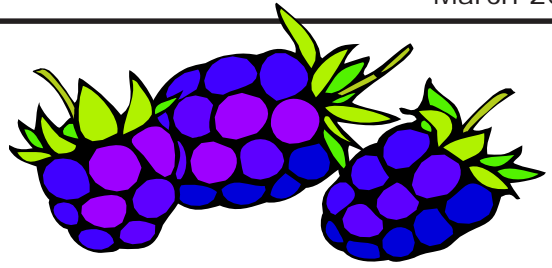




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Diane Kaufman

Caneberry Newsletter

Dear Friends;

With another growing season upon us and some concern about potential cold damage during the winter, this seemed a good time to discuss ways to sample for winter damage, updated pesticide registrations, and pre-emergence herbicides. Growers and field reps attending the ORBC Pre-Season meeting on Feb. 25, 2009 at NWREC (organized by Tom Peerbolt) heard a variety of excellent presentations, including one on sampling plants for winter damage, presented by OSU Berry Specialist, Bernadine Strik. A written summary of her presentation is included in this newsletter, along with an article on pesticide-related updates prepared by OSU Pesticide Registration Specialist, Joe DeFrancesco.



What affects cold hardiness? Cultivars differ in cold hardiness – these are genetic differences. For example, Thornless Evergreen, Kotata, Obsidian, and Black Diamond are more cold hardy than Marion, Boysen, and Siskiyou. Trailing blackberries are relatively sensitive to

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Sampling for Cold Damage in Trailing Blackberry Fields

By Dr. Bernadine Strik, Extension Berry Crops Professor, Dept. Horticulture, Oregon State University

After particularly cold winters, sampling trailing blackberry fields to see whether there's any damage offers advantages of being able to plan ahead for projected crop and any required adjustments in field management. Sampling every year also provides experience for what canes and buds are supposed to look like when they're healthy or damaged at different stages of development. You can also build some experience for how cultivars and various production systems affect cold hardiness at your farm.

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cold injury, because they have a low chilling requirement. When the daylength shortens in late summer/fall and temperatures start to cool, plant growth slows and plants start entering dormancy – this process is called acclimation. Once plants are dormant, they need a certain amount of cold temperature to satisfy their dormancy or rest requirement. The amount of cold they need is called the chilling requirement – it's defined as the number of hours between 32 and 45 °F that have accumulated since the plant became dormant. Once chilling is satisfied, the plants start to de-acclimate or come out of dormancy. Plants like red raspberries have a relatively high chilling requirement, about 800 to 1000 hours; once they are dormant, they don't de-acclimate until late winter. Trailing blackberries, like Marion, however, have a relatively low chilling requirement. We've found that Marion only needs about 300 hours of chilling. Unfortunately, once Marion is dormant it can de-acclimate relatively early when we get those characteristic warm periods in January or February, for example; this makes trailing blackberries quite sensitive to cold injury.

Plants are inherently most cold hardy when they are fully dormant. The maximum cold hardiness of Marion is about 8 to 13 °F, based on controlled studies and field experience. As we know, it can get colder than this, even in mid-winter; when it does, we often see some damage. Unfortunately, plants are less cold hardy when they are acclimating (picture those late October or early November cold spells) and de-acclimating (late February, for example). What's the cold hardiness at these times? That's not an easy question to answer, because the plant's cold hardiness is going to be affected by the type of cold spell and management issues.

Plants are more sensitive to cold temperatures when they occur relatively quickly and in particular when the cold temperatures follow a warm period (as the plant has become more active). Wind can help or hinder – a little wind will slightly dry out canes which may help, because with less water to freeze in tissues there's less damage from ice breaking cells. However, if canes dry out too much, tissues will not be able to recover.

Management can affect cold tolerance. For example, plants that are growing too late in the season, as might be caused by late fertilization with nitrogen or training too late in summer, acclimate later and are more sensitive to early cold spells. Canes that are trained in February, right before a cold spell, are more sensitive to cold, because training stimulates sap flow and bud break. Plants that are healthy (e.g. less cane disease, well irrigated, fertilized well) are more cold tolerant than diseased or weak plants. Primocanes that grew in the off-year of alternate year producing fields are about 3 to 8 °F more cold hardy than primocanes that grew in the presence of floricanes in an EY field.

Although you can sample fields any time during the winter, it's most useful to sample in March, just before bud break. This allows for sufficient time for symptoms to develop and is late enough in the winter that the likelihood of more winter damage occurring is small.

To sample for winter damage, cut through a bud and the associated cane section longitudinally (lengthwise). This allows you to see the growing point of the bud, the bud base and the cane. Healthy buds are light green, whereas damaged buds will have a brown or black growing point (tip of bud) or be "dry" and brown. It's normal for there to be a small, tan-colored section at the base of the bud near the juncture of the cane – this is pith tissue. However, if there's a large dark brown section at the bud base, there is cold injury. If the bud base is damaged, but the growing point or bud is fine, then laterals can grow in early spring, but will eventually wilt. You can also gently scrape at the bark to look at the color of the cambium/phloem tissue just under the bark – this is how you assess for cane damage. A healthy cambium and phloem is important for conducting plant nutrients and "food" to the growing laterals. Damaged tissues are dark green and "wet" or brown, compared to those that are healthy and are light green in color.

Research we did in the early 1990s showed that trailing blackberries can compensate for bud damage if the canes are un-damaged. When we removed the main buds (primary buds) at nodes along the cane in early February, secondary buds were able to com-

pensate for these losses. You can't easily see the secondary buds as they are normally very small and are tucked in close beside the bigger primary buds – the secondary buds only grow when the primary is damaged.

Trailing blackberries form their flower buds through most of the winter – this means development of the number of flowers per lateral and the potential size of the berries occurs through the winter. The good news is that even when we get cold damage in early February, we can see compensation from the secondary buds. You can sometimes see this in the field, as secondary laterals can emerge a bit later and can flower later than primary laterals.

When you are sampling buds to assess the extent of winter damage, it's important to remember that most trailing blackberry cultivars have only 50% bud break in a normal year (with no cold damage). Thus, even if some buds are damaged, you may not see any losses in the field – sampling often to develop some experience in this area is important.

If you determine that winter damage is severe enough that it won't pay to harvest the field, then it's best to cut the field to crown height and go for an "off year". In this case, our research has shown that it's best to wait to cut the field until the new primocanes are about 1 foot tall. At this point in time, use a mechanical cutter (not chemicals) to cut off the winter damaged floricanes and the new primocanes to stubs (you will be re-cutting the 1 ft tall primocanes back to stubs). We have documented a consistent 20% higher yield (compared to leaving primocanes un-cut) with this method, because the plant produces more canes/plant and canes are shorter with a higher percent bud break the following year. The added advantage to waiting until this stage of plant development is that you can wait and see what the floricanes look like in early spring before making a final decision.

I encourage growers to sample fields this month. The good news is that this winter, the coldest temperatures occurred during dormancy – the period of maximum cold hardiness. However, micro-climatic differences can occur among and within fields. This will be

a good year to sample to get some more experience looking at bud and cane health.



New Caneberry Pesticide Registrations for 2009 and Clarification on Rodent Control Labels

Joe DeFrancesco

New Registrations:

Several new products for controlling pests in caneberries became available this past year and should fit nicely into a pest management program with existing products.

Assail (acetamiprid) is a neonicotinoid insecticide (similar to currently registered Actara and Provado) that is effective in controlling aphids, leafrollers, and other insects found in caneberry fields. All three neonicotinoid-based products are in Insecticide Resistance Class (IRAC) #4A, which means it is important to rotate out of this class when multiple insecticide applications are needed. The 1-day PHI for Assail will be useful for controlling insect pests just prior to, at or during harvest.

Acramite (bifenazate) miticide is a reduced-risk pesticide that is effective in controlling all life stages of two-spotted spidermites (eggs, nymphs, and adults). Acramite has a mode of action different from currently registered miticides and cross resistance is unlikely to occur. Acramite is known to be non-lethal to beneficials. Although the product is not systemic, it

has a long residual. The 1-day PHI will assist in controlling mite infestations close to or during harvest.

Tanos (cymoxanil + famoxadone) is a systemic, broad-spectrum fungicide, with two active ingredients and a 0-day PHI, that is effective in controlling anthracnose and spur blight. PNW data indicates it is also effective in controlling Septoria Leaf Spot, which may soon be added to the label. Tanos is classified by EPA as a reduced-risk pesticide.

Delegate (spinetoram) insecticide was actually registered in October 2007 but is just now being marketed in the Pacific Northwest. Delegate is the “next generation” spinosyn chemistry, similar to currently registered spinosad (Success & Entrust) which are all registered for use in caneberries. All three products are in Insecticide Resistance Class (IRAC) #5; when multiple insecticide applications are necessary, rotate out of this class to reduce likelihood of resistance. Delegate is effective in managing Lepidoptera insects, such as leafrollers and fruitworms.



Rodenticide Label Clarification:

Zinc Phosphide Pellets for vole and mouse control has been registered for use in caneberries for the past several years but it may be time to clarify what constitutes a legal use. Label directions allow for broadcast application only; down-the-hole application or use in a bait station are not on the label and, thus, not allowed (i.e. not legal). EPA has specific restrictions for rodenticide labels; unlike other pesticide labels, the targeted pest must be listed on the label, and the use must be directed towards the pest on the label. There is, however, a gray area in that some zinc phosphide labels are registered for use in “cropland” and the Oregon Department of Agriculture interprets that to mean

any crop commodity, which would include caneberries. The “cropland” directions do allow down-the-hole application of zinc phosphide but for the control of gophers only; as long as gophers are the target pest, it is legal to use down-the-hole.

Further clarification is needed, I think, for use of bait stations or bait boxes for rodent control. As mentioned above, zinc phosphide cannot be used in a bait station/bait box for vole or mouse control. Only two products, which are made from the active ingredient diphacinone, are allowed to be used in a bait station, both allow use under the heading “cropland”, and the target pest is ground squirrel. Diphacinone is an anticoagulant and can easily cause death to the birds that feed on the rodents. Diphacinone products should be used judiciously. Anticoagulant products containing warfarin, such as Rodex, or chlorophacinone, such as Rozol, are not registered for use in berry crops, nor in any food crop.



Pre-emergence herbicides

The application of spring-applied pre-emergence herbicides to caneberries is generally done in March. Herbicide options include: Karmex; Simazine; Sinbar; Surflan; Solicam; Devrinol (Casoron is also a pre-emergence herbicide, but it is generally applied during cold, rainy weather in January and February; Kerb is also a pre-emergence herbicide, but it should be applied in mid-winter). Karmex is a popular choice because it is the least expensive of our pre-emergence options and controls a broad spectrum of weeds including pigweed, annual bluegrass, barnyardgrass, and crabgrass. It only provides Fair (60-79%) control of common groundsel and smartweed, and will not control challenging perennial weeds. It also will not burn

back existing weeds or kill tiny seedlings that have already begun to emerge before herbicide application. Because of cost considerations, it is tempting to rely on Karmex repeatedly for general annual weed control; however, repeated usage of Karmex can result in shifts toward annual weeds, such as groundsel and smartweed and increasing pressure from perennial weeds.

Simazine and Sinbar have the same mode and site of action and, therefore should not be tank-mixed or rotated. Simazine provides good control of pigweed, annual bluegrass and ryegrass, but provides only poor (less than 50%) to fair control of crabgrass, barnyardgrass, groundsel, and smartweed. It will not burn back existing weeds or kill any seedlings that have already begun to emerge prior to herbicide application. Of the herbicides mentioned above, Sinbar is the only pre-emergence material with the ability to burn back small (one inch or less) seedlings. Because of this, it might be a good choice if tiny seedlings are already visible by the time of herbicide application. Unlike Karmex and Simazine, Sinbar provides fair control of quackgrass. It also provides good control of smartweed and annual bluegrass and fair control of barnyardgrass. Sinbar should only be used on soils that have at least 1% organic matter.

Surflan is the preferred choice in new plantings because it is considered gentle on newly planted caneberries. Surflan is generally more effective on grasses than broadleaves, and provides good control of annual bluegrass, barnyardgrass and crabgrass.

It is difficult to classify Devrinol because many growers have expressed disappointment with it. Traditionally, Devrinol has played an important role in weed control in berries because it is known to provide good control of groundsel and should be considered in a tank-mix in fields where groundsel has become entrenched. Devrinol and Casoron are the only pre-emergence herbicides labeled for use in an established caneberry planting that are rated as giving good control of groundsel. Because Devrinol is very susceptible to degradation by sunlight (photo-degradation), it is important that it be incorporated with rainfall within 24 hours of application.

Solicam provides good control of annual bluegrass and barnyardgrass, fair control of crabgrass and smartweed, and only poor control of quackgrass.

Things to do – April/May

- Burn back primocanes, if desired. Labeled materials include: Goal; Aim; and Scythe. These materials also provide some burn back of certain weeds.
- Apply fertilizer
- Apply bloom sprays
- For EY blackberry growers: protect newly emerging primocanes against purple blotch
- Set out OT pheromone traps and begin scouting for OT larvae.
- Apply sulfur for red berry mite, if necessary.
- Now that the rain has come, growers may wish to apply a drench for control of the raspberry crown borer as soon as possible.



If you would like to remove yourself or add someone to this mailing, please call Jan Egli at 503-678-1264, ext 110.

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