

EVALUATION OF COMMON SILVICULTURAL PRACTICES ON THE SURVIVAL AND GROWTH OF WILLOW OAK (*QUERCUS PHELLOS*) ON OLD FIELD AGRICULTURAL SITES

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Due to their timber and wildlife value, oak species are desired for bottomland hardwood restoration and are a desirable species for afforestation of old field agricultural areas. However, establishment efforts for oak species on old field restoration sites have varied in success. Survival and growth of planted oaks are typically critical indices used to evaluate success of ecological restoration efforts. In order to evaluate techniques that could potentially enhance oak survival and growth, this study was implemented to evaluate five mechanical site preparation techniques (mound, bed, rip, disk, pit), four types of planting stock (gallon, tubeling, bare root, direct seed), and three planting aids (mat, tube, none) on survival and growth of willow oak (*Quercus phellos*) planted on an old field riparian area in the Piedmont of Virginia. Mounding mechanical site preparation techniques had over 25 percent greater survival, 75 percent greater tree height, and over 20 percent greater groundline diameter compared to disking, ripping, and bedding. Bare root and gallon planting stock survival rates exceeded 80 percent, and gallon or bare root planting stock and growth indices outpaced direct seed and tubeling stock by 75 percent. These treatments may increase the economic incentives for ecological restoration and make restoration efforts in marginal old field areas more attractive to landowners.

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