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Cranberry Crop Management Newsletter

University of Wisconsin—Extension

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INTREPID® INSECTICIDE

By: Dan Mahr, UW-Madison Extension Fruit Entomologist

A supplemental label allowing the use of Intrepid® 2F insecticide on cranberry was first issued in March 2004. However, because of concerns of its potential impact on the Karner blue butterfly, which is federally listed as an endangered species, usage has been extremely limited in nine cranberry-producing counties in the central and northeastern regions of the state. Several agencies and organizations have worked to enable usage of Intrepid® in all Wisconsin cranberry growing areas, though some precautionary restrictions on use are still in place. Recently the U.S. EPA in conjunction with the Fish and Wildlife Service has developed a series of county-level Endangered Species Protection Bulletins that detail how Intrepid® can be used by Wisconsin cranberry growers. This has resulted in new labeling language for Intrepid® and Dow AgroSciences has just issued a new supplemental label that is consistent with the new usage allowances. This article is meant to introduce you to Intrepid® and to outline the process that you need to follow to legally use it in regulated counties.

What Is Intrepid® Insecticide? Intrepid® (common name of the active ingredient is methoxyfenozide) is in the insect growth regulators (IGRs); insecticides function by interfering with normal biological processes of insects that are regulated by hormones. Different IGRs have different modes of action; Intrepid® works by disrupting the process of molting (shedding the skin) that all insects must do periodically in their immature stages. IGRs tend to be more specific to the type of target insects as compared with traditional broad spectrum insecticides such as organophosphates that have long been used in cranberry. Methoxyfenozide is primarily effective against the insect order Lepidoptera, (butterflies and moths.) Lepidopterans are the most important group of cranberry pests and include blackheaded fireworm, cranberry fruitworm, sparganothis fruitworm, spanworms, cutworms, and cranberry girdler. Though probably not effective on all cranberry Lepidoptera, methoxyfenozide shows good potential against some of our more important direct fruit feeders. Highly selective type of pesticide, EPA has granted methoxyfenozide “reduced risk” status on cranberry and several other crops. Because of its selectivity, it has low risk to beneficial predatory and parasitic insects and is ideally suited for IPM programs.

Cranberry

Intrepid[®] Insecticide Continued

Intrepid[®] is marketed by Dow AgroSciences as a 2F (flowable) formulation. It is registered against these cranberry pests: blackheaded fireworm, gypsy moth, sparganothis fruitworm, spanworms, and spotted fireworm. Although the label lists these pests for “suppression”, Intrepid[®] has shown very good control in both east coast and Wisconsin university trials. Cranberry fruitworm is not on the label, but efficacy has been good against this pest as well. The application rate is 10-16 fl oz/acre with a maximum of 64 fl oz/acre/year. The preharvest interval is 14 days and the restricted entry interval is 4 hours. It may be applied by ground application equipment and solid-set irrigation equipment. Outside of Karner blue regulated areas it may also be applied by air. It is not a restricted-use pesticide. In studies on laboratory animals, the LD50 by ingestion is >5000 mg/kg and by skin absorption is >2000. Based on oral toxicity, this is considered to be a Category 4 (lowest toxicity) pesticide.

As we gain more experience with Intrepid[®] we will be able to give more detailed guidelines how it will best be used in cranberry. This IGR works primarily by ingestion rather than contact activity and good coverage is important. It does not provide immediate kill – the active ingredient takes awhile to interfere with the insect’s biological process. However, it does interfere with the feeding process, usually within a few hours of ingestion. Therefore, although death may not occur for a couple days, damage stops fairly quickly after application. Intrepid[®] is most effective when applied against the egg stage or youngest larvae.

Usage of Intrepid[®] Outside the Karner Blue Range. Wisconsin (and Michigan) counties that are within the natural range of Karner blue butterfly have restrictions on the usage of Intrepid[®]. The Wisconsin counties are Adams, Burnett, Chippewa, Clark, Eau Claire, Green Lake, Jackson, Juneau, Marquette, Monroe, Polk, Portage, Waupaca, Waushara, and Wood. Outside of this area, including most of the northern cranberry counties, Intrepid[®] can be used according to standard labeling without additional restrictions. Farms that are within these counties but outside of the regulated Karner blue area can also use Intrepid[®] according to standard labeling. [Note that all uses of Intrepid[®] are prohibited in Door Co.]

Usage of Intrepid[®] Within the Karner Blue Range. Within the Karner blue habitats of those counties listed above, Intrepid[®] can still be used on all cranberry farms, but there are additional restrictions on usage to assure safety to the Karner blue. These restrictions are designed to reduce insecticide drift and include (1) the use of a drift retardant, (2) the usage of nozzles that will assure a coarser (and therefore heavier) droplet size, and (3) application only during periods of low wind speed.

To use Intrepid[®] in the regulated areas will require a very minor amount of additional paperwork that should only take a few minutes for each application. To understand the reasoning behind this, a bit of background may be helpful. The following statement was found in the **Endangered Species** section of the 2008 Intrepid[®] specimen label:

“Do not apply this product within one mile of sandy habitats that support wild lupine plants [the host plant for the larvae of the Karner blue] in the following states/counties:” [followed by the list of affected counties in Michigan and Wisconsin (as noted above)].

Intrepid® Insecticide Continued

In 2009 the endangered species protection language on the Intrepid 2F label has been replaced by a generic label statement, as follows:

“This product may have effects on endangered species. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, consult www.epa.gov/espp, or call 1-800-447-3813 **no sooner** than six months before using this product. You must use the Bulletin valid for the month and year in which you will apply the product.”

This statement applies to all usages, not just cranberry.

Previously the burden was on the potential user to assure that there was no wild lupine growing within a mile of the target application site. This significantly reduced potential usage of Intrepid® throughout each county, even in those counties (such as Adams, Chippewa, Marquette, and Polk) where wild lupine occurs in a relatively small area. Under the current (new) process, county maps are available through the internet and a toll-free hotline that specifically pinpoint the regulated areas relevant to Karner blue. Within these areas the drift reduction guidelines must be followed. Outside of these areas (even in regulated counties), Intrepid® use can be according to normal usage guidelines. For instance, Portage County is on the list. However, the Karner blue habitat is only in the southwest corner of the county, and the entire area from Plover to Stevens Point to Junction City is outside of Karner blue range and therefore out of the regulated area. Another example is Wood County, in which the area from Nekoosa to Wisconsin Rapids and Biron are outside of Karner blue range, but from Pittsville south to Babcock and beyond is in the regulated area.

Finding the maps – EPA’s website. Each regulated county has its own “bulletin” on EPA’s website. The bulletin includes the map of the regulated area within the county, as well as the specific language that relates to Intrepid® use within the regulated areas. The address for the website is <http://www.epa.gov/espp/bulletins.htm>. This opening page gives general information about EPA’s “Pesticides: Endangered Species Protection Program”. It gives general background information and an explanation of the “Bulletins Live!” program. There is also a tutorial on how to access and use the bulletins. This page also provides the link to the Bulletins Live! opening page. From here you use either the map or the drop-down menu to access Wisconsin. From the Wisconsin page, use the menu to access your county. You will then be asked to indicate what month the pesticide application will take place. Bulletins are good for only one month; if you intend to make applications in both May and July (for example), you should print off the bulletins for both of these months. (Bulletins are available for the upcoming six months, so you can print off bulletins for the entire growing season at one sitting.) Once you click on a specific month, the bulletin (including map) for that county and that month will appear. The township, range, and sections are delimited and numbered on each map so that you can pinpoint your application site. The Karner blue (regulated) areas are shaded in yellow. [Note that neither EPA nor the state of Wisconsin require that you print and keep copies of the bulletin, but it is encouraged in case you have future questions about your applications in relation to the regulated areas.]

Cranberry

Intrepid® Insecticide Continued

Drift reduction guidelines. Growers in regulated areas (Karner blue habitat) must use drift reduction techniques when using Intrepid®. The following quote, is extracted directly from one of the county bulletins.

“...pesticide application within the pesticide use limitation area is limited to ground application methods or chemigation. Ground applications must be made using a drift retardant and nozzles that produce an American Society of Agricultural Engineers (ASAE) coarse droplet size distribution (median droplet size of 450-500 microns), and when the wind speed is between 2-10 mph. Chemigation must be conducted consistent with the instructions on the current chemigation label AND must be made using a solid-set sprinkler system producing a minimum median droplet size of 500 microns (median droplet size of 450-550 microns) or larger, and when the wind speed is between 2-10 mph.”

Drift retardants are commonly used in agricultural pesticide applications and are available through pesticide distributors; several types are on the market. For information on pesticide drift retardants, type “drift retardant” into your internet search engine. For both ground application and chemigation equipment, manufacturer literature should indicate median droplet sizes; contact your equipment supplier for additional information. With ground equipment, higher spray pressures will usually result in smaller droplet sizes that are more prone to drift.

Note: the current specifications apply to use on cranberry only. The bulletins stipulate that Intrepid® can not be used on any other sites in the regulated areas.

Being a “Voluntary Participant” in the Karner Blue Habitat Conservation Plan. The bulletin stipulates growers in the regulated areas must be voluntary participants in the Wisconsin Statewide Karner Blue Butterfly Habitat Conservation Plan (HCP). Partnership is automatic; here are the details.

The Wisconsin Department of Natural Resources is responsible for overseeing endangered species. WDNR, in cooperation with the U.S. Fish and Wildlife Service, public and private organizations, and private landowners, has developed the Wisconsin Statewide Karner Blue Butterfly Habitat Conservation Plan (HCP). Information on the HCP can be found at <http://dnr.wi.gov/forestry/karner/hcp.htm> .

Federal and state regulations require that there are no intentional activities that will “take” protected organisms. From the U.S. Fish and Wildlife’s Endangered Species Program internet site <http://www.fws.gov/endangered/hcp/hcpplan.html> :

“‘Take’ is defined in the Endangered Species Act as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any threatened or endangered species. Harm may include significant habitat modification where it actually kills or injures a listed species through impairment of essential behavior (e.g., nesting or reproduction).”

Intrepid® Insecticide Continued

Further:

“Incidental take permits are required when non-Federal activities will result in "take" of threatened or endangered species. A habitat conservation plan or "HCP" must accompany an application for an incidental take permit.”

As part of the Wisconsin Karner blue butterfly HCP, agricultural landowners are automatically considered as voluntary participants and may go about their normal agricultural practices without need of applying for an incidental take permit. Cranberry growers are not required to apply for permits or do any paperwork to be included in the HCP. For more detailed information, see <http://dnr.wi.gov/forestry/karner/landowners.htm> .

Bulletins are part of the Intrepid® labeling. The county/month bulletins are considered to be part of the overall labeling package of Intrepid®. Therefore, if you are applying within the Karner blue regulated area, you are encouraged to print off a copy of the bulletin for each month the product will be applied and keep this as part of your pesticide records. Regardless of where you are located, you should also have the most recent Intrepid® specimen label (with the new endangered species statement) as well as the supplemental label for cranberry; a copy of the supplemental label is provided in this newsletter. *Cont'd on Page 6*

New Devrinol® 50-DF Formulation in Cranberry

Jed Colquhoun, University of Wisconsin, Department of Horticulture

Cranberry growers have traditionally used a granular Devrinol (10-G). However, a new dry flowable (50-DF) formulation is now available, and the traditional granular formulation is in the process of being phased out by United Phosphorus Inc.

How does Devrinol work?

The active ingredient in the granular and dry flowable Devrinol is napropamide. Napropamide typically controls weed seedlings prior to emergence from the soil but does not prevent weed seed germination. The herbicide blocks cell division, primarily in roots but also possibly to some extent in shoots. Occasional plants that do emerge have stunted roots with tips that eventually die. Plant species that tolerate napropamide break down the herbicide into metabolites that are no longer toxic to the plant. Emerged and established plants are not controlled.

Devrinol is rapidly degraded by sunlight (called photodegradation). Therefore, the herbicide should be incorporated into the upper 2 to 4 inches of soil with irrigation or rainfall within 24 hours after application. Use rates for the Devrinol 50-DF

are much lower than the traditional Devrinol 10-G. The use rate for the new Devrinol 50-DF is determined by soil type: more herbicide is used on high organic matter peat beds than low organic matter sand beds (see label for rates and soil types). Reduced rates are used on new plantings, regardless of soil type.

Devrinol 50-DF versus Devrinol 10-G: Research Observations

Research at the University of Wisconsin in the past couple of years compared weed control and cranberry response to Devrinol 10-G and Devrinol 50-DF. No differences in weed control spectrum or cranberry response were observed.

Similar formulation comparisons were conducted in greenhouse research at the University of Massachusetts. In most cases, grass weed control was similar between formulations; if differences were observed, the Devrinol 50-DF always performed better than the Devrinol 10-G. In particular, annual ryegrass, barnyardgrass, and crabgrass control were better with the dry flowable formulation.

Jed Colquhoun, UW-Madison Department of Horticulture

Cranberry

Intrepid® Insecticide Continued

Summary. (cont'd from page 5)

- Intrepid® is an insect growth regulator insecticide with good activity against certain Lepidoptera pests of cranberry but it is a selective material, easy on beneficial insects, and therefore a good tool in Integrated Pest Management programs.
- Intrepid® usage has been very limited in central Wisconsin because of label restrictions designed to protect the federally endangered Karner blue butterfly.
- EPA, working in conjunction with the federal Fish and Wildlife Service and Wisconsin agencies, has approved labeling changes that will allow usage on all Wisconsin cranberry farms. Those farms that are within Karner blue habitat must use application practices designed to reduce spray drift. Those farms outside of Karner blue habitat (even within regulated counties) may use Intrepid® according to standard specimen and supplemental labels.

Farms that are within Karner blue regulated counties should follow the following procedure.

Go to EPA's Bulletins Live! website - <http://www.epa.gov/espp/bulletins.htm> - and follow the instructions to access the bulletin for your county and spray date.

Check the map provided with the county bulletin to determine if the application site is within the regulated area.

If the application site is outside of the regulated area, use the standard labeling to make your applications.

If the application site is within the regulated area, follow the bulletin guidelines to reduce spray drift. These guidelines include

using a drift retardant with ground application equipment,

using proper nozzles for ground application equipment and proper sprinkler heads for chemigation equipment that will assure droplet sizes in the specified range,

spraying at wind speeds 2-10 mph, and

aerial applications are prohibited in regulated areas.

You are encouraged to keep copies of the county/month bulletins and the supplemental label with your pesticide record

This article was reviewed and improved by representatives of the cranberry industry, Dow AgroSciences, the U.S. EPA, and the Wisconsin Department of Agriculture, Trade, and Consumer Protection. Their input is much appreciated.

Dan Mahr, UW-Madison Extension Fruit Entomologist

References to products in this publication are for your convenience and are not an endorsement of one product over similar products. You are responsible for using pesticides according to the manufacturer's current label directions. Follow directions exactly to protect the environment and people from pesticide exposure. Failure to do so violates the law.

Observations from the Field

By Jayne and Pamela Sojka, Lady Bug IPM, LLC

We are observing some bronzed uprights on the marshes this week. In most cases the bronzed uprights are in a salt and pepper look meaning they are spotty, just here and there. In some cases the bronzing is very defined and appears to be in a line or pattern.

Questions to ask yourself are:

Did I roll the snow this winter or did I blow it to the edge? If I blew it to the edge did it get off the bed or is the pattern I see a definite ridge line from the snow pile?

How long did I depend on the blanket of snow for protection before I layered my ice? If I depended upon the snow for an extended period of time, did the snow always cover all the uprights?

Did I switch harvest equipment in 2008? Did I switch beater operators?

Did I have a huge crop in some areas and the vines went into the winter a bit stressed?

Did I double beat to get that huge crop off?

Did I have trouble with one nozzle in 2008? With that nozzle unchecked I may have stressed the vines in a straight line when putting on a specific fertilizer or chemical in 2008 thus allowing the stress to show this spring.

Did my vines dry out last fall after harvest?

Even with all the possible scenarios, there is still some bronzing that I can not explain.

Understand that in most of this bronzed look are the leaves only and the upright itself is still green and viable... Know that the bronzed leaves will all fall off and the look you see today will fade away quickly. The frustrating issue is that I do not see a bud on those uprights.

Other observations include the promising bumble bee populations. We observed several species of bumble bees working the Creeping Charlie that we found along some dikes, and roadways. The Apple and wild Cherry Blossoms in our support lands are full of natural pollinators as well.

It is with great pleasure that I share sightings of the Beautiful Trumpeter Swans swimming in the reservoirs, plus the Geese now have their babies at their sides. We've heard the loon and of course the Sand hill Crane. We've seen wolves, and a few coyotes plus a red fox in our travels this past week as well. Many envy my job because we witness Mother Nature at her BEST. Take a moment to enjoy the benefits of living and working in the wide open spaces.

Jayne and Pamela Sojka
Lady Bug IPM, LLC

Change is the law of life. And those who look only to the past or present are certain to miss the future.

President John F. Kennedy

Life is like a taxi. The meter just keeps a-ticking whether you are getting somewhere or just standing still.

Lou Erickso



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