Transplanted Sweet Corn on Plastic

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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 17th 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
# Height to tassel

<table>
<thead>
<tr>
<th>Variety (mat)</th>
<th>Age of transplant</th>
<th>Avg. Height (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frisky (65)</td>
<td>24 days</td>
<td>19</td>
</tr>
<tr>
<td>Frisky</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Frisky (seeded)</td>
<td>0 (seeded)</td>
<td>42</td>
</tr>
<tr>
<td>Synergy (76)</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>Synergy</td>
<td>17</td>
<td>32*</td>
</tr>
<tr>
<td>Synergy (seeded)</td>
<td>0 (seeded)</td>
<td>46</td>
</tr>
<tr>
<td>Providence (80)</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>Providence</td>
<td>17</td>
<td>43</td>
</tr>
<tr>
<td>Providence (seeded)</td>
<td>0 (seeded)</td>
<td>59</td>
</tr>
</tbody>
</table>
Grew transplants for 13, 15, 17, 20, 22, 24 days

<table>
<thead>
<tr>
<th>Variety</th>
<th>Maturity</th>
<th>Transplant treatments with 7” ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frisky</td>
<td>65</td>
<td>-</td>
</tr>
<tr>
<td>Temptation</td>
<td>72</td>
<td>13, 15, 17</td>
</tr>
<tr>
<td>Synergy</td>
<td>76</td>
<td>13, 15, 17, 20</td>
</tr>
<tr>
<td>Montauk</td>
<td>79</td>
<td>13, 15, 17, 20, 22</td>
</tr>
<tr>
<td>Providence</td>
<td>80</td>
<td>13, 15, 17, 20, 22, 24</td>
</tr>
<tr>
<td>Cameo</td>
<td>84</td>
<td>13, 15, 17, 20, 22, 24</td>
</tr>
</tbody>
</table>
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

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

Pl asticulture

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