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RASPBERRY CULTURE IN KENTUCKY

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The present production of raspberries is insufficient to supply local demand in most sections of Kentucky, and few people realize the possibilities in growing them for home use and local market. Raspberries begin to bear the second season after planting, and thus are unlike fruit trees which have a long period of unfruitfulness. The decline of raspberry culture in Kentucky was caused chiefly by the increasing prevalence of certain diseases of raspberry bushes. However, injury from these diseases can be prevented or greatly reduced by proper and timely treatment.

SOIL AND FERTILIZATION

A deep, fertile soil, high in humus, and well drained, is best for raspberries. Usually choice tobacco land is good raspberry land. The natural habitat of the raspberry is near wood lots and old fence corners. It grows best where there is a thick mulch of rotted leaves. In such places one finds plants with large, thrifty canes which produce heavy crops in spite of dry weather at harvest time. A liberal application of manure each year helps to provide favorable conditions in the field. Plowing under clover sod or other green manure crops also improves the soil for raspberry growing, and an annual side dressing of 200 pounds of nitrate of soda or sulfate of ammonia per acre is beneficial on most soils.

VARIETIES

There are three groups of raspberries: the black raspberry; the red raspberry; and the purple raspberry, which is a hybrid between the red and black.

BLACK RASPBERRY. *Cumberland* is the best known black-cap variety in Kentucky. The canes are vigorous and productive and the fruit is large, attractive, and ripens in midseason. *Quillen* is a new black sort similar to *Cumberland*, and is of interest because of its resistance to anthracnose. *Plum Farmer* is an early, hardy variety. The berries are large and ripen over a short period.

RED RASPBERRIES. *Latham* is the most important variety grown in Kentucky. The berries are large, attractive and stand shipment well but are rated only fair to good in quality. The foliage is subject to leaf-spot disease and summer spraying is required to maintain vigor. It is one of the most productive sorts.

Flaming Giant has been grown to a limited extent in the Purchase region. The fruit is large, firm, attractive and similar to Latham in quality. The bushes do not grow so rank and tall as Latham. It is reported to be productive and comparatively free from disease but further observation is needed to establish its merit.

Chief is not recommended because of its susceptibility to leaf spot and winter injury.

St. Regis, an ever-bearing variety, is grown in home gardens but is not recommended for commercial planting.

PURPLE RASPBERRIES. *Columbian* is the leading variety of "purple canes." The berries are large, dull in color, ripen late, and are too soft to ship well. They are grown chiefly for canning and preserving. The "purple canes" surpass all other raspberries in productiveness.

PROPAGATION

Black and purple raspberries are propagated by tip layering. In August or early September the tips of the new shoots should be bent to the ground and covered with soil. Roots form during the fall, and the new plants may be cut from the parent for setting the following spring.

Red raspberries are propagated from the sucker shoots which spring up from the roots of the old plant. Care should be taken to leave a piece of the parent root attached to each plant. Only the most vigorous and healthy suckers should be transplanted. Under favorable conditions it is possible to transplant young suckers in spring when they are 5 to 6 inches high.

PLANTING AND CULTIVATION

Altho raspberries may be set in late fall, it is preferable to plant them in the early spring, before growth starts. They may be set in rows 6 to 8 feet apart, 2 to 3 feet apart in the row. The usual distance is 7 x 3 feet. This requires about 2,100 plants per acre. Most growers plant the Latham in hills 6 x 6 feet. This requires 1,210 plants per acre. Many prefer to set two plants per hill because this almost doubles the yield the second year after planting.

Cultivation should begin in April and continue thru August. Two or three hoeings may be necessary to keep the patch free of weeds. In small gardens, a heavy straw mulch may be used in place of cultivation.

TRAINING

The plants should be confined to hills or to a narrow hedge row. Without such training the patch becomes a thicket in a short time. When harvest is over, the old canes should be cut out immediately and burned. This practice greatly reduces the chance of infecting the new growth with diseases.

PRUNING

Raspberry canes grow in one year, produce a crop in the next growing season, and die.

Black Raspberries. When the new shoots are about 2 feet tall the tips should be pinched off. This causes the canes to become stocky and better self-supporting when laden with fruit. In the following spring the lateral branches should be pruned to about 10 inches in length. The old canes should be removed as soon as the crop is harvested.

Purple Raspberries. The same practice is followed with purple raspberries as with the black.

Red Raspberries. The first pruning should be in the spring of the fruiting year. The canes should be cut back to a height of 3 to 5 feet, depending on their vigor. Severe cutting back reduces the yield. The weak canes are pruned away to leave about 3 strong ones per foot in the hedge row system, or 7 to 10 canes if grown in hills. The canes may be removed as soon as they have borne their crop, or they may be left until pruning time the following spring.

DISEASES

Anthracnose. This disease is the limiting factor in raising black raspberries. It is characterized by circular, grayish-white scabby spots on the canes. The disease often girdles the cane before the crop matures, which causes the berries to dry up. It is especially desirable to plant only stock that is free from this disease. The stub of the old cane which is retained with the young plant should be cut off below the ground level before setting, to avoid infection of the new shoots with anthracnose and cane blight. This should be done before the plants are taken to the field, because the old stubs, which may carry infection, should not be left near the plants. They should be burned. A delayed dormant spray should be applied when the young leaves are showing green, or are about $\frac{1}{8}$ inch long, as indicated in the spray schedule for black and purple raspberries.

Crown Gall. This disease causes the formation of galls on the roots and lower part of the cane. It is especially common on red raspberries but injures all varieties. Plants having galls should be burned. Cutting out and burning affected plants found in the patch is recommended.

Cane Blight may cause extensive damage to black raspberry canes during the fall and winter. No adequate means of control has been devised after the disease has become established. Plantings rendered unproductive by this disease should be grubbed out or burned.

Virus Diseases. It is commonly recommended that black raspberries should not be planted near red raspberries because of a

mosaic disease which spreads from the reds to blacks, destroying them. Most Latham stock used in Kentucky up to this time was relatively free from this disease so that black raspberries were grown successfully near Lathams. New raspberry planting should be made only from plantings known to be free from mosaic or similar virus diseases. If mosaic or other virus diseases are found in a planting the affected plants should be thoroly flamed with a torch to destroy all insects and then dug out and burned. Mosaic may be recognized by mottling of the leaves. Other virus diseases may cause dwarfing, leaf curl or dieback. What appears to be a virus disease of black raspberries causes excessively vigorous plants and nearly complete failure to set fruit. These sterile plants should be removed using the precautions recommended for removal of mosaic plants.

SPRAY SCHEDULE AND CULTURE PRACTICES

Black and Purple Raspberries

Delayed Dormant. When the buds are swelling or opening, apply either a 5-5-50 Bordeaux mixture mixed with $\frac{1}{2}$ pound of spray soap flakes or 1 pint of liquid spray soap; or liquid lime sulfur 1-10.

Preblossom. In severe attacks, or where the delayed dormant has failed to give control of anthracnose, spray about a week before the blossoms open with 4-4-50 Bordeaux mixture mixed with $\frac{1}{2}$ pound of spray soap flakes or 1 pint of liquid spray soap.

Cultural Practices. Remove and burn all old canes immediately after harvest. Bits of cane left on the ground may be a source of cane-blight infection. If anthracnose was not controlled, remove severely-affected new canes at this time. If cane-blight is found a new planting on fresh soil should be set with plants from a recently planted, disease-free planting, removing all above-ground shoots from the young plants before taking the plants to the field. In setting, the young plants should be completely covered with soil.

Red Raspberry

1. *Postblossom.* When the largest berries are half grown, spray with Bordeaux mixture 4-4-50 mixed with $\frac{1}{2}$ pound of spray soap flakes or 1 pint of liquid spray soap. This spray may be omitted if the season is dry.
2. *Post Harvest.* Spray at once with 4-4-50 Bordeaux mixture mixed with $\frac{1}{2}$ pound of spray soap flakes or 1 pint of liquid spray soap.
3. *Three Weeks After Harvest.* Same spray as No. 2.
4. *Six Weeks After Harvest.* Same spray as No. 2. Apply if leaf spot appears to be spreading.

Cultural Practices. Observe practices recommended for black and purple raspberries.