ALTERNATIVE TILLAGE IN JEFFERSON COUNTY, FLORIDA

Larry A. Halsey and Phil Worley

Pine Seedling - No Ti1 Site Preparation Demonstration

A significant portion of the pine timber and pulpwood industry in North Florida is on farm land. Private landowners receive technical assistance from the Florida Department of Agriculture, Division of Forestry, as well as the County Cooperative Extension Service.

It is estimated that in Jefferson County 20% of the acreage planted in relatively small blocks by private landowners is on abandoned sod or pasture. Various methods of conventional site preparations are employed, including plowing and discing, roto-tilling, or bedding. All constitute a significant portion of the total cost of planting pines. Seedlings occasionally are planted in sods with no mechanical preparation. Pines planted directly in sod or in poorly prepared sites must compete with extensive grass root systems for moisture and nutrients during establishment and early growth years.

The Forester and the County Extension Director initiated a demonstration "no-till" pine seedling block to determine if chemical site preparation would eliminate a number of the production problems associated with conventional methods.

Together with Kent Frost, Product Development Specialist of Monsanto, and landowner Ferd Naughton, a 1.25 acre site was selected for the demonstration. The site was an abandoned Pensacola Bahiagrass pasture. Roundup (glysophate) herbicide was applied at 3 pounds active ingredient per acre (broadcast basis) over 4 foot strips on 12 foot middles on October 22, 1979. Seedlings were transplanted in the herbicide treated strips on 12' x 5' spacings on January 29, 1980. Spring regrowth of the sod was uniform in the untreated middles between treated strips. Perennial grass control under the treatment approached 100%, with virtually no regrowth. Germination of spring annual weeds in the strip was observed. As of the middle of April, following the January planting, a preliminary estimate of seedling survival was 97%.

The site was established on small acreage for observation only. On the basis of the apparent effectiveness of this chemical site preparation methods, a follow-up trial on 8-10 acres is anticipated in fall and winter of 1980-81. Side-by-side plantings under conventional site preparation and Roundup treatment will be conducted. The following data will be compiled in the experiment: 1) Comparative fuel consumptions of the various techniques; and equipment, material, labor, and other costs for accurate budget comparisons. 2) Penitrometer comparisons

---

Larry Halsey is County Extension Director, Jefferson County, Cooperative Extension Service, IFAS, University of Florida. Phil Worley is County Forester, Jefferson County, Division of Forestry, Florida Department of Agriculture and Consumer Services.

of the various site preparations methods, as an index of the ease of entry of the coulter of the seedling planter unit. 3) Growth characteristics at various intervals following planting, as well as survival and mortality counts. 4) Observations of root systems of sample seedlings under each of the various preparation methods.

Assumed advantages of the "no-til" or chemically prepared site include reduction of cost of site preparation, better survival and early growth due to reduced competition for nutrients and moisture, and reduced erosion and pollution from runoff due to the mulch cover. It should be noted that the Roundup label for use does not include this specific application. The trial is being conducted in cooperation with Monsanto Company representatives for experimental use only.

Minimum Tillage in Row Crops

During 1978, 135,163 acres of cropland on 2,135 farms in the United States were assisted through cost share practices involving conservation tillage systems (SL9) under the Agricultural Stabilization and Conservation Service (USDA-ASCS). In Florida, 1978 acreage totaled 535 acres on three farms. In 1979, 37 farms received cost-share assistance under Agricultural Conservation Program (ACP) totalling 2,182 acres to demonstrate minimum or reduced tillage systems in farming. Jefferson County growers are receiving cost-share on 5 farms with over 320 acres in 1980, for minimum tillage demonstrations, with total acreage in non-conventional planting or tillage at 3-4,000 acres,,

Jefferson County is located along the Florida-Georgia border. Farm land is gently sloping to hilly, with predominate soil type of Ultisols, with sandy to loamy sand textures of 6.5-8% clay fraction and 2-4% organic matter. Corn, soybeans, peanuts, tobacco and small grains for seed and forage are the main agronomic crops. Up to 25,000 acres of small grains or small grains with clover are planted annually for winter and spring grazing. Corn and soybean crops often are planted behind winter annual pastures. Corn under better than average high yield management yields 80-85 bu/A; soybean yields of 30-33 bu/A are normal. Both crops are planted under minimum tillage; however, a yield history using reduced tillage is unavailable.

Various alternative planting and tillage systems are currently being employed, from strict "no-til" planting in rye or oats in an absolute "once over" operation to discing once or twice prior to planting with no-ti1 equipment. Reduction of erosion, reduction of time spent in planting, reduction in fuel consumption and increased moisture availability during droughty periods around corn tassle and silking stage are most often referenced by farmers using reduced tillage methods as justification for employing the systems. Farmers are assisted in alternative tillage techniques by the ASCS, the Soil Conservation Service, and equipment and chemical suppliers.