CULTURAL TECHNIQUES/

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(Panel Moderator)

SEEDBED MULCH MATERIALS

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In 1928 when the South Carolina Forestry Commission produced its first seedlings, the nurseryman took a crew of men, raked up some pine straw and used this straw to mulch the seedbeds. This happened to be what was available. We are still using pine straw as our principle mulch material.

I am sure we will all agree that some type of mulch that will keep the surface soil uniformly moist throughout the period of germination is necessary at any nursery if we are to expect good and uniform seed germination. In South Carolina, we have tried some seedbeds without any mulch and the success is almost entirely dependent on weather conditions. It is just too risky not to mulch.

There are many types of mulches that can and have been used successfully and since most of you nurserymen are always searching for new and better ways to do the job, you have probably tried them all. In South Carolina, we have used, as I mentioned previously, pine straw obtained in either baled or loose form; sawdust ground pine cones; oat straw; wheat straw; and paper and cotton fabric.

The cotton fabric worked fine and germination was the most uniform and best of any mulch used. Cotton fabric can be easily applied and removed with mechanical equipment and a small crew. More moisture is necessary during the germination period and some erosion can occur after the removal of the cloth. We might still be using this fabric except for the cost involved. (Our material was free). Sawdust and ground pine cones are satisfactory; however, with heavy rain or high winds, these materials will either be washed or blown from the seedbeds.

After each experiment with a new type of mulch we have always gone back to pine straw and this is the mulch material most commonly used throughout the South.

1/ Panel presentation. Papers of panel participants are included.

Pine straw has the advantages of:

1. Availability.

2. It is relatively inexpensive.

3. It has good moisture retention.

4. Removal from beds is unnecessary--this helps build up organic matter.

5. Reduces sand-splash damage and erosion of beds.

6. Reduces hardening of surface soil allowing better moisture absorption.

I'm not saying that pine straw is better than other mulches in these respects, but it does have a wider range of advantages than most mulches.

The disadvantages are:

1. Possible introduction of weed seeds. After soil fumigation and use of chemicals to kill weed seeds, we do not want to introduce more weeding problems.

2. It requires a lot of handling.

3. Subject to being blown from beds.

4. Uniform application is not easy.

I have mentioned availability and low costs as advantages of pine straw and this is still true in our area. It is obvious, however, that we will not have these advantages for long and I am sure some of you do not have these advantages now. We have obtained most of our straw from state forest lands and this helps keep the cost down. Our cost now is $40 to $125 per acre. When straw has to be purchased, nurserymen are finding that costs have increased greatly during the past 3 or 4 years. Labor is the main reason. Also, it used to be possible to get plenty of free straw but this is no longer the case. With the problems of labor, less availability of straw, and costs that are increasing in most areas, plus the fact that pine straw is not available at all to some nurseries, new mulch materials and improved means of applying the mulch are needed.

The hydro-mulch apparently offers good possibilities. This will be discussed in more detail later. There are probably other mulch materials that can be used. We have discussed experimenting with petroleum products similar to those used along highways to seed ditch banks. Some work was done with petroleum mulch by Hoffman in Florida on seedbeds planted with eucalyptus seed. His work

showed that good protection from erosion was obtained, but that the mulch was not stable during a hard rain or under normal irrigation. Clifford and Massello at the Chittenden Nursery in Michigan experimented with several petroleum mulches and other materials. They obtained fair results with Encap, American Oil Company Anionic Emulsion, and Sun Terra Seal but found that there were still problems to solve, one of which was the method of application. The best results obtained were with Turfiber (wood pulp) sprayed on the beds with a hydro-seeder. This would be similar to the hydro-mulch. Turfiber applied at a rate of 2,000 pounds per acre gave the best results. The cost was $150 to $170 for materials.

I am sure that a new type of mulch, such as hydro-mulch, that can be applied mechanically, will be in use at many nurseries in the near future. As in other operations, we need to reduce expenses and operate more efficiently if we are to continue to furnish seedlings at a reasonable cost. We are all striving to grow high quality seedlings. With a mulch that will help give us fast and uniform germination, this will be easier.

Even though we have used pine straw mulch at our nurseries in South Carolina for many years and probably will continue to use it because of the expense of other materials, we will be ready to change to a better mulch at any time.