Blueberry Cultivars for North and Central Florida

Zilfina Rubio Ames PhD

Department of Horticulture Sciences

University of Georgia-Tifton Campus

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Site Selection- things to consider

- Macroclimate: historical weather data (freeze protection), latitude and elevation.
- Microclimate: temperature (max- min, average), water (access, shortage, quality) wind (reduce grow, pollination), fog (moisture), roads, vicinity to other crops

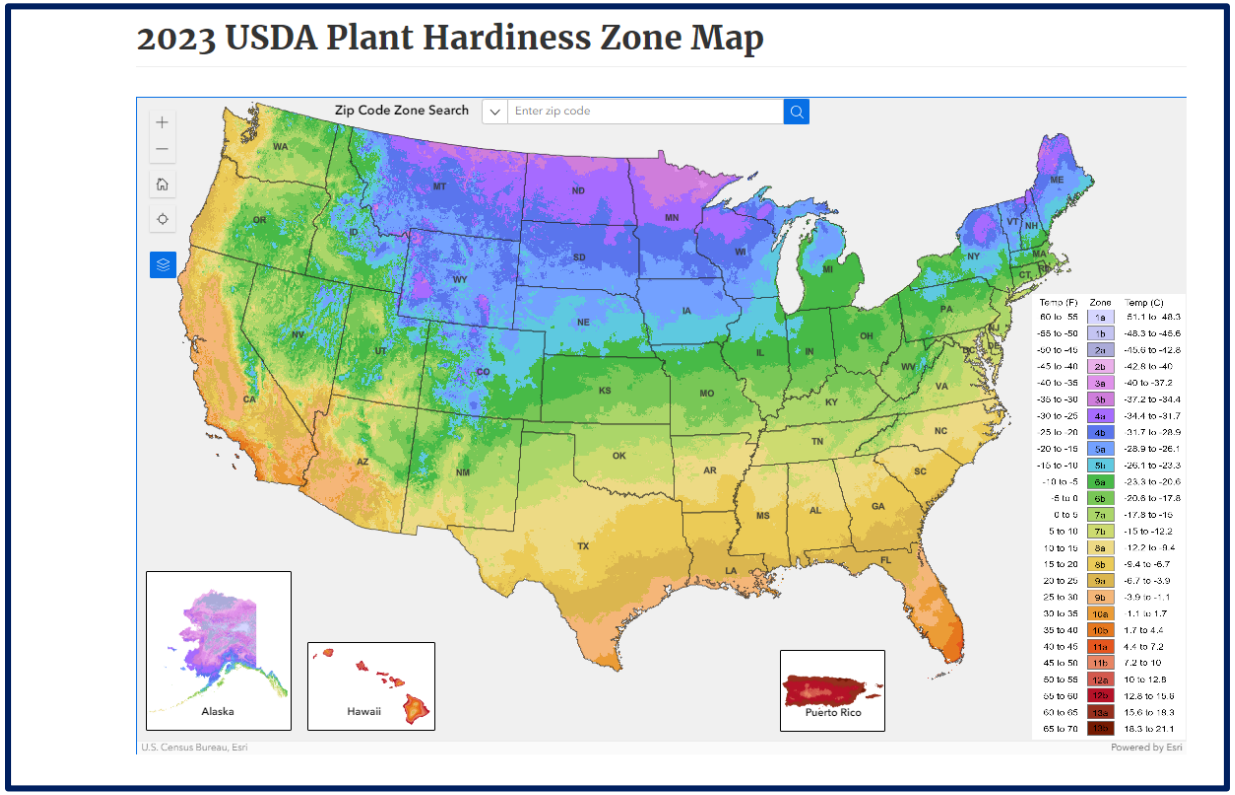
Plan ahead - things to consider

- Have a plan (1 year before).
- Study the market.
- Choose varieties accordantly.
- Talk to other growers/ agents.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Hardiness Zone

- Knowing what zone your site is will help :
  - ➢find proper varieties
  - ➢mitigate adverse weather
  - ➢ Quincy and Tifton move up 8b to 9a (15 to 20°F to 20-25°F)



[2023 USDA Plant Hardiness Zone Map | USDA Plant Hardiness Zone Map]

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Chilling Requirement

- Blueberries require a period of low temperatures for normal growth and development.
- The amount of cold is defined as “chill hours.”
- Chill hours are defined as hours less than 45°F but above 32°F.
- Not enough chill =>uneven bloom => fruit production can be reduced.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Flower Bud Initiation

- Blueberry are a short-day plants.
- The transition from vegetative bud to flower bud is it initiated by short-day periods.
- Amount of hours of light depends on the cultivar.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Varieties

- Rabbiteye (*Vaccinium virgatum*).
  - ➢ chill hours 300 to 700.
  - ➢ pH 4.5 – 5.5
- Southern highbush (*Vaccinium corymbosum* L. interspecific hybrid).
  - ➢chill hours 200 to 600.
  - ➢pH 4.4 – 5.0

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Varieties

- Rabbiteye varieties developed by the University of Georgia.
- Brightwell is the most planted variety.
- Older varieties are not bold.

Early Season	Mid-season	Late Season
Austin **Alapaha** Climax Premier **Vernon** **Titan**	Brightwell Powderblue Tifblue	Baldwin Centurion **Ochlockonee**

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

‘Brightwell’

1983

- Chilling requirement 400-450 hours.
- Plants are vigorous and upright.
- Mechanically harvested. Berries are medium-large in size.
- Ripens in mid June to mid July .
- Over cropping need to be pruned.
- Severe cracking under wet conditions during maturity.
- Brightwell is partially self-fertile, pollinizers are Alapaha, Austin, Powderblue, and Premier.

‘Vernon’
2004

- 450 chill units.
- Good yields, excellent plant vigor.
- Flowers 7 days after Climax.
- Berries are large and have good firmness.
- It could be a good variety to replace Climax and Premier.
- Machine harvest.
- No overfertilize with N, excessive vigor.
- Good companion is Alapaha.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

‘Alapaha’
2001

- 450 to 500 chill unit.
- Vigorous and upright.
- Fruit ripens quickly.
- Machine harvest, no cracking.
- It could be a good variety to replace Climax.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

‘Titan’™

2010

- 500 to 550 chill units.
- High yield and excellent plant vigor.
- Large berries (3g).
- Ripens with Vernon.
- Machine harvest.
- Good for commercial and pick-your-own operations.
- Crack under wet conditions.
- Companion Krewer.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

‘Krewer’ ™

2015

- 300 to 400 chill units.
- High yielder, excellent plant vigor.
- Larger berries.
- Needs to develop full color.
- Semi-upright.
- Machine harvest.
- Good for commercial and pick-your-own operation.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

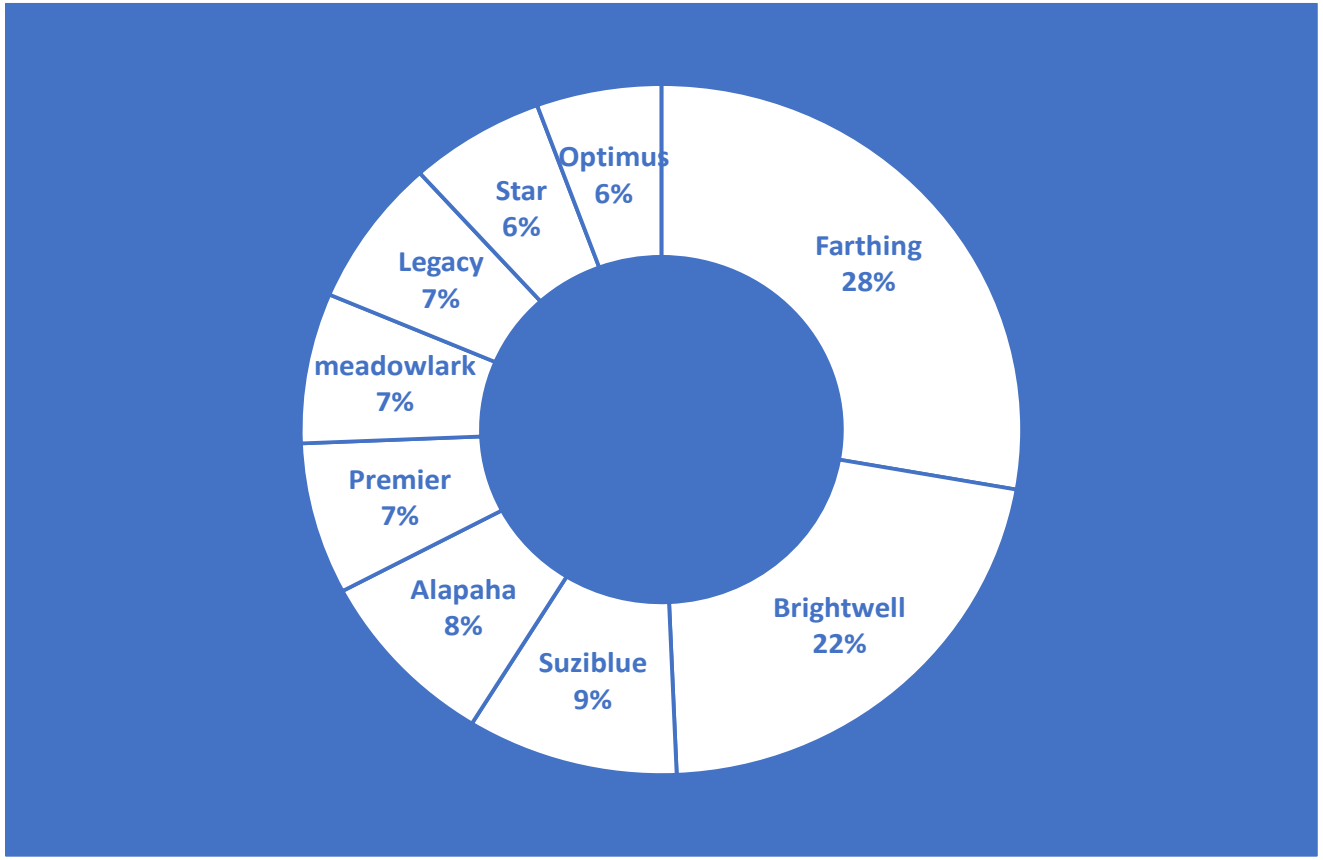
‘Suziblue’

- Chill hours 400 hours or less.
- Large fruit with good firmness, and good flavor.
- Plants are vigorous.
- Recommended cross pollination with Rebel.

‘Georgia Dawn’™

- Chill units 300 to 400 chilling hours.
- Fruit are medium to large size
- Plants are vigorous
- Early ripening.
- Recommended cross pollination with Rebel.

Cultivars Planted in Georgia



Data provided by Dr. Yue Chu – UGA

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

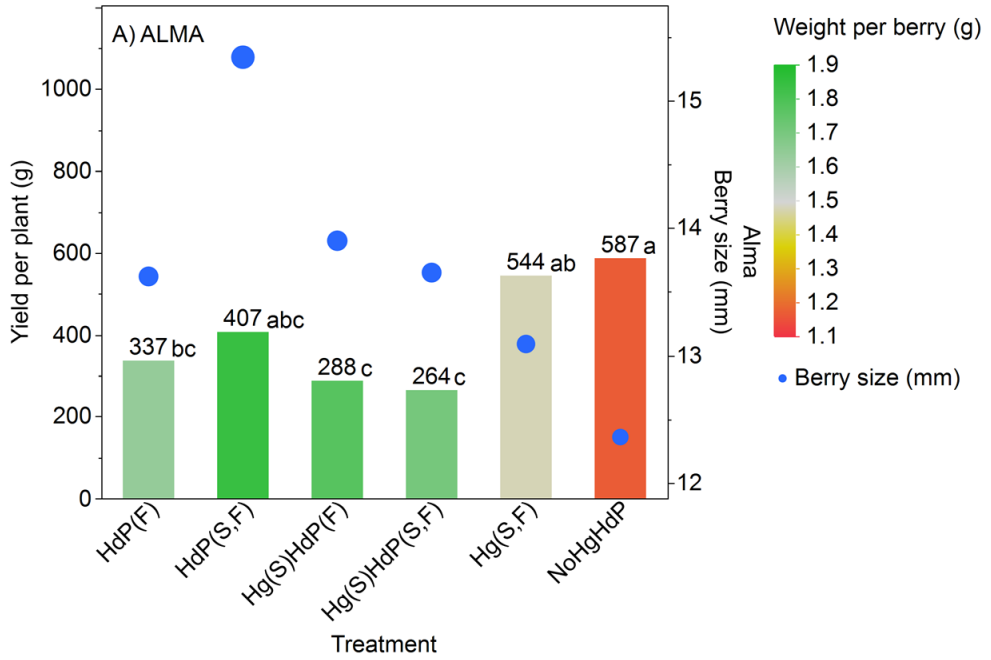
‘Farthing’

- High yield and excellent plant vigor
- North-central Florida
- Machine harvest
- Harvest in early May
- Susceptible to root rot
- Numerus flower buds

University of Florida Breeding Program

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Pruning trial



College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

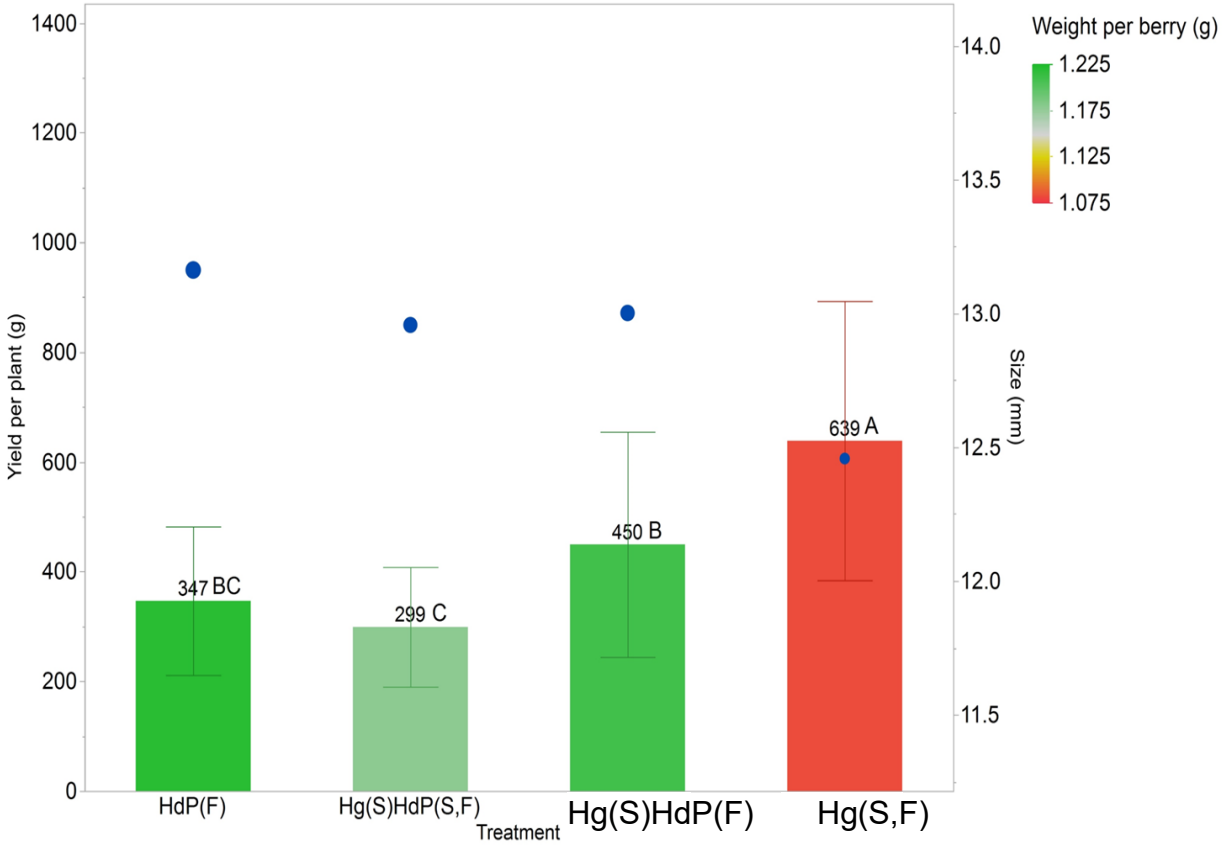
‘Optimus’

- Early season variety (after Georgia Dawn)
- High yielding cultivar
- Machine harvest
- Susceptible to rust
- Vigorous canopy

University of Florida Breeding Program

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Pruning trial



College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

‘Patrecia’

- Late bloom, early fruit set
- Large berries
- No good for machine pick
- Bloom in November

‘Keecrisp’™

- Low chill
- Mid to late season
- Plants are vigorous
- Machine harvest
- Open canopy, upright.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Spring Freezes

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Spring Freezes

E. Smith and T. Coolong, UGA Extension

J. G. Williamson, UF/IFAS

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Plant Growth Regulators-Ethephon

- Plant growth regulators (PGR) are natural or synthetic compounds that alter physiological and developmental processes in plants
- Ethephon is a PGR that releases ethylene during breakdown.
- Currently, blueberry growers spray ethephon on new SHB cultivars.
- There is a lack of information regarding the impact of ethephon on new SHB cultivars.

(Lopez-Lauri, 2016; Rademacher, 2015; Crisosto et al., 1990; Krewer et al., 2000; Krewer et al., 2005; Nečas et al., 2023)

Plant Growth Regulators-Ethephon

Field Site and Treatments

- Location: a commercial farm in Newton, Georgia in 2022 and 2023.
- Three SHB cultivars: ‘Farthing,’ ‘Georgia Dawn,’ and ‘Kee Crisp.’
- A randomized complete block design.
- Five replicates per treatment. Each treatment included five plants.
- Ethephon was sprayed on 4-year-old plants once on November, 2022 at four concentrations (0, 200, 400, and 800 mg/L).
- Ethephon was combined with a 0.25% nonionic surfactant.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Plant Growth Regulators-Ethephon

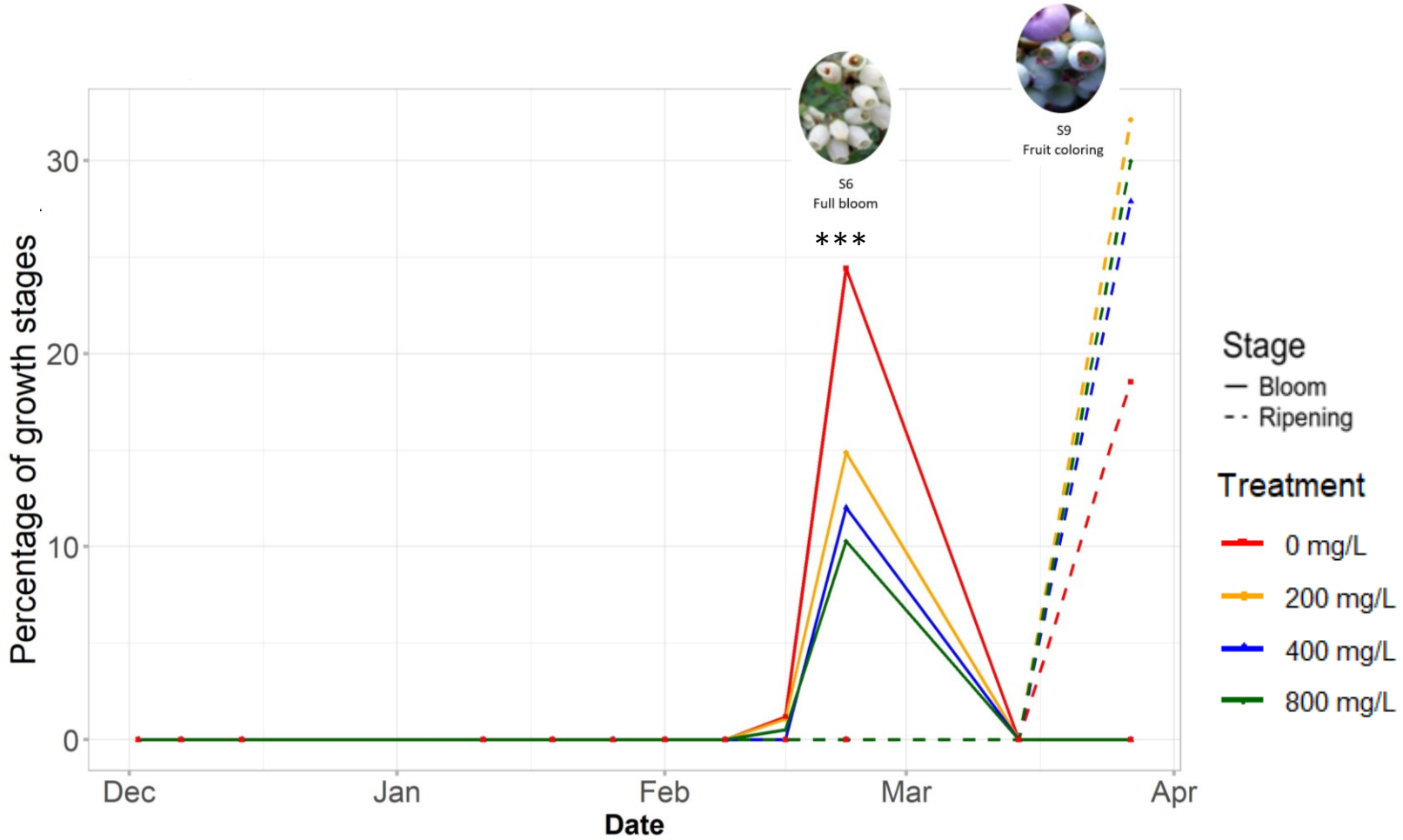
Assessment of growth stages

- Three branches on each of the three central plants per treatment were tagged.
- The number of developing flower buds was counted in each branch from December 2022 to March 2023.
- Flower buds and fruit development growth stages were evaluated.

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Results

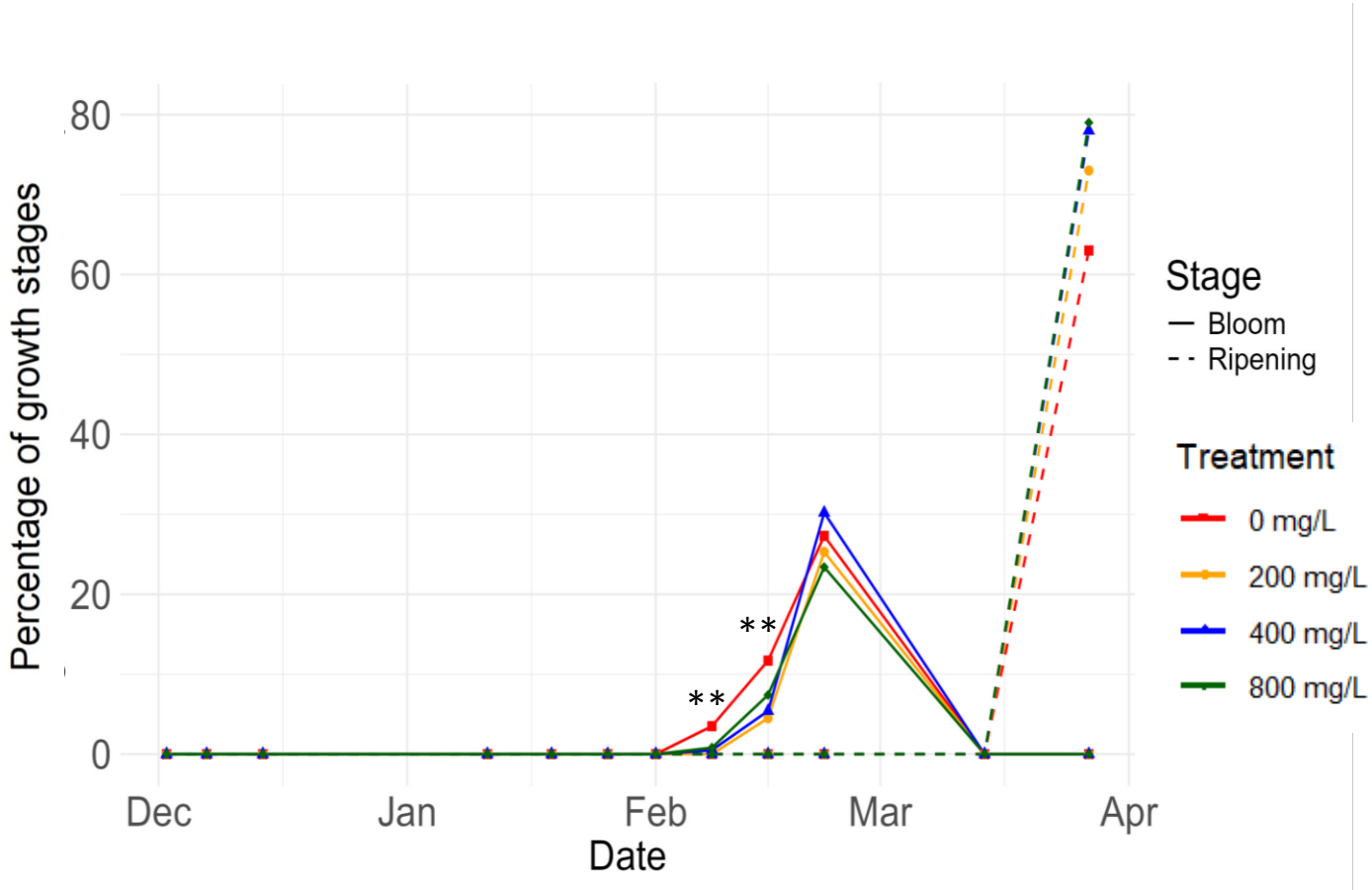
‘Kee Crisp’



Percentage of open flowers (Bloom) and berries at the fruit coloring stage (Ripening) from December 2022 to March 2023 for SHB blueberry cultivar ‘Kee Crisp.’
***: significant at P<0.0001.

Results

‘Georgia Dawn’

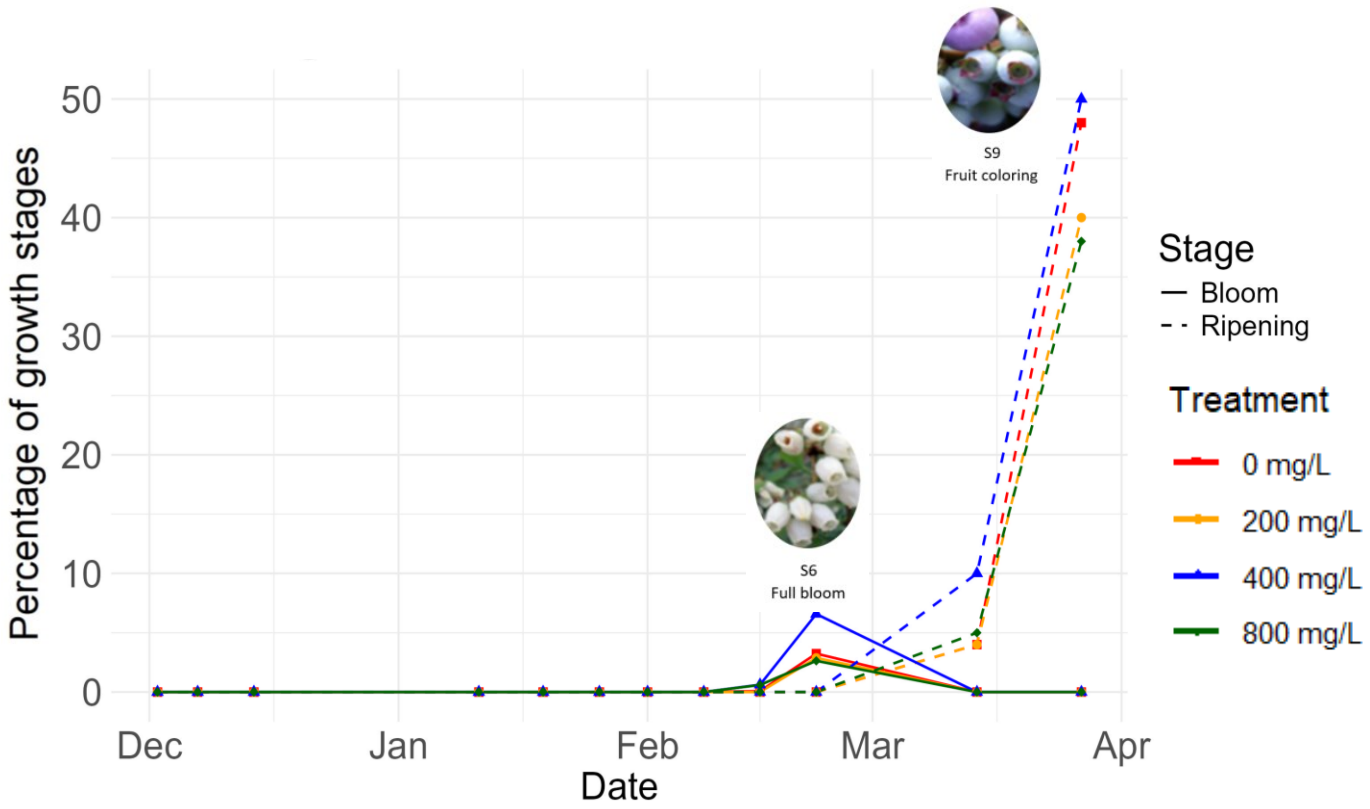


Percentage of open flowers (Bloom) and berries at the fruit coloring stage (Ripening) from December 2022 to March 2023 for SHB blueberry cultivar ‘Georgia Dawn.’
**: significant at P<0.01.

GEORGIA

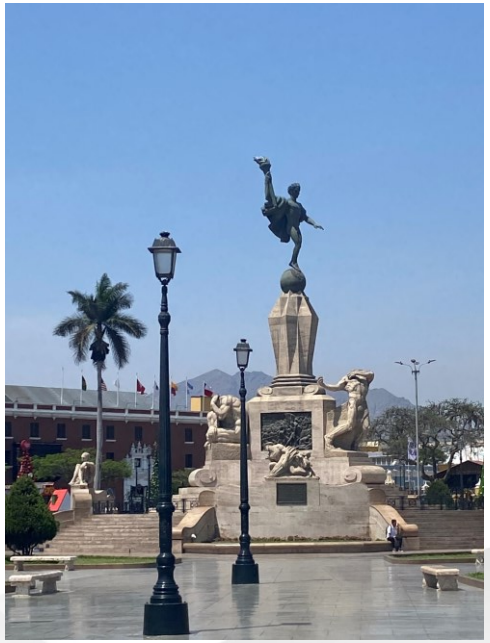
Results

‘Farthing’



Percentage of open flowers (Bloom) and berries at the fruit coloring stage (Ripening) from December 2022 to March 2023 for SHB blueberry cultivar ‘Farthing.’

GEORGIA



Visit my website [Small Fruit Program (uga.edu)]

Thank you!

QUESTIONS ?

UNIVERSITY OF GEORGIA
EXTENSION