

PLANT & PEST ADVISORY

CRANBERRY EDITION \$1.50

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Insect Update

Sridhar Polavarapu, Specialist in Entomology

✓ **Post-pollination insecticide applications:** The first post-pollination insecticide spray is an important opportunity in managing fruit feeding insect pests and should be applied as soon as honeybees are removed. This application will provide effective control of **Spotted fireworm**, **Sparganothis fruitworm** and **Blackheaded fireworm**. Insecticide options include Diazinon, Guthion, Lorsban, and Orthene.

I don't think that every bog requires the post-pollination insecticide application, especially if you have already used one or more organophosphate insecticides during the pre-pollination period. You may be able to skip post-pollination insecticide application if pheromone traps for **sparganothis fruitworm** and **spotted fireworm** near the target bogs have indicated a rather weak flight. If you have used a pre-pollination application of Lorsban or Guthion, do not use the same insecticide in the post-pollination spray.

✓ **Spotted fireworm:** The first generation adult flight is virtually over now. More than 90% of all eggmasses will have hatched before the end of this week. Newly hatched larvae are beginning to web uprights. The majority of the larvae at this time are in first instar stage. Insecticides are most effective if applied before the larvae are tightly enclosed in the webbed uprights and fruit.

✓ **Sparganothis fruitworm:** Pheromone trap captures already peaked last week at most locations. Pheromone trap captures peaked a few days earlier in 'Ben Lear' beds indicating an earlier phenology on early varieties. Egg masses have been hatching for the past 10-14 days.

Sparganothis fruitworm lays eggs on cranberry foliage and weeds in masses of 30-50. Eggs hatch in 9-12 days. Newly hatched larvae are yellowish-green with black heads. The head capsule turns yellow as the larva molts into a second instar. Sparganothis larvae often score many berries they comes in contact with, thus increasing the number of damaged berries. The first post-pollination spray, applied 2 weeks after the peak moth catch in pheromone traps, has generally provided effective control of early larval stages.

✓ **Cranberry girdler:** Growers should begin looking for Cranberry girdler damage in the next 3-4 weeks. Girdler larvae remain in the leaf litter and feed on the runners, weakening them and causing a yield reduction. When the feeding causes complete girdling of the vine or its severance, the vines are killed. Damage due to girdler larvae usually occurs in patches.

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Purple Loosestrife-Eating Beetles Help Native Plants Reclaim Wetlands

Robert Chianese, Chief, NJDA, Div. of Plant Industry, Phillip Alampi Beneficial Insect Rearing Laboratory

Purple loosestrife, *Lythrum salicaria*, is a European plant that is now found in all lower 48 states except Florida and has infested thousands of acres of New Jersey freshwater wetlands. It has been declared a noxious weed in a number of states but is not regulated in New Jersey. Purple loosestrife propagates vegetatively and by seed, out competes natural vegetation, prefers full sun but can tolerate 50% shade and a mature plant can produce over two million seeds. To date, it has caused few problems for growers in New Jersey, but loosestrife will thrive in wet meadows, displaces native vegetation used by waterfowl and other native animals for food, shelter and nesting, infests irrigation ponds and can clog drainage ditches reducing water flow. In addition, it will grow in soil with a pH as low as four, which makes it a threat to the cranberry growing area.

There is no satisfactory means, chemical or mechanical, that can be used for controlling purple loosestrife once it has become well established. Although some native species of insects can be found feeding on purple loosestrife, they have little impact on the plant. Two species of purple loosestrife eating beetles, *Galerucella pusilla* and *G. californiensis*, collected from their native European country and approved for release in the United States by the United States Department of Agriculture, are being raised by the New Jersey Department of Agriculture, Division of Plant Industry's Phillip Alampi Beneficial Insect Rearing Laboratory. At the request of the Department of Environmental Protection (DEP), release of the beetles are being made on a number of state parks and wildlife management areas (WMA). The goal of the program is to raise thousands of beetles in the laboratory and release them in loosestrife infested sites, in an effort to slow the spread and eventually reduce the population of this aggressive plant. The program is receiving some funding from the DEP's, Nongame and Endangered Species Program for release of the beetles on privately owned bog turtle, *Clemmys muhlenbergii*, sites. Bog turtle is on the New Jersey endangered species list and its habitat is being threatened by the spread of purple loosestrife.

Since the initiation of the program in 1997, more than 830,000 beetles have been released and the species are now established in ten counties. Loosestrife is demonstrating moderate to high mortality rates at some of the first release sites, and native vegetation has been observed reclaiming infested wetlands in at least one of these sites. This is an encouraging sign, since the first releases were only initiated four years ago and impacts to the plant were not expected so soon. The Department continues to work with DEP, releasing the beetles in a number of bog turtle sites. In addition the beetles will be released in a wetland mitigation site and state wildlife management sites.

In an effort to help support the program, a fee of \$100/1000 beetles is charged for all beetles released on other than state-owned land. To establish the beetle, the laboratory recommends a minimum release of 3,000 beetles/acre on sites with a moderate to heavy purple loosestrife infestation.

Requests for beetles should be addressed to Mr. Daniel Palmer (609) 530-4192, fax- (609) 530-4195, e-mail- Daniel.Palmer@ag.state.nj.us. □

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Cranberry girdler overwinters as a larva enclosed in a cocoon woven of silk and trash on the bog floor. After the water is drawn, larva pupates and emerges as a moth around the first of June. Adult flight has peaked in the past 7-10 days. Moth emergence continues to early August with peak egg-laying occurring in early to mid-July. The adult moth is about 1/2 inch long with a snoutlike projection on its head, and silvery-white front wings with light brown outer edges. Eggs are laid on the trash. The larvae are dirty white with brown heads and feed on stems and runners in August and September. There is only one brood produced each year.

Girdler control can be achieved with the granular formulation of Diazinon. Diazinon G14 must be applied in late July to early August from the ground directly on vines at a rate of 21 lbs/acre and watered in with at least 1/4 inch of water. There may not be any discharge of water from the bog for 7 days after application. The pre-harvest interval is 7 days. Please read and follow all directions on the Supplemental label. □

Farm Pond Algae Control

Raymond J. Samulis, Burlington County Agricultural Agent

Often times we consider algae growth in farm ponds as a summer problem. Last winter, my observations led me to believe that with recent mild winters algae continued to grow all winter. Heavy algae growth can cause serious oxygen deficiency problems that result in fish kills. Algae can also cause problems by clogging irrigation intake screens, which usually results in automatic pump shut down.

When we look at the root causes of algae problems, both high phosphorous and nitrogen are suspect. You can measure the relative levels of these nutrients through a conductivity meter that measures soluble salts. This can be tested by a simple, inexpensive hand held tool all the way up to the computerized instrument I use, which tests six different water quality measurements at once.

Water temperature is another factor that encourages algae growth in farm ponds. As temperature increases so does algae growth. It appears to me that an early warm period in spring results in early warming of water, which in turn exacerbates algae problems.

Interestingly, algae can be a double-edged sword when it comes to water oxygen levels. Since algae is photosynthetic (green), during the day it gives off oxygen into the water as part of this process. Conversely, during the night the respiration process will use up oxygen and lower the levels in water. As dead algae decompose, the decaying process also lowers oxygen levels.

Correcting algae problems can get complicated. There are many different herbicides that are registered for this purpose; however, there are significant restrictions for their use. If your farm pond has no inflow or outflow, you may be able to use certain algaecides such as copper sulfate. If there is inflow or outflow, you will be required to get a Category 5 Pesticide Applicator License. There are other considerations such as number of employees, pond size, etc., which also trigger the need for a Category 5 License. The only way to see where your farm fits in is to study the requirements in extension bulletins FS153 - *Aquatic Weed Control* and FS155 - *Guidelines for Aquatic Pesticide Applications Involving Water Intakes or Water Use Areas*.

Effective algae control should begin early, before invasive new algae mats have developed. Most herbicide treatments require you to calculate the total volume of water in the pond. This measurement can be used to determine how many pounds of copper sulfate or other aquatic herbicide are needed for control. The rules have changed recently for copper sulfate use. The highest recommended rate is now ½ ppm instead of the previous 1 ppm. In ponds with serious algae problems, it may be better to treat ½ of the pond at a time to decrease problems with low oxygen as the dead algae rapidly decay.

Algae problems can be effectively dealt with if care is taken in preparation. Be sure to carefully calculate the total pond volume. Understand the restrictions on each site and algaecide used. Category 5 permits may be needed in some instances. □

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