



TEXAS A&M FOREST SERVICE

Reforestation: 3-in-1 Plow for Site Preparation

The 3-in-1 combination plow is primarily used on cutover or complete harvest tracts that contain large amounts of logging slash or small undesirable stems. This method of site preparation is extremely beneficial in low-lying areas or in areas that remain dry during most of the year. The four rotating disks located directly behind the subsoiler (ripping blade) cultivate a planting bed 12 inches above the normal ground level promoting root development. In wet, low-lying areas, this elevated bed prevents seedling mortality due to being submerged in water for extended periods of time. These cultivated beds also increase the soil's water holding capacity in excessively dry areas which allows for increased water uptake through the seedling's root system.

Description:

The 3-in-1 plow cultivates, fractures, subsoils and beds the soil. The plow is most commonly pulled with a large crawler tractor that is equipped with a V-shear blade. The V-shear blade is used to push large debris to either side and shear stumps and residual non-merchantable trees. The combination plow contains a coulter wheel that cuts through pre-existing roots and stumps approximately 10 inches deep. The subsoiler follows the coulter wheel and fractures the soil 24 to 28 inches deep breaking any soil compaction that exists. Finally, the rotating disks cultivate the soil creating a planting bed approximately 12 inches above the ground level. This practice is usually applied between late-July and early-November allowing adequate time for the beds to settle.

Benefits:

Results from this practice will vary depending on the site's soil texture and water holding capacity. Most soils treated

by this method will show an increased growth rate to varying degrees. The planting beds concentrate nutrients and water while the loosened soil beneath the beds allows for increased root expansion and development. The combination of these two benefits will increase seedling survival and growth on most any site, especially those more susceptible to soil compaction. This practice may result in a shortened rotation for pine stands allowing landowners the option of harvesting pulpwood and sawlog class material at a younger age. Shorter rotations should result in faster returns from the initial investment for landowners.

Other Recommendations:

This practice is not recommended on deep sands due to the coarse texture of these soils and low susceptibility to compaction. Following the planting operation, it is usually recommended that a herbaceous weed control spray be applied. All Best Management Practices guidelines regarding site preparation should be followed and beds should be constructed along the contours of the land to minimize erosion hazards.

