

Martin-Gatton
College of Agriculture,
Food and Environment

WASHINGTON
County
COOPERATIVE
EXTENSION
SERVICE



GROWING BLUEBERRIES IN KENTUCKY

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Blueberries

- Native fruit crop to North America
- Eaten and preserved by Native Americans for centuries, gathered from forests and bogs etc.
- Used blueberries for dye, as cough medicine, dried crushed blueberries were used as meat rubs to increase flavor
- Native Americans taught early settlers how to dry blueberries when they taught them farming techniques
- Blueberry juice beverages were important in the Civil War and later canned thus beginning the blueberry canning industry in the North East

Blueberries

- Main three types of berries, the Highbush (Northern and Southern blueberries, the Lowbush (Southern Blueberry), and the Rabbiteye blueberry.
- We can grow (depending on the variety) all of these. The Northern highbush does better in the Northern parts of the state and the others do better in the Southern parts of the state but again it depends on cultivar.



Key Differences



- Rabbiteye and Low Bush types bloom 1-1.5 weeks earlier than Northern highbush and Southern Highbush
- Thus more prone to late frosts
- They also can handle higher soil pH than highbush
- Tolerates drier and hotter temperatures as well
- Rabbiteye types can grow 6-10 feet, lowbush a couple feet, and highbush types 3-6.

Blueberries

- Whether highbush, lowbush, or rabbiteye they all can be difficult to grow in Central Kentucky without proper care!
- Pest control-mainly BIRDS!



Yields

- With proper care they will remain productive as long as most fruit trees!
- Few pests and diseases reported in Kentucky (why)
- Yields on mature plants range from 6-15 pounds per plant!!!
- That is 6000 pounds or more per acre (good years much higher)
- Little winter injury in KY, crop is rarely lost on good sites

Site Selection

- Same as with other fruits, must have good air drainage and internal soil drainage
- Good air drainage means higher elevation than much of the surrounding area
- This will pull colder air down away from planting
- Soil should not compact easily (clay)



Site Selection

- Swamps and Bogs? Myth!
- Organic matter
- Green manure crops



Soil Preparation

- Blueberries prefer a soil with high organic matter!
- pH is the most important factor for us, it must be 4.5-5.2
- Most Kentucky soils have two major problems pH and clay
- Must do a soil test!!! For pH and other nutrients
- How does calcium levels factor in?
- How to lower soil pH
- Sulfur or Aluminum Sulfate (till in 60-90 days before planting in top 2-3 inches)

Adjusting pH

Table 1. Amending Soil to Reduce pH.

To lower the pH one full pH unit (e.g. from 5.5 to 4.5), incorporate either finely ground sulfur or aluminum sulfate. Sulfur is usually the least expensive material. Use the water pH value rather than the buffer pH value to determine how much sulfur or aluminum sulfate to incorporate.

| Soil Texture | Sulfur lb/100 sq ft ¹ | Aluminum Sulfate lb/100 sq ft ¹ |
|--------------------|-------------------------------------|---|
| Light, Sandy | 0.75 | 4.5 |
| Medium, Sandy Loam | 1.50 | 9.0 |
| Heavy, Clay Loam | 2.25 | 13.5 |

¹ Since the soil's buffering capacity affects the degree to which a soil is acidified, apply the recommended amount well before planting. Then recheck the pH 60-90 days later.



Retest

- Retest later in fall or next spring to make sure the pH is corrected...
- You can get some reversion etc.
- What about irrigation water?



Cultivars

- Have different maturity dates
- If properly selected you can have fresh berries throughout the fruiting season
- Early maturing bloom earlier...frost!
- Generally blueberries bloom about the same time as strawberries
- Highbush will withstand 28 degrees F in full bloom, lowbush maybe 30
- As a rule....berries ripen 60-80 days after bloom
- Each cultivar ripens for a 2-3 week period

Cultivars



- Plant at least two cultivars for proper pollination
- Group cultivars by ripening date (eases harvesting)
- Early-Duke, Spartan
- Mid-Ozarkblue, Sierra, Toro, and Bluecrop
- Late-Nelson, Darrow, and Elliott

Desirable Fruit Characteristics

- Large size
- Nice blue color
- Firm
- Crack resistant
- Good keeping quality
- Aroma and flavor
- Tendency for fruit to remain on plant when ripe



Planting

- If ordered bareroot plant in early spring before plant growth begins
- If potted plant anytime....But keep them watered!!!
- Make planting holes a few inches wider and deeper than the root ball



Planting



- Make sure to work up soil deeply and work in several layers of peat! Blueberries are shallow rooted and need a loose humus acidic soil
- Spacing-4-6 feet in row and 10-14 feet between rows

Spacing

Table 3. Relationship between plant spacing and number of plants per acre

| Plant spacing (ft) | Plants per acre |
|--------------------|-----------------|
| 4 × 10 | 1,089 |
| 4 × 12 | 907 |
| 4 × 14 | 777 |
| 5 × 10 | 871 |
| 5 × 12 | 726 |
| 5 × 14 | 622 |
| 6 × 10 | 726 |
| 6 × 12 | 605 |
| 6 × 14 | 518 |

Hint

- Our soils are too heavy and don't have enough organic matter soil in addition to other organic material:
- Mix one gallon of wet peat with the soil in the bottom of the hole prior to planting (use peat only)



Planting

- Plant blueberry plants at the same depth as they were growing in the nursery
- Trim off any broken or injured roots or shoots
- If the root ball is really tight loosen it a bit but just a bit
- Set plants in hole and pack soil firmly around plant
- WATER WELL!



Fertilization and Nutrition

- DO NOT PUT FERTILIZER IN THE HOLE!!!
- Adjust soil fertility before planting based on soil test
- Side dress at bloom and again six weeks later with .1 pounds of ammonium sulfate per plant
- Why ammonium sulfate?
- In subsequent years increase the amount by .1 pound per year until eat plant is getting .3 pounds per application

Fertilization

- On heavier soils....and where pH is hard to maintain
- Osmocote Plus 15-9-12 at 2 oz. per plant per month from March 1 to August 1
- All fertilizer must be applied evenly around the bush
- Skip other fertilizers if using this



Pollination

- Flower shape is difficult for honeybees to get good pollination
- Bumblebees are better for blueberries...
- Bumblebees have longer tongues and fly in colder windier weather...however their numbers fluctuate
- 2 hives of honeybees per acre is adequate



Pollination

- Each fruit has up to 65 seeds per fruit, the more seeds the bigger the berry
- Reduced pollination not only reduces number of berries but size as well
- No cultivar should be separated by more than two rows from a similarly maturing cultivar...28 feet
- Shoot for at least 80 percent pollination rate (I get more like 95% if we don't have a late frost)



Mulch!!!

- Most organic matter will do...sawdust, wood chips, pine needles and bark, corn cobs, even straw
- 4-6 inches deep
- Remulching is a must, when mulch gets to 3 inches
- Blueberries are shallow rooted and prefer the area where the mulch and soil meet
- Keep a 3-4 feet band of mulch around each plant



Irrigation



- Blueberry roots don't have root hairs...makes them susceptible to drought as they are also shallow rooted
- Requires 1-2 inches of rain per 10 days during the growing season
- If water is low leaf scorch will occur

Pruning

- Establish plants require annual pruning
- Any diseased or damaged canes pruned out anytime
- Canes larger than 1 inch prune out to the ground...Why?
- February to bud break
- Up to 20% of canes can be removed without reducing yield
- Mature plants should have about 20 good canes
- Rub off flowers the first two years while establishment takes place
- http://www.youtube.com/watch?v=a_GQl7ROaco

Harvesting

- Fruit doesn't ripen evenly throughout the cluster, pick weekly
- Fruit size will increase up to 35% after turning blue and will develop flavor if allowed to fully ripen on the plant
- Fully ripe the sugar content can be up to 15%
- Blueberries do not ripen further after harvest
- Store picked berries at 32-35 degrees for longer usability of up to 2 weeks

Spray Program and Problems

- <http://www.ca.uky.edu/agc/pubs/ho/ho6o/HO6o.PDF>
- <http://www.ca.uky.edu/agc/pubs/id/id21/id21.pdf>

Legacy Blueberry (Southern Highbush)

- Legacy blueberries are a highly adaptable variety for both fresh and process sales. This variety tends to be a little slower to produce in the first few years, however, yields can be very high once the plants become established. Legacy blueberries have received good reviews for its fruit quality, small scar and flavor. Midseason.



Blue Jay Blueberry

- Bluejay Northern Highbush Blueberry has a delicately sweet flavor and the incredible ability to retain quality while hanging on the bush for extended periods of time. After harvest the branches turn bright yellow and the leaves change from light green to shades of yellow and orange. Early to mid season.



Elliot Blueberry

- Elliot blueberry plants are very productive and grow vigorously and upright. Elliott is considered the latest of all varieties. This variety is winter hardy. Berries are medium-sized, firm and have a light-blue color. Fruit needs to be picked fully ripe for best taste. This variety is a good choice for extending the growing season



Questions?