Cranberry

Crop Management Newsletter

Integrated Cranberry Crop Management For Wisconsin

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CONFIRM: A NEW CRANBERRY INSECTICIDE

For the first time in over 15 years, a significant new insecticide has received national registration for use on cranberry. The trade name of the product is Confirm. It is produced and marketed by Rohm and Haas Company. And it is available from distributors in Wisconsin for immediate use. The common name for Confirm is tebufenozide. It is in a new pesticide group and is chemically and biologically unlike any other cranberry insecticide.

How it works. Tebufenozide belongs to a group of insecticides called insect growth regulators (IGRs). IGRs mimic insect hormones and therefore interupt normal biological processes. In particular, tebufenozide mimics the natural insect hormone known as ecdysone. As an insect grows through its immature stages, it must periodically shed its rather inflexible skin (cuticle); this process is called molting or ecdysis. Ecdysone (which is also called molting hormone) is responsible for initiating the molting process; when a given immature stage has reached its maximum size, the insect's body produces and releases into the blood a critical concentration of ecdysone, at which time a series of events is initiated that results in a molt. If the concentration of ecdysone is artificially raised prematurely, the molting process starts too early and the insect dies in the attempt. Although tebufenozide is not chemically identical to ecdysone, it has the same result.

Tebufenozide works best if ingested by the insect larva while it is feeding on plant tissue (such as foliage or fruit). It does not immediately kill the insect; indeed, death may take 3-5 days. But because much of the insect's digestive system is lined by cuticle that is identical to that on the outside of the body, the insect stops feeding within a few hours of ingesting a lethal dose of the insecticide, and damage ceases at that point.

Confirm is a selective insecticide. Even though the chemistry of the natural hormone ecdysone is the same in all insects (and even other arthropods), tebufenozide is quite selective for the group of insects we call the Lepidoptera, which consists of the butterflies and moths. Most of our more serious cranberry pests are moths, and therefore Confirm should be a valuable tool.

As a selective insecticide, Confirm is not harmful to beneficial insects such as the predators and parasites of our pests, and pollinators such as honey bees. Because Confirm does little, if any, harm to many biological control organisms, it is a good product to use in our IPM programs. Bee safety is another important consideration.

Studies on strawberry showed that when Confirm was sprayed while bees were foraging on open flowers, there was no mortality of worker bees, no impact on foraging behavior, and no impact on the queen or brood in the hive. Rohm and Haas fully supports the usage of Confirm during the blossom period, and will work with bee keepers so they understand the properties of this new insecticide.

Confirm is not a broad spectrum insecticide and therefore will not control certain cranberry pests. It has no known activity against tipworm or flea beetle for example. Although cranberry fruitworm and cranberry girdler both are within the Lepidoptera, it is unlikely that they will be controlled by Confirm because they are feeding in hidden locations where insecticide coverage is difficult.

Target pests. Confirm is currently labeled for control of blackheaded fireworm, sparganothis fruitworm, spanworms, blossomworm, false armyworm, and a few other insects. It is not labeled for cranberry fruitworm.

Worker safety. The insect hormone that tebufenozide mimics is not a hormone in mammals. Confirm is considered to be very safe; both oral and dermal LD50s are greater than 5000 mg/kg. The signal word on the label is "Caution" which denotes the lowest grade of toxicity. It has a short restricted entry interval (REI) of 4 hours. It is not a Restricted Use pesticide. It is somewhat toxic to certain aquatic organisms and efforts should be made to keep it out of surface water.

Resistance potential and resistance management. There has been very little usage of any IGR materials, and tebufenozide is a new product with only limited field usage. Therefore, we are uncertain as to the potential development of resistance to this product by cranberry insects. However, Rohm and Haas has developed preliminary resistance management suggestions. These include rotation with other pesticides, and to treat no more than three successive generations of the same population. One possible tactic is to use conventional organophosphate insecticides for treatment of problems early in the season, and use Confirm when it is necessary to treat during bloom, such as for blackheaded fireworm. Also, treating according to IPM guidelines, that is, only when and where necessary, rather than using preventative sprays is an important resistance management method.

Application information. Confirm is sold as a 2F formulation (2 lb. per gallon flowable). It is registered for use on cranberry at the rate of 16 fl. oz. per acre. A total of 64 fl. oz. can be used per season (or a total of four applications). Application can be by ground (minimum of 20 gallons of finished spray per acre) or air (minimum of 10 gallons per acre). Confirm is labeled for chemigation, but there is concern about washoff, and specific instructions are on the supplemental label. At this point, Rohm and Haas would prefer that product not be applied by chemigation until additional data can be gathered.

Application timing should be to target young larvae, before much damage is done. Also, younger larvae need consume a smaller dosage to be effective. However, larger larvae can also be controlled. Timing will be ideal if done in conjunction with standard IPM pest scouting protocols that identify the

hatching period(s) of the target pests. Because the material is most effective when ingested, thorough coverage of plant parts is essential, and use of a spreader-sticker is recommended by Rohm and Haas. Two applications a week or so apart may be necessary for large populations, or when the hatch period is extended. This product is not systemic; therefore a second application may also be necessary during early season when new plant growth is rapidly occuring which needs additional coverage.

Confirm has a 30 day preharvest interval.

For 1999, the product label does not include cranberry, and a supplemental label must be in the possession of the applicator. Supplemental labels can be acquired from product distributors, Ocean Spray, or directly from Rohm and Haas. For additional information, contact your distributor or Jim Turner, the local Rohm and Haas representative.

Acknowledgements. The Cranberry Institute and Ocean Spray contributed to research on the effectiveness of Confirm on cranberry. Much of the early research was conducted by Dr. Sridhar Polavarapu of Rutger's Blueberry and Cranberry Experiment Station, New Jersey. Dr. Jeff Wyman, Department of Entomology, University of Wisconsin-Madison conducted the necessary residue studies in Wisconsin to support registration. Tim Dittl and colleagues at Ocean Spray conducted field trials here in Wisconsin.

The worst illness there is, is hardening of the attitude.

Zig Zigler

HAWAIIAN FARMER

CHARGED WITH MISAPPLYING PESTICIDE

(Press Advisory 5/27/99)

Kap Dong Kim, proprietor of a ginger root farm in Hilo, Hawaii, was indicted on May 20 in U.S. District Court in Honolulu on charges of misapplying the restricted use pesticide, Nemacur, to his ginger root crop in violation of the Federal Pesticide, Fungicide and Rodenticide Act. Nemacur is prohibited for use on ginger root. Kim, who is not a certified applicator, allegedly directed workers to make the pesticide application without complying with required standards for worker protection. One worker suffered acute poisoning and had to be hospitalized. Kim also was charged with making false statements to the Hawaii Department of Agriculture about the type of pesticide he was using. If convicted on all charges, he faces a maximum term of up to 10 years 2 months imprisonment and/or a fine of up to $520,000. The case was investigated by EPA's Criminal Investigation Division and the Hawaii Department of Agriculture with the assistance of EPA's National Enforcement Investigations Center and is being prosecuted by the U.S. Department of Justice. Civil charges against Kim are pending.

Human vanity can best be served by a reminder that, whatever his accomplishments, his sophistication, his artistic pretension, man owes his very existence to a six-inch layer of top soil—and the fact that it rains.

Author unknown

STINGER SUGGESTIONS

As we were traveling the west side of the state this week I saw and heard several comments about Stinger use in cranberry. Growers who used it in the fall saw the vines green up earlier this spring. They also saw that it did a great job of controlling clover and goldenrod. I saw some injury in areas that were treated at the high rate, even though the application was made in the fall when the vines were dormant and the terminal buds were already set. The damage appears as weak growth, small cupped leaves that remain upright and close to the stem and a redder color than would otherwise be expected.

My experience with Stinger suggests that the irregular growth lasts only a year and then the spots will recover and regain vigor. However, because the vegetative growth is weak terminal buds are unlikely to be fruit buds, but will be vegetative.

These observations underscore the need to use low rates of Stinger. In most cases the ¼ pint rate will be sufficient to kill susceptible weeds, especially clover. This rate also minimizes the risk of crop injury. Remember that the maximum rate is 2/3 pint per acre per year.

The label also allows for wiper application. Stinger won't work as quickly as Roundup, but if you drip a little with your wiper you may see a little crop injury, but it won't kill the vines like Roundup dripping will.

Teryl Roper, UW-Madison Extension Horticulturist

The height of human wisdom is to bring our tempers down to our circumstances—and to make a calm within, under the weight of the greatest storm without.

Daniel Defoe

TIDBITS FROM THE LADY BUG TEAM

Now that the first generation of cranberry insect pests are behind us, we are concentrating on identifying weeds. Every season we invest a good two weeks on cranberry weeds. At this time of the year we have the spring infestation but late July and early August it seems that we have another wave of fall weeds. So far in our travels we are seeing far more loosestrife than in past years. Yellow loosestrife, (swamp candles), Tufted loosestrife, and Whorled loosestrife and lance-leaved loosestrife are now flowering.

During early spring a number of my growers were concerned because of the tufted areas of the beds had some winter injury and other areas of the beds showed signs of bud injury of another nature. We dissected many buds and indeed we found injury. But how much injury is detrimental to the crop? We reported brown hearts of the buds, yet we could see some of the fruiting buds within with a light color cast. For the past several days we have noted that in these same areas we are now finding side-shooting, umbrella bloom or "baldies", and in some areas we are finding bronzed tips and no life whatsoever. Is this all due to winter damage or is some of it harvest stress or wheel tracks or pruning damage or herbicides and tipworm? I believe that it can be from all of these types of stress. How much injury is really hurting our crop? We typically see an average of 3% bud injury based on my bud counts. We can expect some injury every year, but the secret is to find out for yourself what is causing it and try not to repeat that

procedure again. For example, if you find that the ends of the beds are showing far more stress than you are comfortable with, walk through your harvest process. Do you come out of the bed with every pass, or do you cut across the bed in the same path every time? Are you doubling up on your herbicides on the sides and ends of every bed just because that is where your weeds are most prevalent? If so, do you allow that soil to rest once in a while—to go without herbicides for a year?

Remember that some herbicides are root inhibitors and can cause our vines to become brittle and thus bud injury is inevitable. How much you wish to tolerate is entirely up to you. We find that some of our cranberry growers have had up to 15% bud injury on ditch edges, and others only 3%. If injury is reported to you please take a moment or two to discover why and how much injury you feel comfortable with or what can be done to avoid bud injury in subsequent years.

Jayne Sojka & the Lady Bug Team

Bog Loosestrife
Yellow Loosestrife
Swamp Candles
Lysimachia terrestris
Primrose family (primulaceae)

Erect stems with opposite leaves and racemes of star-like, yellow flowers.
Flowers: ½ to ¾ inch wkde, flat, the 5 lobes pointed, streaked with purplish black.
Flowering: June to August
Leaves: 2-6 inches long
Height 8-32 inches

Tufted Loosestrife
Lysimachia thyrsiflora

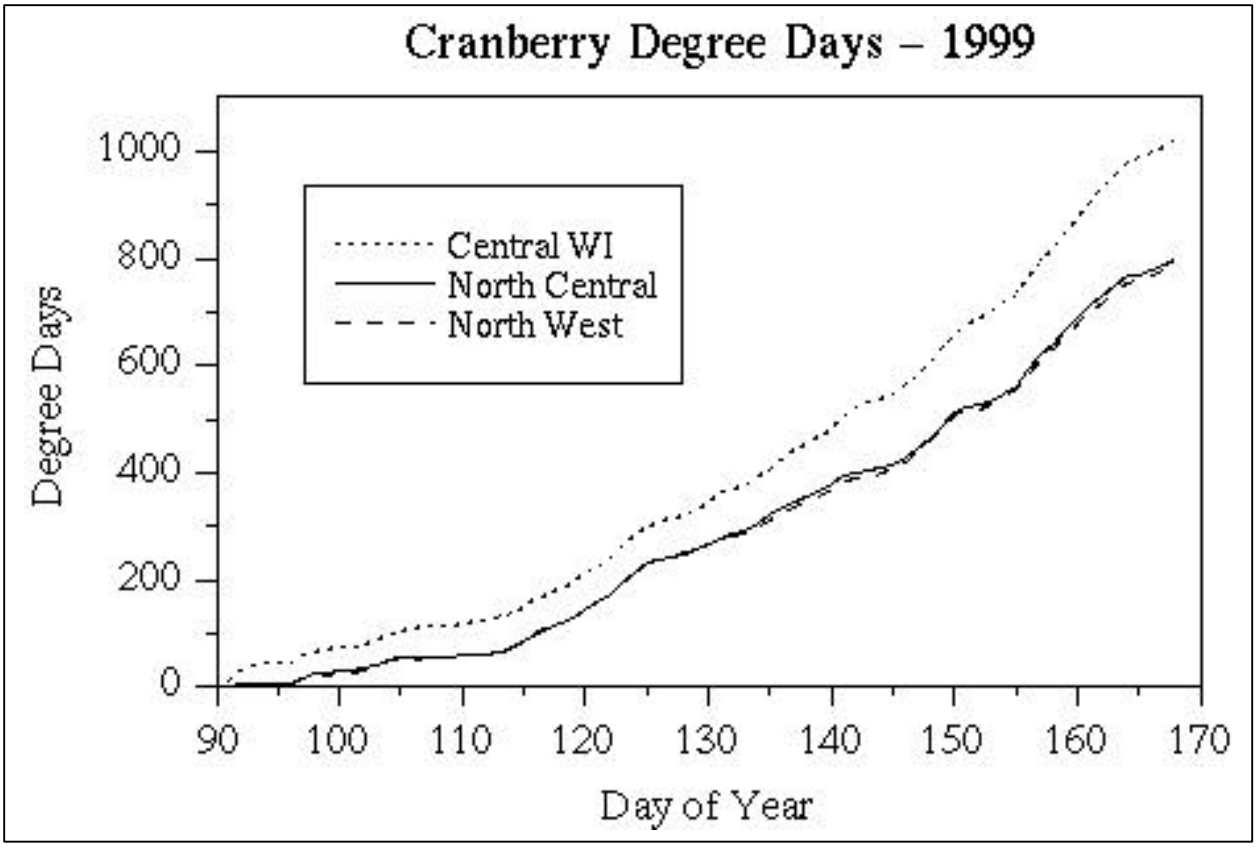
Description:
Erect stems bear evenly distributed leaves and yellow flowers in dense slender racemes in axils of leaves near midstem; entire plant is dotted with black or dark purple.
Flowers: Corolla with 5 narrow loves and ¼" long, with narrow stalks leading to a united base; sepals and petals dotted with dark purple. The tight racemes of yellow flowers with erect stamens give the flowers a fuzzy appearance.
Flowering: May to July
Leaves: to 6" long, opposite, lanceolate.

Lance-leaved Loosestrife
Lysmachia lanceolata

Description:
Plants to 2' tall with very short side branches and narrow opposite leaves. The lowest leaves on the stem are usually rounded and stalked. Leaves are usually less than ¾" wide.
Flowers: Hanging on long individual stalks, with each flower about ¾" wide, consisting of 5 narrow, pointed green sepals and a nearly flat 5 lobed corolla with fine pointed tips. The 5 yellow stamens protrude from the flower.
Flowering: late spring to midsummer

Whorled Loosestrife
Lysmachia quadrifolia

Description: 8-24" tall, leaves in whorls of 4-6.
Flowers: yellow with red centers, ½" wide.
Flowering: May to August



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