

# 2002 Super Spindle Apple Planting

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In 2002 an apple block with 19 cultivars and 5 rootstocks was planted and trained to the super-spindle (SS) or vertical-axis (VA) systems in a non-replicated design at the UMass Cold Spring Orchard Research & Education Center (Orchard Block B3). Tree spacing is 2 X 12 ft (SS) or 4 X 12 ft (VA). A sub-set of the trees is part of an NC-140 planting (See the Winter Issue of Fruit Notes, 2005). This planting is mostly replicated

at the Snyder Research and Extension Farm in Pittston, New Jersey, and is a collaborative effort with Win Cowgill of Rutgers Cooperative Research and Extension. Details of the planting are outlined in Table 1. Objectives are to evaluate yields, fruit quality, and inputs of the super-spindle apple system to see if it makes sense for New England and Northeast growers. In 2004, yield data and some fruit quality data were

Table 1. Planting details of the 2002 Super-spindle Apple Planting, UMass Cold Spring Orchard, Belchertown, MA

Cultivar	Rootstock	No. trees	Spacing (ft)	Trees/acre	Training <sup>z</sup>
Braeburn, Joburn	B.9	30	2 X 12	1,815	SS
Cameo	B.9	20	2 X 12	1,815	SS
Cameo	M.9 NAKBT337	20	2 X 12	1,815	SS
Cameo	G.16	20	2 X 12	1,815	SS
Cameo	B.9	10	4 X 12	908	VA
Cameo	M.9 NAKBT337	10	4 X 12	908	VA
Cameo	G.16	10	4 X12	908	VA
Cortland, Redcort	M.9 Pajam 2	30	2 X 12	1,815	SS
Empire, Royal	B.9	30	2 X 12	1,815	SS
Fuji, Autumn Rose	B.9	30	2 X 12	1,815	SS
Fuji, Desert Rose	B.9	30	2 X 12	1,815	SS
Gala, Brookfield	M.9 NAKBT337	30	2 X 12	1,815	SS
Gala, Buckeye	G.16	30	2 X 12	1,815	SS
Gala, Buckeye	M.9 NAKBT337	30	2 X 12	1,815	SS
Golden Delicious, Gibson	B.9	30	2 X 12	1,815	SS
Golden Supreme	M.9 Pajam 2	30	2 X12	1,815	SS
Goldrush	M.9 RN29	30	2 X 12	1,815	SS
Granny Smith	G.16	30	2 X 12	1,815	SS
Honeycrisp	B.9	30	2 X 12	1,815	SS
Jonagold, Morren's Supra	B.9	30	2 X 12	1,815	SS
Lindamac	M.9	20	4 X 12	908	VA
Macoun	M.9 RN29	30	2 X 12	1,815	SS
McIntosh, Redmax	B 9	30	2 X 12	1,815	SS
Mutsu	M.9-RN29	30	2 X 12	1,815	SS
Suncrisp	B.9	30	2 X 12	1,815	SS

<sup>z</sup>VA = Vertical Axis; SS = Super Spindle

Table 2. 2004 harvest date, fruit quality characteristics, and yield of the 2002 Super-spindle Apple Planting, UMass Cold Spring Orchard, Belchertown, MA

Cultivar	Harvest date	Diameter (in)	Color (% red)	Firmness (lbs)	Sol solids (%)	Starch index	Yield (40 lb box)	Yield per acre (40 lb box)
Lindamac	2-Sept	3.3	95	14.3	13.5	4.5	5.5	250
Buckeye Gala	7-Sept	2.9	95	18	13	4.5	4	240
Golden Supreme/	7-Sept	3.2	NA	17.2	12	2.9	1.5	90
Redmax McIntosh	7-Sept	3.1	85	14	13	5.1	5.5	330
Buckeye Gala/M.9	7-Sept	2.9	95	18	13	4.5	4	240
Brookfield Gala	8-Sept	3.0	90	17.6	13	5	4	240
Honeycrisp	10-Sept	3.6	50	14.5	15	6	4	240
Buckeye Gala/G.16	15-Sept	2.9	100	18	13.5	5.3	2	120
Brookfield Gala	15-Sept	2.8	80 striped	19	14	5.5	1	60
Honeycrisp	16-Sept	3.6	45	13	15	6.9	0.5	30
Macoun	24-Sept	3.5	70	14.7	13.5	3.3	5	300
Morren's Jonagold	24-Sept	3.4	65	14	13.8	6	4	240
Royal Empire	27-Sept	3.1	95	16.7	14.8	4.1	3	180
Cameo	4-Oct	3.2	50 striped	15	14	4	12	360
Gibson Gold. Del.	5-Oct	3.3	yellow	15.2	16.4	6.1	0.5	30
Mutsu	7-Oct	3.7	green	16.6	15	4	5	300
Cameo	11-Oct	3.0	55 striped	17	14	4	9	270
Suncrisp	14-Oct	3.4	10-50%	16.3	15.8	4	5	300
Desert Rose Fuji	14-Oct	3.0	85	17.1	14	4.9	3	180
Autumn Rose Fuji	14-Oct	3.0	80	17.7	14.6	4.9	3	180
Suncrisp	20-Oct	3.1	25	13.2	14.5	5	1	60
Joburn Braeburn	28-Oct	3.0	90	19.6	13.8	3.5	3	180
Goldrush	28-Oct	3.2	yellow	19.9	14.8	4	4	240

collected on harvested fruit. Results are presented in Table 2. Yields were impressive – as high as 340 boxes per acre (in third leaf). Although the cost of establishing such an orchard is high, early returns quickly offset some of the costs. As the planting matures, we will have a better idea if it is a viable orchard system for our growing conditions.

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