

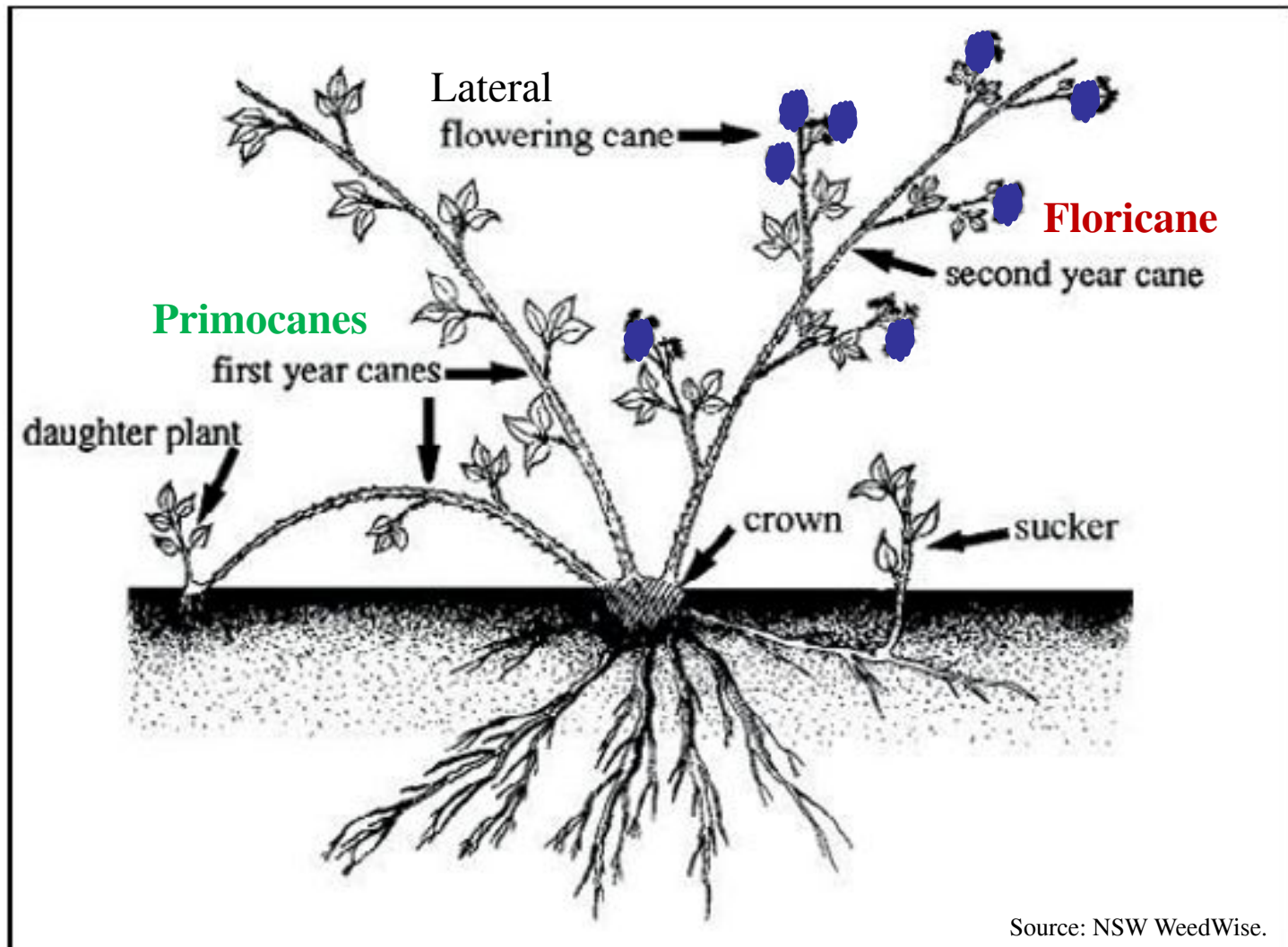
Blackberry: Cropping cycle, growing, and trellising

Dr. Amanda McWhirt

Horticulture Extension Specialist, University of Arkansas



Blackberry Plant Structures



Cane Types

- **Florican**

- Cane that grew in the previous year (2 year old cane)

- **Primocane**

- New cane emerging in the current year

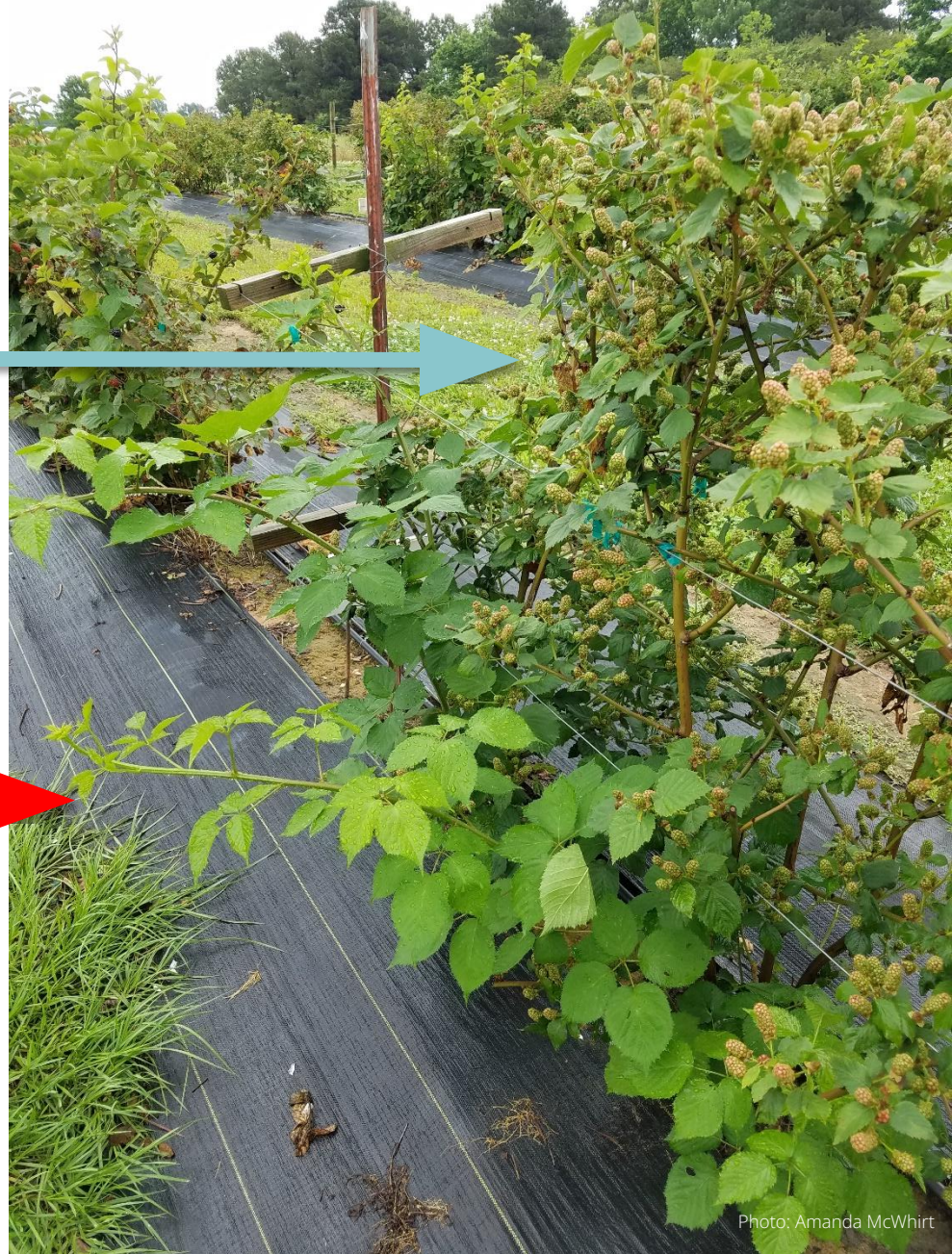
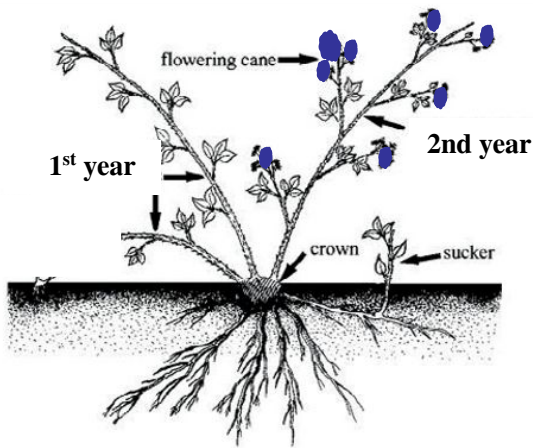


Photo: Amanda McWhirt

Fruiting Type

Floricane

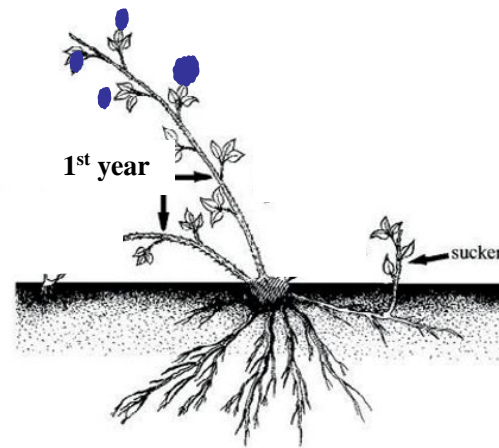
- Produce Fruit on 2nd year growth
 - Flower in Spring
 - Fruit in Early Summer
- These are the primary varieties grown where hot summer heat is an issue



Primocane



- Produce Fruit on 1st year growth
 - Flower in Mid-summer
 - Fruit in Early Fall
 - Can also be managed with selective pruning to fruit both in the fall and spring
- Heat issues over 85-90°F



Lifecycle

Jan Feb Mar April May June July Aug Sept Oct Nov Dec

Cane Dormancy

Flower Bud Initiation

- depends on day length, cultivar, temperature

Chilling Hours

- **Hours of temperatures between 32 and 45°F (Starts at first frost)**
- Certain models estimate that chilling hours are lost when temperatures rise above 60°F

Cold Damage

- AKA: Winter Injury
- **Occurs at 0°F**
- *Winter temperature fluctuations can result in damage at higher temperatures*

Symptoms

*Delayed or sporadic bud break
-> spread out season*

Bud death

Reduced yield

Cane die back

Failure of laterals to develop

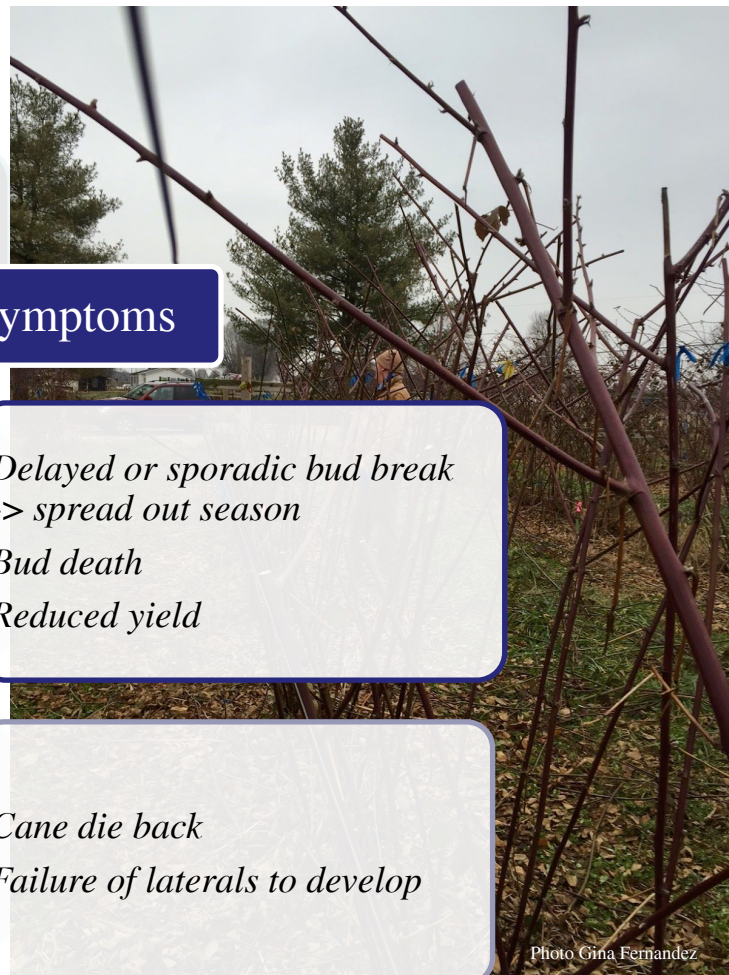
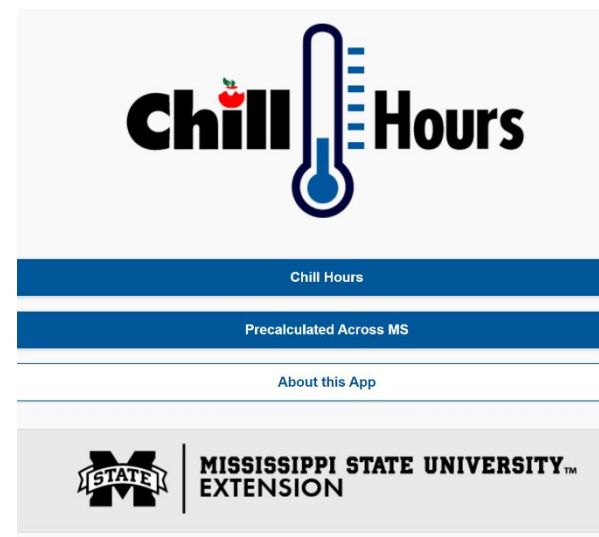
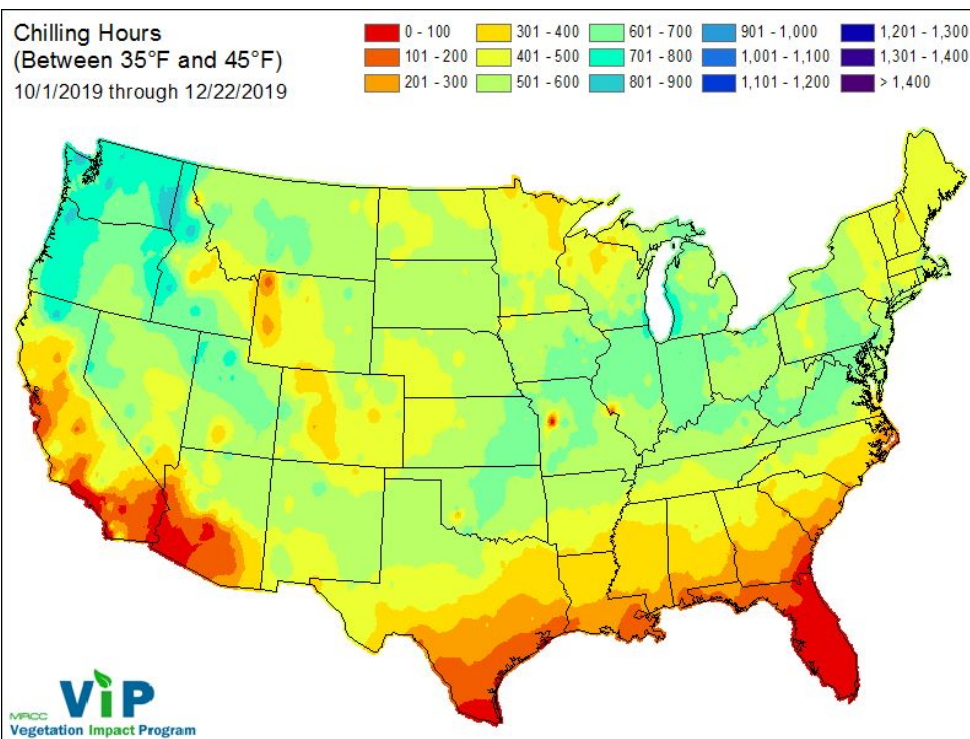


Photo Gina Fernandez

Lifecycle

Jan Feb Mar April May June July Aug Sept Oct Nov Dec



Estimate of Number of Chill Hours Required

- Navaho, Apache 800-900 hours
- Ouachita 400-500 hours
- Osage 350-450 hours
- Prime-Ark® 45 300 hours
- Natchez 300 hours

Lifecycle

Jan Feb Mar April May June July Aug Sept Oct Nov Dec



Photo Gina Fernandez

Bud



Tight Bud



Popcorn stage



Open Blossom



Photos: Amanda McWhirt

Minimum temperature: 27°F

Blackberry Winter

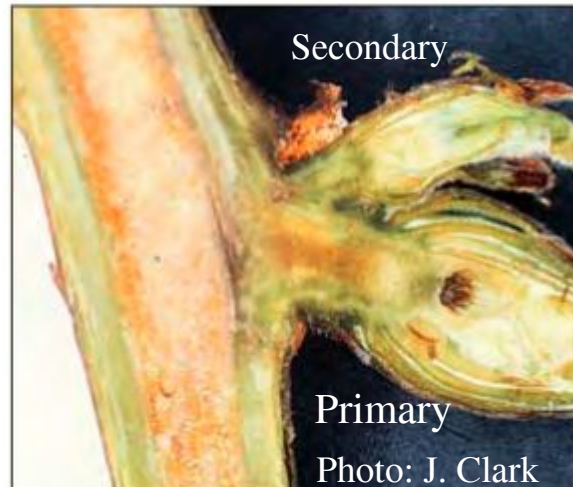
- Cold spell that occurs while blackberries are in bloom
- “Black eyes” or black center means flower was killed



Primary Bud Injury

Temperature at which injury occurs is dependent on stage of dormancy

- *Winter*: injury may occur below 5-10 ° F
- *Spring*: injury may occur below 30° F
- Secondary bud may still produce but will be later, longer in length and lower yielding

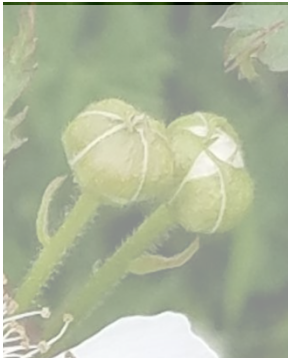


Lifecycle

Jan > Feb > Mar > April > May > June > July > Aug > Sept > Oct > Nov > Dec



Photo Gina Fernandez



Photos: Amanda McWhirt

- 35-45 days from flower to ripe fruit
- Harvest period 4-7 weeks
- Heat issues over 85-90°F

Poor Pollination

Blackberry Flower



Stamen Pistils



Photo: Amanda McWhirt

- Poor drupelet formation due to poor pollination of flowers

- Common following cool, cloudy or wet conditions during flowering when bees are not active

- Blackberry flowers are self-fertile, but bees are important for ensuring good pollination

□ *Poor drupelet formation can also be caused by viruses*

When it gets hot, berries feel the heat too!



Double Berry

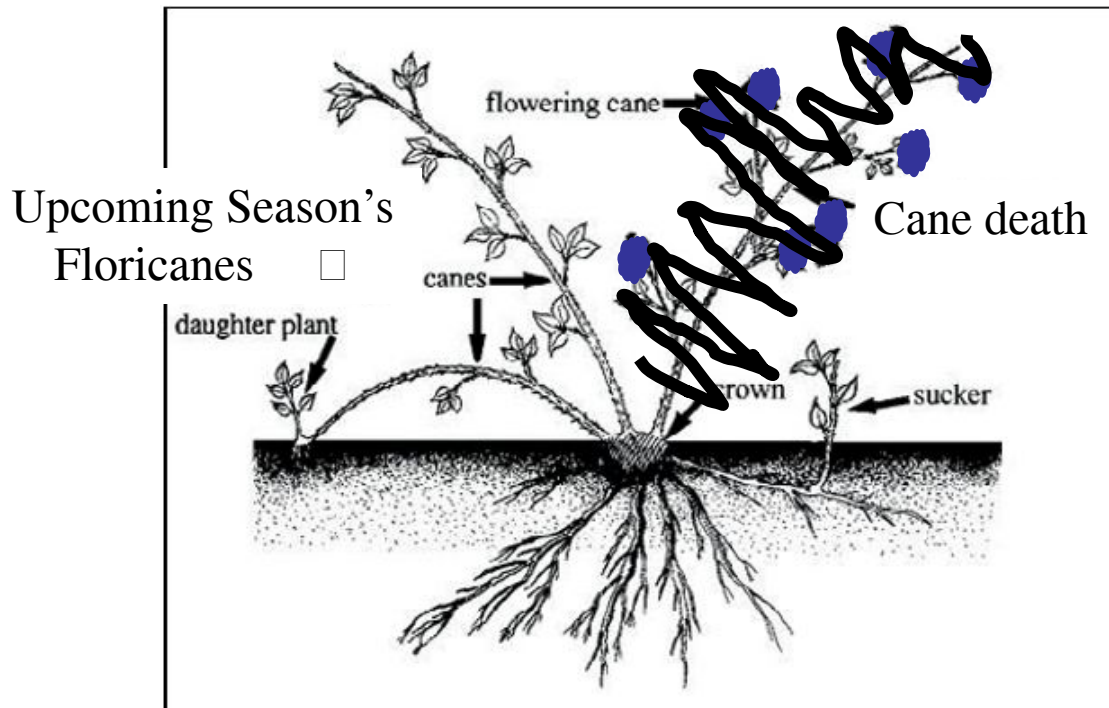
- Flower development is damaged at 85-90°F
- Pick Berries before 10am; provide shade for picked berries in the field
- Only pick fully ripe berries



Lifecycle

Jan > Feb > Mar > April > May > June > July > Aug > Sept > Oct > Nov > Dec

- Fruiting cane death
- Plants enter dormancy



✓ 6-10 years of production is possible

Planning for Production



Planning

1. Where and how will you market and sell?

- Pick-your-own
- Farm stand, Farmers markets
- Wholesale

2. Labor

- *Berries should be picked in early morning*

Average Yields (Lbs.) per plant

Erect 12-15 lbs.

Trailing 10-18 lbs. x 1,200 Plants /acre =

(May yield for 6-10 years)

Potential Yield

12,500-20,000 lbs./ acre

3. Site Selection

4. Variety selection

- Identify transplant source, 1 year prior
 - *Tissue culture plants*
 - Bare root vs. rooted plants
- Number of plants per acre



Table 4. Number of Plants Required per Acre Using Different Spacing within and between Rows.

Spacing within Row (ft)	Spacing between Rows (ft)					
	8	10	12	13	14	15
2	2722	2178	1815	1675	1556	1425
3	1815	1452	1210	1117	1037	968
4	1360	1090	907	838	778	726
5	1090	870	726	670	662	581
6	907	726	605	558	519	484
8	680	544	453	419	389	363
10	544	435	362	335	311	290

2016 Southeast Regional Caneberry Production Guide



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

5. Trellising Options

- Keeps fruit and canes off the ground
 - *Eases picking*
- Improve air circulation
 - *Reduce disease incidence, improve spray coverage*
- Keeps canes separate
 - Floricanes vs. Primocanes



Year 0

Year 1

Year 2

Year 3

Onward

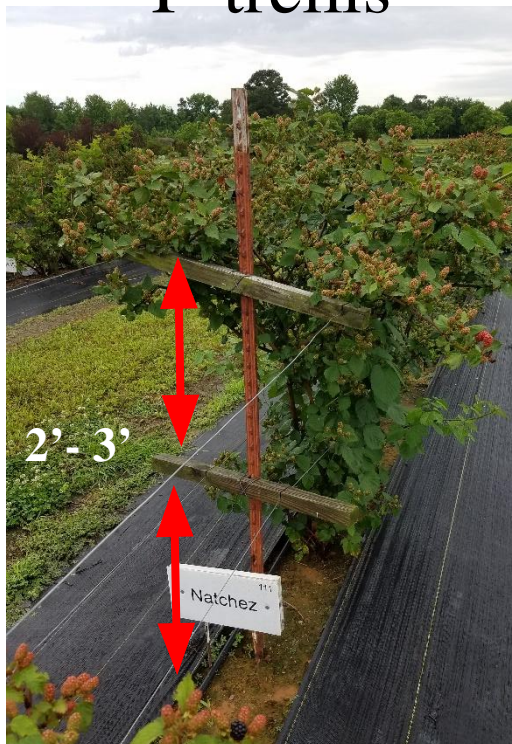
4 Month
Old Plants

Tissue cultured plants

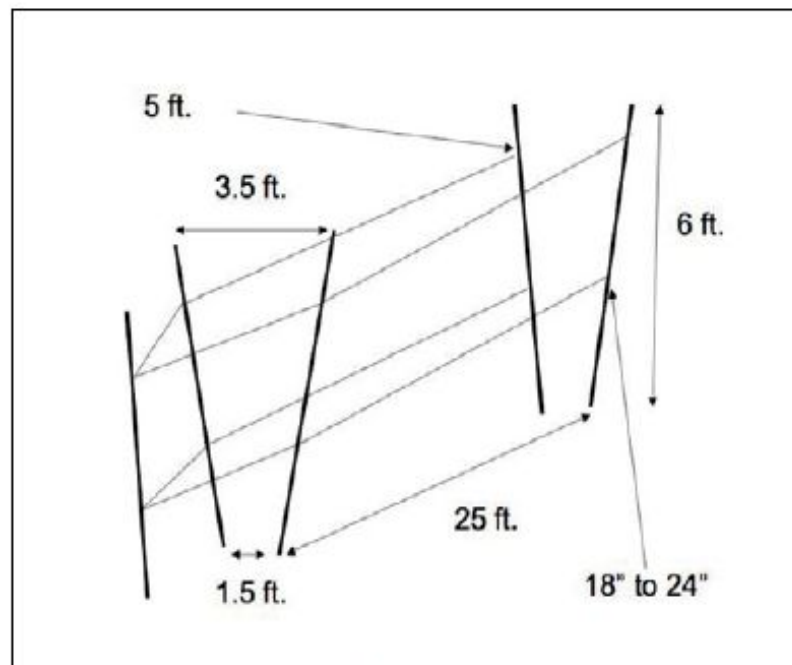
1+ Year
Old Plants

Standard Blackberry Trellising

T- trellis



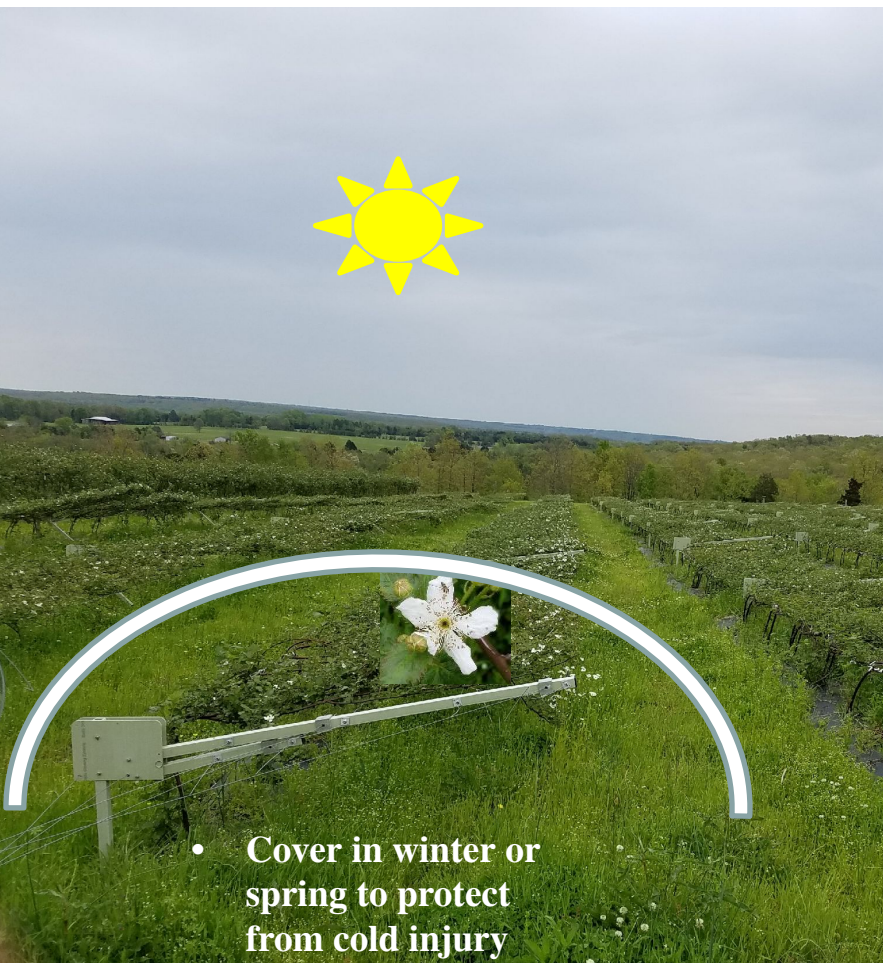
V- trellis



- *Static Canopy*

Trellising Options

Rotating Cross Arm Trellis (RCA)



- Cover in winter or spring to protect from cold injury



- All Berries on one side
- Berries and Pickers in the shade
- Less sunscald

Estimated Cost of Trellising

- Estimate that trellising cost for RCA™ is **\$3 per row foot** and standard is **\$1.82 per linear foot**
- *Higher labor costs on RCA for training, less labor for picking*
- Fewer Plants per acre on the RCA



Year 0

Year 1

Year 2

Year 3

Onward

Fertility in Established Plantings

- Floricanes primarily use stored N
- Primocanes primarily use applied N
 - Seasonal demand is estimated to be 60-80 lbs. N
 - *Review soil tests results*
 - Amend with P and K accordingly

See full discussion during the main session!



Source: Brenda R. Cleveland, Caneberry Tissue Analysis Monitoring Nutritional Status in New Cultivars, Fruit Agent Training August 4 and 5, 2009

Winter Pruning

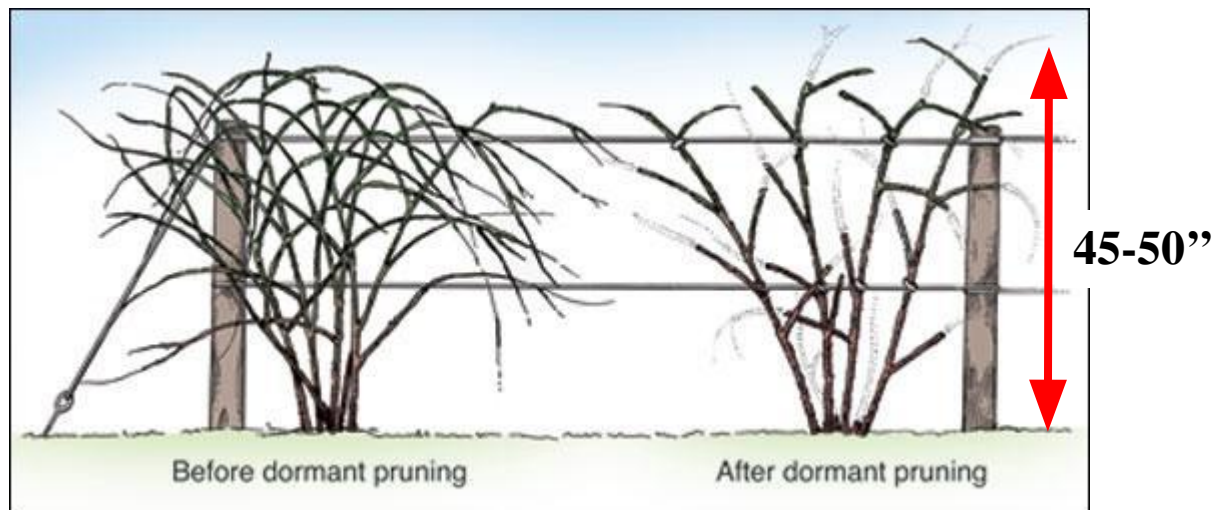


Image: University of Missouri Extension, MG6

- Select 3-7 healthy vigorous canes

Floricanes



Prune Tops to 45-50"

Prune laterals to 12-18"

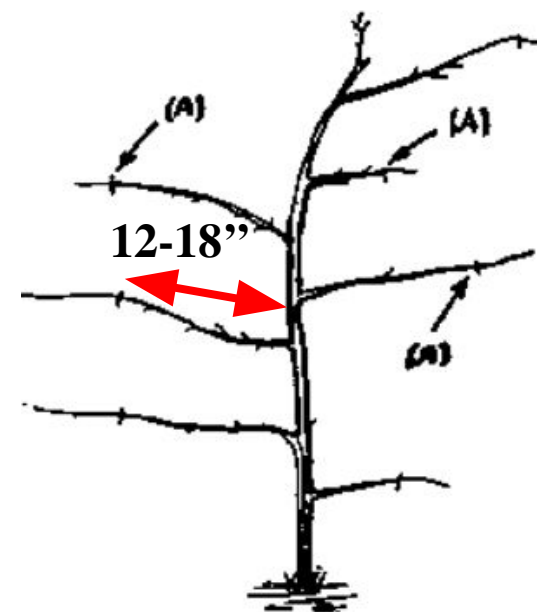
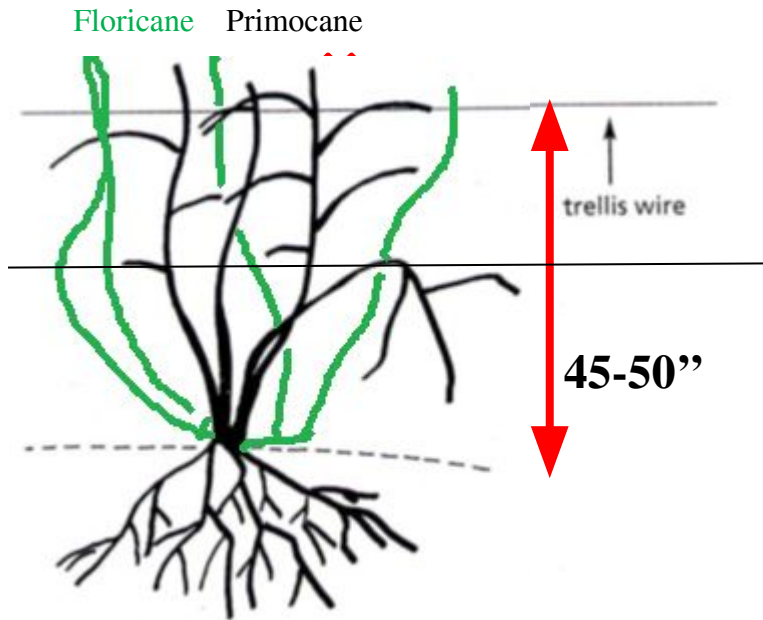


Figure 1. Prune side branches during the dormant season to increase fruit size (A).

Floricanes Cultivars, Spring/Summer: Tipping



Soft Tipping



Figure 12. Small diameter tipping can easily be done by hand. The resulting wound is smaller and is less susceptible to disease infection. Photo: Phil Brannen, University of Georgia.

Hard Tipping



Figure 13. Larger diameter cut made with pruners. The wound is larger and the cane is more susceptible to disease infection. Photo: Phil Brannen, University of Georgia.

- **Primocanes:** (for erect/semi-erect cvs)



Tip **primocanes** in summer at 45-50" high (just above top wire) to force laterals which will bear fruiting clusters in year 2

- Apply fungicides after tipping, particularly if rain is expected

- **Floricanes:**



Remove after fruiting

Free Online Self Guided Course

Follow Along to Learn How to Set Up, Manage and Grow your Blackberry Operation

www.uaex.edu/blackberryschool



Winter

1. **Basics of Blackberry Production** with Dr. Amanda McWhirt
2. **Variety Selection** with Dr. John Clark
3. **Pesky Winter Pests** with Dr. Jackie Lee
4. **How To: Winter Pruning** with Taunya Ernst



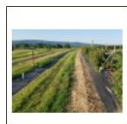
Summer

1. **Summer Tipping, Fruit Disorders and Irrigation of Blackberry** with Dr. Amanda McWhirt
2. **High Tunnel Blackberry Production** with Dr. Elena Garcia
3. **Consumer Preferences and Postharvest Handling** with Dr. Renee Threlfall
4. **Early Summer Pruning of Floricane Blackberries** with Taunya Ernst



Spring

1. **Blackberry Fertility Management and Trellising** with Dr. Amanda McWhirt
2. **Spotted Wing Drosophila and Broad mite Management in Blackberry** with Dr. Donn Johnson
3. **Pesky Spring Pests** with Dr. Jackie Lee
4. **How To: Spotted Wing Drosophila ID and trapping in Blackberry** with Dr. Donn Johnson



Fall

1. **Interactive Fruit Budgets** with Leah English and Dr. Jennie Popp
2. **Produce Safety** with Dr. Amanda Perez
3. **Weed Management in Blackberry** with Dr. Nilda Burgos
4. **Soil and Plant Tissue Nutrient Sampling of Blackberry** with Dr. Amanda McWhirt
5. **How To: Identifying Anthracnose in Blackberry** with Sherrie Smith



Early Summer Pruning of Floricane Blackberries
22 views

U of A ARextension
Published on Oct 26, 2017



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22 views

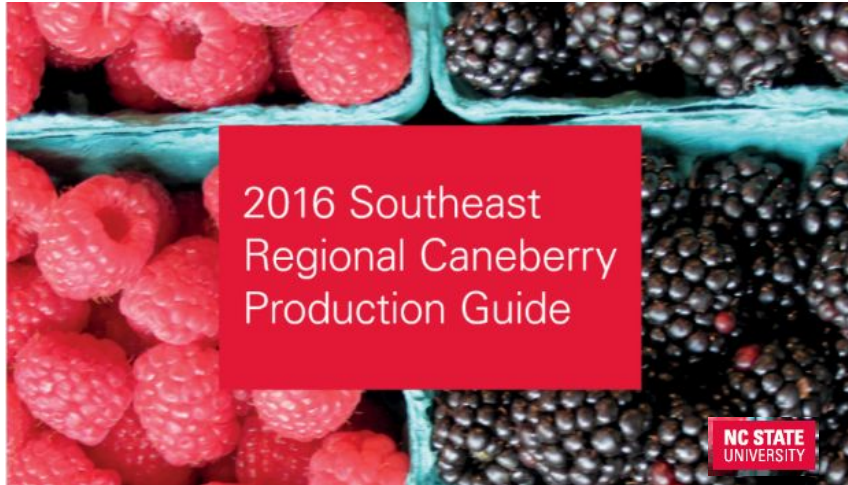
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Production Guides



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Growers Associations



North American
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