MOPUP-The Massachusetts Orchard Production Upgrade Program and what we have learned about planting and managing tall-spindle orchards

Jon Clements
University of Massachusetts Amherst
UMass Cold Spring Orchard
393 Sabin St., Belchertown, MA 01007
clements@umext.umass.edu

Massachusetts apple orchards have a long history of providing locally grown fruit, and a visit to an apple orchard is a fall tradition for many residents. But, increased land prices, development pressure, difficulty finding labor, and higher costs of fuel, fertilizers, and crop protection chemicals mean that Massachusetts apple growers must adopt new technologies to remain profitable so that the benefits of locally grown food and open space preservation provided by Massachusetts orchards can be sustainable.

Unfortunately, however, with a statewide production average of just two hundred 40 lb. bushels of apples per acre in 2006 (NASS, 2006), Massachusetts apple growers may not be production-efficient enough to remain sustainable and truly profitable. In fact, and admittedly for more than one reason, from 1997 to 2002 apple orchard acreage has declined by 20% in Massachusetts. The need to adopt new orchard production technologies that will improve production, profitability, and pest management efficiency is an increasing necessity. For example, the 'tall spindle' apple production system which utilizes high tree densities on dwarf rootstocks and minimal pruning is capable of producing 700-800 bushels of high quality (McIntosh) fruit in the 4th leaf (four years from planting) and may be the most profitable system for Massachusetts apple growers. (NYFQ, 2006.) But, the high cost of planting a new tall-spindle apple orchard – upwards of $17,000 or more per acre – has been a significant barrier to Massachusetts growers who may be unwilling to take the risk to be 'early adopters.'

The MFGA (Massachusetts Fruit Growers' Association) Massachusetts Orchard Production Upgrade Program (MOPUP) proposed that the Massachusetts Dept. of Agricultural Resources Agriculture Innovation Center help ten competitively selected, progressive apple grower/members (five in 2008, five in 2009) with the cost of planting, establishing, and maintaining one acre each (app. 10 rows, 400 feet long) of modern, high-density, 'tall spindle' apple orchard. MOPUP purchased trees, which are the single greatest expense in establishing a new high-density orchard or replacing an existing one, and provided some funds for technical support and outreach. Selected growers supplied labor, support system, irrigation, and deer fence (where necessary) as a match, plus pay a nominal administrative fee to MFGA to participate. Technical advice on establishing and managing the tall spindle apple orchard is provided by UMass. In addition, MOPUP growers are asked to keep records on labor, material costs, pesticide applications, and production history for five years so that profitability (net gain, loss) can be measured. Such production records will be compared to more common 'semi-dwarf' orchards to see if fruit can be more economically produced and if pesticide use per unit of fruit production can be reduced. If true, then apple growers can realize both economic and environmental benefits.

The overall objective over five years will be to demonstrate whether the tall-spindle apple orchard is both profitable and can reduce inputs – including pesticides and labor – per unit of fruit production in Massachusetts orchards. These orchards will be 'case studies' for other growers to observe and evaluate. The orchards will be open by appointment and used as backdrops for various outreach activities, including fruit Extension twilight meetings and industry orchard tours. Publication of results and observations will be in 'Fruit Notes' (UMass Extension) and other regional fruit publications and newsletters.

References

NASS 2006. National Agricultural Statistics Service, Non-Citrus Fruits and Nuts Summary 2006, USDA National Agricultural Statistics Service.

NYFQ 2006. The Tall Spindle Apple Production System. York Fruit Quarterly, Vol, 14, No, 2, 2006.