GEOTECH AT WESTVACO

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Abstract.--Nursery bed stabilization to reduce seed and seedling losses, due to water and wind erosion, has long been a subject of trial and error. Due to strong winds at planting time, and occasional heavy spring rains, we incorporated Geotech into our 1987 cultural operations. We were excited about the stabilization qualities of this water resistant co-polymer resin.

INTRODUCTION

Westvaco has used the full gamut of different mulches and no mulch. Years ago pine straw was used, and probably remains one of the most efficient stabilizers of seedling beds. However, due to cost, availability, time, etc., we moved on to what we thought were better things.

We used hydromulch for several years and experimented with every type of hydromulch we could purchase. Hydromulch did a satisfactory job with wind erosion, but left a lot to be desired on water erosion. It also contributed to sand splash, and bred a hybrid ailment we refer to as "sanulch". "Sanulch" is a combination of sand and mulch forming on the young seedling's stems and needles. This causes slow growth and/or mortality. We tried no mulch after seeding and had surprising good results with four years of data. Planting deeper and planting early seems to be the key. Bed washing due to heavy rains remained a problem. We then tried pine nuggets. This material has admirable qualities, but it also comes with a high price tag in our area. The cost is four times that of sawdust. Even with nuggets, some minor bed edge deterioration is still evident.

This brings us to Geotech, a water resistant co-polymer emulsion designed for control of various types of surface erosion. Geotech cures to an invisible film which forms a crust with the surface soil. This crust prevents slope or surface deterioration due to wind, rain, or irrigation.

DESIGN AND APPLICATIONS

We modified our 800 gallon Finn Hydromulcher to apply Geotech. We took the nursery bed splash board off, and built a double-hindged triple spray boom capable of spraying three beds at a time. The boom line itself is 1" galvanized pipe with fifty-one #8020 tee-jet nozzles on 12" centers in a diamond pattern with one cut off valve for each section, and a pressure gauge on each hindged section end. Spraying pressure should be maintained at approximately 40 lbs. psi. Nozzles should be used without screens. We also disarmed the paddle wheel agitator to keep foaming to a minimum. The bypass continued to operate, keeping the solution in suspension. You must have some agitation continuously. If you use a hydromulcher that has any age associated with it, be sure you sand blast or clean the inside of the tank thoroughly, and paint. If you do not, many hours of unproductive nozzle cleaning will be your reward.

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Like everyone else, we keep changing and modifying our operations and equipment. By the time this is presented, we will probably be using a hydraulic pump or jack shaft PTO to drive our pump rather than the four cylinder gasoline engine now on the unit. Geotech is somewhat messy on equipment if not cleaned off immediately. It adheres to the air intake screen, etc., making the engine run hot. We also plan to use drop nozzles instead of stationary nozzles on bed edges. Installing a line filter would be beneficial. Our primary objective last year was wind erosion in our most wind-vulnerable fields. We used two rates. One was applied at approximately 1:12 ratio, this being 40 gallons Geotech mixed with 480 gallons water. The other rate was 1:9; 55 gallons Geotech mixed with 495 gallons water (total volume of solution should be around 550 gallons per acre regardless of Geotech rate). The higher rate retained bed structure for a longer period of time. We plan a compromise of the two this year.

We mix Geotech in the field using a four-inch quick-release water line from the irrigation pump and a transfer pump. The transfer pump pulls Geotech directly out of 55 gallon drums that are loaded on a five ton flat bed truck into the Finn machine. A screen attached to the intake line of the transfer pump acts as a filter. Fill-up, wash-off, and nozzle checks take about ten minutes per load. We treat approximately one and a half acres per tank and spray at 3 mph. This is sprayed immediately after seeding on a bed with no mulch. We wait two hours before irrigating or herbicide application. This gives Geotech time to cure.

SUMMARY

Geotech was applied on 75 percent of our seedbeds last year with very good results and will be applied on 100 percent this year. Geotech did not effect germination nor bed temperatures, and seedling survival increased several percentage points. It also eliminated sand splash. At this point there appears to be no ill effects on soil characteristics. This will be continually monitored.

A few words of caution - Be careful of seed placement! Seed should be covered lightly with approximately 1/4" of soil. This is somewhat deeper than some of us have planted in the past. Before applying Geotech, make sure the bed is moist, not wet, and not dry. Ground temperature should be 55° or above. If applied under the correct conditions, it is possible to get 1/4" penetration, with 1/8" being the norm. In conclusion, Geotech was superior to sawdust for wind and water erosion in our nursery. This is based on only one year's results, but we plan to adhere to the Geotech applications.

LITERATURE CITED

Borden Chemical, Geotech EA-11044 Data Sheet 1986.