# Sweetpotato Production and Troubleshooting

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# Introduction

- Yam, regular potatoes, and sweetpotato
- A nutritious root crop
- Between 2000 and 2014, annual per capita consumption increased from 4 to 7.5 lbs
- Ranks 7th in world food production after wheat, rice, maize, potato, barley, and cassava
- Production mostly in Southeast U.S.
- Increased interest for locally produced crops

# Climatic Requirements

Requires a minimum frost-free period of 4 months

Air temperature: 77-85 °F

Soil temperature: 65-85 °F

Long daylength favors storage root growth

Sandy loam soil with 5-7.5 pH

# Production Process

- Key steps for successful sweetpotato production in northwest Washington/PNW:
  - Suitable cultivar
  - Slip production
  - Plastic mulch*
  - Curing
  - Storage
- Cost of buying slips: the single biggest expense for sweetpotato production

But you can grow your own slips!

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# Sweetpotato Cultivars

| Cultivar | Yield | Days to harvest | Color | |
|---|---|---|---|---|
| | | | Flesh | Skin |
| Averre | Very high | 90-100 | Orange | Light rose |
| Bayou Belle | Very high | 90-100 | Orange | Red |
| Beauregard | High | 90-100 | Orange | Light rose |
| Carolina Ruby | High | 90-100 | Orange | Dark red |
| Covington | High | 101-115 | Orange | Light rose |
| Evangeline | High | 101-115 | Orange | Dark rose |
| Jewel | Average | 101-115 | Orange | Orange |
| Orleans | High | 90-100 | Orange | Light rose |

# Slip Production

- Sweetpotatoes propagated from slips or vine cuttings
- Varieties differ in their ability to produce slips
- One sweetpotato root can produce 10-20 slips
- Select healthy roots 1.5-3 inches diameter

# Slip Production

- Fill tray with potting mix; add fertilizer if not included
- Warm tray; can use heating mat
  - Air temperature: 80-85 °F
- Place roots in tray without touching, lightly cover with mix
- Slightly moisten mix, do not over-water
- Cover tray with clear plastic box/dome, maintain ventilation


# Slip Production

- Water trays to keep the mix moist
- Sprouting usually begins 2-3 weeks
- Cut vines when 8 inches tall, 5 leaves and strong stems
  Cut vines 1-2 inches above the mix to prevent diseases and insect transfer
- No. of slips required per 20 feet:
  - 8 inches in-row spacing: **30**
  - 12 inches in-row spacing: **20**
  - 15 inches in-row spacing: **16**

# Prerooting of Slips

Poor root system developed


Prone to root bound

- Slips can be planted directly
- Or can be hardened
  - Store the slips in cool and shady place for 1-3 days (Never in a refrigerator!)
  - More resistant to transplant shock
- Planting in overcast days
- Water well for about a week

**Or,**

- Stick the slips in loose potting mix
- Plant the rooted slips

# Field Planting

- **Transplant:** 3-4 weeks after frost-free date
- **Fertilizer:** ½ lb for 20-ft row; over-fertilization, especially N, causes vigorous vine growth but lower yield
- **Black plastic mulch:** raises soil temperature
- **Spacing:** 8-15 in. in-row, 3-6 ft between-row
- **Irrigation:** Keep the soil moist; overwatering causes root rotting
- **Weeding:** Shallow cultivations as needed

# Harvesting Roots

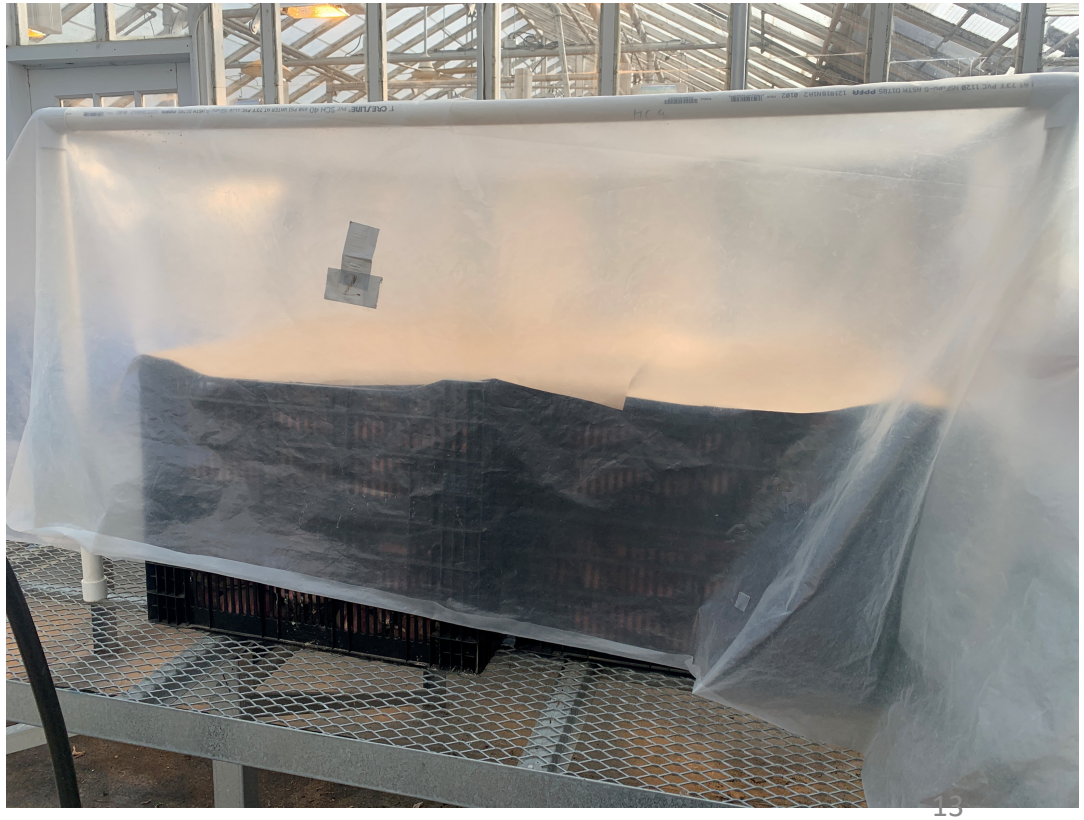
- Check after 80 days, harvest any time roots are adequately sized
- Harvest before soil temperature drops below 55 °F
- Stop irrigation 1 week prior to harvest
- Cut vines 1 day prior to harvest, easier to harvest and sets skin
- Dig with shovel or fork
- Minimize skinning and bruising the roots
- Do not leave sweetpotatoes exposed to sun for more than 1 hour

# Harvesting Greens

- Traditional food in West Africa and commonly consumed in the US Southeast
- Harvest any time
- Harvesting too much can impact roots
- Good for people and animals

# Curing roots

- Start curing same day as harvest
- Shake off excess soil, DO NOT WASH ROOTS
- Curing sets the skin, heals wounds and bruises, enhances flavor (starch → sugars), roots firmer
- Ideal conditions:
  - 80–90 °F
  - 85–90% humidity; no water condensation on roots
  - Ventilation
  - 7-10 days
- At home:
  - 65–75 °F
  - Humidifier
  - 2–3 weeks



# Storage

## Ideal:

- Store 55–60 °F, 75–80% humidity, in the dark
  - Below 55 °F, chilling injury
  - Above 60 °F, sprouting
- Maintain ventilation

## At Home:

- Use plastic crates, store in garage
- Do not store in refrigerator!
- Properly cured and stored sweetpotatoes will last 6 months or more

# Pests: Wireworm

- Feeding holes can be an entry point for pathogens
- Research at NWREC and this project: test wireworm-resistant entries that are productive in NW WA

# Pests: Spotted cucumber beetle

- Potential pest
- Adults feed on leaves and larvae feed on roots
- Damage similar to wireworm feeding




Photos: Ken Gray Image Collection

# Pests: Deer

- Deer love sweetpotato vines
- Fewer leaves = smaller roots
  - Row cover, fence

# Pests: Voles

- Can destroy a whole crop
  - Keep area around field mowed and tilled
  - Encourage raptors
  - Traps

Photo: USDA-APHISWS

# Disease: Sweetpotato Scurf

- A fungal disease
- Grayish-brown to black lesions develop on the skin
- Transmission:
  - Infested soil
    - Scurf pathogen survives in soil for 1-3 years
  - Planting material
- Management:
  - Use of certified roots
  - Use vine cuttings
  - Prevent contamination from other tools
  - Plant in scurf-free soil

# Disease: Viruses

- Various viruses
- Transmission:
  - Planting material
- Management:
  - Use of certified roots
  - Use of certified vine cuttings
  - Purchase new propagation stock when loss of vigor or viral symptoms appear
  - Sanitize tools between between plants

# Experiment at WSU NWREC


Planting: 1 June 2022

- Varieties: Covington, Beauregard, wireworm-resistant entries
- Grown using plastic mulch
- 8 in. in-row spacing, 6 ft between rows

Harvesting: 25 Sept. 2022
Yield: 4-5 lbs/plant


THANK YOU!!!
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