



Sweetpotato updates from K-State (and elsewhere)

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Introduction

- Background – Organic sweetpotato for Kansas?
- Varieties and sources
- Production tips
- Nutritional value/recipes
- Additional info

Organic Sweetpotato

- Certification
- No synthetics
- Crop rotation
- Detailed record keeping



Global overview

Mostly grown by small farmers with few inputs

- China Number 1 producer
- Japan – specialized varieties



Fig.2. Process of powder production from colored sweetpotato

Global overview

Staple food and food security crop many places in Africa and South Pacific


- Per capita consumption of up to 100 Kg per year
- Many farmers' varieties






Cultivars

- 'Beauregard'- smooth, rose-colored skin, and orange flesh. It is early, typically ready to harvest in 90-100 days after planting, sometimes earlier. Baking and canning quality are good. Resistant to Streptomyces soil rot (pox) and Fusarium wilt. Earliness, good appearance, high yield and pox resistance-reason why the most widely grown variety in the country.



- 'Hernandez'- moderately smooth, orange-colored skin and a deep orange flesh. Typically ready to harvest 120 days after planting. Has a tendency to produce many small lenticels that look like pimples that when washed tend to turn black. Appearance can be poor because of this. Moderately resistant to Fusarium wilt, Streptomyces soil rot (pox) and to the southern root-knot nematode.




Cultivars

- 'O-Henry'- white-skinned, cream-fleshed variant of Beauregard. Season and disease resistance same as 'Beauregard'. Eating quality is similar to 'Beauregard', though the flesh is a little drier, but not as dry as some of the old white varieties. Because of its yield, earliness and pox resistance it is replacing some of the older white varieties.



- 'Japanese'- purple-skinned, cream-fleshed clone suitable for Asian markets. Has a high dry-matter content that cooks up dry but sweet. Eating quality for this type is very good. Ready to harvest around 120 days after planting. Yields are good for this type. Resistant to Fusarium wilt, but susceptible to Streptomyces soil rot (pox) and the southern root-knot nematode. Also susceptible to the russet crack strain of sweetpotato feathery mottle virus.



2008 Sweetpotato Collaborators Trial Entries

- Beauregard (B63)
- Beauregard (B14)
- Covington
- Evangeline
- L02-32
- Murasaki-29
- NC99-573
- NC Japanese

Planting Material

- Sweetpotato are vegetatively propagated by transplants (or slips) produced from previous years roots
 - Roots that are bedded can be saved from previous years crops or purchased. Certified seed from NC, LA, CA, K-State!
 - (www.ncsweetpotatoes.com)
 - www.jonesfarmsnc.com
 - www.bbproduce.com
 - Burch Farms of Faison, NC- double certified organic slips (919-921-1681)

Planting Material

- Small- to medium-sized roots placed in beds and covered with soil in mid-April
 - Keep moist
 - Increase temperature of bed by placing clear plastic over bedded roots
 - Remove plastic once transplants are observed
 - **Cut** plants once they reach ~ 6 to 8 leaves
 - Plants can be continually cut for about 6 weeks

Scaling up slip production



Scaling up slip production



Scaling up slip production



2008 (~300 bushels in store)
Beauregard
NC-Japanese

114,000 slips to 42 producers
~9.2 acres @ 12,500/acre

Buying slips can be a bit risky



Cultural Methods

- Planting
 - Raised beds with beds on ~3.5 to 5 ft centers
 - Plant 1 ft. apart in the row, increase percentage of number one roots by planting 2 rows per bed with 9 inches between offset rows (or plant 9" or closer in 1 row)
 - Most use vegetable transplanting machine
 - In most cases, need approximately 10,000 plants per acre
- Fertilization
 - Apply 50 lbs N 30 days after planting ('Beauregard')
 - Good nutrient scavenger
- Irrigation
 - Drought tolerant, once plants established
 - Moisture stress during root enlargement will

Sweetpotato should usually be planted on ridges

Bed made by bed shaper




Hipper or Disc hiller

Planting





Cultural Methods

- Pesticide Applications (See Midwest Guide for Commercial Vegetable Growers for Current Recommendations)
 - Few pests of sweetpotatoes in Midwest
 - Weeds most problematic
 - Grass herbicide (e.g., Select)
 - Broadleaves (Command), 1.5 pt/acre right after transplanting
 - Insects and diseases can also create problems
 - Wireworms and flea beetle larvae (Lorsban 15G at 13.5 lb/acre)
 - Diseases-like Scurf, Fusarium wilt, and

Weed control/cultivation – Liliston




A small selection of harvest implements






Cultural Methods

- Storage
 - Proper storage can allow growers to market sweetpotatoes year-round, as roots can be stored for 12 months
 - Prior to storage, cure roots 4-7 days at ~80 degrees F and ~90% RH
 - Then store at 60 degrees F and ~90% RH
 - However, for local market sales, target to sell all of product in fall for Thanksgiving and Christmas Holidays
 - Can sell without going through the curing process, referred to as 'Green'



Curing and Storage

Under a tarp in the barn - 2007
 In our Tekfoil-lined shed - 2008

Marketing


- Target local markets. But Whole Foods supermarket chains can be interested (Whole Foods)
- Great potential to add this easily grown, highly sustainable crop to a local market
- Consumer demand for this crop is great during the late fall holiday season

Marketing

- However, many consumers do not know (especially young consumers) how to prepare sweetpotatoes
- Market locally with recipes and the product to taste will probably increase sales

Sweetpotato Brownies

2 1/2 cups brown sugar
 1 stick melted margarine
 4 eggs, beaten
 2 cups cooked sweetpotatoes (mashed)
 1 cup self-rising flour
 2 tsp. corn starch
 2 tsp. vanilla
 Chopped nuts, optional



Combine sugar and margarine. Add eggs, dry ingredients, sweetpotatoes, and vanilla. Blend well. Fold in nuts (brownies are good with or without them) and pour into greased, 9"x13" pan. Bake at 425 degrees for 35-40 minutes. Cool, cut into squares.

Marketing

- Many consumers also concerned about nutritional value of food and the sweetpotato is one of the most healthy foods
- So, may be possible to increase sales with nutritional cards

Sweetpotato Nutrition

However you spell it or fix it, you couldn't ask for a healthier food for the price.

One sweetpotato contains potassium, iron, Vitamin B6, more Vitamin C than a tomato, and 100% of the daily requirement of Vitamin E. Best of all, the sweetpotato is high in beta-carotene, a form of Vitamin A that can reduce the risk of cancer. One sweetpotato (eaten with the skin on) has four times the daily requirement of beta-carotene, (equal to 23 cups of broccoli) and as much fiber as a bowl of oatmeal. All that value plus a fat-free, cholesterol-free, natural sweet taste for only 118 calories!

Purple sweetpotatoes – The new frontier (for K-State anyway)



Sweetpotato leaves as a green:

Nutritious, delicious but not all varieties are good. Look for non-fibrous, smooth tender shoots

Additional Info

- Extension lit from NC, LA, MS, AL, etc.
- K-State and MU bulletins available on the internet
- ATTRA bulletin on organic sweetpotato production.
- Don't hesitate to contact me: tcarey@ksu.edu