

2010 Apple Rootstock Trial

November, 2010 -- Provo, UT

Wesley R. Autio & Terence Robinson



Data Collection & Transmission

A new trial was established in 2010 including several rootstocks with either Honeycrisp or Fuji as the scion cultivar. In preparation for the submission of 2010 data, all cooperators are strongly encouraged to follow the printed protocol for data format and submission at the bottom of page 2 of this report. See below for additional information on submission of 2010 data. Characteristics of this trial are given in the table on this page.

Data submitted for 2010 should include the number of root sucker per tree, trunk circumference at planting and at the end of the season, tree status in October, height of the graft union, and the number of side branches remaining after pruning at planting. Record all data as described in the protocol, and send it to Wes Autio via email and in spreadsheet format by **January 15, 2011**. For 2011, please see page 2 and 3 for recommendations regarding planting management and requirements for data collection.

To avoid problems during the compilation of the data, please pay particular attention to the following points:

- 1. Submit only the data requested.**
- 2. Use the correct units.**
- 3. Makes sure that all data make sense -- proofread your data set.**
- 4. For rootstock and replication designations, follow the protocol exactly -- rootstock names should appear as they are listed in the data submission protocol (the bottom of page 2) -- please note that there are no spaces in any of these names.**

Rootstocks, cultivars, and locations involved in the 2010 NC-140 Apple Rootstock Trial. Honeycrisp plantings are spaced 4'x12', and Fuji plantings are spaced 6'x14'. All trees will be trained to the Tall Spindle System.

Rootstocks	Honeycrisp sites	Aztec Fuji sites
B.9	BC	CHIH
B.10	CHIH	ID
B.7-3-150	CO	KY
B.7-20-21	IL	NC
B.67-5-32	IN	NY-HV
B.64-194	IA	PA
B.70-6-8	MA	UT
B.70-20-20	MN	
B.71-7-22	MI	
G.11	NJ	
G.41 N	NS	
G.41 TC	NY-G	
G.202 N	OH	
G.202 TC	UT	
G.935 N	WI	
G.935 TC		
CG.2034		
CG.3001		
CG.4003		
CG.4004		
CG.4013		
CG.4214		
CG.4814		
CG.5087		
CG.5222 (labeled CG.5202)		
PiAu 51-11		
PiAu 9-90		
Supp.3		
M.26 EMLA		
M.9 Pajam2		
M.9 NAKBT337		

Send 2010 data via email to Wes Autio (autio@pssci.umass.edu) by

January 15, 2011

Trial Protocol for 2011

Tree management.

- A. Trees must be supported and trained as Tall Spindles (see Pruning & Training Plan).
- B. Defruit all trees in 2011.
- C. Manage pests, nutrients, and water per local recommendations. Pay attention to weed control in this trial.

Collect the follow data for each tree in 2011.

- A. Root suckers: the number removed and counted, August.
- B. Trunk size: trunk circumference 30 cm above the graft union (mm), October.
- C. Status: 0=dead, 1=alive, and 2=missing data, October.

Data Submission Protocol

Submit data via email (autio@pssci.umass.edu) by **January 15, 2011**.

STATE		2010 Apple Rootstock Trial				DATA FOR 2010		
CULTIVAR	ROOT	REP	STATUS (see below)	Trunk circumference at planting (mm)	Side branches (>10cm) after pruning (no.)	Height of the graft union above the soil (mm)	Fall trunk circumference (mm)	Comments regarding trees which died during the season (those with status = 0)
Honeycrisp	B.9	1	1	X	X	X	X	
Honeycrisp	B.9	1	0	X	X	X	X	fireblight
Honeycrisp	B.9	1	1	X	X	X	X	
.	
.	
Honeycrisp	M.26EMLA	4	1	X	X	X	X	
Honeycrisp	M.26EMLA	4	3	X	X	X	X	
Honeycrisp	M.26EMLA	4	4	X	X	X	X	

Special requirements for this year's status assessment:

- 0 = died after it was clearly growing well
- 1 = alive
- 2 = considered to be a non-data tree because of human error (like tractor blight)
- 3 = planted but broke at the union before it was fully supported
- 4 = leafed out but quickly shut down
- 5 = never leafed out and began to grow

When a data point is missing, insert a period in that cell, but do not replace zeros with periods.

REQUIRED DATA FORMAT: Excel or Quatro Pro

Appropriate Rootstock Codes: (do not include spaces in the rootstock name)

B.9	G.11	CG.2034	PiAu51-11
B.10	G.41N	CG.3001	PiAu9-90
	G.41TC	CG.4003	
B.7-3-150	G.202N	CG.4004	Supp.3
B.7-20-21	G.202TC	CG.4013	
B.67-5-32	G.935N	CG.4214	M.26EMLA
B.64-194	G.935TC	CG.4814	M.9Pajam2
B.70-6-8		CG.5087	M.9T337
B.70-20-20		CG.5222	
B.71-7-22			

Pruning and Training Plan for the Tall Spindle System

1st Leaf	At Planting	Adjust graft union to 6" (15 cm) above the soil level. Remove all feathers below 24" (60 cm) using a flush cut. Do not head the leader or feathers. Remove any feathers that are larger than 2/3 the diameter of the leader leaving a stub.
	3-4" Growth	Rub off 2 nd and 3 rd buds below the new leader bud to eliminate competitors to the leader shoot.
	May	Install a 3- or 4-wire tree support system that will allow tree to be supported to 3 m. Attach trees to support system with a permanent tree tie above the 1 st tier of scaffolds, leaving a 2-inch diameter loop to allow for trunk growth.
	Early June	Tie down each feather that is longer than 10" (25 cm) to a pendant position below horizontal.
2nd Leaf	Dormant	Do not head the leader or prune the tree.
	3-4" Growth	Rub off 2 nd and 3 rd buds below the new leader bud to eliminate competitors to the leader shoot.
	Early June	Defruit trees in this trial.
	Mid June	Tie the developing leader to the support system with a permanent tie.
3rd Leaf	Dormant	Do not head the leader. Using a bevel cut, remove any overly vigorous limbs that are more than 1/2 the diameter of the leader.
	Late May	Chemically thin according to crop load, tree strength, and weather conditions. Follow up with hand thinning to appropriate levels to ensure regular annual cropping and adequate fruit size. (Target 50-60 fruits/tree)
	June	Tie the developing leader to the support system with a permanent tie.
4th Leaf	Dormant	Do not head the leader. Using a bevel cut, remove any overly vigorous limbs that are more than 1/2 the diameter of the leader.
	Late May	Chemically thin, and then follow up with hand thinning to appropriate levels to ensure regular annual cropping and adequate fruit size. (Target = 100 fruits/tree)
	June	Tie the developing leader to the support system with a permanent tie.
Mature Tree	Dormant	<ol style="list-style-type: none"> 1. Limit tree height to 11.5' (3.6m) by annually cutting leader back to a weak fruitful side branch. 2. Annually, remove at least 2 limbs, including lower tier scaffolds, that are more than 3/4" in diameter using a bevel cut. 3. Simplify each remaining branch on the tree so that it is columnar with no major side branches. 4. Shorten branches that extend into the row to facilitate movement of equipment and preserve fruit quality on the lower limbs.
	Late May	Chemically thin, and then follow up with hand thinning to appropriate levels to ensure regular annual cropping and adequate fruit size. (Target = 120-150 fruits/tree)
	August	Lightly summer prune to encourage light penetration and maintain pyramidal tree shape.