Reforestation: Spot Tillage for Site Preparation

This is one of the newest operations available for site preparation. It is perhaps best suited for urban forest situations, horticultural applications or in areas with steep slopes and other obstructions. However, there are limited areas where these treatments can be applied. Slopes over 20%, frequent gullies, high residual stumps and excessive harvest debris, all inhibit the use of tractor-mounted or trailing equipment. Spot tillage is noncontiguous cultivation of the soil in the exact "spot" where the tree will be planted. Spot tillage causes the least amount of site disturbance, and works in heavy debris areas.

Description:

Spot Tillage is accomplished by the use of a heavy track excavator that is fitted with an articulating arm. Cultivator disks (tillers) are mounted to the arm and turn at slow speeds and high torque. It can mix up logging debris and topsoil within one small diameter spot (4-5 foot diameter) up to 24-36 inches deep at a time creating a favorable micro site for the seedling. Spot tillage should break a minimum of 20-24 inches of soil and should be done at least 3 months prior to planting to allow enough time for the soil to settle. Following this operation, hand planting of seedlings can then be easily conducted.

Benefits:

Spot Tillage is ideal for establishing trees on steep terrain as work can be done either up or down a slope. Erosion is minimized because harvest debris is left on the site as mulch and there is less site disturbance. Also, problems of compaction are addressed, with full cultivation possible to a depth of nearly three feet. The simplicity of the design makes it easy to add treatments like fertilizer and herbicide application at the time of preparing the site. In addition, as this operation is not dependent on the weather, site prep can be carried out almost any time during the year. Therefore, fixed costs per acre are reduced through better plant utilization.

Other Recommendations:

Spot tillage should be conducted during mid summer to mid fall. Disking should also be followed up with an appropriate herbicide application to help eliminate or control woody or herbaceous competition with seedlings for moisture and nutrients.