

WEED MANAGEMENT INCORPORATED

by

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Abstract.--Successful weed management must be an incorporation of techniques and ideas. Sanitation must be practiced in all phases of the seedling process. This includes the seedling crop, irrigation lines, cover crops, fallow areas, reservoirs, roadsides, etc. Habitual practices of cleaning equipment, using cover crop seed safe for herbicides, spraying small amounts of herbicides early and more often, timing of applications, maintenance of surrounding areas before weed seed formation and bed listing are some of the practices used at Westvaco.

INTRODUCTION

"Weeds" can be simply defined as "plants out of place".

Weed management has advanced greatly in the last few years under the direction of the Auburn University Southern Forest Nursery Management Cooperative.

The potential of a "weedy" crop; however, is very much possible particularly when coupled with a lackadaisical attitude about weed management. Different nurseries have different weed species and different means of handling their problems. It is common knowledge that what works for one situation may not work for another. The methods I have listed work in our situation. Our problem, "plants out of place", primarily includes yellow nutsedge (*Cyperus esulentus*) and large crabgrass (*Digitaria sanguinalis*).

METHODS

Seedling Beds

During the past four years oxyfluorfen (Goal) has produced excellent weed control by using diluted applications more frequently. Our operational practice now is to use 12 oz. Goal 1.6EC plus 12 oz. crop oil per acre. Our first application is 30 days after sowing and is used once a week until the third week of August or canopy closure. Application time is early morning and late evening, midday is avoided. Many crop oils are on the market. Our preferred product is Peptoil which contains 83% parafin base petroleum oil plus 17% surfactant blend. This

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material contains a foam eliminator and is manufactured by Goal Chemical Company, Memphis, Tennessee. Goal applied as described will eradicate light to medium cases of nutsedge; however, heavy populations of nutsedge would be better controlled by MC-2 before planting. Crabgrass has been completely controlled at our nursery. To date, only four man hours have been spent hand weeding our 54 acre seedling crop area.

There are two reasons why weekly applications of oxyfluorfen are more effective than monthly applications. The first involves better timing of the postemergence sprays with the stage of weed development. With weekly applications emerged weeds are small. In general, small weeds have not developed enough wax on the leaf surfaces to protect against contact herbicides like oxyfluorfen. Therefore, troublesome weeds like nutsedge and sicklepod are much easier to kill when they are one week old than when three or four weeks old.

The second reason involves replacing the chemical barrier to germinating weeds. When applied to the soil surface oxyfluorfen acts as a preemergence herbicide and kills weeds as they emerge through the chemical barrier. When this barrier is broken (due to heavy rains, irrigation, tractor tires or handweeding) weeds can emerge in the herbicide-free "cracks". With weekly applications, the holes in the chemical barrier are replaced with a new layer of herbicide. Keeping the chemical barrier intact may prove to be effective in controlling weeds.

Disadvantages include slightly reduced early season height growth and mortality on just emerging seedlings. The later would be the more serious and typically be caused by insufficient stratification time, which produces late germinating seedlings that can be damaged by Goal.

Mulches

All pine beds are mulched with fresh pine sawdust which is clean of weed seed. We have applied Goal preemergence at 1.2 qts. per acre before the mulch application and after. No difference in weed control was noticed. We use a small amount of pine straw mulch on our hardwood beds. It is treated with MC-2 before applying.

Irrigation Lines

Irrigation lines are sprayed the same time the seedling beds are sprayed with Goal and at the same rate. Our sprayer, a rather standard low pressure unit, operates at 40 lbs. PSI and is equipped with #8003 tee-jet nozzles applying approximately 35 gallons water per acre.

Hand Weeding

When hand weeding is done, the weeds are pulled and placed in a container carried by the weeder. The weeds are then carried from the field area and destroyed.

Cover Crops

We utilize three major cover crops: corn, sorghum or sorghum-sudan, and rye. Rye is planted in the fall and has little to no competition from weeds. Herbicides are not needed for this crop. Corn is planted in the spring and a tank mix of Lasso and Attrex keeps the crop clean. Sorghum or sorghum-sudan grass planted in early summer can be another story. Some nursery managers have been successful using Attrex on weeds less than two inches and after the sorghum or sorghum-sudan has completely emerged. We tested this several years ago and found it helped but left a lot to be desired. For the last few years we have used Gold Kist 802G Sorghum treated with Concept. Concept is a chemical sprayed on the seed before it is packaged. It acts as a safener against herbicides such as Lasso. Ciba Geigy manufactures Concept, and Monsanto manufactures a safener called Screen. Safened seed cost approximately \$10.00 more per 50 lb. bag but for our needs is well worth the additional cost.

We have used Lasso on our safened sorghum crop as a preemergence and produced very clean crops.

Sorghum-sudan usually produces a better or (heavier) crop than does sorghum, but until this year I have not found a desirable brand that is safened. Gold Kist now produces a GK86S sorghum-sudan grass that is safened and a test plot will be established at our nursery. A fast growing sorghum-sudan that is not safened is Pennington's Summergrazer. The crop grows extremely fast and competition is shaded out but not totally. All of our cover crops are non-irrigated.

Fallow Areas

Fields designated for seedling crops to be planted the following spring lay fallow during the fall. Corn or sorghum crops are turned under in late September. Under normal conditions nutsedge will appear shortly thereafter and will be treated with a 2% solution of Roundup before frost arrives. Roundup usually provides a good kill but some nutsedge remains on the site.

Increased penetration through the waxy leaf of sedge could give better control. Roundup has a sticking agent already incorporated. I am working on a free fatty acid adjuvant concentrate which when added to Roundup may increase activity.

Reservoirs and Roadsides

Due to our location, coastal South Carolina, and our proximity to the ocean, twenty-three feet above sea level, a deep well could not be used. Instead open reservoirs provide our irrigation supply. Screens are placed on our intake lines and banks are sloped to allow mowing before unwanted vegetation produces viable seed. Mowing reservoir edges and ditches with offset mowers is a standard practice. Roadsides are kept clean by the same method and all roads around nursery fields are maintained by a grader. Hydrant valves in non-seedling fields are sprayed with Roundup.

Equipment

Before a disk, turnplow, chisol plow, etc. is moved from one field to another we put these attachments on the wash rack and steam clean. This is particularly helpful in controlling nutsedge movement. We have been successful in preventing nutsedge introduction for five years to one field although it is surrounded by the plant in adjacent fields.

We contract our corn combining to a farmer. This is a machine that can bring a nightmare of weed seeds into your fields. We completely steam the combine before it enters our fields.

Bed Listing

Listing beds, tater beds, rice furrows, by whatever name is beneficial both as wind erosion control and bringing deeper seed such as nutgrass to the top where it freezes over winter. We use a modified Pittsburg cultivator frame with 10" bull tongue plows mounted on 36" centers. We raise a 12-14" bed that runs perpendicular to the prevailing winds.

Summary

Preventing the introduction, reproduction and spreading of weeds must hold an important place in the nursery managers plan of weed eradication. This prevention is as important if not more so than what strategy is used after weeds appear.

Nursery managers will reap the benefits of a more uniform, higher quality crop by adhering to a strict comprehensive year round weed control program.

Literature Cited

South, David B. and Don Stringfield. 1985. An Old Application Technique Proves Useful When Used With A Modern Herbicide. Auburn University Southern Forest Nursery Management Cooperative, Note Number 19.