Establishment of a Research Apple Orchard in Southern New Jersey

Norman Lalancette and Kathleen McFarland
Agricultural and Extension Center, Rutgers University

A research apple orchard for plant pathological studies will be planted at the Rutgers Agricultural Research and Extension Center (RAREC), Bridgeton, New Jersey. The following report summarizes activities to date. Partial funding for the orchard is being provided by the New Jersey State Horticulture Society.

Ground Preparation

The location designated for the new apple orchard had been previously occupied by a 'Jerseyglo' peach block planted in 1997. This orchard was removed in spring/summer of 2009. The trees were taken to another location on the research farm for drying and burning. After cultivation, the land was deep chisel plowed to aid the break up and decay of any remaining peach roots. The soil type is an Aura sandy loam, very low in organic matter.

Green Manure / Nematode Control

During October of 2009, a 'Dwarf Essex' rapeseed cover crop was planted in the block. After fall 2009 and early spring 2010 growth, this crop was plowed under. A second rapeseed cover crop was planted late spring 2010, which grew through the summer, eventually being plowed under in September 2010 (Figures 1 & 2).

The purpose of the rapeseed was three-fold. First, rapeseed plants produce long tap roots that can extend several feet into the ground. Upon plowing, these roots and top growth help provide much-needed organic matter for the sandy soil; on heavy soil, the organic matter can help maintain soil structure. Second, upon decay, the rapeseed gives off a natural fumigant that has been shown to kill many resident nematodes. Since similar nematodes species attack both peach and apple, it made sense to use a cover crop that could provide both green manure and

Figure 1. Spring 2010 view of fall 2009 rapeseed cover crop planted on future apple site. Orchard in background is 'Redgold' nectarine.

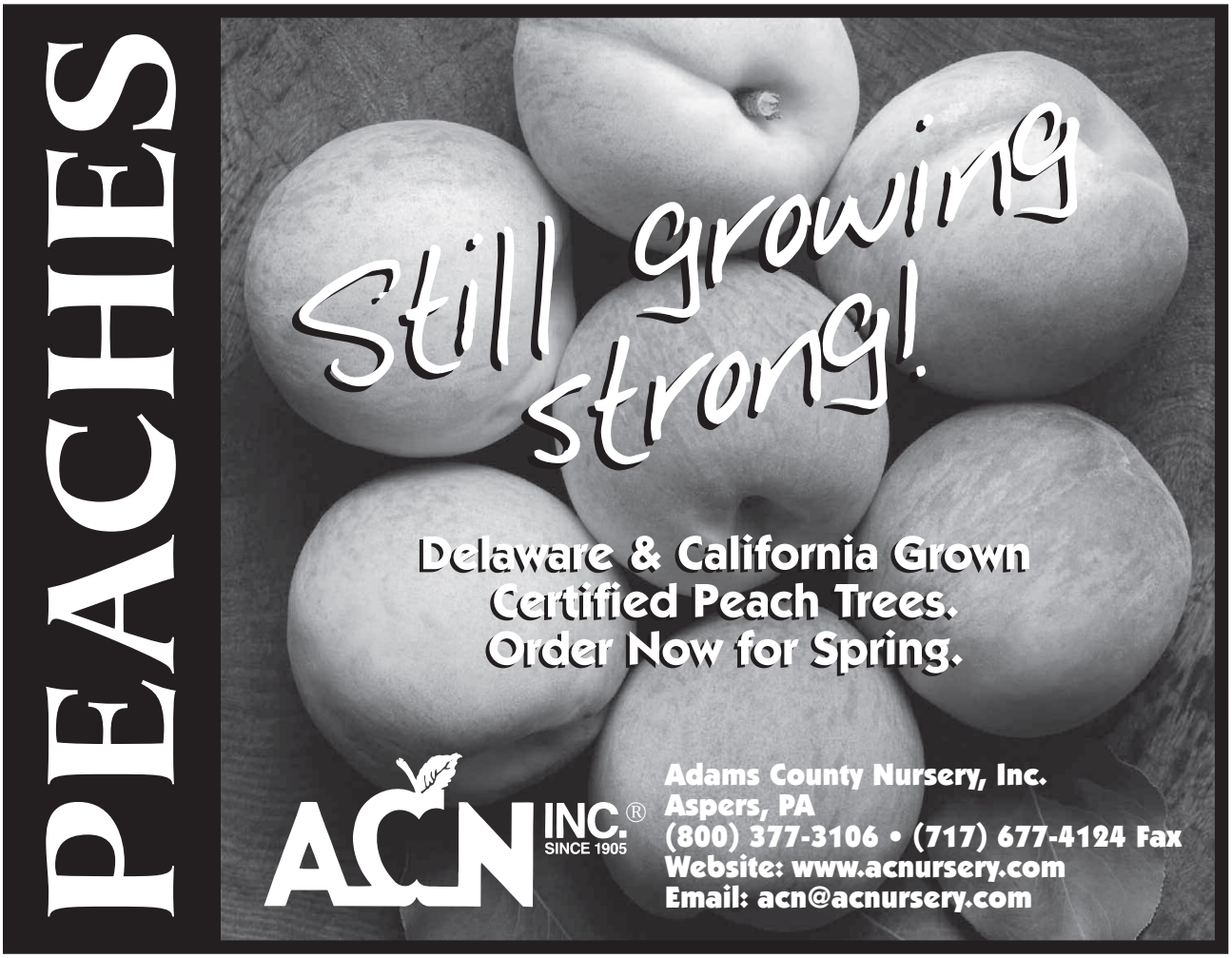
Figure 2. Close-up view of a flowering rapeseed plant. Cultivar used and recommended was 'Dwarf Essex'.

nematode control.

The final purpose of the rapeseed was to act as a demonstration plot for growers. This block was shown during the June 22, 2010 RAREC Fruit and Wine Grape Tour. Dr. John Halbrendt, visiting nematologist from Penn State, gave an excellent presentation of the details of using rapeseed as a green manure / natural nematicide. In prior years at Penn State, he researched the use of rapeseed for pre-plant nematode control in orchards.

Sod Establishment

During October 2010, the turf-type tall fescue cultivar 'Rebel Exceda' was planted over the entire block. This grass variety was previously planted in a peach orchard and has provided a very thick, droughttolerant sod for the orchard middles. As with all fescues, very little nitrogen fertilizer is needed and irrigation has not been required.

Future Work

In spring of 2012, the block will be planted with at least three different apple cultivars susceptible to a wide variety of apple diseases. Subsequent reports on the establishment of this block will be provided at later dates.