

The Use of Green Overwinter Mulch in the Illinois State Nursery Program¹

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The Illinois Department of Conservation, Division of Forest Resources operates two nursery facilities - the Mason State Nursery near Topeka, Illinois, and the Union State Nursery near Jonesboro, Illinois. These nurseries have been in operation since the early 1930's, and the plant material at both facilities is used for planting on private and public property. Production at both nurseries consists of tree and shrub species for afforestation, reforestation, windbreak, and wildlife habitat projects. In addition, the Mason State Nursery produces seed and seedlings of prairie forbs and grasses for the establishment of prairie restorations.

Currently, nursery production averages approximately 4.5 million seedlings per year. Hardwood production comprises 54 percent of the total seedlings while conifers, native shrub

species, and prairie forbs constitute 28, 11, and 7 percent, respectively, of the total production. Today both the Mason and Union Nurseries are involved in the production of over 130 plant species.

From the beginnings of plant nurseries, managers have used mulch to protect the newly planted seeds from sun, wind, and excessive rainfall. The mulch also serves to protect the seedbed from washing due to heavy rains. The mulch material is placed over the seed and should persist until seed germination is complete. Several different types of mulches are being used in the nursery industry; these include straw, sawdust, bark, wood chips, hydromulch, and synthetic materials.

Typically, most of our seed for the Illinois nursery program is sown into the seedbeds during the fall months. This provides the seed with a long, natural stratification period which insures rapid, consistent germination in the spring.

With the Illinois nursery program, we have chosen to use hydromulch as our standard seedbed covering. Currently we are using ground newsprint

Abstract.- Spring oats are used in conjunction with hydromulch to provide a green overwinter mulch to the stratifying seed. Spring oats are used to protect the seed and seedbed from washing, and they provide insulation from cold winter temperatures. Because spring oats die in the winter, they eliminate the need for spring herbicide treatments. The Illinois nursery programs use the green overwinter mulch in the production of all species grown that are planted in the fall.

hydromulch. This material is easy to apply and persists throughout the winter stratification period. In addition, spring oats are added to the hydromulch. As the oats germinate and grow, they serve as a green overwinter mulch where they help to secure the hydromulch in place while providing additional protection and insulation to the seed.

METHODS

Hydromulch is added to water in the hydromulcher. Currently the nurseries use 250 pounds of hydromulch to 800 gallons of water. Approximately three pounds of spring oats are added to this mixture, and the slurry is then sprayed on top of the seedbed. Each tank covers approximately 800 linear feet of seedbed. Therefore roughly 3,200 pounds of hydromulch and 40 pounds of spring oats are applied per seedbed acre. The oats are trapped in the hydromulch and are applied very uniformly across the top of the seedbed; no problems have occurred due to the addition of oats to the hydromulch.

The oats will germinate in approximately ten days. Nor-

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mally the oats will grow approximately six to eight inches during the fall. The oats are now serving to hold the hydromulch in place, protecting the seedbed and providing insulation from cold temperatures to the stratifying

seed (Figure 1). During the early winter the cold temperatures and repeated frosts kill the oats; however, they do persist throughout the winter to provide protection (Figure 2).

The application of the overwinter mulch is also used for the 1-0 red pine that is to be carried over for another growing season (Figure 3). The same application rates as that for newly planted seedbeds are used. The foremost objective here is to provide insulation from the cold temperature to the small seedlings.

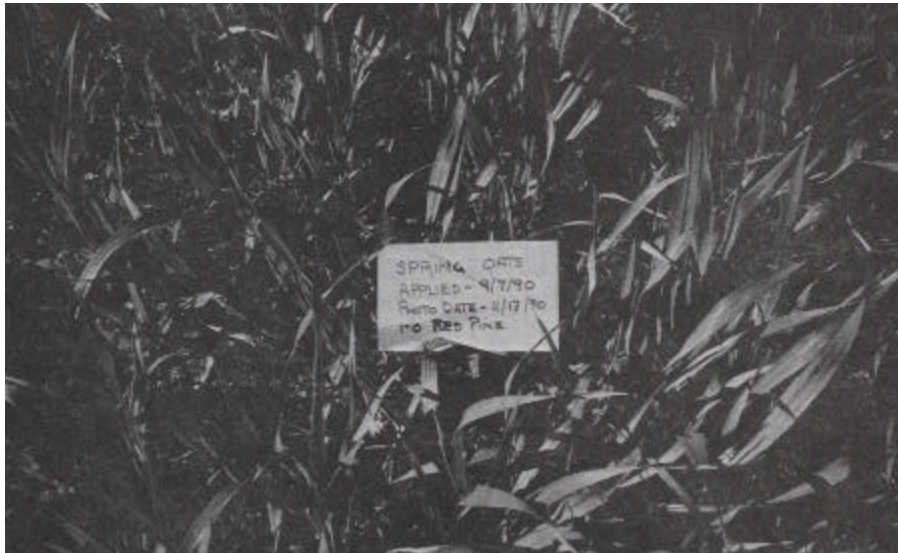


Figure 1. Green overwinter mulch two months after application.



Figure 2. Spring oats killed by winter temperatures and frost.

CONCLUSIONS

We feel that the use of spring oats as a green overwinter mulch works well for the nursery operation. Advantages of using spring oats as an overwinter mulch are:

1. Secures the hydromulch in place
2. Protects the seed and seedbed from washing due to heavy rains
3. Provides insulation from cold temperatures
4. Dies in the winter to eliminate the need for early spring herbicide treatments.

The primary disadvantage of using this mulch program is that the oats require a fairly warm germination temperature. Therefore, oats may not work satisfactorily for late fall plantings.

The nurseries produce a wide variety of species with numerous seed sizes and germination rates. This described approach seems to work well for all of the seed we have grown thus far.



Figure 3. Mulch used to overwinter 1-0 red pine.

