

PLANT & PEST ADVISORY

CRANBERRY EDITION \$1.50

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Insect Update

Sridhar Polavarapu, Ph.D., Entomology and IPM

✓ **Blackheaded fireworm:** Pheromone trap catches in our research bog are close to peak this week. Less than 15% of eggs have hatched in our bog as of 6/9/99. Adult flight has just started in most of the monitored areas. Trap catches are expected to further increase in the following 7-10 days. Eggs laid by these moths will begin to hatch in the following 3-5 days. Eggs are flat and light yellow, and laid singly on the underside of the leaves. Confirm 2F (Tebufenozide) is labeled for managing Blackheaded fireworm. This insecticide can be used during bloom. If insecticide applications are required, the first application should be made in the next 5-8 days, approximately 8-12 days after biofix. Biofix is defined as a total of 5 moths in 3 traps captured in the previous 7 days. For example, if pheromone traps accumulate a total of 5 moths in 3 traps between May 29 and June 4, then your first spray should be between June 12-16 (8-12 days after biofix on June 4).

High trap counts may not necessarily mean high larval numbers. For this reason, before deciding to apply insecticides, closely monitor the bogs with a history of Blackheaded fireworm populations (and with high trap counts) for eggs and possibly larvae.

✓ **Spotted fireworm:** Pheromone traps are capturing adult males for the past 7 days. Trap catches will peak in the following 3-4 days. Egg laying should have just started at this time. Egg laying will peak in another 10-14 days.

Spotted fireworm lays eggs mainly on weeds such as leather leaf, red maple, briars, ferns, grasses etc. We have recorded egg-masses on more than two dozen weed species so far. Egg-mass density (number of egg-masses per unit area) has been found to be greater in areas with weeds than in areas without weeds. Keeping weeds in check may reduce the egg load on a bog and thereby reduce larval abundance in the following generation.

Traditionally we have been using organophosphate insecticides such as Lorsban, Guthion, or Diazinon to manage caterpillar pests such as spotted fireworm and sparganothis fruitworm. We now have another option with Confirm 2F. This insecticide has shown good activity against early instars of both these pests. If properly timed, you could manage both these pests with one or two applications of Confirm 2F. If you manage the caterpillar pests during bloom with Confirm 2F, you do not have to hurry to remove bees to apply

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organophosphate insecticides post-bloom. You may leave the bees for a few more days to work on the flowers. Also, Confirm 2F is very safe to beneficials; use of this product (in place of OP compounds) should increase the abundance of parasites and predators in the bog. It may also be feasible in some cases to combine fruit rot sprays with Confirm 2F (although I rather would like to apply them separately). Please check with us before you combine Confirm 2F applications with any other pesticide.

✓ **Sparganthis fruitworm:** Adults are emerging and a few moths have been caught in pheromone traps so far. Pheromone trap catches are not expected to peak for another 2-3 weeks.

✓ **Cranberry rootworm:** Adult Cranberry rootworm beetles are beginning to emerge. We have seen only a few adults so far. Most of the grub population at this time is in the pupal stage. Adult emergence is expected to peak in the following 7-10 days. Adults will continue to emerge over the following 3-4 week period.

The grubs of this insect feed on fine roots as well as the bark of larger roots and runners that are in contact with the ground. Infestations are very spotty and appear as brown irregular circular patches. Damaged vines can be easily pulled and rolled back like a mat. Adults also feed on the cranberry foliage

and cause the vines to turn brown, similar to fireworm damage.

The adult is about 1/5 of an inch long, shiny, mahogany brown. Eggs are laid singly or in masses on bog trash and in surface soil in June and July. They hatch in about a week, and the young grubs continue to feed on roots until October. This insect overwinters as a grub in the soil and generally has a one-year life cycle, but a few grubs may take more than one season to mature.

Growers should inspect for the presence of adults in suspected areas. Adults can be easily found on the foliage as well as in the bog trash. Adults are more active during late evening hours and at night. If you have experienced an infestation of cranberry rootworm in the past, you should start to look for adult activity now. Admire 2F has been recently granted a Section 18 registration against cranberry rootworm. You should delineate the areas of infestations and apply Admire 2F targeting early instars of grubs during the first and second weeks of July. This product is toxic to honey bees and cannot be applied during bloom when honey bees are actively pollinating. If you intend to use this product, please call Ray Samulis, Burlington County Agricultural Agent (609-225-5050) and register your use. Under the Section 18 registration, Admire 2F can be applied on a maximum of 500 acres in New Jersey. □

2nd Annual Cranberry Twilight Meeting

June 16, 1999, 6:30 pm

Haines & Haines Bogs and Rutgers Blueberry and Cranberry Research Center, Chatsworth

The program will start at 6:30 pm with a walking tour of Haines & Haines Bogs (meet at the Research Center). The bog tour will include pest control practices and field diagnosis of current insects and diseases.

7:30 pm - Dr. Sridhar Polavarapu, Specialist in Entomology
"Management of Post Bloom Insect Problems"

7:50 pm – Dr. Nicholi Vorsa, Research Professor
"Cranberry Varieties: Characteristics and response to N"

8:10 pm – Ray Samulis, County Agricultural Agent
"Water Quality Update"

8:30 pm – Dr. Peter Oudemans, Specialist in Plant Pathology
"Fungicide Timing and Coverage"

8:50 pm – Mark Leonard, Conservation Officer,
"Wildlife Damage Issues"

9:10 pm – Question and Answer Session

Refreshments and pesticide credits to be issued

Contact Raymond J. Samulis, Burlington County Agricultural Agent at 609 265-5050.

Fertilizing Cranberry Bogs

Raymond J. Samulis, Burlington County
Agricultural Agent

The Pine Barrens soils of New Jersey have long been known for their low fertility and coarse, sandy structure. While it is true that cranberries and blueberries tolerate these conditions, there is a great difference between tolerance and maximum production within bogs. Even though the total fertility requirements of cranberries are much lower than that of most other horticultural crops, advances in fertilizing techniques have played a major part in the recent dramatic increase of cranberry yields in New Jersey. For many years, growers in New Jersey had a standard program of a single application of 10-10-10 early in the season. I can remember asking growers some ten years ago, what the basis for this single application of fertilizer was in light of the fact that vegetable growers have used split applications for many years? There were few responses. Modern greenhouse producers have even gone a step further. They have developed what is known as "continuous feed" systems that fertilize every time the crop is watered. This is probably the optimal system since plants grown this way will not be over or under-fertilized. Fertility needs are precisely supplied in proportion to the water needs of the plant. Cranberry fertilization falls somewhere between the extremes of a single fertilizer application and constant feed.

Modern cranberry fertilization now splits the total fertilizer application according to physiological growth characteristics rather than the Julian calendar. Fertilizer is applied in four, five or more separate applications based on stages of growth of the cranberry vines. The four stages of growth where fertilizer is commonly applied are roughneck, bloom, fruit set, and fruit sizing. Some growers also apply a post harvest application. The different types of fertilizer used varies according to either soil tests, tissue tests or preferably both. Rates of N vary from 10 to 30 lbs. total per season with 20% at roughneck, 30% at bloom, 30% at fruit set and 20% at fruit sizing. Also added into the calculation of total N-P-K needed is the overall appearance of the vines both in reference to vine color and amount of vine growth. Grape growers use a system where fertility requirements are based upon the total estimated pounds of cuttings on the vine prior to pruning. This is an interesting concept that may have application to cranberry fertility.

Foliar fertilization is another area of technology that interests cranberry growers. While it appears that this would be an efficient method to get rapid uptake of nutrients into the cranberry vines, research shows us that only about 15% of nutrients can be

absorbed through the foliage. The effectiveness of foliar applications results from nutrients being washed into the soil and taken up by roots. Foliar fertilization can supplement a good overall program, but cannot substitute for a sound fertility program based on soil applied fertilizers.

Dr. Jim Paterson and I have been investigating slow release fertilizer materials for use in cranberries in recent years. There are many types and formulations of slow release fertilizers such as sulfur-coated urea, resin encapsulated, long chain polymer liquids and reactive layered coated ureas. The problem with these materials is they release on a rather continual basis that may or may not coincide with the fertility requirements of the cranberry vines. Still another problem results from the release rate being temperature dependent. A six month rated fertilizer may release in a very short period of time. This is undesirable and has caused soluble salt injury to plants. Our results have shown that at the current time slow release fertilizers show little benefit to yields. The added expense is not justified when compared to standard fertility programs.

Fertilizing new bogs encompasses different objectives compared to producing bogs. The desired effect here is for quick vine growth rather than yields. Ten pounds of N should be applied as soon as vines root followed by subsequent applications of 5 pounds N every three weeks into mid-August.

Fertilizer technology is changing rapidly and producing new materials all the time.

Details for taking representative tissue samples will be discussed in a future article that corresponds to the proper timing for tissue sampling, namely in the early fall. □

Deer Survey Results On-Line

Rutgers' New Jersey Agricultural Experiment Station (NJAES) Center for Wildlife Damage Control conducted a 65 question survey of New Jersey's farmers in 1998 to improve understanding of how deer, and current deer management practices, impact agriculture. This comprehensive opinion survey determined farmers' perceptions of deer and identified and quantified how current deer management practices impact their farming. Survey results should lead to improved deer management programs that are more responsive to the needs of farmers seeking solutions to crop damage.

The Rutgers Deer Survey Results with color maps are now available on the Web: <http://www.rce.rutgers.edu/programs/wdc/deer.htm>. □

Rutgers Cooperative Extension - NJAES
U.S. DEPARTMENT OF AGRICULTURE
Rutgers - The State University of New Jersey
Plant & Pest Advisory
18 College Farm Road
Cook College
New Brunswick, N.J. 08901-8551

PLANT & PEST ADVISORY

CRANBERRY EDITION CONTRIBUTORS

NJAES Blueberry Cranberry Research & Extension Center
(609-726-1590)

Bradley A. Majek, Ph.D., Weed Science
Peter Oudemans, Ph.D., Plant Pathology
Sridhar Polavarapu, Ph.D., Entomology and IPM
Nicholi Vorsa, Ph.D., Breeding, Genetics and Culture

Rutgers Cooperative Extension Agricultural Agent
Raymond J. Samulis, Burlington County (609-265-5050)

Ocean Spray Cranberries
Dan Schiffhauer, Agricultural Specialist

Newsletter Production
Jack Rabin, Assistant Director, NJAES
Cindy Rovins, Editor and Designer
Mary Ann Hughes, Assistant Editor

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