Watermelon Grafting

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Taxonomy

Cucurbitaceae

Scion

Watermelon: *Citrullus lanatus*

Rootstocks

Squash: *Cucurbita maxima*

  *C. moschata*

  *C. maxima* X *C. moschata*

Bottle Gourd: *Lagenaria siceraria*
History of Watermelon Grafting

- First record of cucurbit grafting, 5th century in China
- Commercial adoption in Japan
  1920s
- Spread throughout Asia
  1950s – 1960s
- Adopted in Europe
  1990s
- Studied in U.S.
  2000s
## Worldwide Watermelon Production Rankings and Grafting Percentages

<table>
<thead>
<tr>
<th>Country</th>
<th>Rank (2010)</th>
<th>% Grafted</th>
<th>Production Area</th>
<th>Grafted Plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1</td>
<td>20%</td>
<td>379,200 ha</td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>2</td>
<td>95%</td>
<td>138,400 ha</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>5</td>
<td>&lt;1%</td>
<td></td>
<td>30 million</td>
</tr>
<tr>
<td>Spain</td>
<td>12</td>
<td>50%</td>
<td></td>
<td>grafted plants</td>
</tr>
<tr>
<td>South Korea</td>
<td>13</td>
<td>95%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>27</td>
<td>95%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Israel</td>
<td>n/a</td>
<td>60%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>n/a</td>
<td>95%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Davis et al., 2008; Dervis et al., 2009; Isleyen et al., 2012; Lee et al., 1998)
Propagation
Grafting Techniques: One-Cotyledon Splice
Grafting Techniques: Approach
Benefits of Watermelon Grafting

- Improve fruit quality
- Increased vigor
- Tolerance to abiotic stress
- Disease resistance
Potential Problems and Thing to Consider

- Graft failure
- Rootstock regrowth
- Pathogen transfer during grafting
- Higher cost of propagation
- Demonstrating efficacy
Commercial Watermelon Grafting in China
Grafting Watermelon to Manage Verticillium Wilt in Washington State
Verticillium wilt severity (%) vs. Day after transplanting.

- SB
- SB (Emphasis)
- SB (Tetsukabuto)
- SB (Rampart)
- SB (Marvel)
- SB (Titan)
So, how to get your hands on some grafted watermelon seedlings

- Buy from a commercial supplier, or...
- Do it yourself!