

# Transplanted Sweet Corn on Plastic



Timothy Coolong  
University of Kentucky

# Why would you ever.....

- Why would you transplant sweet corn
  - Poor germination in cool spring soils (esp. Sh2)
  - Organic farmers have low earworm pressure early
  - For direct marketing you can capitalize on high prices early in season
    - Produce auctions
    - Farmers markets



# Price Advantage

- Farmers markets in KY
  - July 2: Lexington \$7-8/dz or \$0.75/ear
  - July 2: Martin County \$6/dz
  - July 22: Lexington \$5-6/dz
  - July 22: Martin County \$3/dz
- Produce auctions
  - June 26: \$4.50/dz
  - July 22: \$2.80 dz



# Transplanting system

- Generally only done for first plantings
- In Central and East KY transplant the first week of April
- W. KY and TN transplant earlier (1 wk)
- Harvest good corn on June 17<sup>th</sup> in Central KY

# Growing transplants

- The most important part of this system
- Have a very narrow window for transplant production
- Affected by cell size, transplant age, maturity of corn

# Transplants

- Have a very short window for planting
  - Generally sweet corn with maturity times less than 72 days do not do well
- Had problems with growers having transplanted corn plants tasseling when 2 feet tall



# Transplants

- Plant two seeds per cell in a 128 cell tray
  - 256 plants per tray
- Using 200 cell tray can only plant one seed per cell
  - Using 200 cell trays may result in stunting if left in too long
- Recently tried bare-root transplants worked well

# Transplants

- Wanted to know if transplant age and variety interacted
  - Planted 6 varieties: Frisky (65), Temptation (72), Synergy (76), Montauk(79), Providence (80), and Cameo (84)
  - With 6 transplant times: 13, 15, 17, 20, 22, 24 days + direct seeding
  - Grew in E. KY and C. KY in spring and summer





Frisky

13,15,17,20,22,24



Temptation

13,15,17,20,22,24



Providence

13,15,17,20,22,24



# Height to tassel

Variety (mat)	Age of transplant	Avg. Height (inches)
Frisky (65)	24 days	19
Frisky	17	20
Frisky	0 (seeded)	42
Synergy (76)	24	21
Synergy	17	32*
Synergy	0 (seeded)	46
Providence (80)	24	36
Providence	17	43
Providence	0 (seeded)	59

# Grew transplants for 13, 15, 17, 20, 22, 24 days

Variety	Maturity	Transplant treatments with 7" ear
Frisky	65	-
Temptation	72	13, 15, 17
Synergy	76	13,15,17,20
Montauk	79	13,15,17,20,22
Providence	80	13,15,17,20,22,24
Cameo	84	13,15,17,20,22,24

**Transplant Age**



**Maturity**

# Days to harvest

- Days to maturity was affected by the transplant system, but more so for the longest maturing types
  - ie. Synergy still took 74 days *from seeding*
  - *But...* a 17 day old transplant was ready a couple of weeks earlier than the direct seeded treatment







# Transplant recommendations

- Do not transplant anything less than 72 days-
  - Quality really didn't get good until 76 day variety
- Do not keep transplants more than 20 days unless you are growing a late maturing variety
- Results were similar in East and Central Kentucky *and* spring and summer
  - Summer had taller plants and better yields

# Transplanting system

- Plastic mulch raised bed
- Double row with 12 inch in-row spacing
- Two plants per hole
- Plant population of about 28,000/acre
- Get 1 good ear/plant

# Spacing and ear yield

For two plants per hole on double rows we found that 12" in row spacing was preferred to 9" spacing

<b>Variety</b>	<b>Bed</b>	<b>Row</b>	<b>Nine-inch Spacing Ear Number</b>	<b>Twelve-inch Spacing Ear Number</b>
Incredible	A	1	916	1,006
Incredible	A	2	923	1,072
Incredible	B	1	943	1,032
Incredible	B	2	964	1,125
Serendipity	A	1	723	817
Serendipity	A	2	731	804
Serendipity	B	1	719	796
Serendipity	B	2	698	782

# Transplanting

**Plasticulture**



**Bare Ground**



Five days after planting



# Spacing





17 days after planting



# E. KY 17 days after planting



# Row Covers/low tunnels

- May be slit or just have holes
  - Can purchase photodegradable
  - Provide a few degrees (2-3 °F) of temperature protection from frost
  - Can get extremely warm during the day (>40 °F) warmer than ambient temperatures

# Row covers



# Row Covers/Low tunnels

- Mechanical application of row covers
  - Mechanical company makes a row cover and hoop layer
    - 2000' roll is \$92.00
    - Spring steel hoops \$28/100
    - Wire hoops \$41/100



# Hoop Layer



# Row covers



# Fertility

- Want to push the corn
  - 75 to 100 lbs N/acre preplant
  - 15-20 lbs N fertigation/week
  - Can be difficult with wet springs
- Problems with Zn deficiency
  - Soil is cool
  - Add 6-10 lbs Zinc sulfate to setter water (warm water)



# Zinc



# Considerations

- Other considerations with transplanted sweet corn include
  - Increased suckering on plastic
  - Increased chance of lodging
  - Double cropping the plastic
    - Most double crop plastic



# Suckering



# Overall

- Do not use an early maturing variety
- Do not hold transplants too long
- Successful for the right market



Thank you

