

HYDROMULCHING

E, G, Terrell, Jr

Hydromulching, for the purposes of this discussion, is defined as the application of water-suspended wood fiber mulch material to the surface of the soil to protect it against erosion, prevent loss of water by evaporation or to change the heat exchange characteristics of the surface, We will also confine the discussion to the hydromulching of newly sown seedbeds.

In the northeast, sowing mulches have usually consisted of sand and sawdust, pine needles, burlap, lath shade frames or shade fabrics Many of these materials, while satisfactory for the purpose, have some other disadvantages. Some must be removed promptly to prevent damage, are hard to get, use a lot of labor or may introduce weeds or diseases. With the increasing difficulty of getting labor and the high cost of both labor and some of the old mulch materials, many nurseries have been forced to investigate other mulch methods

Trials of the hydromulch system are not particularly new. The first trials that I recall were at Chittendon by Ed Clifford and his staff. He reported satisfactory results using Turfiber at the Region 8 Conference in 1964, Although some trials have been made using seed and fertilizer in the hydromulch mix as is done in turf seeding, the major emphasis has been on the use of the fiber alone,

At Saratoga we began trials in the spring of 1965 with Turfiber and the same 250 gal. Finn Hydroseeder used by Clifford It came on loan to us from the Cornell Ornamentals Research Laboratory at Farmingdale, New York who had received it from International Paper when they finished their Turfiber demonstrations. We covered about a quarter of an acre of Scotch pine sown with our regular seeder, I should point out that our seeder, a Brillion modified to drill sow seed and fertilizer simultaneously leaves a corrugated surface. We were satisfied with its performance in controlling erosion and acting as a moisture retaining material, The green color soon faded, but the fibers persisted into late summer giving us protection from wind erosion and sand blasting and

1/ Sr. Forester, Saratoga Tree Nursery, RD 4, Ballston Spa, N.Y.
12020

probably some other benefits that we didn't try to measure I reported on this kind of mulching at our Region 7 Nursery Conference in 19 65.

We tested different nozzles at that time and thought that the impingement type (flood jet) would work. We never adopted it because of its wide spray angle which would leave uncovered areas behind our corrugations We also learned in this trial that loading and mixing times would be excessive on a small machine. Clifford had suggested a 500 gal. tank. We decided on a 1500 gal. one

By the fall of 19 67 we had obtained a 1500 gal Bowie which consisted of a tank with an agitator, a bale shredder, a gear type pump and a 6 cyl. Ford industrial engine to run all the machinery We mounted the tank on a tandem axle trailer and connected the pump discharge to a homemade 2" pipe boom by a 3" rubber hose. The boom carries one 3/4 USS 80,400 Veejet flat spray nozzle (Spraying Systems Company) for each of four beds. The only other change we made was the installation of an 80 gallon tank to hold clear water for flushing the pump, boom, and nozzles at the end of each bed. This is necessary to prevent clogging of the boom and nozzles with fiber as the water drains out through the nozzles .

In the fall of 1967 we applied Conwed mulch to about 15 acres of fall seedbeds, part at the rate of 1000 lb/A. and part at about 1800 lb/A. Also included were tests on WP beds of a combination of mulch and lath racks laid on the ground, Polypropylene shade fabric, burlap, and racks all laid on the ground were also tested without mulch. Turfiber was also tested even though it was by then no longer available because International Paper had gone out of the mulch business, The following mean densities /ft were observed in September 19 68 .

White Pine

Conwed 1800 lb/A.	27
Conwed + lath racks	38
Burlap	27
Racks	33
Polypropylene shade cloth	29
Turfiber	32
None	14

All of the mulch materials seem to satisfactorily control erosion and give normal stocking , Only the unmulched beds are poorly stocked Keep in mind that our main reason for using mulch is to prevent erosion of the corrugated bed surface, Also that the application was made in November, so that there was not a very long time before the ground froze.

On one block of Scotch pine mulched with the 1000 lb rate the stocking was 18/ft on the hydromulched and 28/ft² on those covered only with lath racks . This seems to be a real difference for which we have no explanation. Even though the 1000 lb rate used on this species appeared to control erosion through the germination period, we think that a higher rate, around 1500 lb/A. would have been better,

For fall 1968 we plan to add another nozzle of the same size about 16" behind each of the four already on the boom. This should speed up the operation without having no increase the nozzle pressure Pressures over 30 PSI cause the spray to erode the bed surface,

It appears that the hydromulch method will control erosion on corrugated sown beds under conditions tested. While we have had no experience with flat sown beds , it is reasonable to expect that erosion would be more easily controlled on these.

For large nurseries or where several nurseries can make use of one machine, the high cost of application equipment may be justified in order to replace some of the older mulch methods with hydromulch

Literature Cited

Clifford, Ed and J. Massello. 1964 Mulching materials for nursery seedbeds
Proc. Region 9 Nurserymen's Conf. p. 46 - 52

Terrell, E G Jr 1965, Mulching Proc Region 7 Nurserymen's Conference p 24



