Integrated
Cranberry Crop
Management
for Wisconsin

Volume XVIII
Number 6
July 20, 2004

Cranberry

Crop Management Newsletter

Contents:

Diazinon 14G Not Available

For many years, United Agri Products (UAP) has been the registrant of diazinon 14G for use against cranberry girdler. Cranberry girdler registration is not on a national diazinon label, and the registrations are section 14(c) Special Local Needs registrations that must be applied for on a state by state basis, and renewed periodically. Although UAP has supported reregistration of this product in other cranberry growing states, it has chosen not to reregister the product in Wisconsin this year. The Cranberry Institute has requested that UAP readdress their decision for possible reregistration in 2005. If you have need of diazinon 14G for girdler control, please contact your agrichemical dealer or your UAP sales representative. Current plans are for this registration to be totally lost to Wisconsin growers in 2008.

Dan Mahr
Extension Fruit Crops Entomologist

Fruit Thinning

I just learned last week that a gross misconception has been floating around the cranberry industry for a few years regarding the insecticide Sevin. The misconception is that apples and cranberries are the same and application of the insecticide Sevin will cause fruit abortion in cranberry like it does in apples. That is a false notion with no basis in fact. In this article I'll try to explain why this is false and why cranberry growers may use Sevin with confidence as an insecticide to control cranberry fruitworm.

Sevin is a carbamate insecticide. It was first registered for agricultural crops in 1957. I don't know when it was first registered for use on cranberries. Sevin was registered for apples shortly after its initial introduction. In the first couple of years growers who used Sevin early in the season (petal fall and first cover spray) complained to the registrant (Union Carbide) that all of their fruit dropped. Initially Union Carbide denied responsibility, but within a few years Sevin was registered as a chemical thinner for apples. It is

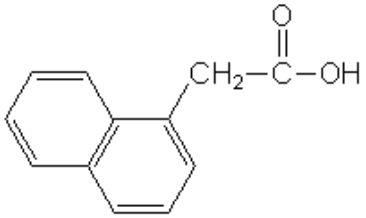
still the backbone of apple thinning programs today.

The label rate for Sevin as a thinner on apples is ¼ to ½ pound of active ingredient per acre. The suggested rate for Sevin as an insecticide on apples is 2 pounds active ingredient per acre. For cranberries the rate is 3 pounds of active ingredient per acre. Clearly, when used as a thinner on apples Sevin is very active. Less product is required as a thinner than as an insecticide.

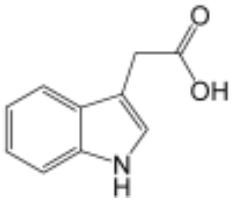
It is important to know why apple growers thin their crop. Apple trees produce far more flowers than they can carry through to maturity. Some flowers aren't well pollinated and fruit fail to develop. Others don't have enough seeds and will drop as part of the normal "June drop". Even with that apple trees would have too many fruit to develop to a commercially marketable size. Further, apple trees are prone to biennial bearing where one year the tree produces scores of small fruit and few or no flowers or fruit the next year. Ideally apple fruit should be borne singly about six inches apart on branches, while each flower cluster produces 5-6 flowers that could become fruit.

Other tree fruit crops such as peaches, apricots, prunes, and plums also produce many more flowers than can be carried through to maturity as marketable fruit. These crops are all thinned by hand if necessary. There are no chemical thinners (including Sevin) that work on stone fruits. In addition, Sevin is registered for use on many stone fruits as an insecticide.

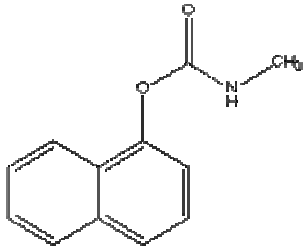
Two groups of chemicals are used to thin apples. The first are the synthetic auxins and the second are synthetic cytokinins. Both are plant growth regulators or plant hormones. Exactly how these hormones work to abort fruit is not known. If we look at the chemical structure of Sevin and compare that to NAA (another synthetic auxin used to thin apples) or IAA (naturally occurring auxin) we see that the structures are strikingly similar.



Chemical structure of Naphthalene Acetic Acid.



Chemical structure of indole Acetic Acid.



Chemical structure of Sevin insecticide.

The best idea about how these synthetic auxins work is that they somehow cause seed abortion or inhibit seed or fruit growth and that causes the fruit to drop. At shoot tips auxin promotes cell elongation and growth. Away from shoot tips auxin inhibits growth. Timing is also critical. Sevin will cause fruit abortion in apples in the period from petal fall to about three weeks following petal fall. In fact Sevin

is registered for use on apples as an insecticide for apple maggot and this insect makes its first appearance in late June to early July. By this time the fruit is set and no abortion ensues.

Will the insecticide Sevin cause fruit drop or abortion in cranberries? The short answer is no. To the best of our knowledge Sevin is active on apples and pears. It does not lead to fruit abortion in other crops for which it is labeled including stone fruits, blueberries, and cranberries. Cranberry growers have used Sevin for 30+ years and I have heard no reports of crop loss due to Sevin application. Some Wisconsin growers still use Sevin as an insecticide to control cranberry fruitworm with no adverse response. You could easily do an experiment to show yourself that Sevin does not cause fruit abortion in cranberries by treating part of a bed or part of your marsh with Sevin and the remainder without Sevin. This fall you can determine yield or even collect uprights and determine fruit set. This would tell you if Sevin reduced yields or not.

The question that underlies the misconception about Sevin is "how can I get all the pinheads to set and produce large fruit?" The simple answer is that you can't. I've written and spoken about this for 10 years. On average a fruiting upright produces enough carbohydrates to support the growth of two fruit. If you are setting two fruit per upright on average you are doing well. The other component is how many uprights that fruit this year will produce flower buds for next year. That is something that is exciting about HyRed. Its "re-bud potential" is higher than Stevens in our small test plots. That should lead to higher per acre yields.

By using another plant hormone, Gibberellic Acid, we can get all flowers on an upright to set fruit. However, the fruit are all pea sized and unmarketable through normal channels and the vines become very leggy and elongated. Yield per area is unaffected. Thus you can produce many small fruit or fewer large marketable fruit. Given current genetics it is not possible to produce many large fruit. There is no fertilizer program that can make that happen, period.

In conclusion, I don't know of any scientific evidence that suggests that fruit set or yield is reduced when the insecticide Sevin is used post bloom on cranberries. I do know of growers who use Sevin as a part of their post bloom insect management program, and who have done so for years, without reduced fruit set or yields. The Sevin label describes using Sevin as a thinner for apples—and only apples. Just as comparing apples and oranges is usually fraught with problems, comparing apples and cranberries is also unwise.

Teryl Roper, UW-Madison Extension Horticulturist

Re-entry Intervals

All pesticide labels are required to show the restricted entry period following application. The restricted entry interval (REI) is the time immediately following a pesticide application when entry into a treated area is restricted. The amount of time required is based on the toxicity of the compound and the tasks involved

during the product's use. In most cases, REIs are in 4, 12, 24, 48 and 72 hour intervals. During the REI, do not enter or allow any members of your family or workers to enter a treated area or contact anything treated with the pesticides to which the interval applies.

When the pesticide formulation or application is a "mixture" of active ingredients, the REIs are based on the active ingredient that requires the **longest** restricted re-entry period.

Exceptions to REIs. In general you, your family members, or workers must stay out of a treated area during the restricted entry interval. This restriction has two exceptions:

- Early entry with no pesticide contact.
- Early entry with contact for short term, emergency, or specially exempted tasks.

Be sure to consider crop scouts who may enter your property as you decide about pesticide applications. REI's apply to them too. The following table shows REI's for pesticides commonly used on cranberries postbloom.

Restricted Entry Intervals (REI) for commonly used cranberry pesticides.

Pesticide	**REI (hours)**
Orthene	24
Guthion	48-96 [a]
Sevin	12
Lorsban	24
Stinger	12
Aliette	12
Roundup	12
Roundup ultra	4
Imidan	24
Spinosad	4
Touchdown	4
Confirm	4

a. Varies by activity: 48 hours for mowing, irrigating and scouting; 4 days for all other activities.