

# PLANT & PEST ADVISORY

CRANBERRY EDITION \$1.50

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## Insect Update

*Sridhar Polavarapu, Ph.D., Specialist in Entomology*

✓ **Post-pollination insecticide applications:** We are fast approaching the end of bloom on several varieties and now is the time to begin considering post-pollination insecticide choices. In the past for lack of good insecticide choices while honey bees are still around, growers were forced to wait until post-pollination to apply an organophosphate to manage fruit and foliar feeding insects. This application perhaps constituted the most important opportunity in preventing direct crop losses as a result of damage to fruit by **spotted fireworm** and **Sparganothis fruitworm**.

With the recent registration of **Intrepid 2F** (methoxyfenozide), you now have another tool in addition to **Confirm 2F** that can be used when bees are still around to manage **caterpillar pests** (see accompanying article). You can also use **SpinTor 4SC** during bloom provided you can ensure a 3hr drying period between application and time of first bee activity. SpinTor 4SC is toxic to honey bees if bees come in direct contact with spray residues within this 3hr period. If you are considering using any of these three products for post-pollination control of spotted fireworm or Sparganothis fruitworm, the best time window for this application is between July 7-July 12 in most areas (see following article for additional information).

I do not think that every single bog requires the post-pollination insecticide application, especially if you have already used one or more insecticides during the pre-pollination period. You may be able to skip a 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. Similarly, if you have not used an organophosphate during pre-pollination or in the last year, you may consider using an organophosphate such as Lorsban or Guthion in your post-pollination spraying.

✓ **Spotted fireworm:** Over 80% of egg-masses have hatched as of July 7 around the Chatsworth area. Intrepid 2F and Confirm 2F are most effective if targeted against the newly hatched larvae. This year spotted fireworm is perhaps the main target for post-pollination insecticide applications.

✓ **Sparganothis fruitworm:** Adult flight peaked around July 4. However, in a vast majority of the monitored areas, adult captures are low to moderate (10-50 per trap per week at peek) indicating potentially low larval populations in the following generation.

*See Insect Update on page 3*

## Admire 2F (Imidacloprid): A New Tool for Management of Cranberry Rootworm and Other White Grub Species

Sridhar Polavarapu, Ph.D., Specialist in Entomology

Admire 2F has recently been approved for use in cranberries. You can find a copy of the cranberry-specific supplemental label at [www.rce.rutgers.edu/labels](http://www.rce.rutgers.edu/labels). You must have a copy of the supplemental label in your possession at the time of use of this product.

Admire (2F), is a neonicotinoid insecticide registered for use on cranberry against **cranberry rootworm** and **scarab grubs**. This insecticide is a contact and stomach poison that affects the insect nervous system. Admire 2F is highly systemic and upwardly mobile. In addition to activity against beetles and grubs, Admire 2F is highly effective in managing insects with piercing and sucking mouthparts such as **aphids, leafhoppers, scales, mealybugs**, and other true bugs. Admire 2F has been shown to be effective against the grub stages of **Japanese beetle, oriental beetle, cranberry rootworm**, and several species of **May-June beetles** (*Phyllophaga spp.*). More work needs to be done to determine the efficacy of this insecticide against numerous other root feeding white grub species that attack cranberries. **Admire 2F can only be applied by ground or chemigation.** Imidacloprid, the active ingredient in Admire 2F is only moderately soluble in water and is subjected to UV degradation following application. It is therefore recommended to apply 0.3 inches of irrigation immediately following ground application. Imidacloprid has excellent soil residual activity lasting several months once protected from UV degradation. Admire 2F is highly toxic to honey bees and therefore can be used only after the removal of honey bees for pollination. Admire 2F is also known to be more effective against early instar grubs compared to later instar (third instar) grubs. Therefore the optimal timing for Admire application against most annual grub species (such as Japanese beetles, Oriental beetles etc.) is around July 10-15 after the removal of honey bees. This product can be used at 16-32 fl oz/acre. Maximum of 32 fl oz of Admire 2F can be used per acre per season. The PHI is 30 days. **Aerial application of this product is prohibited.** As always, please read carefully the master label on the container and the supplemental label for precautionary information and use directions.

This is a good time to start scouting and flag areas that require Admire application. The most economical way to use Admire 2F is to spot-treat infested areas rather than treating entire bogs. □

## Intrepid 2F (Methoxyfenozone): A New Insecticide for Management of Caterpillar Pests in Cranberries

Sridhar Polavarapu, Ph.D., Specialist in Entomology

Intrepid 2F has just received EPA and NJDEP approval for use in cranberries. You can find a copy of the cranberry-specific supplemental labels at [www.rce.rutgers.edu/labels](http://www.rce.rutgers.edu/labels). You must have a copy of the supplemental label in your possession at the time of use of this product.

Intrepid 2F is a second generation Insect Growth Regulator with activity only against **caterpillar pests**. The mode of action of Intrepid is identical to Confirm 2F. Both these compounds cause premature lethal molt upon ingestion in the larval stage of target pests. This insecticide, similar to Confirm 2F, has no contact activity. Intrepid 2F is generally regarded to provide superior efficacy compared to Confirm 2F often at rates lower than Confirm 2F. Intrepid 2F is an ideal insecticide for inclusion in IPM programs because it has no toxicity to insect natural enemies, honey bees and other pollinators, and mites. The unique mode of action of Intrepid 2F precludes resistance development, thereby making it a good rotational candidate for resistance management. Intrepid 2F has low toxicity to mammals, birds, and fish, but is toxic to aquatic invertebrates. The residual toxicity of Intrepid 2F to neonate larvae is comparable or better than many organophosphate insecticides registered for use on cranberry. Field and laboratory studies conducted in New Jersey have demonstrated excellent efficacy of Intrepid 2F against **spotted fireworm** and **Sparganothis fruitworm**. Based on work conducted on blueberries, we expect Intrepid 2F to be highly effective against **cranberry fruitworm** also.

For optimal efficacy against external foliar and fruit feeders (such as spotted fireworm and Sparganothis fruitworm), this insecticide should be applied at the beginning of egg hatch or shortly thereafter. A second application may be necessary 10-14 days after the first application to manage very high populations. Intrepid 2F should be used at 10-16 fl oz/acre for a maximum of 64 fl oz/acre/season. The Pre-harvest Interval (PHI) is 14 days and the Re-entry Interval (REI) is 4 hours. This product can be applied by air in a minimum of 10 gal per acre or by ground in a minimum of 20 gal per acre. **Intrepid 2F should not be applied by chemigation.** Please read and follow all safety and precautionary information on the master label (on the container) as well as the supplemental label prior to using this product. □

## Cranberry Fruit Set

Ray Samulis, Burlington County Agricultural Agent

Recent field visits this week have shown the former slow season is now in full swing with abundant bee activity in the cranberry fields. A few farmers mentioned to me that they were a little disappointed that many of the bees were foraging in the weeds rather than the field. Many of the wild flowers in the pines do have considerable nectar and easily attract foraging bees. Actually, pollination occurs rather quickly in cranberries. In 1972 scientists found that cranberry pollen traversed the style in 48 hours and within 72 hours fertilization had occurred.

Research has been ongoing for many years to determine the various components that contribute to overall cranberry yields. Wisconsin research shows in their studies that fruit set ranged from 9% to 85% of the uprights with an average being 37%. Both New Jersey and Wisconsin appear to have only 1/3 the number of flowering uprights that Massachusetts has, however speculation exists as to what constitutes a flowering upright. Research trials that I conducted a few years ago at Oswego showed that with the use of various growth regulators I could greatly (3X to 4X) increase the number of fruiting uprights. The conclusion of the study however, was that although the number of berries set was much higher where treated, the total amount of fruit was about the same. In other words, the influence of other factors that contribute to overall cranberry yields were more important than simply the amount of berries produced.

Since cranberry flowers are perfect, meaning both male and female parts are in the same flower, some people felt that agitation or wind pollination might play a bigger role in fruit set much like what occurs in tomatoes or peppers. Recent research has shown that the pollen is mature in cranberry before the stigma emerges from the anther ring. In the 1960's, Phil Marucci showed that where cross-pollination occurred between different varieties, the yields could be increased. Phil also showed that there is basically a two-week period for all flowers to open and for a good fruit set to occur.

Contemplating the reason why many cranberry flowers do not form fruit, considerable blossom loss is not the result of poor pollination but rather due to a natural blossom blast. Phil Marucci attributed this natural loss to a simple overabundance of bloom on the vines in excess of what the vines could sustain. Still other factors can influence how much fruit set occurs, particularly temperature extremes either too warm or too cold at various times early in the growing season. Overall vine nutrient status can also affect fruit set as can just about any other negative affect on bee flight and activity.

In conclusion, while bees are an important contribution to fruit set in cranberries, there are other factors and situations that can influence how many flowers actually produce viable fruit. While some conditions like fertility are controllable, others like the weather are not. □

## Section 18 for ApiLife for Varroa Mites in Beehives

Patricia D. Hastings, Program Associate in Pest Management

EPA has granted a specific exemption under Section 18 of FIFRA to the NJDEP for the use of the formulated product Api-Life VAR containing thymol, eucalyptus oil, and L-menthol in beehives to control varroa mites (*Varroa spp.*). Applications can be made according to the product's proposed label in late summer or fall after the honey harvest is complete. The unregistered product is manufactured by Chemicals LAIF.

The exemption is subject to the conditions of NJDEP's request for exemption, as well as conditions and exemptions specifically listed in the exemption letter from EPA. Tolerances exemptions are currently in place for the 3 active ingredients in this product. Treatments can be made until December 31, 2003.

For this and other Section 18's for NJ, see: <http://www.pestmanagement.rutgers.edu/NJinPAS/PesticideRegistration/NJ18s.htm>.

Please email or call with your fax number if you wish a copy of the exemption letter to be faxed to you: Patricia D. Hastings, Rutgers Cooperative Extension, Blake Hall Room 243, 93 Lipman Drive, New Brunswick, NJ 0890. Phone: 732-932-9801 (messages), Email: [hastings@aesop.rutgers.edu](mailto:hastings@aesop.rutgers.edu).

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### *Insect Update from page 1*

✓ **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.

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. Moth emergence continues to early August with peak egg-laying occurring in early to mid-July. 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. Please read and follow all directions on the label. In case you need a copy of the Supplemental label, please call (609) 726-1590 ex.12. □

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