Brambles: General

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Blackberry and Raspberry

- Family: Rosaceae
- Genus: Rubus L. Roman: ruber = red
- Subgenera: Rubus (formerly Eubatus- blackberries and dewberries: fruit with receptacle (torus))
- Idaeobatus - red and black raspberries: fruit hollow, receptacle remains on the pedicel
FIGURE 4-2 Red raspberry morphology. (A) Dormant plant habit. (B) Lateral spring growth from cane: a, cane and prickles. (C) Inflorescence. (D) Flower longitudinal section: a, sepal (bract); b, receptacle; c, ovary; d, petal; e, filament; f, anther; g, style; h, stigma. (E) Fruiting lateral. (F) Fruit longitudinal section: a, pedicle; b, calyx; c, dried anthers; d, receptacle (torus); e, drupelet; f, pyrene (seed).
General: Blackberry Botany

Rubus characteristics
1. perennial herbaceous shrubs (root system is perennial)
2. canes are biennial:
   1st year growth is a primocane (vegetative)
   2nd year is a floricane; dies after fruiting
3. canes are trailing, semi-erect or erect
4. canes have prickles (thorny) or are smooth (thornless)
5. calyx is 5 parted and white petals usually number 5 and are deciduous
6. flowers are usually perfect, with many pistils and stamens
7. edible fruit is made of united pistils to from an aggregate fruit; actual fruit is a drupelet which contains the seeds
Fruiting Habits

Primocane

• Vegetative, first year growth
  – Growth begins in the spring
  – Buds form at the leaf axils
  – Axillary buds begin to differentiate when the terminal bud stops growing at the end of the season

• In some species of raspberries, primocanes will flower in the fall—primocane fruiting or fall fruiting

• More common in red raspberries, seen in some black and purple raspberries
Fruiting Habits

• Floricane fruiting (second year of growth of the primocane):
  – Blackberries
  – Black and Purple Raspberries - usual type

• The number of nodes having flowers and the number of flowers per node depend on cane vigor and weather conditions in the fall

• Productivity of a cane is correlated to floricane diameter
Fruiting Habits
Adaptation

Blackberry
– not adapted to areas with extreme winter cold; this limits production in North U.S.
– not adapted to hot, dry windy plains
– can withstand fluctuating temperatures of the South

Raspberry
– adapted to cold climates; up to -50°F survival
– adapted as humid and hot climates
– fluctuating winter temperatures are a problem in the South, since they have a short rest period and leaf out too early
Cultivars: Primocane Fruiting

- As raspberries: will fruit on the primocane
- New releases from U of A
- **Prime-Jim® Primocane-Fruiting Blackberry**
- **Prime-Jan® Primocane-Fruiting Blackberry**
Site Selection

Soil

• adapted to a wide range of soil types, light to medium texture best
• good water drainage is essential; water table not within 3' of surface
• pH range of 5.5-6.5
• previous cropping important; avoid planting following Solanaceous crops due to Verticillium wilt risk
• crown gall can be a problem if site has been heavily infested area
• slopes are best due to air drainage needed for frost avoidance
• full sun needed
• wind can contribute to cane breakage; wind break may be needed
Site and Soil Preparation

• cover crops prior to planting are valuable, plow under well
• thorough soil preparation needed; plow, subsoil, disc
• work entire field or 6'-8' strips
• space rows 10-12'
• sod middles can be maintained
• raised beds usually not used
Planting

Blackberries:
1) root cuttings - pencil sized, 4-6" long, space 2' apart, 3-4" deep, horizontally
2) plants - prune back to a 4-6" stem; space 2-3' apart occasionally 4'
Use plants of thornless cultivars since roots do not sprout as readily

Raspberries
- plants, space 2-4' apart; set at same depth as grown in the nursery
  • virus free plants very important in raspberry planting
  • plant during the dormant season; late winter or early spring best
  • make sure plants are received moist; keep moist while planting
Root Cuttings

• *Root Cuttings*. This is the fastest and most economical method to start a planting.

• Roots about pencil-size are cut into pieces 4-6 inches long and planted 2-3 inches deep, 1-2 ft apart in rows.

• Root cuttings are dug in Jan - Feb., and planted in Mar-April. Some species have up to 20 shoot buds per inch of root, but not all grow into canes.

• CARE: Root cuttings may be infected with viruses.
Planting: Root Cuttings

There are notable exceptions to root cutting propagation.

• Trailing blackberries, as well as black and purple raspberries, do not produce adventitious buds on roots, (or do not produce enough) and cannot be propagated this way.

• They are tip-layered.

• Thornless mutants of trailing cultivars ('Thornless Evergreen', 'Thornless Logan', and 'Thornless Youngberry')

• Thornless, erect blackberries can be propagated by root cuttings since they were produced through breeding with spine free species, and are not partial mutations.
Tip Layering

• *Tip Layering.* This is used for black raspberries, hybrids, trailing types, and thornless mutants in lieu of root cuttings. In late summer, when canes have numerous shoot tips, shoot tips are buried in shallow holes. Lateral roots form on stems, and the following spring, layered plants can be dug and transplanted.
Pollination

- All raspberry and blackberry cultivars grown in Arkansas are self-fertile.
- The central portion of each blackberry or raspberry flower contains a large number of pistils (female part) surrounded by many stamens (male part). In the pollination process, pollen is transferred from the stamens to the pistils. Every pistil has the potential to produce a seed and a drupelet. Each fruit is made up of a number of drupelets.
Pollination

- Brambles are pollinated primarily by honeybees.
- Two hives of bees are recommended per acre to ensure adequate pollination.
- Avoid insecticide applications during the bloom period. If insecticides need to be applied during bloom, use labeled pesticides with low bee toxicity and apply when bees are not visiting the flowers-usually late in the afternoon or at night.
Irrigation

• extremely important the first year; water stress usually can be limiting on stand establishment
• 1"/water per week best
• drip or sprinkler application OK
• although not essential to irrigate, yield, growth, and next year's crop can be affected
Trellising

Erect Blackberries and Black and Purple Raspberries
• none usually used
• some growers use 2 wires; one along each side of the row to support the canes

Semi-erect and Trailing Blackberries
• must be trellised
• trellises include from one to five wires, vertically arranged, 5' high; some new types recently developed but still under evaluation

• Red Raspberries
• are erect-growing but usually are supported by some type of trellis
- supports include:
  • a) single stake - no wire
  • b) single top wire with 2 lower training wires
  • c) two top wires with or without a crossarm and 2 lower training wires
Horizontal 2-wire trellis
Pruning

• Early each summer, when the new shoots are about 2 ½ feet tall, cut off 2 to 3 inches of the growing tip.
• This makes the canes stocky and causes side branches to grow, thus greatly increasing the bearing surface of the plants.
• Vigorous plantings may need to be tipped 3 to 4 times because of the variation in cane height.
• The following spring, prune the side branches to about 10 or 12 inches.
• Plant vigor and soil fertility determine how many canes should be left. Ordinarily, you should leave from 4 to 6 canes per hill. In general, pruning decreases the number of berries and increases their individual size.
• A common mistake in pruning black raspberries is leaving the side branches too long. This results in too many fruit buds and poor berry development.
Fertilization

- Soil test should be conducted before planting.
- Manure or chicken litter (2-3 ton/acre) can be applied in the fall before planting.
- Nitrogen should be the only element needed for the first 3 years if soil test recommendations were followed before planting.
- During the first season, band 50 pounds of actual nitrogen per acre 6 inches from the plants 60 days after planting.
- In subsequent years, band 50 to 150 pounds of actual nitrogen per acre in February or early March. This is equal to 150 to 450 pounds of ammonium nitrate per acre or 3 ½ to 10 pounds of ammonium nitrate per 100 feet of row.