Home Fruit Crops: Growing Caneberries
The Joys of Caneberries

• Wide range of summer season (summer to fall)
• Increasing number of options on the market
• Many erect and thornless plants
• Several years of production
• Relatively space efficient
• Health/taste/flavor
Caneberries- Site

- Soil pH 6 to 6.5
- Need well-drained soil for health and production
- East facing is good for rapid leaf drying, north keeps plants dormant longer, south is drier and warmer with more opportunity for spring frost damage
- Avoid summer/winter winds
- Plant away from wild rubus (100-200 yards)
Caneberries- Timing

• Ripening time:
  – Summer through early fall
• 1st crop: 2nd year
• Full crop: 3rd year
• Lifespan of crop: 6 to 8 years
Cliffs Notes on Chilling Hours

- Most blackberry cultivars listed have moderate chilling (300-800 hours) that should work well for most of TN.
- Use caution with low chill blackberry cultivars in colder TN locations
- Red raspberry are higher chilling typically, so chill should be sufficient across TN.
- Raspberry issue is summer heat, not winter cold
Caneberries

*Floricane-bearing
- Primocane:
  - 1st yr. of cane life
    - Cane elongation
    - Lateral branching
    - Fruit bud initiation in late summer
- Floricane:
  - 2nd yr. of cane life
    - Bud break
    - Short sub-laterals develop with blooms on tips
    - Fruiting
    - Floricane dies

* Most common type for blackberry, black & purple raspberry

**Primocane-bearing
1st yr. of cane life
- Primocane grows, branches & fruits in upper portion in late summer & fall
  - Fruiting zone dies back after fruiting

2nd yr. of cane life
- fruiting occurs on lower portion of cane in early summer
  - Cane dies completely after fruiting

**may be grown for just the primocane crop or for the double crop fall and the following spring
Plant Overview

- This image shows Primocanes and floricanes

- Primocane fruiting plants will bear fruit on the tip of the 1st year cane

- If this cane is left until the second year, it will fruit on the lower portion of the cane similar to floricane types

Biennial Growth Cycle of Floricane-Bearing Cane

<table>
<thead>
<tr>
<th>Primocane Year</th>
<th>Floricane Year</th>
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<tbody>
<tr>
<td>Spring</td>
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<td>Summer</td>
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<td>Fall</td>
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<td>Winter</td>
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<tr>
<td>Growth</td>
<td>Fruit Bud</td>
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<td>Bloom = Fruiting = Cane</td>
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<td>Death</td>
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Growth Cycle of Primocane-Bearing Cane

Primocane (1st) year
- Primocane growth
- Fruiting on upper portion of cane, followed by death of upper portion

Floricane (2nd) year
- Fruiting on lower portion of cane
- Rest of cane dies
Floricane Cropping Pros and Cons

- Wide selection- many older and newer cultivars available
- May have higher yield capacity than primocane fruiting
- Best where summer heat is an issue

- May require more time in pruning
- May require more time in sanitation and disease management
Primocane Cropping Pros and Cons

- Simple pruning- Can cut off all canes in winter
- This can also be beneficial in sanitation
- Many options in both raspberries and blackberries

- Summer heat can impact crops
- Fall crops may be lower yielding than summer crops
- In blackberries, primocane fruiting types might not have flavor that equals floricane fruiting
Blackberries

- Grow well with summer temperatures in mid 80’s
- Ripening time- Late June/July
- Yields: 60 – 75 lbs./10 ft. of row
- Thorned and thornless varieties
- Erect and semi-erect varieties
- Most are floricane bearers
- Newer primocane bearing types, but these are less trialed in TN
Blackberries - Floricane

Thorny cultivars
- Kiowa
Erect, mid-season, but long harvest
Large fruit, good storage and handling
Low chilling (200-300 hrs)

- Chickasaw
Early to mid-season harvest
Resistant to anthracnose and orange rust
Lower storage potential
Blackberries- Floricane

Thornless
- Natchez
Early season, large fruit, high yield, may overproduce, winter hardiness poor in colder sites, early bloom, lower chilling (300)
- Ouachita (400-500)
Early to mid season, erect canes, great taste, high yields, mid chilling, consistent producer
- Navaho (high chilling)
Erect, mid to late season, great flavor
- Triple Crown
Semi-erect canes, late season, sweet, with good yields, lower storage potential
New Options on the Market

Osage
- 350-450 chilling
- Between Nachez and Ouachita
- Flavor is good—low acid, high SS
- Slightly smaller than Ouachita

Von
- NCSU introduction
- WNC growers are liking it
- Sweet with low acid
- Clean plant, no orange rust
- Good post-harvest quality
New Options on the Market

Caddo
• Thornless
• Early harvest near Natchez
• Large all season (larger than Osage and Ouachita)
• Comparable yields to Osage and Ouachita (not quite to Natchez)
• Good health
• Good storage
• Flavor is key - 10% + SS

Ponca
• Thornless
• Early harvest near Natchez
• Later bloom than Natchez
• Similar size to Ouachita (smaller than Caddo, Natchez)
• Comparable yields to Osage and Ouachita
• Good health
• Flavor is big asset- can have 13% + SS
• Low acid
General Timeline (Univ Arkansas trials)

Natchez
Osage
Ouachita
Navaho
Von
Apache
Caddo
Ponca
Blackberries- Primocane

- Prime Jim and Prime Jan- thorny, erect, low storage, soft fruit, primocane yields vary, but can also floricane fruit
- Prime-Ark 45- thorny, erect canes, large berries, good for shipping
- Prime-Ark Freedom- thornless, erect, soft berries
- Prime-Ark Traveler- thornless, good for shipping

- Flavor might not be there yet with the floricane types, can avoid some diseases
Raspberries

- Grow and fruit best with cool summers and moderate winters (likely best over 2,000 ft elevation)
- TN can be considered marginal range for raspberries, so good care and management is needed
- Red, black, purple & yellow-fruited varieties
- Black raspberries
- Red raspberries are likely best suited for most regions in TN
- Some red & yellow varieties are primocane bearers
Raspberry Varieties- Floricane

- Red, summer bearing
  - Titan- early maturing, large fruited, requires trellising (not for heavy soils)
  - Dormanred- mid summer, attractive fruit that is best cooked
  - Nova- early season, thornless and erect, may show some heat tolerance

- Black, summer bearing
  - Jewel- vigorous canes, productive and relatively disease resistant
  - Bristol- older cultivar with fruit that has good quality and flavor

- Purple, summer bearing
  - Royalty- vigorous, disease resistance, large and sweet berries
Raspberry Varieties- Primocane

• Red, fall bearing:
  – Heritage- most well known fall bearers, early and smaller fruit, average quality, late season
  – Caroline- good quality medium berry, mid season with long harvest window
  – Nantahala- medium berries, later season, good quality and flavor

• Yellow, fall bearing:
  – Anne- medium yellow berries, soft with low storage potential
Raspberry Pros and Cons

- Both primocane and floricane fruiting available for wide range of harvest options
- Wide range of fruit colors
- Most likely to be productive in cooler or higher elevation locations in TN (good selection and mgmt. can widen range)
- Most cold hardy (often -20°F), but prefer consistently cold winters
- Hot summer temperatures can reduce storage quality
- Plants may suffer from summer heat and prematurely decline
Blackberry Pros and Cons

- Probably best for most areas of TN - fewer issues of summer heat effects and decline than raspberry
- Many cultivars available that are both primocane and floricane fruiting
- Provide harvest across a wide season
- Less cold hardy than raspberries (generally 0 to -10°F)
Planning vs. Planting

• A Critical Year In Fruit Production Is The One Prior To Planting – Don’t Cut Corners
  – Soil/site preparation (pH, P, K, weeds, air drainage)
  – Use reputable nurseries
  – Don’t compromise on varieties- get what you need for your area!
Site Selection

• Full sun
• Well-drained soil, high OM >2%
• Raised beds can help
• A bit elevated (air drainage) but not high winds
• Blackberries in the mountains would be most site sensitive
• Not a history of Verticillium or previous fruit crops
• Most are self-fruitful, but bees are needed
Site Preparation

• Destroy perennial weeds and grass - one year before planting
• Test soil 6 to 12 months ahead to adjust pH
• Consider a cover crop to suppress weeds
• Early spring planting of dormant plants common, but fall planting is also possible if soil is not too cool or wet
• Disk in fertilizer recommended in soil test
Plant Material

- A- Bare root rooted cutting
- B- Tip layering
- C- Tissue cultured

Bare root materials should arrive shortly before planting- don’t let roots dry out

Certified disease free stock- order early for good selection

Raspberry and Blackberry Production Guide: For the Northeast, Midwest, and Eastern Canada, NRAES-35.
Planting

• N/S rows if possible, usually 10-12 ft between rows
• Blackberry spacing- Erect canes – 2 to 4 ft within row, semi-erect canes 4 to 8 ft within rows
• Raspberry spacing- Primocane- 2 to 3 ft within row, Floricane- 3 to 4 ft within rows

• Dig the hole large enough to spread the roots
• Cover roots 2-3 inches and firm soil around them (don’t pack too tight)
• Water in well immediately after planting
Plant Management- Water

• Mulch- black plastic (shorter term, but can help plants establish) or woven plastic, or organic mulch free of weeds

• Irrigation is encouraged for optimum growth and fruiting- especially young

• Most water is taken up from top 6” of soil- need 1” per week in season

• Drip tape (heavy wall for longer use) can be used when plants are young, but often replaced with drip tube 12-18” above soil surface after 1 or 2 years
A few comments on fertility…

• Caneberries are not a high N user (~1/2 of strawberry)

• Erect blackberries that are closer in the row as well as red raspberries (that grow root suckers and grow as a hedgerow) are often fertilized by banding

• These fertility recommendations are tailored to blackberry as that is the most likely crop being grown in TN gardens
Plant Management- Fertility Overview

• 1st year- apply P and K as recommended, and 25-50 lbs N total per acre (0.5-1 lb N per 1,000 ft²) divided into 2-3 applications from May-July

• 2nd year and beyond- 50-80 lbs N per acre (1 to 2 lb N per 1,000 ft²) in 2 applications
  1. Between when primocanes emerge and plants bloom
  2. After floricane harvest
Plant Management- Fertility Small-Scale

• Apply P and K only as soil tests indicate
• 1\textsuperscript{st} year- 3 applications in May, June, and July
  - Low P and K- 0.8 to 1.3 lb 10-10-10 per 100 ft row
  - High P and K- 0.3 to 0.5 lb ammonium nitrate per 100 ft row

• 2\textsuperscript{nd} year and beyond- 2 applications (1. Between when primocanes emerge and plants bloom, 2. After floricane harvest)
  - Low P and K- 2.5 to 4 lb 10-10-10 per 100 ft row
  - High P and K- 0.8 to 1.3 lb ammonium nitrate per 100 ft row
Trellis Overview

- Keep canopy in growing area
- Support canes (reduce breakage)
- Increase sunlight, air movement, and spray effectiveness
- Easier management (cleaner, faster picking)
I Trellis System

• Simple to build
• Economical

• Mixing of primo and floricanes
• More difficult harvest
• Lower yields
T Trellis Systems

- This is a simple T-trellis system
- Can retrofit an I
- Better disease management and accessibility

Image credits: Gina Fernandez, NC State
V Trellis System

- Separate primo and floricanes
- Increase sunlight, air
- Wires can be moved up and down on posts
Pruning Overview

Making cuts to

• Increase yield/quality
• Open the canopy
• Reduce pest pressure
• Make mgt easier
Floricane Fruiting Management (for erect)

Blackberries
- Train 1st year canes by tying them to the top wire (even erect types may be trailing in 1st year).

Subsequent years
- Keep canes in row 12-18”
- Tip 1st year canes when 8-12” above the wire to support lateral growth.
- Remove floricanes after fruiting (as time allows)
- In late winter, prune laterals on 2nd year canes to 12-18”.
- Thin out weak canes (6-8 healthy canes per linear yard).
Summer Tipping and Plant Health

- Pinching the tips off primocanes when they are small helps them heal faster and reduce risk of disease

Photo credit: UGA
Tip Primocanes
Remove Floricanes after frueting.

Summer
Floricanes bloom, Fruit & die

Winter
Lateral Branching
Head Laterals. Remove laterals on lower 12 – 18” of canes. Remove excess canes.
Primocane Fruiting Management

- Initiate buds on upper 1/3-1/2 of primocanes during summer and fruits in later summer to fall
- Lower portion of cane will fruit in 2nd year if not removed

Single Crop Method
- Remove all canes in late winter or early spring
- Soft tip (~2” by hand) new canes when they are around 3 ft
Allow Primocanes to grow.
Maintain row width 12 – 18 in.

Primocane Harvest

Mow planting to ground in late winter
Harvest

• In morning when cool
• Not raining
• Separate cull and good as picked
• Don’t pick more than 2 or 3 berries deep in the container
• Store quickly at 33-35F
• Blackberries need picked at least 2 times a week and raspberries can be picked daily in season
Caneberry Diseases

Cane blight

Anthracnose

Mary Ann Hansen, Virginia Polytechnic Institute and State University, Bugwood.org

Charles Drake, Virginia Polytechnic Institute and State University, Bugwood.org
Home Garden
Blackberry Disease Management

• Remove nearby wild brambles
• Manage weeds
• Harvest in a timely manner to avoid overripening fruit
• Remove diseased canes as disease occurs (rust)
• Preventative fungicides not usually needed in TN for satisfactory disease control
  – See PB 1622 for fungicides
Control Steps for SWD

• Invasive pest of fruit with soft skins
• Multiple generations through the growing season and populations can increase quickly
• Pick frequently- do not allow fruit to become overripe

Hannah Burrack, North Carolina State University, Bugwood.org
When it isn’t disease or insects...

- White druplet
- Abiotic
- Heat stress related
- Some cultivars more prone than others (genetic influence)
So, do caneberries suit your lifestyle?

- Crop and cultivar
- Site and soil
- Pruning and Training

Image credits: Sierravalley girl