and these may need to be remedied.

Cultural problems causing disease symptoms.

Houseplants most commonly show symptoms resulting from adverse growing conditions. Light, fertility, water, and temperature imbalances are most often involved. See the UK publication entitled "Houseplants: problems and care" (HO-44) for more details.

Foliar diseases and control. Yellow, brown or black spots can indicate a fungal or bacterial leaf spot disease. Leaf spots vary in shape and size depending on the organism and the type of plant involved. A grayish-white powdery fungal growth on stems and leaves is typical of powdery mildew. Controls for foliar diseases caused by fungi and bacteria include:

- Remove and destroy affected leaves.
- Provide plenty of space between plants.
- Move the plant to an area of lower humidity.
- Avoid wetting the foliage.

- Some foliar diseases can be controlled with a fungicide or bactericide, however the disease should be accurately diagnosed before applying any pesticides. Department stores and garden centers carry pesticides labeled specifically for houseplant use.

The virus diseases that affect foliage plants often result in crinkled or curled leaves, or they may cause yellow spots, rings, or streaks in the leaves. Viruses are normally moved from diseased plants to healthy plants by insects and on human hands. Plant infections are propagated when cuttings are taken from diseased stock plants. The best way to eliminate a virus problem is to discard the entire plant. Houseplant growers are urged not to purchase or bring in from the outside, houseplants which are unthrifty looking since they may be buying a disease problem that could spread to their healthy plants.

Root and stem rot diseases. Root and stem rot diseases are caused by soil-borne organisms. Lesions may form on the stem, especially near the soil surface, and girdle plants. In other cases, stems and crown may become discolored, soft and mushy. Diseased roots become brown to black, and slough off easily. Controls for root and stem diseases include:

- Use sterile soil or a sterile soil-less mix as a preventative measure. Moistened garden soil can be sterilized before use in an oven (180 F for 2 hrs) or microwave (15 min). Packages of sterile soil-less mixes may also be purchased.
- Since root rot diseases occur under wet soil conditions, providing good drainage and avoiding over-watering can also help in controlling soil-borne disease problems.
- Avoid wetting stems and foliage when a stem rot is prevalent.
- Some fungicide drenches are available for homeowner use, but these should only be used after the root rot pathogen has been correctly identified.
- In many cases it may be best to just re-root a healthy portion of the plant in water or moist sand. The rooted cutting should then be replanted in sterile soil. Plants in the more advanced stages of disease should be completely discarded.

Many indoor plant growers recognize symptoms of poor health in their plants, but have trouble identifying the cause. To help to determine causes for common houseplant symptoms, the following section lists symptoms followed by possible causes.

Common houseplant problems: symptoms and possible causes.

- Brown leaf tips, burned leaf margins. *Cause:* Root injury from over-watering, drought, or excess fertilizer; excessive exposure to cold temperatures; low humidity; pesticide injury or mechanical damage; potassium

deficiency; root rot disease; or nutrient toxicity (e.g., fluoride toxicity).

- Pale foliage or yellowing of older leaves. *Cause:* Air pollution, gas fumes; insect attack; insufficient fertility, especially nitrogen; or poor root health due to poor drainage, poor aeration, or pot-bound roots.
- Pale foliage or yellowing of new growth. *Cause:* Improper soil pH; or trace element imbalance.
- General yellowing. *Cause:* Too much light; insufficient fertilizer; high temperature; root rot disease; insect attack; or over-watering.
- Small, pale leaves, spindly growth. *Cause:* Too little light; poor soil fertility; over-watering; or poorly drained soil.
- Sudden defoliation. *Cause:* Change in location and/or sudden change in light, temperature or humidity; over-watering; or transplanting shock.
- Brown, yellow, or black spots on leaves. *Cause:* Fungal or bacterial leaf spot disease; over-watering; sunburn occurring when plant placed outside; or chemical spray injury.
- Wilting or drooping of foliage, plants do not recover with watering. *Cause:* Poor root health due to overwatering; drought; too much fertilizer; compacted soil; or root, stem, or crown rot disease.
- Crown or stem is soft and mushy. *Cause:* Crown or stem rot disease, coupled with over-watering.
- Roots brown, soft or rotted. *Cause:* Poor root health from over-watering, drought, excess fertilizer, or root rot disease.

HOUSEHOLD

THERE'S A HOLE IN MY SWEATER!

By Mike Potter

Now is typically the time when clients begin calling about 'bugs' infesting clothing and other fabrics unpacked from storage. These are probably clothes moths or carpet beetles. Besides damaging fabric, these insects will feed on any item composed of animal fibers, e.g., wool, fur, silk, feathers, felt or leather. Items commonly infested include wool sweaters, coats, blankets, carpets, down pillows and comforters, upholstered furniture, toys and animal trophies. Cotton and synthetic fabrics, such as polyester and rayon, are rarely attacked unless blended with wool, or if they are heavily soiled with food stains or body oils. Serious infestations of clothes moths and carpet beetles can develop undetected in a home, often causing irreparable damage to clothing, bedding, rugs, and other articles.

THE CULPRITS

Carpet beetles - Carpet beetles are very common in buildings, and may infest many items in addition to

fabrics. Larvae are about 1/8 to 1/4-inch long, tan to brownish in color, and *densely covered with hairs or bristles*. This is the life stage likely to be encountered now since only the larvae feed on fabrics and cause damage. Oftentimes, only the shed (molted) skins of the larvae are present on the damaged item. Adult carpet beetles feed primarily on flowers and are usually discovered indoors during the spring. The adult beetles are small (1/16 to 1/8-inch) and oval-shaped, ranging in color from black- to various patterns of white, brown, yellow and orange. Large numbers may be spotted around light fixtures and windows, indicating that an infestation is present somewhere within the home.

Clothes moths- Clothes moths are small, 1/2-inch, buff-colored moths with narrow wings fringed with hairs. Like carpet beetles, they damage fabric only in the larval stage. Adult clothes moths are seldom seen because they avoid light, preferring to hide in dark places such as the backs of closets. *Clients who report seeing tiny moths in the kitchen and other well-lighted areas are probably seeing grain moths originating from stored foods, e.g., cereal, dried fruit, nuts, or pet food.* Clothes moth larvae spin silken feeding tubes or patches of webbing as they move about on the surface of fabrics. They also deposit tiny fecal pellets similar in color to the fabric.

THE SOLUTION

Current infestations- *Controlling an existing fabric pest problem requires diligence and a thorough inspection to locate all infested items and areas of infestation.* The source may be an old woolen scarf at the back of a closet, a fur or felt hat in a box, an unused remnant of wool carpeting, or an abandoned bird or squirrel nest up in the attic. Larvae prefer to feed in dark, undisturbed areas where susceptible items are stored for long periods. Larvae also may be found living beneath the edges of carpeting (use needle-nose pliers to lift the outer edge of the carpet from the tack strip along baseboards), underneath and within upholstered furniture, or inside heat ducts and floor vents where they often feed on accumulations of lint, pet hair and other organic debris. Occasionally, infestations may originate from bird or animal nests or carcasses present in an attic, chimney, or wall void. ***Carpet beetles, in particular, will also feed on pet food, bird seed, and grain/cereal products associated with the kitchen, basement or garage.***

Infested items should be laundered, dry-cleaned or thrown out. Laundering (hot cycle) or dry-cleaning kills any eggs or larvae that may be present. Vacuuming floors, carpets, and inside heating vents effectively removes larvae as well as hair and lint which could support future infestations. Be sure to vacuum along and beneath edges of carpets, along baseboards, underneath furniture and stored items, and

inside closets and 'quiet' areas where carpet beetles and clothes moths prefer to feed.

Insecticides applied to infested areas may be helpful as a supplement to good housekeeping. Products containing active ingredients labeled for flea control (e.g., permethrin), or with fabric pests listed on the label are effective. Sprays may be applied to carpets, especially along and beneath edges adjacent to baseboards, underneath furniture, and other likely areas of infestation where prolonged contact with humans is unlikely. **Clothing and bedding should not be sprayed with household insecticides and should be removed before treatment.**

Avoiding future problems- The best way to avoid future problems with fabric pests is through prevention. Woolens and other susceptible fabrics should be dry-cleaned or laundered before being stored for long periods. Cleaning kills any eggs or larvae that may be present and also removes perspiration odors that tend to attract pests. Articles to be stored should then be packed in tight-fitting containers. Customers choosing to use moth balls or flakes should be encouraged to read and follow label directions. The vapors from these materials are only effective if maintained at sufficient concentrations. Effective concentrations can best be achieved by sealing susceptible items (with the manufacturers' recommended dosage of moth crystals) in large plastic bags, and then storing the bagged articles in tight-fitting trunks, boxes or chests. Contrary to popular belief, cedar closets or chests are seldom effective by themselves because the seal is insufficient to maintain lethal or repellent concentrations of the volatile oil of cedar.

Conventional household insecticides should not be used to treat clothing; however, mothproofing solutions may be applied to susceptible clothing by professional dry cleaners. Valuable garments such as furs can be protected from these pests by storing them in cold vaults — a service offered by some furriers and department stores.

Additional tips on fabric pest prevention, control, and repair of damaged items can be found in the publication IP-50, *Fabric Insect Pests*. Elimination of widespread, persistent infestations of carpet beetles and clothes moths in a home or business may require the services of a professional pest control firm.

PESTICIDE NEWS & VIEWS

IMIDAN AND GUTHION USES RESTRICTED by Ric Bessin

This past week the EPA announced that it has come to an agreement with the manufacturers of Guthion (azinphosmethyl) and Imidan (phosmet) to implement new

restrictions on the uses of these materials. For both of these materials, current uses are grouped into one of three categories, voluntarily canceled, phased out over 4 (azinphosmethyl) or 5 (phosmet) years, or uses allowed to continue for the respective 4 or 5 year period and re-evaluated by the end of the period.

The crop uses for azinphosmethyl that are being phased out over the next four years include almonds, tart cherries, cotton, cranberries, peaches, pistachios, and walnuts. Of these, tart cherries and peaches are relevant to Kentucky producers. Producers will be able to continue to use azinphosmethyl on these crops for the next four years, with other use restrictions.

The azinphosmethyl time-limited registrations include apples, crab apples, blueberries, sweet cherries, pears, pine seed orchards, brussels sprouts, cane berries, and nurseries for quarantine purposes. Azinphosmethyl and phosmet are significant components of our IPM program for apple production in Kentucky.

There are 33 other crop uses of azinphosmethyl that have been voluntarily canceled. Among those that are relevant to Kentucky agriculture include grapes, strawberries, plums and prunes, pecans, nectarines, broccoli, cabbage, cauliflower, cucumbers, eggplant, melons, onions, potatoes, and tomatoes. In the past, azinphosmethyl use on vegetables in Kentucky has been very low. Some fruit and nut growers will need to change their spray program for 2002.

With phosmet, only three uses have been canceled. These are for use on domestic pets, home ornamental plants, and home fruit trees. Phosmet use under specific terms will be permitted for the next five years on apples, apricots, blueberries, crab apples, grapes, nectarines, peaches, pears, and plums/dried plums. Imidan use on apples and peaches is common in Kentucky.

The time limited registrations allow for producers and others to find effective alternatives to these materials and to give the EPA time to consider additional information. During the phase out and time-limited registration periods, other restrictions that increase reentry intervals, reduce the numbers of applications and total amount of material that can be applied in a season have been placed on certain crop uses.

TIME FOR CERTIFIED PRIVATE PESTICIDE APPLICATORS TO UPDATE 2001 RECORDS

USDA's Agricultural Marketing Service administers the Federal Pesticide Recordkeeping Program, which requires all certified private applicators to keep records of their use of federally restricted use pesticides for a period of 2 years.

The Federal Pesticide Recordkeeping Program was authorized by the Food, Agriculture, Conservation, and Trade Act of 1990, commonly referred to as the 1990 Farm Bill. Under this law, all certified private pesticide applicators who have no requirement through State regulations to maintain records must comply with the Federal pesticide recordkeeping regulations. Certified private pesticide applicators who are required to maintain records of pesticide applications under State regulations will continue to keep their records as required by their State.

The pesticide recordkeeping regulations require the certified private pesticide applicator to record the following for each application, within 14 days of the application:

- ! The Brand or Product Name; that is, trademark name of the pesticide being used.
- ! The Environmental Protection Agency (EPA) Registration Number. (The registration number is not the same as the EPA Establishment Number which is also located on the label.
- ! The total quantity of the pesticide applied in common units of measure. Such as pints, quarts, gallons, etc. of concentrated pesticide. Amount does not refer to the percent of active ingredient (a.i.).
- ! The date of the pesticide application, including month, day, and year.
- ! The location of the restricted use pesticide application. Not the address of the farm or business. Options are by: a) County, b) Identification system established by USDA, such as plat IDs used by the Farm Service Agency (FSA) or the Natural Resource Conservation Service (NRCS), c) Legal property description, as listed on the deed of trust or county/city records, or d) An applicator generated identification system that accurately identifies the location of the application.
- ! Crop Commodity, Stored Product, or Site being treated. Size of area treated. Record this information in the unit of measure (such as acres, linear feet, bushel, cubic feet, number of animals, etc.) which is normally expressed on the label in reference to the application being made. The name of the private applicator performing and/or supervising the application.
- ! The certification number of the private applicator. If the name of the private applicator and the certification number are kept together, this information only has to be listed once (Note: the name and certification number may be noted at the front of a record book if the same applicator is making the application).

Spot treatments are especially useful in the control of noxious weeds if you apply restricted use pesticides on the same day in a total area of less than 1/10 of an acre, you are required to record the following:

Date of application including month, day, and year.

Branch or product number. EPA registration number. Total amount of pesticide applied. Location of the pesticide application, designated as "Spot application" and short description.

The spot treatment provision excludes greenhouse and nursery applicators, which are required to keep all data elements as listed.

Attending licensed health care professionals or those acting under their direction, USDA representatives, and State regulatory representatives with credentials have legal access to the records.

No standard federal form is required, so that pesticide recordkeeping can be integrated into the applicator's current recordkeeping schemes.

All certified commercial pesticide applicators will continue to maintain the records they currently keep under State, Tribal, or Federal regulations. The federal pesticide recordkeeping regulations require all commercial applicators, both agricultural and non-agricultural, to furnish a copy of the data elements required by this regulation or their state, to the customer within 30 days of the restricted use pesticide application.

DIAGNOSTIC LAB HIGHLIGHTS

by Julie Beale and Paul Bachi

Diagnostic lab samples for the past two weeks have included cases of gray leaf spot, *Stenocarpella* and anthracnose stalk rots, and maize chlorotic dwarf virus on corn; charcoal rot and *Macrophomina* seed decay, and *Diaporthe* pod/stem blight on soybean; *Mycosphaerella* leaf spot and *Phomopsis* leaf blight on strawberry; *Pseudocercospora* leaf spot on cabbage; bacterial leaf spot (*Pseudomonas*), *Alternaria* leaf spot, and black rot on cauliflower; and *Rhizosphaera* needlecast on spruce.