

# MONITORING AND ASSESSMENT OF TREE ESTABLISHMENT IN THE WETLAND RESERVE PROGRAM IN THE LOWER MISSISSIPPI ALLUVIAL PLAIN

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## POSTER SUMMARY

Reforestation of marginally productive agricultural fields has been aided by cost-share programs, including the Wetland Reserve Program (WRP), administered by the U.S. Department of Agriculture, Natural Resources Conservation Service. Mississippi was chosen as a pilot State charged with implementing WRP in 1992. Reforestation efforts were emphasized under WRP. The introduction of hard mast species was a main goal. In particular, the hard mast species highlighted were oaks. Oak species introduced on these tracts included Nuttall oak (*Quercus nuttallii* Palmer), willow oak (*Q. phellos* L.), water oak (*Q. nigra* L.), cherrybark oak (*Q. pagoda* Raf.), and overcup oak (*Q. lyrata* Walt.). Sawtooth oak (*Q. accuminata* Carruth.) was planted along with Nuttall oak on one tract, although sawtooth oak was not on the WRP approved species list. However, no sawtooth oak seedlings survived. Seedlings [oaks, green ash (*Fraxinus pennsylvanica* Marsh.), water hickory (*Carya aquatica* Michx.), and baldcypress (*Taxodium distichum* L.)] were planted on a 12- by 12-foot spacing at a rate of 302 trees per acre. Direct seeding (sowing) was at a rate of 1,210 acorns per acre on a 12- by 3-foot spacing at a depth of 2 to 4 inches. Both machine and hand planting were used. No postreforestation weed control was used.

A survey of tree species established on 1992 WRP contracts was conducted in late fall of 1996. The average growing time of the planted seedlings or acorn germinants was 31 months. Forty-seven 0.01-acre plots were systematically placed in each tract of land enrolled in WRP in 1992. All trees listed on the Mississippi WRP approved species

list were counted and identified by species. The successful establishment criterion modified for Mississippi WRP was 100 trees per acre.

Out of the 9,387.7 acres reforested, 8,800.4 acres were direct seeded with different species of oaks, and 587.2 acres were planted with 1-0 stock bare-root seedlings of oak and other species. At the time of the survey, 137.0 acres of the total 587.2 acres that were planted with seedlings had an average of 100 trees per acre (23 percent), and 739 acres of the total 8,800.4 acres that were direct seeded had an average of 100 trees per acre (8.4 percent). Fifteen percent (7/47) of all tracts were successfully reforested.

For both oak and all tree species, seedling survival was significantly higher than acorn germinant survival. Acorn-germinant survival assessments showed that acorns sown in January had significantly greater survival than those sown in March. Survival of planted seedlings did not differ by month planted. Seedling planting occurred either in January or March.

It was not possible to determine the exact reason for such low survival rates. Our limited experience in restoring forested wetlands has demonstrated that restoration is often unpredictable, of variable or unknown cost, and of uncertain stability. Reforestation is a long-term undertaking, a continuous process. We need to use up-to-date information in order to develop reforestation plans that best meet the site needs, thus increasing our chances of success.

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