Integrated Cranberry Crop Management for Wisconsin

Cranberry

Crop Management Newsletter

Volume XX
Number 2
May 20, 2007

Contents:

INDAR FUNGICIDE LABELED ON CRANBERRY

When it rains, it pours. After a long fungicide drought, we have two new registrations in 2007. Orbit (propiconazole) now has a regular label, after 11 years of Section 18 labels. The Orbit label was discussed in the May issue of WSCGA News and the May 5 issue of the CCM newsletter. Now a second fungicide, Indar, has been registered on cranberry.

Indar (fenbuconazole) is a product of Dow Agrociences and is formulated as 75% active ingredient in a water-soluble pouch (75 WSP). It has been registered for more than 10 years on cherries and other stone fruits. Indar was tested for control of cranberry cottonball and fruit rot in the early and mid 1990s, but its registration was stalled for several years along with other "triazole" fungicides, including Orbit. Recently this group cleared the hurdles at EPA, resulting in the nearly simultaneous registration of Orbit and Indar on cranberries.

Cottonball control. Indar has been essentially equivalent to Orbit for control of cottonball in trials conducted in Wisconsin from 1996 through 2006. In these trials, products were generally used at the highest rate permitted. One advantage that Indar currently has over Orbit is that the Indar label permits a 10-day spray interval compared to the 14-day interval for Orbit. The 10-day interval should allow more constant protection of susceptible tissues, especially during bloom. I am concerned that the 14-day interval with Orbit could leave unprotected gaps in protection, or that it is so long you wouldn't even have time to make a second bloom application. Another trick to ensure constant protection of flowers would be to use Orbit for the first bloom spray and then 7 days later apply Indar for the second bloom spray (or vice versa). Both products have at least 7 days of protection, however, so a spray interval of less than 7 days would be wasteful overkill. I do not know how these two products will compare price-wise. But since they are essentially equivalent for cottonball control, you might as well go with whichever is cheaper. However, if you have cottonball plus other fruit rot diseases, you might choose Indar, since it also works on fruit rot.

Fruit rot control. Indar has often performed as well as Bravo and usually better than Abound in field rot trials conducted in Massachusetts, New Jersey, Washington, and Wisconsin. Unlike Bravo, we have never seen reduced yield, reduced fruit set, or any phytotoxic effects from Indar when

it is applied during bloom. There are limited data on how well Indar controls storage rot; however, it's generally the case that the fungicides that are the most effective for field rot are the most effective for storage rot. We have no good data on the efficacy of Orbit in controlling fruit rot, so I cannot compare Indar and Orbit in this regard.

Indar label. A copy of the Indar label for cranberry and a document on using Indar through chemigation are included with the electronic version of this newsletter. Contact your ag chemical dealer or Patty McManus at UW-Madison if you need a hard copy. Here are some key points:

- Re-entry interval of 12 hours
- Maximum of 4 applications per year
- 30-day pre-harvest interval
- "For optimum disease control, it is recommend to use an agriculturally registered non-polymer non-ionic surfactant at the manufacturer's recommended rate."

A note on that last point about a surfactant: In some trials we added Latron 1956 to Indar, and in other trials we did not. Indar always provided good cottonball control (i.e., equivalent or better than Orbit) regardless of whether the surfactant was added or not. However, we have never done a side-by-side comparison to directly answer the question of whether the surfactant improves control. A surfactant will help the fungicide spread out over waxy surfaces. So, I would guess that a surfactant would be useful when spraying shoots in spring (cottonball primary infection) or fruit (fruit rot), because these tissues are covered by a waxy cuticle. I would guess the surfactant to be less important when spraying during bloom (cottonball secondary infection), because the floral stigma, where the cottonball fungus infects, is not waxy.

Fungicide resistance management. Indar is in the sterol demethylation inhibitor (DMI) class of fungicides, the same class as Orbit. Therefore, these two fungicides should be considered equivalent for the sake of fungicide resistance. In the last newsletter, I discussed fungicide resistance management for Orbit, and those same principles apply to Indar. In the late 1990s my research group tested cottonball samples from Wisconsin for resistance to Indar and Orbit, and found that our populations were sensitive even at sites where Funginex (another DMI no longer available) had been used for many years. This is probably because the cottonball fungus has only two rounds of infection per year, and because growers have sprayed fungicides only a few times per year. Therefore, to keep these valuable DMI fungicides effective for many years to come, I suggest using the DMI fungicides no more than a total of three times per year, even though four sprays of each are permitted. Our trials have consistently shown that bloom sprays are key, so you should focus your efforts on protecting flowers. Abound (azoxystrobin) is not related to the DMIs, so it could replace a DMI during bloom. We have less data on Abound, but it has been similar to Orbit in field trials. Abound is not permitted prior to bloom, however.

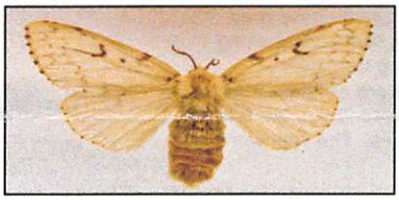
The bottom line. The upshot of this long-winded article is that after a long wait, we now have two really good cottonball fungicides. Cottonball control in numerous trials in Wisconsin has been essentially identical with Orbit and Indar. If you have questions about using either fungicides, contact Patty McManus at psm@plantpath.wisc.edu or 608-265-2047.

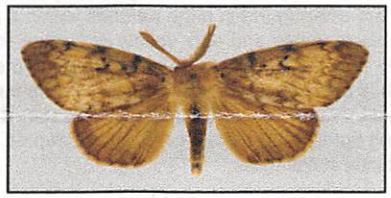
Patty McManus, UW-Madison Extension Plant Pathologist

When a man has not a good reason for doing a thing, he has one good reason for letting it alone.

Thomas Scott

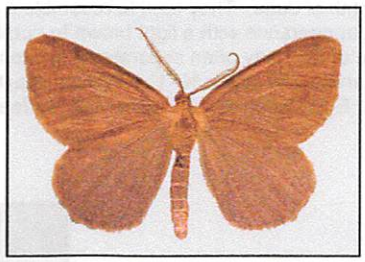
INSECTS TO WATCH FOR IN 2007





Gypsy Moth – *Lymantria dispar* (***Linne***).

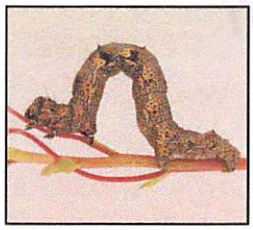
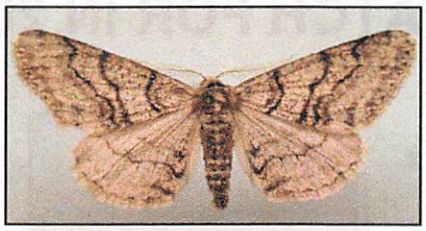
Currently not a major Wisconsin insect pest but may pose a potentially serious threat. Young larvae are active during the months of May-June. Mature larvae may reach a length of about 1" to 1 ½". They are grayish black in color with rows of blue dots followed by red dots along the back. Larvae are quite hairy and if touched could cause an allergic reaction. Young larvae will spin silken stands which are used to catch wind currents. They may drift into cranberry fields from adjacent infested wooded areas. Larvae pupate in July and the adults emerge about 10-15 days later. The female adults don't fly. The female lays her eggs in a large mass and covers them with her body hairs. Eggs over-winter insulated until the following spring. In Wisconsin, we observed our first gypsy moth larvae in 2006. Our traditional methods of pest management should provide adequate control of this potentially troublesome insect.



Black Spanworm (blueberry spanworm) – Macaria argillacearia ***(Packard)***

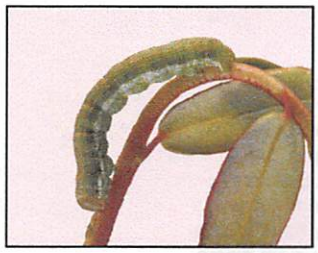
Larval feeding occurs in early spring as the buds begin to break dormancy and elongate. All new growth is susceptible to feeding. Larvae are black or dark grey with black stripes when young. As they mature they often develop yellow or orange segments intermingled with white segments covered with black dots. Larvae are often ¾ -1" in length. Female moth lays her eggs and they over-winter until spring. One generation per season. This spanworm is one of the first swept during each growing season. Don't be surprised to see this insect feeding during early May. It is perhaps the earliest spanworm found feeding on Wisconsin cranberries.

Produced by:
Leroy Kummer, Ocean Spray Cranberries, Inc.
Jayne Sojka, Lady Bug IPM

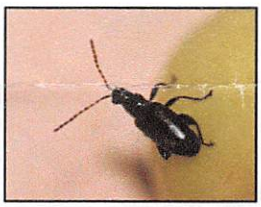

Spiny Looper (half-wing geometer) – Phigalia titea ***(Cramer)***

Early season pest found primarily in central WI from mid-May to early June. Larvae feed on new growth, hooks and blossoms and are often found in large patches within a bed. Larvae have gray heads and grayish bodies. Small black spines and dark yellow or orange metallic spots occur along the body. Some larvae may reach 1½ -1¾" in length. Adults emerge in the spring from over-wintering pupae and lay eggs. Only one generation per season. Female moths are wingless and frequently deposit eggs in one concentrated area. Closely revisit areas when these larvae are found to reveal larger populations clinging tightly to the vines or feeding in dense patches. The spanworm may have developed some insecticide resistance.




Variegated Orange Spanworm – Epelis truncataria ***(Walker)***

Larvae are found during the month of June. They tend to resemble a green spanworm when young. Older spanworms are stocky in appearance with a light brown to purplish head and rear. A long white-yellow stripe on each side of the body often separates a two toned green body (light on the bottom and dark on the top). Larvae may reach ¾ -1" in length. Adults fly from May-July. Eggs are laid on the underside of leaves. Eggs hatch in 1-2 weeks. Larvae feed for approximately 40 days before pupating for the winter.




Cranberry Flea Beetle - Systena frontalis **(*Fabricius*)**

The adult cranberry flea beetle is often found feeding on leaves and the terminal ends of the cranberry plants. Adults are shiny black with a reddish head and about ⅛" in length. Adult beetles frequent the cranberry fields from late July through mid-September. Severe cranberry flea beetle feeding will often cause a browning or burnt appearance to the vines. Upon closer examination, scouting will reveal intense leave feeding on the undersides of the leaves with only the veins of the leaves remaining. The injured or "skeletonized" leave tissue will usually brown within a few days of the insect's feeding. The Cranberry Flea Beetle will over-winter in the cranberry field as an egg in the soil. The eggs hatch during the following spring and the young larvae feed in the soil on underground cranberry roots. Cranberry Flea Beetle larvae are small and cream colored and are approximately ¼ -⅜" in length. The larvae have a distinctive fishtail-like rear. Plant injury often resembles that of Cranberry Girdler although it is commonly observed earlier in the season (July-August). Flea beetle larval injury is most often observed along irrigation lines.

IF IT AIN'T BROKE, DON'T FIX IT

The old saying that is the title of this article has dealt mainly with machinery, but sometimes organizations and relationships. Today I'm going to try to relate it to plant fertility and more importantly to soil chemistry.

Soils, even the sandy soils common to cranberry culture, are not just a matrix that keeps plant from tipping over or blowing away. Soils are an integral part of biological system of cranberry production. Soils are composed of three fractions: mineral fraction including organic matter, sand, silt, and clay; liquid fraction including soil water; and the gaseous fraction which is primarily air in the soil. Soils provide plants with physical support, with water, with air to the roots and the soil provides the 13 essential mineral elements that plants require to grow normally.

The ability of a soil to provide plants with required nutrients is commonly referred to as 'soil fertility'. This is an inexact term. Soil fertility includes nutrient content and availability, organic matter content, soil pH, and soil structure that is friable. For our purposes a more useful description of soil fertility is the ability of a soil to retain nutrients and make them available to plants.

Most fertilizers are salts that contain both a positively charged ion (cation) such as ammonium [NH4+] or potassium [K+] along with a negatively charged ion such as sulfate [SO4-] or phosphate [PO4-] or chloride [Cl-]. When a fertilizer prill hits the soil, takes up water, and dissolves into its constituent ions. From there the ions diffuse in the soil, sometimes up to a few inches from its initial placement. Negatively charged ions such as sulfate, nitrate, and chloride are easily washed through the soil profile with water. This is leaching. Phosphate ions readily react with iron, aluminum and calcium ions in the soil, forming relatively insoluble bonds and quickly becoming plant unavailable.

Positively charged ions (cations) are typically held in the soil. Soil particles have a net negative charge so cations are attracted to them and can be held by the electrical charge of the soil. Cations are not held strongly to the soil and various cations compete with one another for the exchange sites. You could think of this like putting an equal number of small children and toys in a room. You begin by giving every child a toy. Soon the children will tire of their toy and will want their neighbor's toy and one child will grab another's toy who will in turn take someone else's toy. With children this is frequently accompanied by howling and tears.

A similar reaction occurs in soil. We call the ability of a soil to retain positively charged ions Cation Exchange Capacity (CEC). Routine soil tests from some labs include an estimate of CEC at no additional charge. CEC is used to describe the ability of a soil to retain and release cations. Every soil has a finite ability to retain cations. Once all of the exchange sites are populated with cations if additional cations are added to the soil, from a fertilizer application for example then competition for exchange sites begins. All cations are held on the exchange sites with roughly the same strength. So, if you make a large application of potassium the potassium ions will remove some of the calcium, magnesium, and ammonium ions from the exchange sites. Continued application of cations may result in the soil becoming deficient in other important cations.

I hear often of growers making additions of sulpomag, or calsol, or potassium sulfate and in small doses these materials may be beneficial. What I fear happens, though, is that growers overdose with one cation resulting in lower soil levels of other cations so growers feel obligated to make applications of other cations and a vicious cycle of addition, competition, and deletion ensues.

Going back to the title of this article, "if

it ain't broke, don't fix it" we can see that making excessive applications of fertilizer have potential positive effects, but potential negative effects as well. I believe that if moderate applications of fertilizer were made; if we were interested in managing, not manipulating we would be better off—and would save money in doing so. With the high cost of fuel it costs roughly $20/acre just to drag the boom across a bed. Consider ALL of the ramifications of making that fertilizer application.

Teryl Roper, UW-Madison Extension Horticulturist

It is sobering when a father sees in his s himself, his mannerisms, his ways, his words. It is a great moment in life when a father sees his son grow taller than he, or reach farther. It is a blessed thing for fathers to see their sons exceed them.

Richard L. Evans

If I were asked to name the world's greatest need, I should say unhesitatingly; wise mothers and . . . exemplary fathers.

David O. McKay

So much of what is great . . . has sprung from the closeness of the family ties.

Sir James M. Barrie

YOUTH SAFETY SEMINARS

Wednesday June 13 is the date for youth safety seminars in the Warrens and Cranmoor area. The Warrens session will begin at 10:00 am at the Russell Rezin & Son Marsh on County EW. The Cranmoor session will begin at 2:00 pm at the Lake Dexter County Park on Hwy 80.

These training sessions will cover pesticide safety training to meet the WPS requirements as well as small equipment safety and large equipment safety. It does ot replace the tractor driving course for hose who will be driving tractors.

There is no registration required for this event, but to enable us to plan for refreshments, etc. we do ask that you contact the Wood County Extension office (715-421-8440) and let them know how many young people will attend from your marsh.

If you will hire young people, including family members, to work on your marsh this summer we encourage you to have them participate in this training so that we as an industry can avoid any accidents that would mar the great reputation we currently enjoy.

Teryl Roper, UW-Madison, Dept. of Horticulture
Matt Lippert, Wood County Extension Office

Wisconsin Cranberry Crop Management Newsletter
Department of Horticulture
1575 Linden Drive
Madison, WI 53706

Extension

Nonprofit Org.
U.S. Postage
PAID
Madison, WI
Permit No. 658

MIKE BRETL
FARMLAND BIRON MARSH
120 COUNTY ROAD U
WISCONSIN RAPIDS WI 54494-8803