UtahState UNIVERSITY extension

Small Fruits & Vegetables IPM Advisory

UTAH PESTS

Weekly Pest and Production Update, Utah State University Extension, **May 2, 2008**

Insect/Disease Information

SMALL FRUITS

Strawberries

Red Stele

www.plante-doktor.dk

Typical reddened stele of strawberry caused by Phytophthora fragariae.

Red stele is a root rot disease caused by a soil borne pathogen called *Phytophthora fragariae*. It is most often seen in cool, saturated soils, and in compacted, poorly-drained soils. Infections occur in spring, killing the roots, and turning the stele (inner pith) a reddish color. It is usually introduced to a new site via infected planting stock, and then spreads to other plants on contaminated tools, boots, animals, and running water. It can survive in a field as a resting spore in minute plant debris for up to 13 years.

Plants infected with red stele usually do not show symptoms until the second spring, and these include poor growth, few runners, small berries, and chlorosis (yellowing). In order to make a correct diagnosis, however, one must examine the roots or send in a plant sample to the Utah Plant Pest Diagnostic Lab (utahpests.usu.edu/uppdl/).

To manage this disease, reduce soil compaction with organic amendments and improve soil drainage or plant only in well-drained locations. Make sure planting stock is disease-free. Ridomil (metalaxyl) and Aliette (fosetyl-aluminum) can be applied (as drench or foliar spray) to protect adjacent plants.

VEGETABLES

Asparagus Beetle on Asparagus

Damage from asparagus beetle will show up as soon as spears begin elongating. Adults begin feeding on spears as soon as they emerge from their overwintering dormancy. Their feeding leaves unsightly scars. After mating, females lay eggs on the spears. We should start to see larvae hatching in the next few weeks.

Jeff Hahn, University of Minnesota

Shepherd's crook caused by adult asparagus beetle feeding.

Examine spears in the afternoon for adults or adult feeding. In large fields, select at least 10 plants in 5 locations, otherwise, examine all plants. Treat if more than 10% of the plants are infested with adults.

Treatment: Insecticides are usually only necessary when persistent damage is noticed. Typically, natural predators will regulate the beetle population. If necessary, use neem oil, permethrin (Ambush, Artic, Bonide Garden Dust, Pounce, etc.), pyrethrin (Concern, Pyganic), spinetoram (Delegate), spinosad (Entrust, Monterey, Success), etc.

Asparagus Beetle and Spotted Asparagus Beetle fact sheet

continued on next page

Insect/Disease Activity continued from previous page

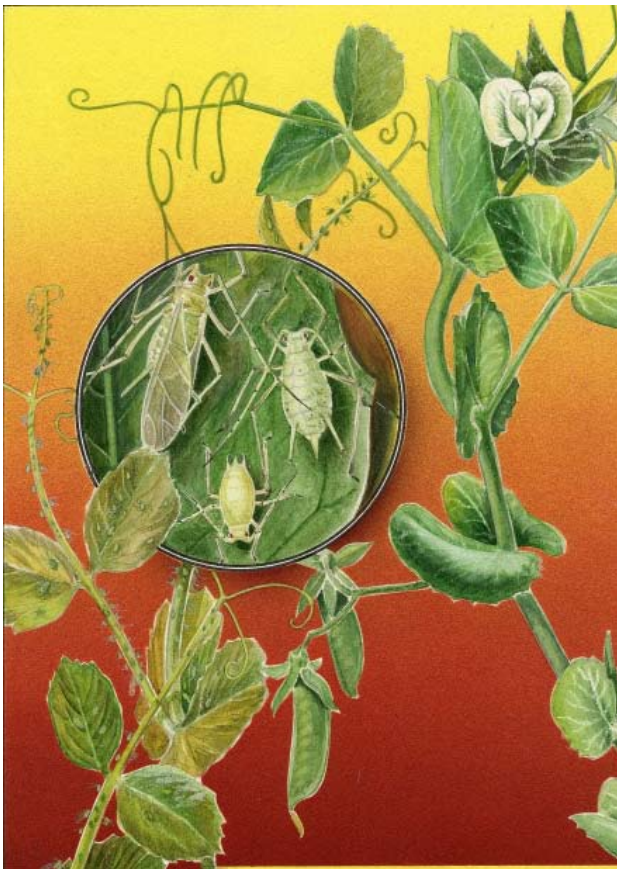
Wireworms on Corn

http://www.cimmyt.org/

Wireworms can be a minor pest, but when numbers are high, can cause significant damage. The overwinter in the soil as larvae or adult beetles. The larvae take 2-3 years to develop, feeding on roots as they grow. Wet, cool soils usually make corn seedlings more susceptible to injury because the insects can feed while the corn is growing slowly. The effects of feeding damage by below-ground pests like wireworms can be seen through May and into June.

Treatment: There are not many options for treatment of wireworms. Prevention is the best option; do not plant in fields that were previously grass sod. Monitor for wireworms before planting by digging 1 foot down into the soil in 10 locations and sifting for larvae or adults. If 2 or more are found in 10 shovel-fulls, plan for a seed treatment of thiamethoxam (Cruiser).

Aphids on Peas



Art Cushman, USDA; Property of the Smithsonian Institution, Department of Entomology, Bugwood.org

Pea aphid

Some growers have planted peas, and now is the time to keep an eye out for aphids. Heavy infestations can cause wilting, curled leaves, chlorosis, and deformed vegetables. Their populations can explode rapidly as females give birth to up to 50 living young, and over 7 generations can occur in one season.

Sample for aphids by counting the number of aphids on 10 plants in 10 locations throughout a field. As a general guideline, a treatment is recommended if you find 5-10 aphids per plant.

Production Information

Table 1. Recommended raspberry and blackberry cultivars for the Inland Northwest and Intermountain West.

Cultivar	Cold hardiness (°F)	Fruit characteristics: Ripening	Size	Flavor	Fresh use	Processing use	Disease resistance: Phytophthora root rot	Spur blight
Summer-bearing red raspberries								
Algonquin	-30	I	M-L	E	G	G	3	2
Canby	-25	I	M	E	G	G	I	I
Chilcotin	-25	I	L	G	G	G	2	2
Festival	-30	I	M	G	G	G	3	3
Haida	-20	I	M	G	G	G	2	3
Killarney	-30	I	M	F-G	G	F	3	3
Latham	-25	I	S	G	F	G	4	2
Newburgh	-20	I	S	G	G	P	4	2
Nootka	-25	I	M	G	F	G	2	I
Nordic	-30	I	M	G	G	G	3	2
Reveille	-30	I	L	G	G	G	3	2
Skeena	-25	I	M	E	E	E	I	2
Souris	-30	I	M	E	G	G	3	2
Taylor	-25	I	L	G	G	G	3	2
Tulameen	-20	I	L	G	G	G	3	2
Fall-bearing red raspberries								
Amity	-25	I,4	M	G	G	G	2	2
Autumn Bliss	-25	I,3	M	E	G	G	3	2
Heritage	-25	I,4	L	G	G	G	3	2
Redwing	-25	I,3	M	G	G	G	3	2
Summit	-25	I,3	M	E	E	E	4	2
Yellow raspberries								
Amber	-25	I,3	M	E	E	P	3	2
Fall Gold	-25	I,3	M	E	E	P	3	2
Golden West	-25	I	M	G	G	F	3	2

Table from: Barney, Danny L., Michael Colt, Jo Ann Robbins, and Maurice Wiese. 1999. Growing Raspberries and Blackberries in the Inland Northwest and Intermountain West. University of Idaho.

Production Information, continued

Table 1. Recommended raspberry and blackberry cultivars for the Inland Northwest and Intermountain West (cont.).

Cultivar	Cold hardiness (°F)	Fruit characteristics: Ripening	Size	Flavor	Fresh use	Processing use	Disease resistance: Phytophthora root rot	Spur blight
Black raspberries								
Allen	-10	1	L	G	G	G	4	3
Blackhawk	-15	1	M	F	F	F	4	3
Bristol	-10	1	M	F	F	F	4	3
Cumberland	-5	1	L	G	G	G	4	3
Haut	-15	1	M	E	E	E	4	3
Purple raspberries								
Brandywine	-20	2	L	G	F	E	3	3
Success	-20	2	M	G	G	E	3	3
Royalty	-20	2	L	G	G	E	3	3
Thornless blackberries								
Chester	-20	3	M	G	G	E	4	4
Dirksen	-15	3	L	G	G	E	4	4
Navaho	-10	4	S-M	G	G	E	4	4
Thornfree	-10	4	L	E	E	E	4	4
Thorny blackberries								
Darrow	-25	2	S	F	F	G	4	4
Illini Hardy	-20	4	M-L	G	G	E	4	4

Ripening: 1 = early to mid summer; 2 = mid to late summer; 3 = late summer to early fall; 4 = early to late fall
Fruit size: S = small; M = medium; L = large
Fruit flavor, fresh use, and processing use: P = poor; F = fair; G = good; E = excellent
Disease resistance: 1 = very susceptible; 2 = susceptible; 3 = moderately resistant; 4 = very resistant

Production Information, continued

Planting Strawberries in the Home Garden

Richard Jauron, Dept. of Horticulture, Iowa State University Extension

Strawberries are well suited to home gardens. They are hardy, easy to grow, and produce a good crop with moderate effort. Spring is the best time to plant strawberries.

Home gardeners can choose from 3 types of strawberries.

1. June-bearers are the most widely planted type of strawberry. They produce one crop per year, the majority of fruit ripening in June. Suggested June-bearing strawberry varieties include 'Earliglow,' 'Allstar,' 'Honeoye,' 'Surecrop,' 'Redchief,' 'Jewel,' and 'Kent.'

2. Everbearing varieties typically produce June and late summer/early fall crops with little flowering or fruiting in the intervening weeks. 'Ozark Beauty' and 'Ogallala' are good everbearing varieties.

3. Day-neutral varieties can flower and fruit throughout the growing season if temperatures are moderate. Flower and fruit production stop during hot weather. 'Tristar' and 'Tribute' are the best performing day-neutral varieties.

When selecting a planting site, choose an area that receives full sun and has well-drained soil. Planting sites should receive at least 6 hours of direct sunlight per day. Leaf and root diseases are often problems in poorly drained, wet soils. Do not plant in areas that are heavily infested with perennial weeds. Also, avoid sites where strawberries, tomatoes, potatoes, and peppers have been grown the last two years to prevent possible root disease problems.

Purchase virus-free strawberry plants from a reputable garden center or mail-order company. If planting must be delayed after purchase, place moist material, such as wood shavings or sphagnum moss, around the roots and place the plants in a plastic bag. Store the plants in the refrigerator at 32 to 40 degrees F. They can be safely stored in the refrigerator for 1 to 2 weeks.

Remove the strawberry plants from storage when ready to plant. Trim off the older leaves, place the roots of the plants in water for an hour, then plant immediately. Set each plant in the ground so the crown of the plant is even with the soil surface.

The type of strawberry determines plant spacing:

- June-bearing strawberries are planted 18 to 24 inches apart in rows spaced 4 feet apart. Runners will develop and root freely to form a matted row about 2 feet wide.

- Everbearing and day-neutral strawberries are typically planted in beds consisting of 2 or 3 rows. Rows are spaced 1 foot apart. Plants are spaced 1 foot apart within the rows. A 2-foot-wide path should separate the beds. Any runners that develop on everbearing and day-neutral strawberries should be removed and the plants maintained as large, single plants.

Immediately after planting, water the strawberry plants and apply a starter fertilizer solution to aid establishment. A starter fertilizer solution can be prepared by dissolving 2 or 3 tablespoons of a complete garden fertilizer, such as 5-10-5, in one gallon of water. Apply 1 to 2 cups to each plant. A starter fertilizer solution can also be prepared using a water soluble fertilizer. Follow label directions when preparing the solution.

During the first growing season all the blossoms should be removed from June-bearing strawberries. Remove all blossoms on everbearing and day-neutral strawberries until early July. Any flowers which bloom after this period may be allowed to develop into fruit. Flower removal aids plant establishment.

When properly planted and given good care, one strawberry plant can yield 1 to 1½ quarts of fruit.

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