

**Natural Resources Conservation Service
Texas Forestry Technical Note, TX-FS-12-7**



Band spray over nuttall oak seedlings



Same nuttall oak seedlings on the left, 3years after treatment

HERBACEOUS WEED CONTROL

Applications:

Herbaceous weed control is a beneficial method of releasing newly planted pine or hardwood seedlings from herbaceous plants. The reduction of herbaceous vegetation increases the amount of water and nutrients available to the seedlings increasing their survival and growth.

Description:

There are many herbicides used in herbaceous weed control such as imazapyr (Arsenal), sulfometuron methyl (Oust), hexazinone and sulfometuron methyl (Oustar), hexazinone (Velpar) and metsulfuron methyl (Escort) for pine seedlings. **CAUTION:** Do not use metsulfuron methyl (Escort) on or around longleaf pines. The choice of herbicides depends upon the herbaceous competition present and the species of tree being released. Several of these chemicals are active in the soil and can damage or kill hardwood seedlings. Hardwood seedlings do not have the array of herbicides that can be used to release them from herbaceous vegetation. One chemical sulfometuron methyl (Oust) can be applied over hardwood seedlings before the buds break in the spring. Glyphosate herbicides (Roundup, Accord, Razor Pro, etc.) can be applied as a directed spray at the base of the hardwood seedlings but do not spray this herbicide on the leaves as it is a contact herbicide and impacts the plant if the leaves are sprayed. Other chemicals may be added to the tank mix for an additional cost to broaden the control of undesirable plant species. Additionally, a wetting agent or surfactant may be added to increase the effectiveness of the herbicide.

Herbicides can be applied in several ways but one method to decrease the amount of area covered is by spraying bands over or around seedlings needing release. Bands can be applied using rubber-tired tractors, ATV's, or even backpack sprayers. Rubber tired tractors are equipped with rear-mounted spray tanks and booms with adjustable nozzles for treating several rows simultaneously. ATV's with rear-mounted tanks are also commonly used but normally spray only one row at a time. Another benefit of ATV's is that they can operate in small areas and over fairly rough terrain. Backpack sprayers are sometimes used when acreage, tract location, or other factors make the use of other equipment impractical. Herbicides are generally applied in 3-4 foot wide band widths. Wider bands are preferred as encroachment of herbaceous material is delayed longer than with more narrow bands. The release of seedlings from herbaceous competition is not permanent and only provides the seedlings with an opportunity to become established and compete with the herbaceous vegetation. Herbaceous weed control applications are normally conducted in April-May with effectiveness reduced in later applications. Sulfometuron methyl (Oust) can be applied during late fall and through the winter before the plants start growing. Be sure to read and follow the

label instructions for release rates, timing and other information listed on the herbicide label. It is a violation of Federal Law to use these products in a manner inconsistent with their labeling (see specimen labels for general information, directions for use, precautionary statements, mixing and application instructions, etc.).

Benefits:

Application of herbicides by banding or broadcast methods effectively reduces competition between the newly planted seedlings and established herbaceous weeds and grasses. Water and nutrients within the treated area that would otherwise have been utilized by the herbaceous material is made available to the seedlings. Although still dependent upon spring rains, summer weather and the quality of the planting operation, first year survival and growth is significantly improved through the use of this practice. Numerous studies by universities all across the south have shown the benefits of herbaceous weed control (Yeiser, J.L. and R.A. Williams, 1996; Earl, J.A., M.H. Pelkki and R. A. Williams, 2004; Yeiser, J.L. and A.W. Ezell, 2004). Band application of herbicides in comparison to a broadcast application should be lower in cost. In areas where seedlings are planted such as pastures, the area between the planted seedlings may be cut and baled for hay. If cutting hay is desirable, then some consideration should be given to the spacing between the rows of seedlings. The distance between rows of trees should be wide enough to allow the equipment to operate efficiently.

In cutover areas or old fields, leaving the herbaceous plants between the planted rows of seedlings is beneficial to many species of wildlife. While the seedlings are released from this competition, the bareground around the seedlings provides access for quail, young turkeys and many other wildlife species. The herbaceous cover between the seedling rows provides food and cover.

Other considerations:

Consistent spacing of rows by the planting vendor will make herbicide application easier and more effective. If rows cannot be easily determined, then broadcast application by air or ground will be necessary resulting in increased application costs to the landowner. One of the hardest species of grass to control is Bermuda and it should be actively growing before a herbicide is applied. The later in the spring the herbicide is applied the better and even then, with abundant spring rains, the Bermuda grass may be encroaching on the treated area by August. The problem with waiting until the Bermuda grass is growing is that the rows may be very difficult to locate and flagging the rows may be necessary. The herbicide labels should be read as to the types of herbaceous plants each controls and also the application timing and rates. Always read and follow directions listed on the herbicide label.

Do not apply herbicides during a rain or when rain is likely to occur within a few hours of the application. Plants need some time to take up the herbicide.

Costs:

Herbaceous weed control applied in bands generally cost approximately \$35.00-45.00 per acre for open land banding such as pastures or old fields and \$40.00-\$60.00 for banding in cut-over areas. Some other factors that impact the per acre cost are tract size, tract location, availability of vendors, and chemical costs. In contrast, broadcast applications for complete coverage of the entire planting area will range between \$40.00- 65.00 per acre (Texas Forest Service).

It has been shown that the benefits in survival and tree growth continue for many years. Seedlings released from early herbaceous competition maintain improved growth over seedlings that have not been released.



Sycamores released from herbaceous competition.



Loblolly pines released from herbaceous competition.

What should I do?

- ▶ Determine what plants you want to control.
- ▶ Determine critical areas around your target property.
- ▶ Select the proper herbicide to treat the plants needing to be controlled and those to be released.
- ▶ Understand the best time of year to control the target plants.
- ▶ What is your budget?
- ▶ Ask for assistance or get some professional advice.

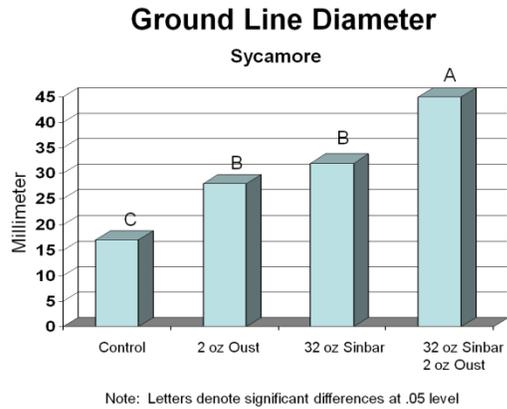
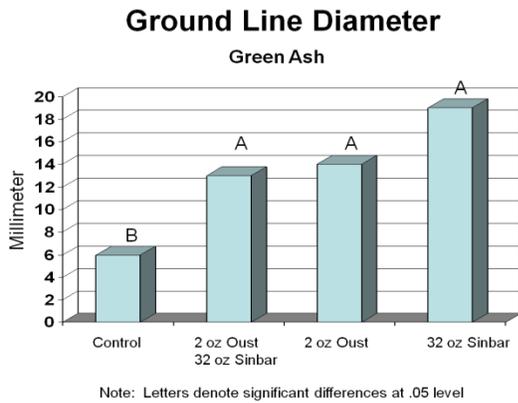
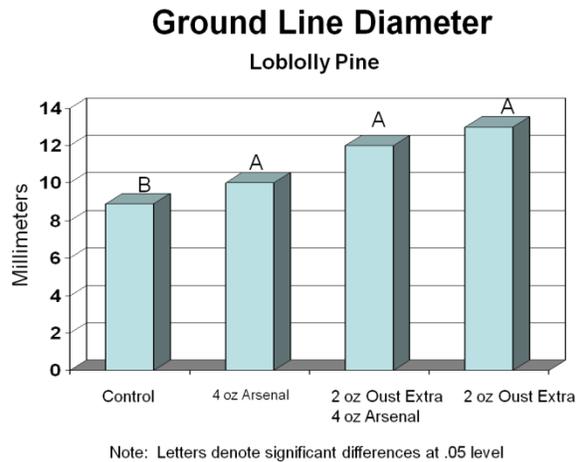
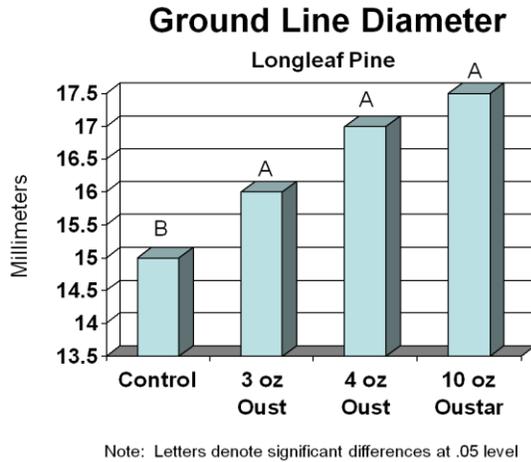


Band spraying with a CO₂ backpack sprayer



ATV with a small boom sprayer

The following four graphs were taken from one study where each of the four tree species were planted. Some of the seedlings received herbaceous weed control and some seedlings were left untreated as a control. The herbicides were only applied once during the first growing season. Herbicides were applied in a band spray over the top of the planted seedlings.



Above are four different tree species that received herbaceous weed control using a band spray herbicide treatment. Note that all of the seedlings receiving a herbicide treatment outgrew the seedlings that were not treated. Significant diameter growth was recorded after only one growing season. Seedlings released from herbaceous weeds have increased survival compared to untreated seedlings. Seedling survival exceeded ninety percent when released from herbaceous competition. Using herbicides to control unwanted and competing vegetation is a cost effective method to release and favor crop trees.

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Literature cited:

Earl, J.A., M.H. Pelkki and R.A. Williams. 2004. Herbaceous weed control results for tankmixes of Oust, Escort and Arsenal AC applied to loblolly pines in Arkansas' Delta. Southern Weed Science Society, 2004 Proceedings, Vol. 57, p. 176

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