

Blighted blossoms fail to produce fruit and infected plants in general are less vigorous than healthy plants. Bushes once infected, may show symptoms each year. Symptom expression may vary from year to year. Initially, only one or few branches may have blighted flowers and leaves, but after a few years the entire bush may show symptoms.

Two major species of aphids, *Illinoia pepperi* and *Fimbriaphis fimbriata* occur on blueberries in New Jersey. In laboratory experiments using both these aphid species, we were able to transmit BBScV from infected Chenopodium plants to healthy Chenopodium plants. Virus transmission under field conditions can occur from early May to mid-August when aphid populations are present. Removal of infected bushes will decrease the amount of virus inoculum in the field and thereby reduce the spread of the virus to healthy plants. Under greenhouse conditions, this virus can be transmitted by rub inoculation and by grafting. Therefore, it is possible that BBScV may be transmitted under field conditions by mechanical injury. Control of aphids combined with removing and burning of infected bushes over a 2-3 year period should reduce further spread of this virus.

IPM Summary:

By Mr. Dean Polk
IPM Agent - Fruit

Leafrollers and Leps. (Redbanded leafrollers - RBLR, Obliquebanded Leafroller - OBLR, Green Fruitworm - GFW): While trap captures of most leafrollers are low, larvae are starting to show up in field samples. Larval populations are at low levels, and are present in 15 to 20% of samples taken. Most larvae that are being seen are not leafrollers, but rather a third to half grown green fruitworms.

Aphids: Aphid populations have increased in most areas, with about 30 to 40% of our samples showing aphid populations. The highest counts as of Monday 5/4 were 15% of sampled terminals infested with young colonies. Treatments are not suggested until after bees are removed.

Plum Curculio (PC): Plum curculio can be a sporadic pest, especially in early varieties. During 1997 we found larvae in berries from Weymouth, Bluetta, and even some first picking of Bluecrop. Adults overwinter in woods and trashy areas near blueberry fields. Adults disperse to berries on warm days to lay eggs. The female feeds on a small area on the fruit, and lays an egg in the injured area. The "oviposition scar" appears as a "C" shaped area, usually 1 per berry. Scouting has shown that up to 2% of the fruiting clusters in the Hammonton area have egg scars, both on Weymouth and Bluecrop. Where this is a pest, insecticides should be applied in the petal fall spray. Guthion, Imidan, and Diazinon all offer good control. Lannate, Sevin and Malathion are weak against this insect.

Disease: Mummy berry strikes are numerous in several fields. Strikes may be found in just about any scouted field. Primary infections are heavily sporulating at this time. Phomopsis is also becoming visible in a few fields.

Trap Captures

Blueberry - Atlantic Co.

Week-	RBLR	OBLR	CBFW	SNLH	BBM	BBM
4/3	105.8					
4/10	144.7					
4/17	66.3					
4/24	11.9					
5/1	6.4	0.08				

Blueberry - Burlington Co.

Week-	RBLR	OBLR	CBFW	SNLH	BBM	BBM
4/3	18.3					
4/10	21.6					
4/17	13.6					
4/24	6.7					
5/1	2.5	0				

Disease and Culture:

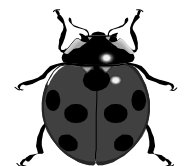
By Dr. Gary C. Pavlis
Atlantic County Agricultural Agent

Scorch (Sheep Pen Hill): I have seen many fields infected with this disease during recent fields visits. Infected bushes have leaves which are lighter in color, in fact, infected bushes can be spotted in a field from quite a distance. The most important symptom however is the extensive necrosis of flowers and twigs resulting in little or no crop. It seems that infected bushes are also a little behind in their development as compared to healthy plants. These symptoms are easiest to spot now. Later, a second flush of growth occurs and by late summer it is had to spot an infected plant.

This disease is spread by aphids and the expression of the symptoms may take years from the time the plant is infected. Different varieties express the symptoms a little differently but the take home message is that infected bushes should be pulled as soon as possible to decrease the possibility of further spread of this disease. There is no problem replanting in the hole where an infected plant was pulled. Infected plants should be taken out of the field and burned.

Lastly, it should be realized that ladybird beetles help with aphid control. The judicious use of insecticides to help maintain these aphid predators will help in the control of scorch.

Sincerely,



DR. GARY C. PAVLIS
Atlantic County Agricultural Agent
Editor - Blueberry Bulletin

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MIXING INSECTICIDES AND FUNGICIDES: POTENTIAL COMPATIBILITY AND PHYTOTOXICITY PROBLEMS IN BLUEBERRIES

By Dr. Sridhar Polavarapu

*Rutgers Blueberry and Cranberry Research &
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Insecticides and fungicides are often used in combination to manage insect and disease problems that occur at the same time. Although tank-mixing of insecticides and fungicides is economical and convenient, this approach may cause severe compatibility and phytotoxicity problems if inappropriate chemicals are tank-mixed. It is therefore important to determine if a particular combination of chemicals is compatible and safe prior to large scale application. This is especially necessary for new chemicals and formulations that have not been tested extensively in the field.

Physical compatibility of tank-mix partners can be determined by employing a jar test. Using a gallon jar, add proportionate amounts of each chemical at approximately the same rate as specified on the label to one quart of water. Add wettable powders and water-dispersible granular products first, then liquid flowables and finally emulsifiable concentrates. After thoroughly mixing, allow the mixture to stand for at least 5 minutes. If the combination remains mixed or can be readily remixed with agitation, the products are physically compatible.

Pesticide mixtures that are physically compatible may still cause crop injury. New chemicals and formulations should always be evaluated for crop safety in a small area, prior to spraying on a larger area. Crop safety should be evaluated by mixing small amounts of tank-mix partners at the appropriate rates and spray volumes with spray equipment that is normally used on the farm. If no symptoms of phytotoxicity (such as necrotic spots or dieback) are evident generally within 24-72 hours after the spray, the combination may be considered safe. In some cases, phytotoxicity may take longer than 72 hours for full expression of symptoms.

During 1997 season, severe phytotoxicity was observed with combinations of Diazinon and Captan formulations in blueberries. Symptoms of phytotoxicity were evident within 24 hours of the application of Diazinon and Captan mixtures. The phytotoxic symptoms on berries ranged from deep purple blotches to circular depressions, especially where residues have accumulated near the calyx end of the berries. On leaves, brownish purple spots were seen especially on the underside of the leaf surface. Phytotoxicity symptoms were evident in treatments with Diazinon AG600 WBC and Captec 4L mixtures, but not in individual treatments of either Diazinon AG600 WBC or Captec 4L. Phytotoxicity on both fruits and leaves appears to be more severe in Diazinon AG600 and Captec 4L mixtures than in combinations of Diazinon

AG600 WBC and Captan 80W or Diazinon 50W and Captec 4L formulations. **The labels for all formulations of Diazinon have been amended recently to prohibit mixing with any formulation of Captan and prevent the possibility of crop injury.** 🐞

DEER TICK SEASON IS HERE

By Deborah Smith-Fiola

Ocean County Agricultural Agent



May and June are the months of peak activity for the immature deer tick (now known as the black legged tick), which transmits Lyme Disease. The immature nymph stage is the stage which transmits the majority of all reported Lyme Disease cases. Keep in mind these facts about deer ticks:

-The immature nymph is very small, about the size of a poppy seed. Many Lyme Disease victims thus never see the tick, nor remember a tick bite.

-Ticks do not fly, jump, nor drop from trees. They climb up low vegetation (high grass, shrub growth) and wait for an animal to brush by. They then grasp onto the animal's skin (or clothing) and crawl up the body.

-Ticks feed for 3 to 5 days on the blood of an animal. Finding and removing the tick within 24 hours can significantly reduce the risk of contracting Lyme Disease. Remember, not every deer tick is infected.

-Only remove a tick with tweezers; preferably bent, pointed (needle-nose) tweezers. Grasp the tick near the head and SLOWLY pull it out. Other methods of removal can traumatize the tick, causing regurgitation (which may include the Lyme Disease bacteria). Save the tick for identification.

-An initial symptom of Lyme Disease is a rash, which typically appears at the bite site after a few days. The rash is always 2 inches or more in diameter, and often accompanied by flu-like symptoms.

-Most deer ticks are found in the woods, or along the edge of the woods. Wear a repellent if entering such an area. If your home backs up to woods, consider removing low vegetation (mowing, thinning), widening trails, removing brushpiles and woodpiles (which attract small animal hosts).

-GRANULAR insecticides have provided excellent control of deer ticks. One application of carbaryl (Sevin) granular, applied in late May, reduced deer tick nymph populations by 95 - 99% in NJ trials. Since nymphs rarely travel more than 9 feet from where they molted, only 1 application is needed for control. 🐞

DEER TICK FACTS VS. FICTION

By Deborah Smith-Fiola

Ocean County Agricultural Agent

Mid-May through June is the peak activity period for the immature deer tick (now called the black legged tick), vector of Lyme Disease. The immature nymphs are very small, (the size of a poppy seed), and accordingly, transmit the majority of Lyme Disease cases due to the fact that people don't see them or notice symptoms. The following may separate fact vs. fiction on deer tick habits and control:

1. "Deer ticks drop out of trees." - MYTH.

Ticks do not jump, fall from trees, nor fly. They crawl up vegetation (the nymphs prefer low vegetation, 4 - 6 inches or less) and wait for an animal to walk by. They then grasp onto the skin or clothing of the person/animal, and crawl up the body. Tucking long pants into your socks prevents ticks from crawling up your pant leg, where you can't see them to brush them off before they insert their mouthparts to feed.

2. "Not every deer tick is infected with Lyme Disease". - FACT.

The first stage immature deer tick (the larval stage) is not predominantly involved with Lyme Disease transmission. The infection rate within nymphs and adults varies each year. Last year, the infection rate among nymphs hovered around 15% in Monmouth/Ocean Counties (higher for adults) as compared with approximately 25% in 1993. The infection rate is linked with native white footed mouse population levels. Regardless, removing even an infected tick within 24 hours, can profoundly reduce your risk of contracting Lyme Disease.

3. "I should spray my lawn and landscape monthly to kill ticks" - MYTH.

The deer tick nymph is most commonly found in the woods. A properly mowed (3") lawn is undesirable for survival, since heat and dessication are primary mortality factors. Nymphs rarely move more than 9 feet in any direction - they move distances by hitching rides on animals as they feed. Thus, research has found that a single application of an insecticide in late May/first week of June will give summer long control of the nymph stage. Granular insecticides such as Sevin, Dursban or Diazinon have shown up to 95% control in research trials with proper application. Applications should be targeted to shady areas of the lawn, or a barrier treatment around the edge of the woods.

4. "Only remove ticks with tweezers". - FACT

The best way to remove a tick is by bent, needle-nose tweezers. All other methods (petroleum jelly, hot matches, your fingers, nail polish, etc.) may traumatize a tick. A traumatized tick often will regurgitate its gut contents, which may include regurgitation (and thus injection) of the Lyme Disease bacteria to you.

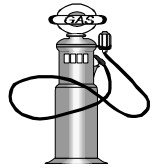
For more information, contact the Rutgers Cooperative Extension office in your county and ask for the free fact sheet, "Prevent Tick Bites: Prevent Lyme Disease". ☺

A PRIMER MOTOR FUEL TAX EXEMPTIONS FOR NEW JERSEY FARMERS

New Jersey Department of Agriculture

Certain motor fuels used by New Jersey farmers are exempt from motor fuel taxes imposed by the State of New Jersey. Below is a summary of those taxes from which farmers are exempt, directions on how to secure a refund for those taxes and additional motor fuel tax information.

Gasoline: Under N.J.S.A. 54:39-66, farmers are exempt from the Motor Fuel Tax (10.5 cents per gallon) for gasoline used in agricultural tractors not operated on a public highway and farm machinery or highway motor vehicles which are operated exclusively on private property (the vehicle can not be registered with Motor Vehicle and must be unlicensed). Gasoline used in trucks which are used on the farm and registered/licensed by Motor Vehicle ARE NOT eligible for motor fuel tax exemption. When purchasing fuel, tax must be paid to the supplier. The law specifies that you must apply for the refund on or before the last business day of the sixth month following the purchase (see below for refund procedure).



Diesel For Vehicles With A Gross Weight Of Less Than 5,000 Pounds: Under N.J.S.A. 54:39-66, diesel fuel for passenger automobiles and motor vehicles of less than 5,000 pounds gross weight are eligible for a refund of \$0.03 per gallon. This is due to the difference in the gasoline tax rate and the tax rate for diesel fuel.

Refunds: Contact Mr. Watson, Division of Taxation, (609) 292-7018, regarding refunds from the motor fuel tax paid under N.J.S.A. 54:39-66. The Division of Taxation will send a preliminary refund application to the farmer which should be completed and returned to Taxation. Once the application is received by taxation, they will review it for completeness and eligibility. If the application is approved, Taxation will issue the farmer a 7 digit code number after which the farmer can apply for a refund. (REMINDER: Farmers are only eligible for a refund on fuels purchased on or before the last business day of the sixth month following the purchase.)

Red-dyed Diesel For Farm Equipment (Special Fuels):

Under the law governing users of special fuels, farmers are exempt from the Motor Fuel Tax (N.J.S.A. 54:39-64.1 et seq.) if they purchase bulk red-dyed fuel for use in powering an off-road vehicle used on the farm. If bulk red-dyed fuel is stored on the farm for use



(Continued on page 5.)

in off-road farm vehicles (including agricultural tractors, farm equipment and unregistered trucks which will not travel on the highway), farmers must secure a Farmer's Exemption Certificate MFT-f15 from the Division of Taxation. A copy of the Exemption Certificate should be provided to the supplier when the special fuel is delivered to the farm. If farmers take a tank in the back of a pick-up truck to a gas station or a supplier and fill the tank with red-dyed fuel and then fill the farm equipment tanks from that tank, they are exempt from Motor Fuel Tax (13.5 cents per gallon) and MUST provide the gas station or supplier with a copy of the Farmer's Exemption Certificate MFT-15. Farmers ARE NOT exempt from the Motor Fuel Tax on clear diesel. (REMINDER: Red-dyed fuel can ONLY be used in off-road vehicles.)

To Secure A Farmer's Exemption Certificate For Red-dyed Diesel: In order for a farmer to be exempt from the special fuels seller/user motor fuel tax license used in off-road farm tractors and equipment, the farmer must secure a Farmer's Exemption Certificate MFT-15 from the Division of Taxation. There is no fee involved with securing a Farmer's Exemption Certificate.

In order to obtain an MFT-15 the farmer must submit to the Division of Taxation an Application For Registration (Form REG-1) and an Application for Farmer's Exemption Certificate. All questions and requests for forms should be directed to the Division of Taxation at (609) 633-7838.

Petroleum Products Gross Receipts Tax - N.J.S.A. 54:15-1 DOES NOT contain a provision to exempt farmers from the Petroleum Products Gross Receipts Tax.

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PESTICIDE APPLICATOR INFORMATION FOR FRUIT GROWERS

*By Jerome L. Frecon, County Agricultural Agent
RCE - Gloucester County*

Worker Protection Standards - At the recent New Jersey Pest Control & Fertility Conference, Carmen Valentin, Outreach Coordinator, NJDEP reported there were 260 compliance inspections for worker protection training on farms in New Jersey in 1997. Many farms were not in compliance with WPS regulations. The most common problem was incomplete pesticide application records. Frequently EPA registration numbers were not listed or entry times not posted.

Another major problem was decontamination stations were not available for workers. Where available, there was inadequate water (must have 1

gallon per worker) or there were no disposable towels and soap.

If any grower wants compliance assistance on their farm, please call the NJDEP at 609-984-6920 or contact the RCE office in your county.

Reminder - after April 1, 1998 any grower not meeting compliance will be subject to fines from NJDEP.

Pesticide Notification - Ms. Valentin reported that this was a dead issue and growers will not be required to notify the NJDEP when regularly applying pesticides on their farms.

Penncap - Ms. Valentin reported the NJDEP only received one complaint in 1997 on bee kill and after inspection and testing no methylparathion (Penncap) was found. The new Penncap appears to have corrected past problems.

Pesticide Poisonings - Cases of pesticide poisonings declined by 70 percent over the last 25 years in South Carolina, according to survey results from the Medical University of South Carolina's Agromedicine Program. Between 1992-96, there were 112 hospitalizations; accidental child/adult poisonings accounted for 51 percent of total; attempted/successful suicides, 41 percent; and occupationally-related cases, eight percent. Outpatient emergency room visits for pesticide related poisonings during the last few years averaged 51 per year, with two-thirds involving children under four. Reasons given for accidents included instances where children ingested contents of soft drink cans filled with chemicals or farmers who attempted to clear clogged spray nozzles with their mouths.

The survey's authors note that over the last 25 years, occupationally-related cases of pesticide poisoning steadily declined in South Carolina from 37 percent down to eight percent. They attribute this decline to industry successes in applicator training programs, licensing and certification of restricted-use applicators and increasing use of less toxic insecticides.

Safe Fruits & Vegetables - According to the American Crop Protection Newsletter - an 11/24/97 CNN report on pesticides featured good news for us. "I really think we do a pretty good job of working with pesticides in this country and that's one of the reasons I'm not particularly concerned." George Gray of the Harvard School of Public Health told CNN. The story goes on to say that health experts warn consumers not to let worries about chemicals upstage the benefits of eating conventionally grown fruits and vegetables.

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