

Slip Plow Tillage Effects in Almonds

John P. Edstrom
UCCE Farm Advisor

Expansion of orchard plantings in California has exhausted the supply of prime orchard ground forcing new plantings onto poorer soils. These are often characterized by stratified layers of clay, hardpan or gravel and shallow topsoil.

To overcome soil limitations, substantial new almond acreage has been established using deep tillage slip plows at considerable expense - \$300-500/acre. At the same time, adoption of microirrigation has allowed growers to supply tree roots with a more optimal and continuous supply of moisture. Soil physical characteristics have to some extent been overcome by the use of microirrigation, especially under close tree spacings.

A large scale field trial at the Nickels Soil Lab in Arbuckle is evaluating the effects of slip plow soil modification on three varieties of almonds: 'Nonpareil', 'Carmel' and 'Aldrich' planted in 1997 at 16' X 22'. Prior to planting, replicated areas of this 20 acre block received a commercial slip operation on a 10 foot grid to a depth of 6 feet in a north/south direction and with a diagonal pass (SE-NW) to a 5 ft. depth. The planting receives irrigation via microsprinklers. Trees are planted to Lovell and peach almond hybrid rootstocks.

Results

Tree performance for 'Nonpareil' between slipped and non-slipped areas was evaluated by measuring tree height and trunk size, and by determining crop yield. This year's data represents the first commercial harvest. Yield data shows no statistical difference between slip and non-slip areas, 7.6 lbs./tree vs. 7.2 lbs./tree respectively. Measurements taken 10/2000 (3 years + 7 months after planting) reveal no differences in either trunk circumference or tree height. To date, there are no detectable differences between trees planted in slip plowed and non slip areas.

NICRAC SP rpt00 a