

THE INFLUENCE OF WEX ON GERMINATION OF PINE SEED

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WEX, a wetting and anti-foaming agent, is a new agricultural product that reportedly can be used in all agricultural sprayings. A blend of nonionic, silicone-type surfactants, WEX was designed to reduce surface tension in spray solutions, thus aiding the suspension of wettable powders and assuring even distribution throughout the solution. This helps provide a uniform wetting and coverage.

This chemical could be utilized in forest tree nursery practices. By causing even distribution in solutions, WEX could make possible more efficient use of pesticides and fertilizers.

Many factors are known to influence the germination of tree seed. Therefore, it is important to investigate whether the addition of WEX in sprays might have an effect on germination. The objective of this study was to determine if WEX has an influence on the germination of selected tree species.

Methods and Materials

The experiment was conducted on three species: slash pine (*Pinus elliottii*), longleaf pine (*P. palustris*), and sweetgum (*Liquidambar styraciflua*).

Three completely randomized replications of five treatments for both slash and sweetgum, and three replications of four treatments for longleaf were prepared. A treatment consisted of three plastic germination dishes of 100 seeds for each species.

The WEX treatment levels were arbitrarily chosen to bracket the recommended usage. The treatments

were in proportion to the following application rates: (1) 0 oz./acre (control), (2) 4 oz./acre, (3) 8 oz./acre, (4) 16 oz./acre, and (5) 32 oz./acre. All five levels were applied to slash and sweetgum, but treatment #3 was omitted in the longleaf test. After the seeds were placed in the dishes, all of the dishes were sprayed with an equal amount of water for germination. WEX concentrate was mixed with the water, the amount of concentrate dependent upon which treatment the dish was to receive. The germination medium was a one-to-one mixture of sterilized sand and perlite. The prepared dishes were placed in a germination room after planting at a constant 72°F, with 10 hours of light each day for 21 days. Germination was recorded on the seventh day of the experiment, and every 2 days thereafter.

Germination data was tested using an analysis of variance, significance was tested at the .05 percent.

Results

No significant differences due to WEX treatments were observed in the germination percentages of any of the species tested.

After 7 days, the slash pine seeds that had not been treated with WEX had less germination than those that had the WEX application. Also, the control tests with the longleaf pine seed had significantly lower mortality caused by mold than the WEX treated seeds.

The increased germination of treated seeds is believed to be due to an increase in water absorption caused by the addition of the WEX. WEX also

appears to favor the growth of mold on seed with a high amount of fungal spores as noted with the longleaf pine. The proliferation of fungus appears to be enhanced by increased seed moisture. These are two aspects that could be clarified by further research.

Summary

In summary, the use of WEX will not harm the germination of slash pine, longleaf pine and sweetgum but may promote earlier germination in sweetgum and slash pine and promote the growth of mold in seed of longleaf pine.