



Case Study I - A Citrus grove in Zephyrhills

A total of about 40 acres of Hamlin , Valencia , Minneola, and grapefruit for the fresh fruit market were planted on Arredondo fine soil in the Zephyrhills area in 1992. The grove rows were planted in an East-West orientation with 25 feet between them.

Every 5th row was omitted and planted with a parallel double row of slash pine trees planted 4 x 8 feet in 1991 ([Fig. 1](#)). Thus, there was a windbreak every 125 feet ([Fig. 2](#)). In 1992, the citrus trees were planted along with southern red cedar trees that were planted inside the double row of pines and adjacent to the northern pine tree row ([Fig. 3](#)). No North-South windbreaks were planted except at the ends of the 1,000-ft citrus rows ([Fig. 4](#)). Neither the windbreak trees nor the citrus have been irrigated since planting.

The owner planted the windbreaks for cold and canker protection. In 2006, the citrus trees looked healthy and were a good size for their age despite not being irrigated. The pine trees were about 60 feet tall and the red cedars about 50% to 75% of that height. Shading of the citrus trees by the windbreak appeared to be minimal in April ([Figs. 5](#) and [6](#)).



Fig. 1. Looking west along the south side of a windbreak row in April 2006.



Fig. 2a. Looking south at the end of the citrus and windbreaks rows in mid-morning, April 2006.



Fig. 2b. Looking north at the end of the citrus and windbreaks rows in mid-morning, April 2006.



Fig. 3. Close-up view of a windbreak row showing two rows of pines planted 4 x 8 feet with a later-planted row of southern red cedar adjacent to the left-hand pine row. Notice the layer of pine needles that apparently is an effective mulch for weed control.



Fig. 4. Looking south perpendicular to the citrus and windbreak rows.



Fig. 5. Looking east along the north side of a windbreak row. Notice the extent of shading at about 2 p.m. in April 2006.



Fig. 6. Looking west along the north side of a windbreak row. Notice the extent of shading at about 2 p.m. in April 2006.