

TOWNER STATE NURSERY WEED CONTROL PROGRAM FOR FIELD-GROWN CONIFER NURSERY STOCK

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KEY WORDS

Bareroot nursery, herbicides

The Towner State Nursery is owned and operated by the North Dakota Forest Service. The nursery is 160 acres in size and is located in north-central North Dakota. The Towner Nursery specializes in the production of conifer seedlings, transplants, and greenhouse-grown container stock for conservation tree plantings. Transplants constitute 80% of the stock produced. The Towner Nursery sells 33 size classes representing 17 tree species. Sales for 1999 totaled 1.4 million trees.

Goal® herbicide is the primary method of weed control at the Towner Nursery. Hand weeding is used to remove weeds that are not controlled by Goal®. Seedbed areas of the nursery are fumigated prior to sowing, but the primary purpose of fumigation is to control diseases, not weeds. Good weed control in seedbeds can be achieved with herbicides making fumigation unnecessary for weed control. Weeds are controlled in noncrop areas by cultivation and mowing.

HERBICIDE WEED CONTROL

Seedbeds

One-half pound active ingredient per acre of Goal® 2 XL herbicide is applied immediately after sowing. A second application of Goal®, at 1 pound active ingredient per acre, is applied for second-season weed control in seedbeds.

Transplant fields

Trees are transplanted in both spring and fall at the Towner Nursery. Goal® 2 XL herbicide is

applied after transplanting at a rate of 1 pound active ingredient per acre. A second application of Goal®, at the 1-pound rate, is applied at the beginning of the second season for continued weed control.

Irrigation

One-quarter inch of irrigation water is applied immediately following herbicide application.

HAND WEEDING

- Hand weeding is used to control weeds that escape herbicide control. Crews collect weeds in pails while hand weeding to prevent weed seeds from germinating. Also, picking up weeds minimizes missed weeds by making them more visible.
- All fields are hand weeded 4 times per year.
- Mechanical cultivation of pathways between beds is used only if weeds are too numerous for hand weeding.

WEED SANITATION

- Grass areas are mowed to minimize production of weed seeds.
- Fallow areas are cultivated regularly to prevent weeds from producing seed.
- Noxious weeds and dandelions are controlled in windbreaks and grass areas by spraying with 2,4-D.

COSTS TO KEEP NURSERY FIELDS FREE OF WEEDS

- Weed control adds 3 cents to the cost of producing a 2+2 transplant (almost 9% of the cost of a 35-cent tree).
- Herbicide application costs including product, equipment, and labor total about 1 cent per tree.
- Hand weeding costs add an additional $\frac{3}{4}$ cents per tree (average labor cost of \$6.00 per hour).
- Mowing and cultivation for weed control costs $\frac{3}{4}$ cents per tree for equipment and labor.