2023 Sweet Potato Trial

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Why Sweet Potatoes?

Potential

- Low inputs
- Few disease and pest issues
- Break disease cycles through crop rotation
- Season extension
- Spread out labor demand
- Economics/market

Challenges

- Require long growing season
- Weed control
- Curing and storage infrastructure
- Economics/market

Planting June 8

- Field cultivator, no pre-plant fertilizer, gravelly loam
- 4’ black biodegradable field plastic
- 4” raised bed, single trickle tape centered in bed
- Soil temp consistently above 60^{o}F
- Planted June 8
- Water wheel
- 16” between plants, 16” between rows, staggered
- Hand planted because of small numbers

Photo: Bill Kerr, www.farmersweekly.co.za

Varieties

Bellevue

A market standard grown in Northern Europe and the Northeast. Wide range of expected days to harvests from 90-120 days, local estimates indicate 100-110 days. Orange (copper hue) skin & orange flesh.

LSU developmental variety #18-100

Unreleased variety, #18-100, early maturing variety with good flavor. Days to harvest unknown, estimated at 90-100 days for our region, based on growth tests in the south. Rosy-orange skin & orange flesh.

Radiance

Developed by Vineland (Ontario, Canada) in collaboration with LSU. Commercially available in Canada and under license in the US. Estimated 105-110 days, other (more local) sources indicate 118-122 days. Orange-on-orange.

Varieties

Bonita

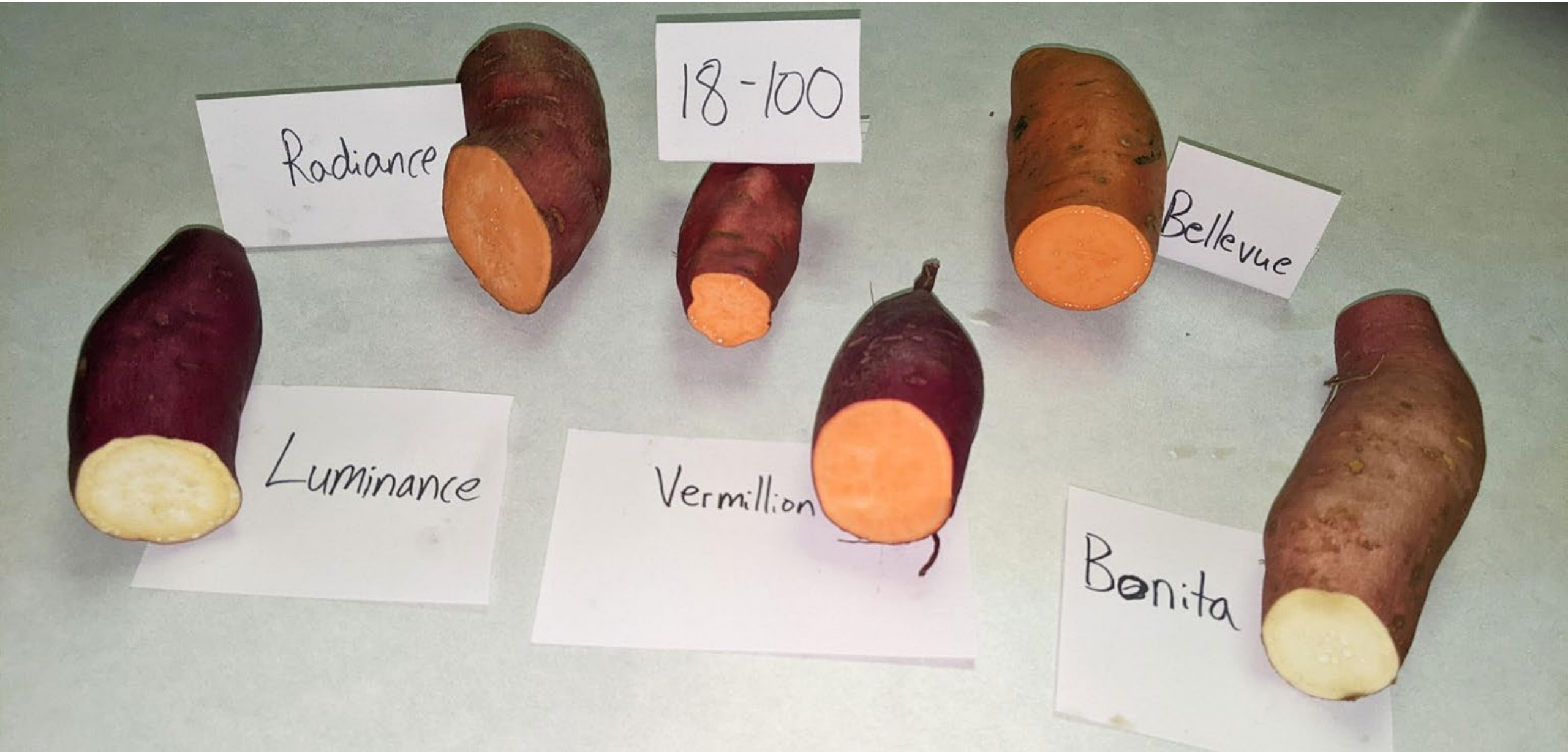
A market standard “white” sweet potato. Rated at 110-115. Tan skin & white flesh.

Luminance

Vineland and LSU. Just becoming available in the US. 120 days to harvest. Purple skin & yellow-white flesh.

Vermilion

A niche market variety produced by LSU. Longer and skinnier rather than blocky. Estimated at 120 days by LSU and similar approximations locally. Red-purple skin & orange flesh.


Radiance
18-100
Bellevue
Luminance
Vermillion
Benita

Soil & Fertility Needs

Soil Characteristics: loose, well drained soils. Ideal pH 6.0-6.5.

Nitrogen - excessive N causes long, stringy tubes and poor set.
- high organic matter soils can cause similar issues

Phosphorous - 60-80 lb/A

Potassium - heavy potassium feeder, up to 200 lb/A.

Crop needs 50-70-200 lb/A

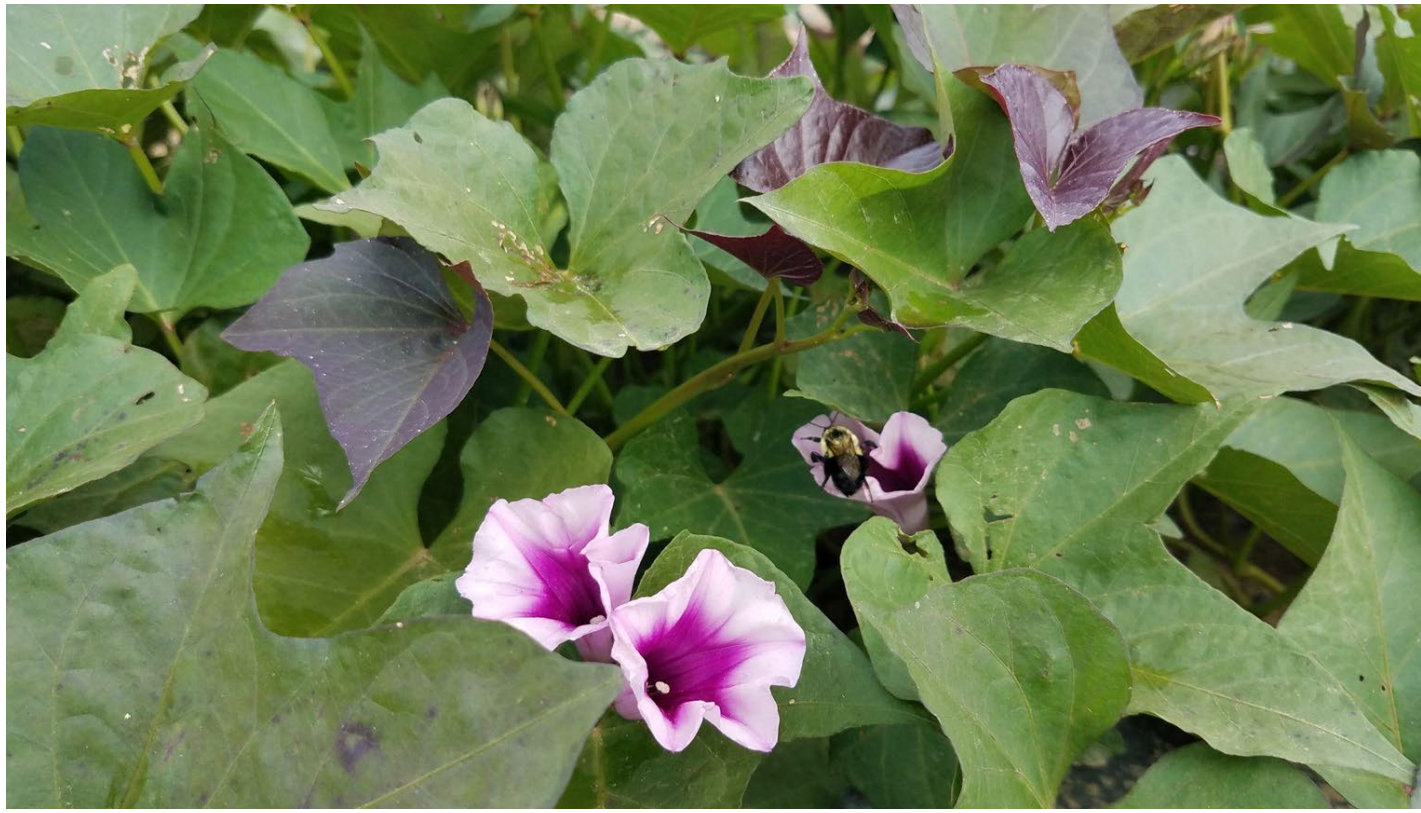
Water Needs

Sweet potatoes set two main kinds of roots: Feeder and Bulking

The bulk roots are largely initiated during the first 30 days

Adequate water during this period helps set more bulking roots

Excessive water close to harvest can worsen cracking



Water and Fertility

Crop needs 50-70-200 lb/A

- No preplant fertilizer. Relied on residual Nitrogen and Phosphorus
- First week irrigated/rained every other day.
- Watered 1-2x/week next 3 weeks

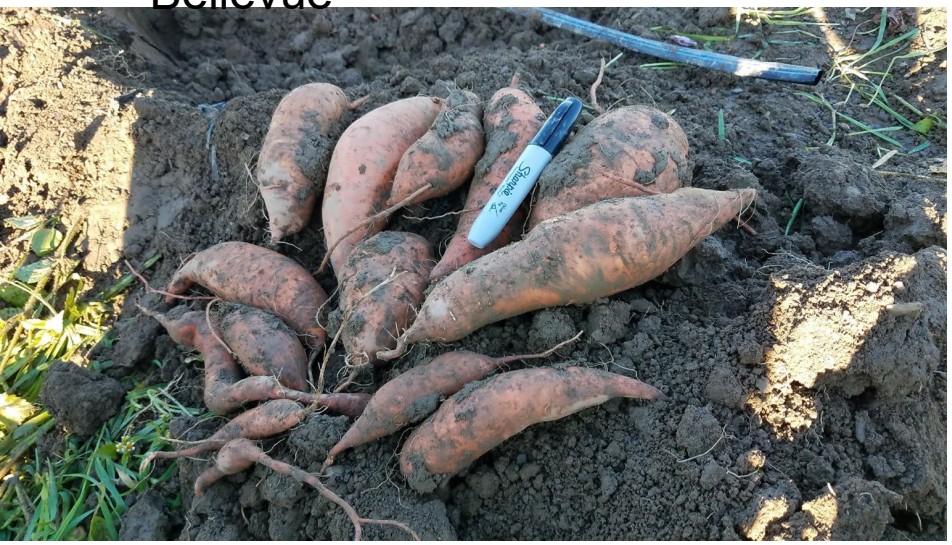
- Potassium, used Timac Agro's FERTIACTYL® Record (0-0-30) K_2O
- Organic growers- Potassium Sulfate
- Recommended 150 lb per acre.
  - Applied 1/3 on June 25, July 1, July 8

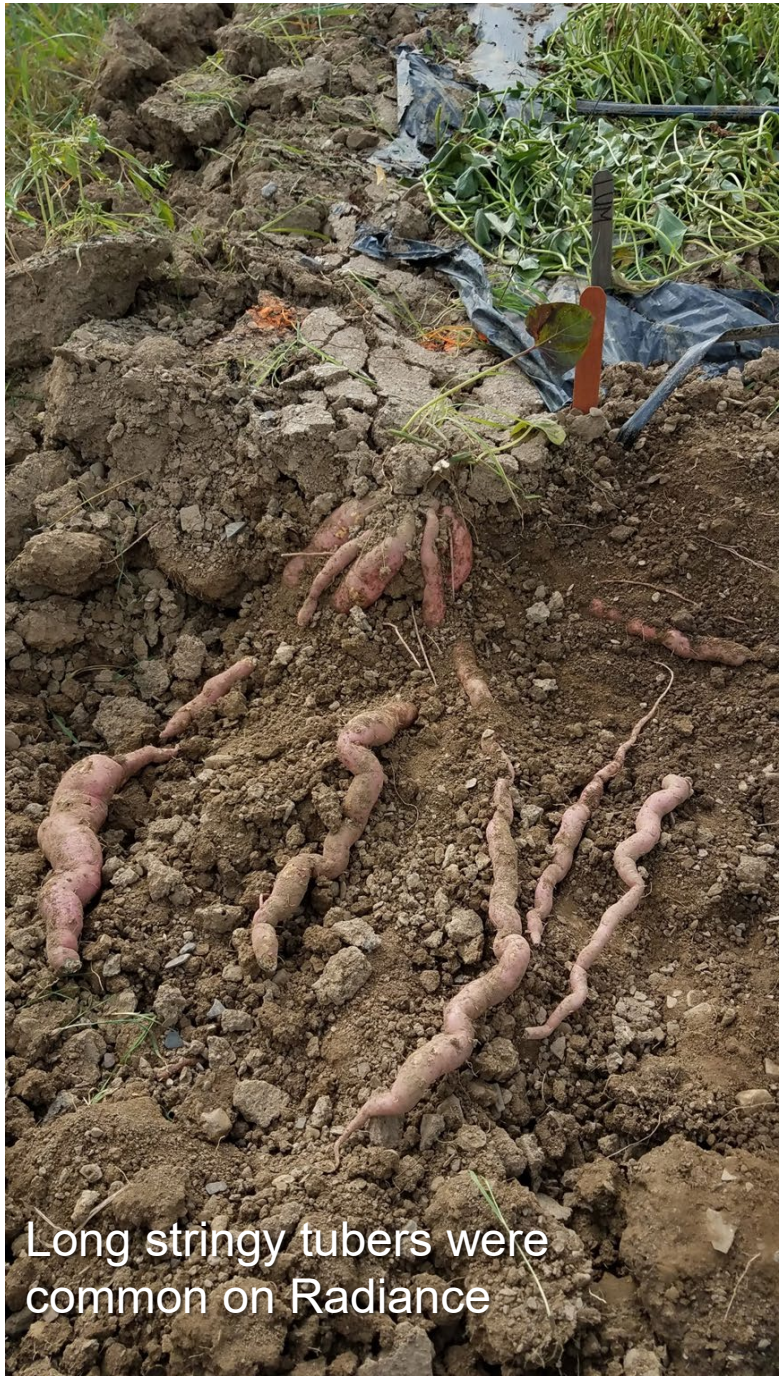
Harvest

- Harvested Sept 16 - Bellevue and 18-100
  - at 100 days (1750 GDD base 50) since 6/8
- Harvested Oct 5 (Radiance, Bonita Luminance, Vermilion)
  - At 119 days (1990 GDD base 50) since 6/8
- Plant can take cool temps, but potatoes need to be dug before soils reach 55^{o}F.
- Cut tops, ideally let skins toughen for 3 days, we went same day
- Plastic lifter run below bed, hand harvested into plastic lugs
- Gravelly soil not ideal, also too dry

Luminance w/scuffs

Bellevue

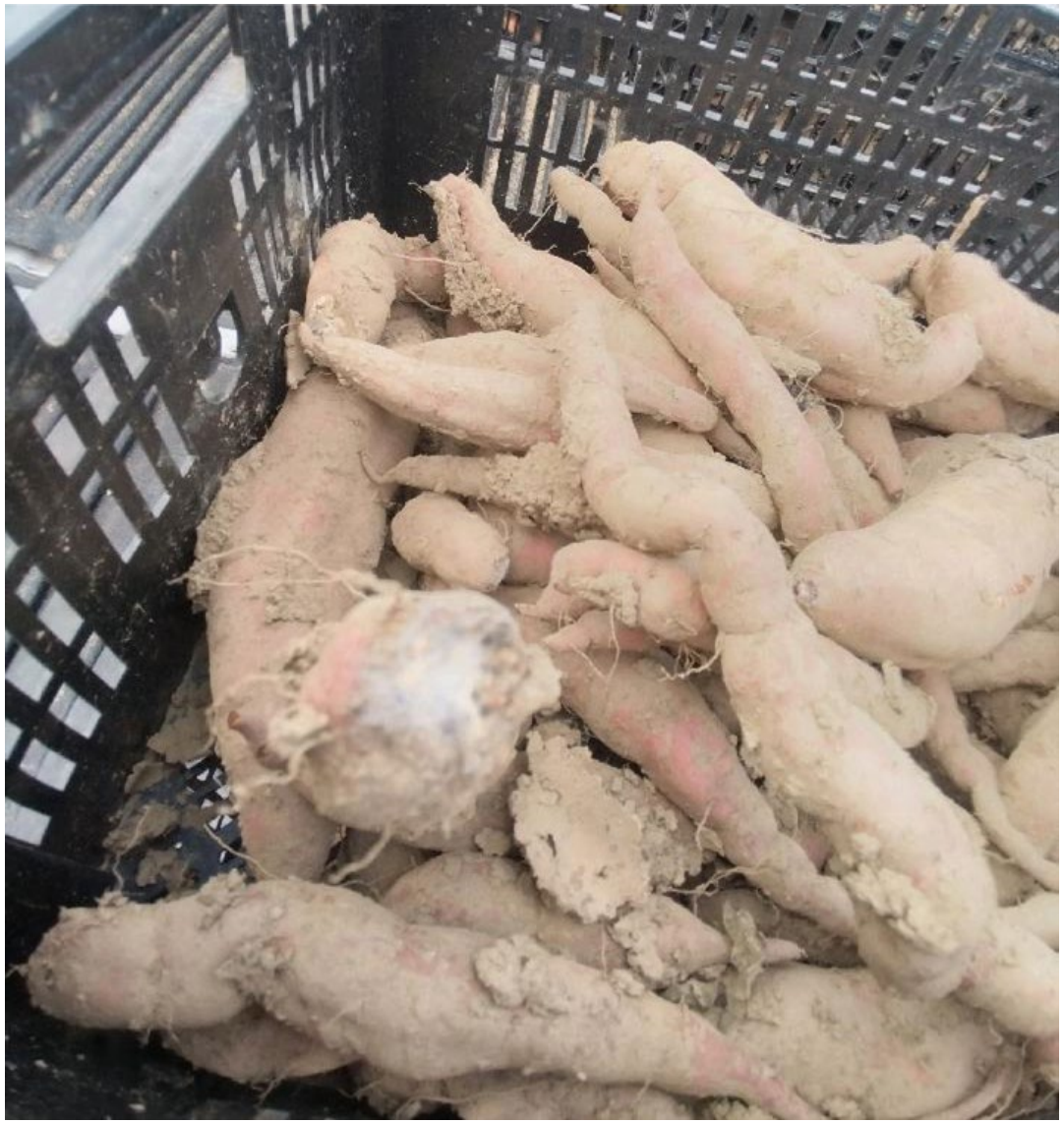




Curing: 80-90°F and 80-90% RH, 4-7 days

Storage

- 55-60^{o}F, 85% RH
- 4-6 weeks to convert starch to sugar
- AIR FLOW!



Trial Results

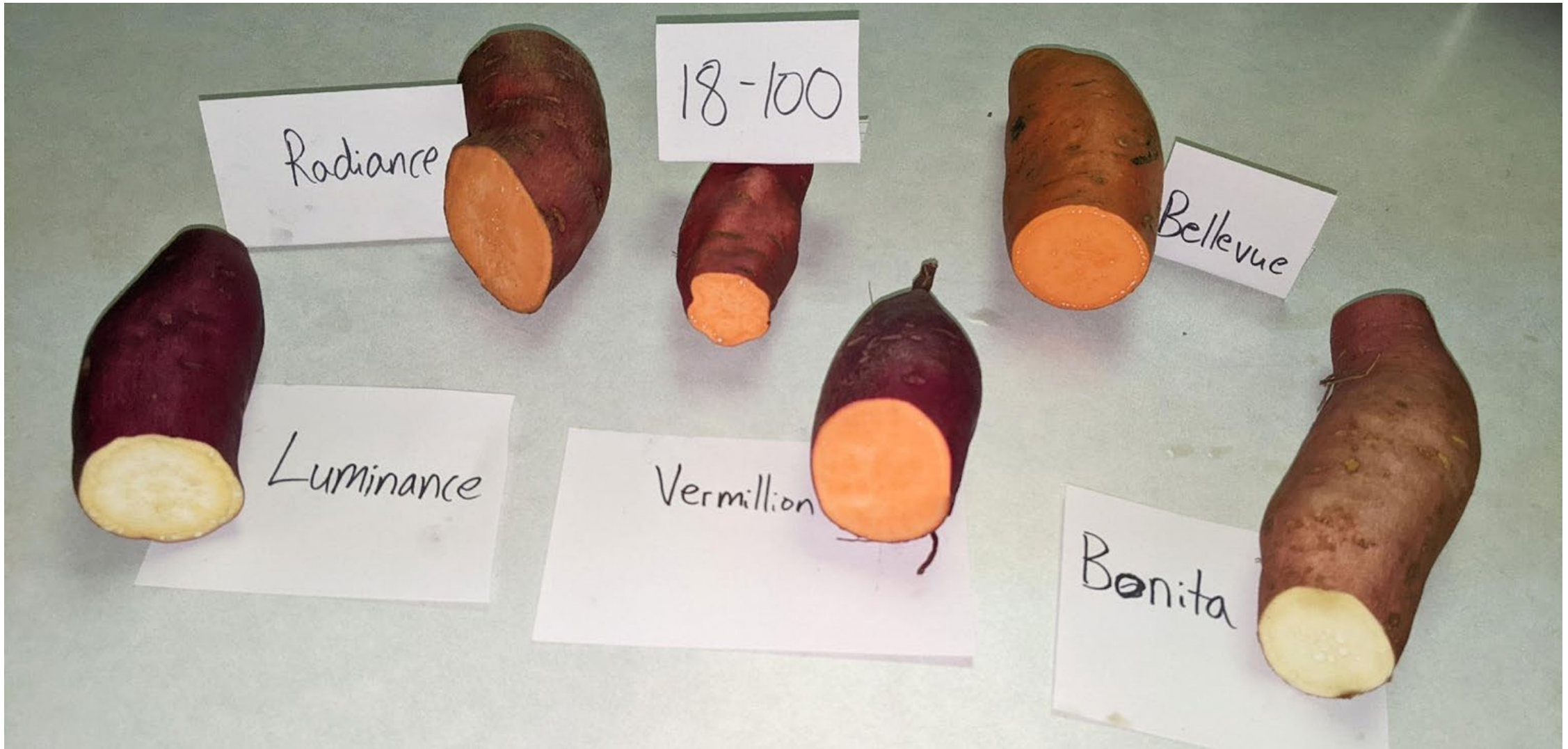
- **Bellevue** and **18-100** produced the greatest amount of marketable yield despite being harvested too soon.
- **Bellevue** and **Bonita** produced the greatest proportion of on-type, non-stringy tubers.
- **Bonita** was a rotter. Had Bonita not rotted, it would have yielded similarly to Bellevue.
- **Bonita** tended to make two distinct sets of marketable roots; one at the crown and one at the bottom of the slip.
- **Radiance** and **Vermilion** produced a large proportion of stringy tubers, despite growing in a low-N environment and receiving adequate water during the first month of production.
- **Vermilion** was also prone to storage rot.
- **Luminance** scuffed easily at harvest and subsequently experienced a high level of storage rot.

Bellevue and **18-100** produced the greatest amount of marketable yield despite being harvested too soon

Bellevue graded into USDA #1 (left) and other marketable (right)

Sample of 18-100 marketable yield

Bellevue and **Bonita** produced the greatest proportion of on-type, non-stringy tubers.



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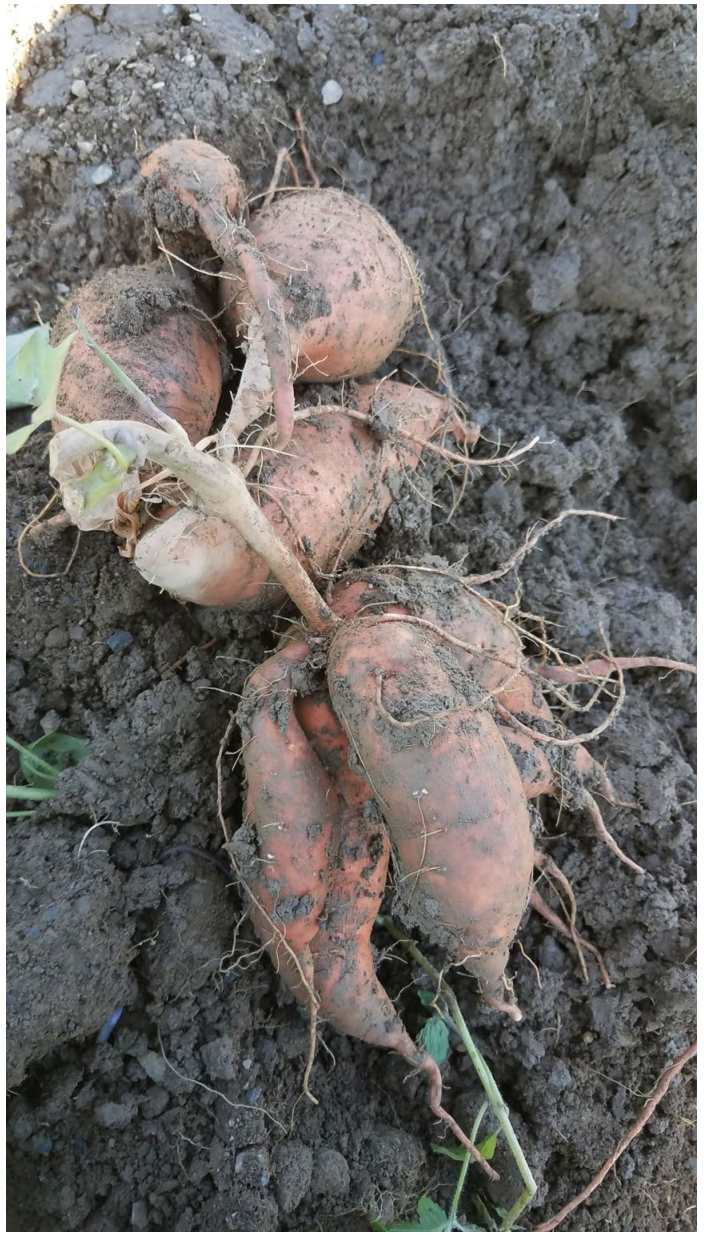

Radiance and **Vermilion** produced a large proportion of stringy tubers, despite growing in a low-N environment and receiving adequate water during the first month of production.

Luminance scuffed easily at harvest and subsequently experienced a high level of storage rot.

Key Learning Points

- Maintain weed free pass
- Location to minimize rodent damage
- Water very important in first month
- Wait as long as possible to harvest
- Careful harvest
- Curing can be difficult, air flow is important


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