UtahState UNIVERSITY extension

Small Fruits & Vegetables IPM Advisory

Weekly Pest and Production Update, Utah State University Extension, **April 18, 2008**

UTAH PESTS

Insect/Disease Information

SMALL FRUITS

Brambles

Raspberry crown borer

The raspberry crown borer is a clearwing moth. The larvae feed within inside lower canes for 2 years. They come out of their winter dormancy within the lower canes in early spring. First year larvae feed on cane buds and roots while 2nd-year larvae feed in galleries within the canes. Mature larvae pupate and emerge as adults in midsummer.

Feeding causes spindly canes, uneven bud break, and collapse of laterals. A hole at the base of the cane with sawdust-like frass indicates crown borer.

Examine lower canes and deep in the crown area for this insect now. Focus on areas of the field with a history of poor or weak growth.

Treatment: Good sanitation is important; do not move infested planting stock. If necessary a spring or post-harvest soil drench of diazinon or bifenthrin (Brigade, Sniper) can help.

Climbing Cutworms

There are many species of climbing cutworms, and some can begin feeding very early in the season. The larvae are pale brown to ashy gray and are active on canes at night, feeding on buds and new foliage. Some species feed on primocanes below ground.

Examine buds and new growth now in several areas for signs of damage. Search around crown area to identify the newly emerged larvae. If possible, check canes at night with flashlight.

Treatment: Apply in the evening when worms are active: spinosad (Entrust, Success), Bt (*Bacillus thuringiensis*-Dipel), carbaryl (Sevin)

Fire Blight

University of Wisconsin Extension

Last summer we saw severe outbreaks of fire blight in tree fruits, and although somewhat rare, this bacterial disease was

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also found in raspberries at the Kaysville research farm. This disease would probably be most common where your raspberries are growing near infected apple or pear trees.

The bacterium that causes fire blight, *Erwinia amylovora*, can infect open blossoms and also succulent shoot growth. Infected tissue turns brown or black, blossoms are killed, and lesions extend down from blighted flowers and shoot tips. Tips of the canes will wilt and dry out. The bacteria spreads by forming drops of ooze on infected tissues that are spread by rain, heavy dew, or insects.

Examine canes now carefully for diseased stems or cankers.

Treatment: Plant only certified, disease-free plants; remove and destroy diseased canes immediately; apply copper to dormant canes

Strawberries

Spittlebug

Spittlebugs adults are also called froghoppers, similar in appearance to leafhoppers. They overwinter as eggs attached to stems and old leaves. They hatch in early spring and as they feed, produce a frothy, protective foam. They suck juices from leaves and fruit spurs causing stunted plants and reduced yield.

Look at the plants now for eggs or newly hatched nymphs.

Treatment: Apply insecticides only when needed. Materials include azidiractin (Amazin, Ecozin, Ornazin), imidacloprid (Admire, Alias, Couraze, Bayer Advanced, etc.), carbaryl (Sevin), bifenthrin (Brigade), etc.

VEGETABLES

Maggot Insects

With our cool, moist spring, early season maggot flies (onion and cabbage) could be more prevalent this year. Cabbage maggots attack cole crops and onion maggots (although rare in Utah) attack onions. Damage includes wilting, increased susceptibility to disease, and reduced yields.

Adults emerge in spring and lay eggs at about the same time that transplants are planted. The eggs hatch in a matter of 3-5 days and begin feeding on roots and stems below the soil surface, riddling them with brown tunnels. Larvae can move from one plant to the next if plants are spaced close together. There are several generations per season.

Treatment: If possible, delay planting until the soil warms in the spring to avoid planting during peak egg-laying periods. Otherwise, cover young crops with a floating row cover. Since the maggots overwinter as pupa in the soil, rotate crops, and destroy onion cull piles. If necessary, apply a protectant insecticide in spring. Materials include malathion and pyrethrin (Pyganic).

UC Davis IPM

Onion maggot

University of Minnesoda Extension

Cabbage maggot

Production Information

Pruning and Training Primocane Raspberries

Laura McDermott, Berry Extension Support Specialist, Eastern NY, Cornell University Department of Horticulture
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Primocane raspberries, sometimes referred to as "everbearing" raspberries, is the term used to describe raspberry plants that bear fruit on their first year canes or primocanes. This occurs because the apical meristem of these primocanes changes from vegetative to reproductive during the long day conditions of the first season of growth. After this transition, fruit buds are initiated as the cane grows, from about midway to the top of the cane. Thus the lower fruit is often the earliest and largest on a primocane variety. The vegetative buds on the lowest portion of these primocanes behave like floricanes – they differentiate into flower buds during the late fall and the following spring. These buds will flower and bear fruit during the summer season, while newly emerged primocanes will continue to bear fruit in the early fall. Thus the term "everbearing" was derived. The quality of the summer fruit of primocane varieties is poor compared to both the fall primocane crop and the summer crop of normal floricane varieties. This, combined with the improved ease of managing the primocane plants, explains why most growers sacrifice the 2nd year crop and manage the planting for a fall crop only.

The deletion of selective cane removal from a pruning protocol is great news for most berry growers. Now the job can be mechanized and the labor cost is significantly reduced. Still, there are recommendations that will help growers maximize productivity and vigor of the planting.

Old primocanes should be removed as early in the spring as possible so that carbohydrates transported from the canes to the crown in the fall have not had time to move back into the buds. Old canes should be cut as close to the surface of the soil as possible, so that new canes emerge from crown buds below the soil. This prevents the formation of fruiting lateral canes which are weak and unproductive. Fruiting laterals can facilitate pest infestations that will shorten the productive life of the planting. It is highly advisable to destroy cut canes. Old canes harbor pest problems and will reduce vigor and yield.

When growing summer bearing (floricane) raspberries it is understood that large numbers of canes will decrease the number and individual size of berries. This is NOT the case with primocane plants. The yield of a planting is influenced by numbers of canes and the number of berries per lateral. The quality of the fruit is affected by maximizing light interception and minimizing pest problems.

How to accomplish both of these goals with one planting system? Design rows that are narrow: 12-18" is a good goal. In the warmest areas of the state, plants spaced as close as 1 foot apart may result in high first season yields. This higher establishment cost may not translate into profits for northern areas, so a within-row spacing of 24" would be advisable.

Many primocane raspberry growers have not invested in trellises for their plantings. Growers still struggle with managing fall bearing plants for pre-frost harvest. New cultivars and the use of row covers in the spring and the fall will help achieve a predictable late summer – early fall harvest window. The trellis might actually provide a support if growers were using row cover for frost protection.

In floricane systems, trellises are important in increasing light availability and thus improving yields. In primocane systems, trellises have mostly been used to facilitate harvest. A simple T-shaped wooden trellis can help tremendously. The end posts are approximately 7' long with a 3-foot cross arm. The ends of the cross arms have screw eyes that holds twine (cheap and disposable). The posts are set in holes dug in the center of the rows, 25-30 feet apart. The holes should be 3 feet deep and slightly wider than the posts. A 3-foot section of PVC pipe is set into the holes immediately. Right before harvest, the trellis posts are set into the PVC lined holes. The twine is strung and pulled tight so that the canes are lifted making it easier for pickers to see fruit and do a good job picking. After harvest, trellis posts are removed and pruning can take place unencumbered.

Proper pruning and training in combination with good fertility and pest management programs will keep your primocane raspberries productive and profitable for many years.

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