Executive Summary:

A design for an automatic tree slip feeder for the EPS six-row slip planter has been built and tested in the EPS shop. The tree slips are unrooted cuttings 10 in. long and 5/16 to 3/4 in. diameter. The automatic slip feeder will replace the six people that feed the hoppers on the planter with one person that feeds six automatic slip feeders as the planter proceeds along the field. Testing in the shop showed that the prototype is successful. Successful utilization of the automatic tree slip feeding function of the planter will substantially reduce the labor requirements involved in planting unrooted tree slips, providing an important option for situations where obtaining field labor can be difficult and also reducing the amount of human error associated with performing a highly repetitive function. The automatic slip feeder can readily be integrated into the EPS slip planter and powered by the existing EPS tractor.

Technical Progress for Milestone 16

16a. Completion of automatic slip feeder for planter

The six-row tree slip planter under development by EPS is described in Milestones 4, 5 and 11 and shown in Figure 1 below. The planter is pulled by a tractor and is designed for no-till planting. Tree slips are injected at the rate of one slip every 1.5 seconds per row on 5 ft centers guided by GPS. The slips are unrooted cuttings 10 in. long and 5/16 to 3/4 in. diameter. The phase 1 design requires six people to feed slips into the hoppers at the rate of one per 1.5 seconds. The goal of the automatic slip feeder is to replace the six people with the six automatic slip feeders. This milestone describes the development of the novel slip feeder.
Based on the test results of the prototype design, the automatic slip feeder for the EPS slip planter is feasible and quite promising. Successful utilization of the automatic tree slip feeding function of the planter will substantially reduce the labor requirements involved in planting unrooted tree slips, providing an important option for situations where obtaining field labor can be difficult and also reducing the amount of human error associated with performing a highly repetitive function.

16b. Update of planter design drawings, installation and testing of the planter

The slip feeder replaces the seat on the planter and is mounted by the feeder shaft to the strut holding the seat. The integrated six-row planter-tractor unit requires one operator in the field.

16c. Lease of tractor for slip planter testing

EPS purchased a tractor in 2006 that fully meets the needs of the slip planter.

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Figure 1. EPS six-row tree slip planter.