

# GROWING BLACKBERRIES

## ON THE NORTHCOAST

Blackberries are the most adaptable of all the berries to California, primarily because of their tolerance of heat. Although they will do well in warm production areas, they perform much better in very deep, well-drained, alluvial soils. In all locations, blackberries require frequent irrigations so that they are always moist. Blackberries do very well on the coast because cool temperatures bring out and maintain the excellent flavor qualities.

### Blackberry Varieties

There are basically two types of blackberries: erect and trailing. Trailing blackberries are also called dewberries in the East and have canes that are not self-supporting. Erect blackberries have stiff, arching canes that are somewhat self-supporting. Blackberry plants live for many years; however, the canes grow one season (primocanes), produce fruit the second season (floricanes), and then die. Berries are borne on short lateral shoots produced on the second-year canes.

### Erect Blackberries

#### *Cherokee*

Mid-season; berries medium large, black, firm, excellent flavor, vigorous, thorny; tolerates heat

#### *Cheyenne*

Early; berries very large, firm, attractive, good flavor, vigorous, moderately thorny, hardy; tolerates heat

#### *Darrow*

Vigorous, hardy, productive, an excellent berry from New York.

#### *Shawnee*

Mid-season; long fruiting season; berries very large, shiny black, medium firm, good flavor, vigorous, thorny, very productive; tolerates heat



## Trailing Cultivars

### *Black Satin*

Mid-season; berries large, skin black, good flavor, semi-erect, thornless, hardy, vigorous

### *Boysen (Nectar Berry)*

Mid-season; berries very large, deep maroon, soft, excellent distinct flavor, canes thorny; tolerates heat

### *Chehalem*

Mid-season; berries small to medium, bright black, very firm, excellent flavor

### *Chester*

Late; berries medium, black, good flavor, canes thornless, semi-erect

### *Hull Thornless*

Mid-season to late; berries large, firm, good flavor, thornless, vigorous, productive, semi-erect

### *Kotata*

Mid-season; berries large, glossy black, firm, good flavor, thorny, vigorous, productive

### *Logan*

Early; berries medium sized, long, dark red, soft, good flavor, thornless type available

### *Marion*

Mid-season; number one variety grown in Oregon. Berries large, bright black, firm, excellent flavor, thorny, productive

### *Ollalie*

Mid-season; berries medium to large, bright black, firm, vigorous, productive

### *Silvan*

Early to mid-season; berries large, black, medium firm, excellent flavor, thorny, very productive

### *Sunberry*

Early; berries medium, dark red, fair flavor, thorny

### *Tayberry*

Early; berries large, medium red, soft, flavor distinctive, thorny

### *Thornless Evergreen*

Late; berries medium, dark black, firm, mild flavor, very productive, suckers from roots may be thorny

### *Tummelberry*

Early; berries medium to large, firm, fair flavor, thorny

### *Waldo*

Mid-season; berries medium size, glossy black, firm, mild flavor, thornless, productive

### *Young*

Mid-season; berries very large, maroon, sweet, excellent flavor

## FRUITING CHARACTERISTICS OF BLACKBERRY CULTIVARS ( '87 - '89) GROWN IN THE PACIFIC NORTHWEST

Cultivar	Yield (T/A)	Size (g)	Firmness (g)	Color	Brix	TA (%)	No.Seeds (5g)(puree)	First Pick	Length	Thorns? (Y/N)
Bosen	4	8.4 - 9.2	856	deep maroon non-glossy	12	1.3	29	7/10	22	Y
Chehalem	4 - 5	small	med - firm	glossy black	14	?	small	7/15	30	Y
Chester	?	4.8 - 6.0	975	glossy black	11	1.1	41	8/3	59	N
Evergreen	6 - 10	3 - 4.1	759	black, glossy	15	0.8	59	8/3	40	N
Hull	6 - 7	891	891	glossy black	11	1.1	38	7/15	37	N
Kotata	4 - 6	4.4 - 5.6	1123	glossy black	13	1.3	69	7/6	20	Y
Logan	3	4.6 - 5.8	613	deep maroon non-glossy	10	1.7	67	6/20	31	N
Marion	5 - 6	4.5 - 5.2	697	black, glossy	14	1.8	66	7/5	27	Y
Navaho	4	4 - 5	very firm	glossy black	?	?	?	7/18	?	N
Olallie	4	5.3 - 6	1063	glossy black	13	1.5	60	6/25	20	Y
Shawnee	6	7 - 8	901	glossy black	13	1.2	44	7/11	42	Y
Silvan	?	5.7 - 6.2	826	glossy black	12	1.5	43	6/22	29	Y
Tay	?	6.1 - 6.4	523	non-glossy, maroon	11	1.4	80	6/15	25	Y
Waldo	4 - 6	5.0 - 7.8	933	glossy black	13	1.4	82	7/12	26	N

SOURCE: Bernadine C. Strick, Extension Horticulture Specialist, Oregon State University

### Propagation

Blackberries are easily propagated as suckers, root cuttings or tip layering. Root cuttings are made in the Fall by cutting roots the size of a lead pencil or larger into three to six-inch



lengths and storing them at 32°F in moist but not wet peat moss. They can be planted at the nursery or directly into the field; the best time would be mid-Winter to early Spring.

Another method of propagation is tip layering. Cover tips of canes with soil in late Summer or early Fall. Cut rooted tips from the cane and transplant them the following Spring.

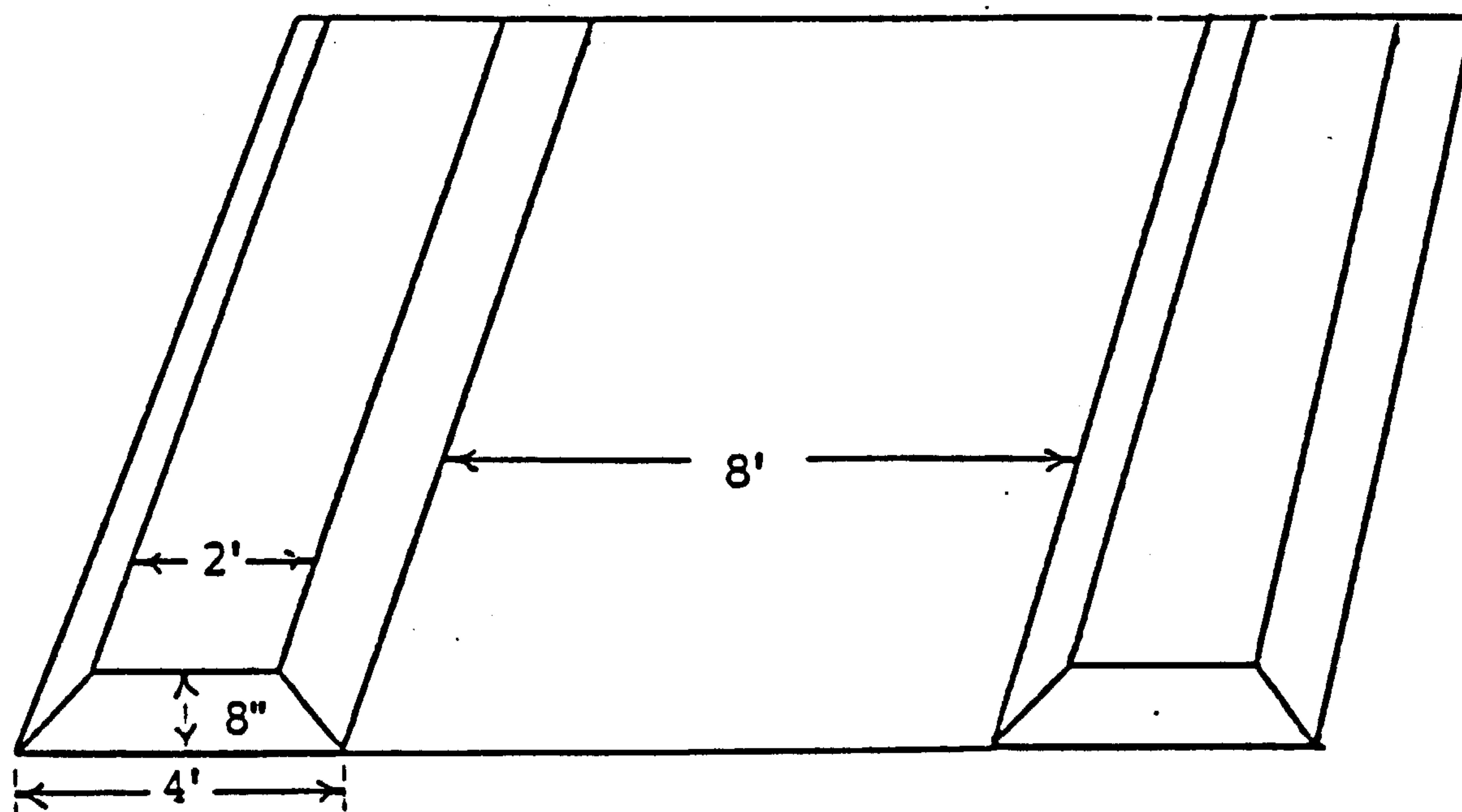
Although propagating your own berry plants is very easy to do, plants from your neighbors' planting could introduce root rot organisms or viruses into your garden. It is best to purchase certified disease-free plants from a nursery.

### Soils

Blackberries do best in well-drained sandy or loamy soils with a pH of between 5.5 and 6.5. A good supply of organic matter in the soil improves aeration and drainage and it increases water-holding capacity. You may apply organic matter the Summer or Fall before you plant. You can use any fully or partially decomposed organic matter source such as: compost, leaves, chopped hay or straw, peat moss, or manures. It should be applied at a rate of approximately one pound per square foot and worked into the ground prior to making your raised beds.

Raised beds improve the drainage and growth of blackberries considerably by decreasing the effects of heavy soils, heavy winter rains, or too much summer irrigation. Raised beds are constructed by shoveling soil from the aisles to form beds 2 ft. wide at the top and tapering to 4 ft. They are generally 8-10 inches high and can be as long as you desire.

### APPROXIMATE DIMENSIONS OF CANE AND BUSH BERRY RAISED BEDS





## Planting

It is best to plant berries in the Fall or as early as you can work the soil in the Spring. Dig a shallow hole just large enough to accommodate the roots, prune off any damaged root parts, spread the root mass, and set the plant at about the same depth as it was in the nursery. Cover the roots with soil and press firmly to remove air pockets. Water the plants to settle the soil. Cut the canes on newly set plants to 6" at planting time. Remove all flowers and fruit during the first season, or this will weaken the plants. If possible, plant rows in a north-south direction for best sun exposure.

## Spacing

Space erect cultivars four to six feet apart in the row and trailing cultivars four to ten feet apart in the row, leaving eight to ten feet between rows. Erect cultivars tend to produce suckers from the roots and will fill in the row to form a hedgerow. Trailing cultivars tend to produce few root suckers, but they need more space because of their long canes.

## Trellis System

Trailing blackberries definitely require a trellis system to support the fruiting canes the second year. Erect blackberries will grow without support, but trellises keep the planting neater and make both cultivation and harvest much easier. Therefore, it is advisable to trellis all blackberries. Place heavy end posts at least two feet into the ground at each end. Lighter posts should be spaced approximately 20' apart in the row. The posts should be out of the ground approximately six feet.

A two-wire system is generally adequate with the top wire at approximately five feet and the other wire at approximately three and one-half feet. For erect cultivars, a two-wire system, one on each side of the row, at a height of 3-5' will prevent canes from bending into the aisles.

## Fertilization

If you use manure, compost, or other source of organic fertilizer, apply it in the late Fall or early Winter. Apply approximately 25 pounds of an organic-type fertilizer per 100 feet of row.

Fertilizers out of a bag should be spread over the surface of the soil in the row in the early Spring just when growth is starting. Apply five to six pounds of 10-20-20 fertilizer per 100 feet of row. If plants lack vigor, apply an additional one pound of ammonium nitrate per 100 feet of row at bloom.



## Irrigation

Blackberry plants require approximately one inch of water per week from mid-May through harvest. It is best to keep the plants moist at all times without soaking and rotting the roots. Generally, irrigation is provided two times per week; however, during the fruiting stage or during windy and hot conditions, greater amounts and more frequent quantities of water should be applied, possibly every day.

## Pruning

Little to no pruning is required during the planting year.

**Erect cultivars** - in the second growing season, during the Summer, remove the top 1-2" of new primocanes when they are approximately 3' tall. These canes will branch and produce fruit the next year. Immediately after harvest, remove floricanes. These canes will eventually die anyway. In late Winter when plants are dormant, thin primocanes to three or four of the strongest per plant. In the hedgerow system, leave one large cane every five inches and prune lateral branches on these canes to 12-18" long.

**Trailing cultivars** - trailing types produce primocanes in the Spring that grow along the ground. Keep these trained in a narrow row beneath the bearing canes to prevent injury. After harvest, remove the floricanes. Thin the primocanes, leaving six to twelve of the sturdiest canes on each plant to bear next season. Train the primocanes up onto the trellis right after harvest and subsequent removal of floricanes. Wrap the canes, one or two at a time, in a spiral around the wires of the trellis, working each way from the plant. Don't top the primocanes of trailing berries during the growing season.

## Pests (Weeds, Insects and Diseases)

See leaflet 21320 - Insect and Disease Management for Home Berry Plantings.

## **Weeds**

Blackberries require a weed-free site in order to perform well. Control all perennial weeds prior to developing the site with either herbicides or diligent cultivation. Once the plants are in the ground, the best method of weed control is a heavy mulch. Apply mulch materials, such as bark chips, sawdust, peat moss, shredded bark, etc. at a depth of approximately 3-4" around the plants and maintain this throughout the life of the planting. If cultivation is necessary, don't dig very deep because blackberry roots grow very near the surface.



## **Insects**

**Red Berry Mite** - a small mite that causes the berry to ripen abnormally. Parts or all of the berry remain red and hard at harvest. Control: Apply approximately eight ounces of liquid lime sulphur per gallon of water. Apply during the Spring when leaf buds are 1/2 to 1" long and be sure to achieve thorough coverage.

**Spider Mites** - extremely small creatures causing leaves to be stippled and yellow, eventually becoming totally yellow. Leaves turn dry and brown. Plant vigor and fruit production is noticeably reduced. Control: Prevent mite build-up by never allowing plants to become drought-stressed. Overhead watering will remove mites and wash off dust that has accumulated and created a haven for mite development. Reduce dust in the planting area. Apply a registered miticide such as Kelthane or insecticidal soap to help wash off the mites.

**Raspberry Horntail** - S-shaped, segmented worm, up to one inch long, with white body and dark-brown head. It has three pairs of legs near the head end and short spines on the tail end. It causes tips of young shoots to wilt during the Spring. Cutting open the affected portion of the cane reveals the worm and its tunnel, containing brownish granular frass. Control: Remove and destroy infested canes. If the insect continues to be a problem, apply Carbaryl immediately after bloom.

**Crown Borers** - Worms up to one inch long, whitish body and brown head. Plants lack vigor; portions become stunted and weakened, lateral growth in Spring wilts, and the entire cane may later die. Cutting open lower canes or the crown area reveals worms tunneling through plant tissue. Control: Keep plants properly irrigated and vigorous, since borers are attracted to stressed plants. Prune out and destroy infested shoots and canes.

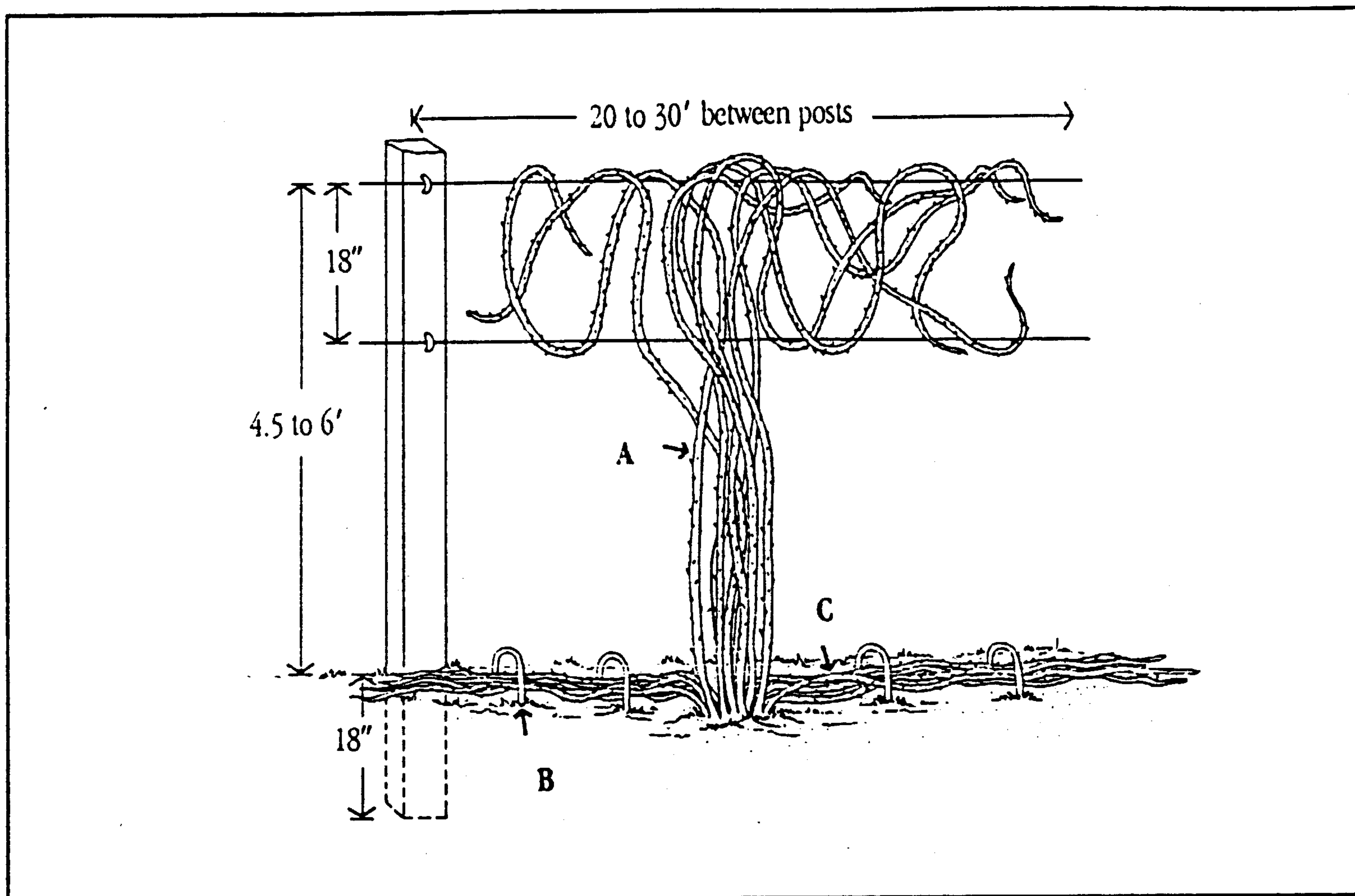
## **Diseases**

**Verticillium wilt** - a fungus that survives and builds up in the soil on other host plants and is transmitted to blackberry canes. Floricanes are primarily affected, while primocanes are rarely affected. Floricane leaves turn yellow, wither and fall, beginning at the base of the cane and progressing upward. They take on a bluish-black cast and die during the Summer as fruits are maturing. Small groups of plants may be affected here and there. Control: No cure. Remove and destroy affected plants. Avoid planting blackberries in soils formerly planted in other hosts of the fungus.

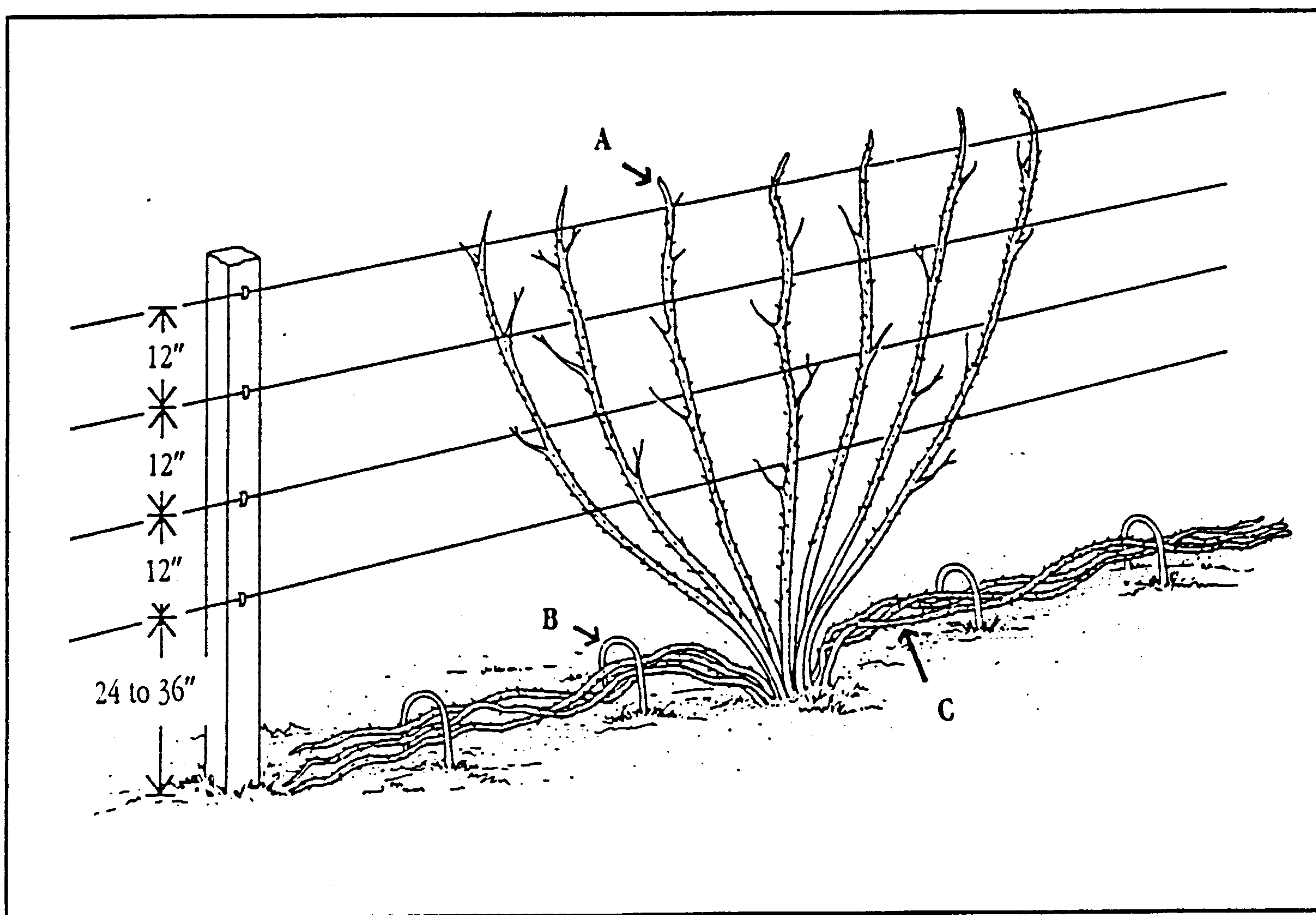
**Armillaria root rot** - a fungus that survives in the soil for many years and attacks blackberry canes. The entire plant becomes weakened and is killed generally quite rapidly once the first symptoms appear. White fungal growth between the bark and wood near the ground level is evident. Control: No cure. Remove diseased plants as soon as possible.

**Phytophthora root rot** - a fungus that infects weakened roots due to excess soil moisture. Plants in the Spring fail to leaf out fully, small leaves turn yellow, and the entire plant dies.





**Figure 1.** — Two-wire trellis for trailing blackberries, in the growing season (leaves not drawn for clarity): A. Canes that just bore fruit and will die. B. Wire guide for new cane growth. C. New growth that will bear fruit the following year.



**Figure 2.** — Multiple-wire trellis for trailing blackberries, in the growing season (leaves not drawn for clarity): A. Canes that just bore fruit and will die. B. Wire guide for new cane growth. C. New growth that will bear fruit the following year.

SOURCE: Bernadine C. Strick, Extension Horticulture Specialist, Oregon State University



Control: plant on raised beds in deep well-drained soils and never stress plants.

Leaf and cane spot - a fungus that survives on infected canes and leaves. Spores are dispersed by splashing water. Infection appears as small red-bordered spots with whitish centers on leaves and canes. Plants have reduced vigor and may lose some leaves prematurely, leading to sunburn of canes. Control: avoid overhead irrigation. After harvest and before Fall rains, prune out and destroy old wood and apply any of the fixed copper fungicides, such as Bordeaux, COCS, Micro-cop or Kocide.

Yellow rust - a fungus that overwinters on fruiting canes. Spores release from infected canes are spread by wind during Spring and Summer. Small yellow blister-like pustules appear in the Spring, first on fruiting canes and then on new leaves. Canes dry out and crack, preventing proper ripening of fruit. Control: Avoid overhead irrigation. Prune out and destroy diseased canes before Fall rains, and apply a fixed copper fungicide. Spray with a fixed copper fungicide in Spring when new laterals are leafing out, and again when flowers begin to open.

Orange rust - a fungus that is systemic, and remains in the host plant. Spores released from pustules on leaves, spread by wind in the Spring. Orange blister-like pustules cover the undersides of leaves in Spring. Diseased shoots seem to recover by mid-Summer, but developing canes are smaller than normal and bear no fruit the following year. Control: Fungicides are of little value. Remove and destroy infected plants, including roots.

Crown gall - bacteria that survives in the soil and is spread by splashing water, pruning and cultivation tools. Wart-like growths appear on the roots and crown area of canes. Severely affected plants become stunted. Cut out infected canes during hot, dry weather, and disinfect pruning tools before using on healthy plants. Do not plant plants that show crown gall symptoms.

Dwarf virus - is transmitted by aphids after feeding on infected plants. Weak, spindly canes, leaves cup downward and redden prematurely in Fall. Plants become unproductive in 2-3 years, berries crumble. Control: no cure. Remove infected plants immediately. Obtain virus-free plants from nursery.

Die-back - a physiological disorder. Canes and laterals are delayed leafing out, then wilt and die back at tips in early Spring as first leaves are unfolding. Cause: may be associated with freezing injury, winter drought or insufficient chilling. Control: maintain late Fall and Winter irrigation so that plants never go dry and get stressed.



# DISEASE SUSCEPTABILITY OF BLACKBERRY CULTIVARS GROWN IN THE PACIFIC NORTHWEST

Cultivar	Septoria	Cane & Leaf Rust	Verticillium Wilt	Calico virus	Crown Gall
Boysen	4/3	?	4(?)	1	4
Kotata	3	?	?	?	?
Logan	3	?	1/2	4	3
Marion	3	2	1	4	2/3
Evergreen	3/2	3	2	1	3
Waldo	2	?	?	4	?
Chehalem	4/3	?	1	?	4/3
Olallie	3	3	1	?	3

SOURCE: Bernadine C. Strick, Extension Horticulture Specialist, Oregon State University

- 1 - Very resistant
- 2 - Moderately resistant
- 3 - Susceptible
- 4 - Very susceptible

*SOURCE: Paul Vossen*  
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