Overview of the Vineland Series
Apple Rootstocks

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Presentation Overview

Vineland Series Apple Rootstocks

- Description
- Attributes
- Availability
Rootstock differences can be subtle but significant

Precocity, productivity, size control, disease resistance, cold hardiness, replant tolerance
The Orchard System Puzzle
(Barritt, 1992)
Vineland Rootstocks

Orchard and Vineyard Show, Traverse City, MI – Jan 21-22, 2009
Description

- Developed by Dr. Alec Hutchinson
- ‘Kerr’ applecrab x ‘M.9' rootstock
- Seven rootstocks in the series (‘V.1‘, ‘V.2’-‘V.7')
- Tested in 1980 (Washington, Ohio)
- Tested in 1994-2003 (NC-140)
- Tested in Simcoe 1997, 2002
- Tested in Manitoba and Edmonton (1997-)

Excluded V.5 and V.6
Tree size and cumulative yield of 10-yr-old Gala on 20 rootstocks

Yield

Trunk cross-section area (cm²)

10-yr cumulative yield (kg/tree)

G.30
V.2
M.9 Pajam 2
M.26 BMLA
M.9 Pajam 2
M.9 RN29
M.9 EMLA
O.3
M.9 Pajam 1
M.9 NAKB T37
B.9
Mark
B.469
P.2
B.491
V.3
P.16
M.2 EMLA
P.22
Mean tree size and cumulative yield for 10-Yr-old trees on various Vineland rootstocks

Tree size (Trunk x-sectional area, cm²)

Cumulative yield (kg/tree)

V.3  O.3  M.9  M.26  V.2  V.1  V.7  V.4

T337
Cumulative Yields

Honeycrisp
- No statistical difference among roostocks

Royal Gala
- V.1 – 190% of M.26
- V.3 – 161% of M.26
- Bud.9 - 118% of M.26
- M.9E – 107% of M.26
- C.G.16 – 190% of M.26

Shizuka (No statistical difference)
- V.1 – 118% of M.26
- V.3 – 78% of M.26
- Bud.9 - 107% of M.26
- M.9E – 101% of M.26
TCSA – 7 Years

Tree Growth

- Honeycrisp < Royal Gala < Shizuka

For Honeycrisp

- V.1 – 81% of M.26
- V.3 – 70% of M.26
- Bud.9 - 62% of M.26
- M.9E – 66% of M.26
TCSA – 7 Years

For Royal Gala
- V.1 – 98% of M.26
- V.3 – 78% of M.26
- M.9 – 66% of M.26
- Bud.9 – 64% of M.26

For Shizuka
- V.1 – 92% of M.26
- V.3 – 60% of M.26
- M.9 E – 60% of M.26
- Bud.9 - 67% of M.26

Orchard and Vineyard Show, Traverse City, MI – Jan 21-22, 2009
Dwarfing Characteristics of the Vineland Series Apple Rootstocks

Vigour as % of Standard

M.27  V.3  V.5  M.9E  M.26  M.7  V.4
V.6  B.9  V.2  V.1  V.7  MM.106
Other Attributes

- Cold hardiness
  - Demonstrated in Edmonton planting
- Fireblight resistance
  - Orchard (OHIO) and lab evidence
"Three Canadian rootstocks in the trials also showed strong survival rates. These included Ottawa 3, Vineland 1, and Vineland 3. “

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Commercially Available</th>
<th>Under Test</th>
<th>Will not be commercialized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree Vigor</td>
<td>V.1</td>
<td>V.5</td>
<td>V.4</td>
</tr>
<tr>
<td></td>
<td>V.2 M.26 size</td>
<td>V.6 M.9E Size or slightly smaller</td>
<td>MM.106-MM.111 Size</td>
</tr>
<tr>
<td></td>
<td>V.3 M.9E size or slightly smaller</td>
<td>V.7 M.7 Size</td>
<td>Not available</td>
</tr>
<tr>
<td>Availability</td>
<td>Cameron Nurseries</td>
<td>DNA Gardens, Elnora, Alberta</td>
<td>DNA Gardens, Elnora, Alberta</td>
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<tr>
<td></td>
<td>(cameronnursery.com)</td>
<td>(dnagardens.com)</td>
<td>(dnagardens.com)</td>
</tr>
<tr>
<td>Yield Performance</td>
<td>Similar or better than M.26</td>
<td>Similar to M.9E</td>
<td>Excellent, better than M.26E</td>
</tr>
<tr>
<td>Yield Efficiency</td>
<td>Similar or better than M.26</td>
<td>Similar to M.9E</td>
<td>Better than M.26</td>
</tr>
<tr>
<td>Features</td>
<td>Cold Hardy, displays fireblight resistant</td>
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</tr>
</tbody>
</table>

NA = not available (rootstock has not been tested)
Availability

- Commercial development by the University of Guelph and the Ontario Ministry of Agriculture.
- ‘V.1’, ‘V.2’ and ‘V.3’ have been licensed.
- More information is required to determine the suitability of commercializing ‘V.5’, ‘V.6’, and ‘V.7’.
- ‘V.2’ has been commercially released but has been difficult to propagate in the nursery, therefore it may have limited availability.
- ‘V.4’ will not be commercialized.
Further Information

- Contact the author (John Cline, Univ of Guelph)
- Dr. Stephen Bowley, Business Development Office, University of Guelph
  (www.uoguelph.ca/research/bdo/)
  Tel: (519) 824-4120 Ext 58704
NC-140 Regional Rootstock Research Project

Welcome to the NC-140 Regional Rootstock Research Project. The goal of these pages is to disseminate research information generated by pome fruit rootstock research projects throughout North America that are part of the NC-140 Regional Research Project. Additionally, the site offers NC-140 researcher and...
Current Plantings

2002 Peach Rootstock Trial (Scott Johnson)

2002 Apple Rootstock Trial (Wes Autio)

2001 Peach Rootstock Trial (Greg Reighard)

1999 Dwarf Apple Rootstock Trial (Wes Autio)

1999 Semi-dwarf Apple Rootstock Trial (Wes Autio)

1998 Cherry Rootstock Trial

- NC-140 Cherry Rootstock Pages
- Preliminary Performance of Hedelfingen Cherry on Ten Rootstocks in the 1998 NC-140 Cherry Rootstock Trial
- Preliminary Performance of Montmorency Cherry on Eleven Rootstocks in the 1998 NC-140 Trial

1998 G.16 Apple Rootstock Trial (Terence Robinson)

1994 Peach Rootstock Trial (Greg Reighard)

1994 Gala Dwarf Apple Rootstock Trial (Rich Marini)

1994 Gala Semi-dwarf Apple Rootstock Trial (Rich Marini)