



# Highbush Blueberry Site Selection



Patrick Byers

Regional Horticulture Specialist

MU Extension – Greene County

UNIVERSITY OF MISSOURI

**M** Extension

•  
•  
•

# Outline of the Presentation

- Introduction
- Soil issues
- Soil drainage
- Irrigation issues
- Topography
- Marketing issues



# Introduction



- Missouri's blueberry industry
  - Recent development
    - Arkansas – research and industry development
    - initial research plantings at Mtn Grove and Springfield in early 1970's
    - initial commercial plantings 1975
  - 200 acres estimated at present
  - Mostly small scale - >5 acres
  - Mostly direct market
  - Highbush and southern highbush cultivars

# Introduction



- Challenges facing Missouri blueberry growers
  - Marginally suitable soils
    - High pH: 5.5-7.0
    - Low organic matter: <3%
    - High calcium content
    - Poor drainage, impervious soil layers
  - Lack of ideally suited cultivars
  - Climate

# Site Selection - Soil



- An ideal blueberry soil...
  - Well drained
  - Acidic – pH 4.8-5.2
  - Sandy loam
  - Organic matter > 3%

# Site Selection - Soil



- What does the soil test really tell us?
  - Soil pH
  - Nutrient levels
    - Phosphorus
    - Potassium
    - Calcium
    - Magnesium
  - Soil organic matter
  - Neutralizable acidity
  - Cation Exchange Capacity (CEC)

# Site Selection - Soil



- Soil test is critical
  - pH: 4.8 - 5.2 (water), 4.3-5.0 (salt)
  - calcium: below 2000 lb/acre
  - CEC: below 18
  - % base saturation from Ca: 58-68%
- Soil fertility – not as important
  - P: 30 lb/acre, K: 150 lb/acre



# Site Selection - Soil

SOIL TEST RESULTS		RATING					
		Very low	Low	Medium	High	Very high	Excess
pHs	7.1	*****					
Phosphorus (P)	490 lbs/a	*****					
Potassium (K)	772 lbs/a	*****					
Calcium (Ca)	6609 lbs/a	*****					
Magnesium (Mg)	563 lbs/a	*****					
Organic Matter:	7.6 %	Neutr. Acidity: 0.0 meq			CEC: 19.9 meq		

SOIL TEST RESULTS		RATING					
		Very low	Low	Medium	High	Very high	Excess
pHs	6.4	*****					
Phosphorus (P)	98 lbs/a	*****					
Potassium (K)	420 lbs/a	*****					
Calcium (Ca)	3937 lbs/a	*****					
Magnesium (Mg)	218 lbs/a	*****					
Organic Matter:	5.8 %	Neutr. Acidity: 1.0 meq			CEC: 12.3 meq		

SOIL TEST RESULTS		RATING					
		Very low	Low	Medium	High	Very high	Excess
pHs	4.6	*****					
Phosphorus (P)	9 lbs/a	***					
Potassium (K)	180 lbs/a	*****					
Calcium (Ca)	1082 lbs/a	*****					
Magnesium (Mg)	126 lbs/a	*****					
Organic Matter:	3.3 %	Neutr. Acidity: 5.0 meq			CEC: 8.5 meq		



# Byers Orchard

- The soil test
  - results of our soil test
    - pH: 6.4, good
    - P: 5 lbs/acre, low
    - K, Ca, Mg: adequate
    - OM: 3%, good
    - CEC: 9.7 me, sandy loam - silt loam



# Site Selection - Soil

- What about the physical characteristics of a site soil?
  - Soil water drainage
  - Compaction issues





# Site Selection - Drainage

- Blueberry root systems are shallow
  - Sensitive to excess moisture in the surface soil layers
- Water table – 15-40” below surface minimum



# Site Selection - Drainage



- Percolation test is valuable
- Observation of soil profile is valuable
- Soil drainage problems...
  - Avoid site
  - Berming
  - Tile drainage
  - Subsoiling





# Site Selection – Summary

- Site selection hinges on:
  - Soil issues
  - Soil drainage
  - Irrigation issues
  - Topography
  - Marketing issues



