

SITE PREPARATION AND SOIL MANAGEMENT IN A HIGH SILT NURSERY

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Basically there is little difference in site preparation for silt or sandy soils. Both have advantages and disadvantages. A heavy soil has more buffering power, more reserve fertilizers, more water retention and organic matter can be held at higher levels.

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I was asked to give this talk because of the tight soil conditions at our nursery. The soil is approximately 40% silt and 10% clay. The infiltration rate, taken by David South, runs from .3 to 3.8 cm/hour. Organic matter has been raised to around 4% to help with internal drainage.

The nursery was established in 1946-47 and has been in continuous production since that time. We have practiced a one to one rotation until 1978 when we started a two and two. We grow 10 to 12 million seedlings annually, primarily for our own use.

When the nursery was established the site was probably chosen more for location than soil conditions. The site is next to a paved road on an old field. The soil fertility was probably better than average, and the land was fairly level. The man who put the nursery in had worked under Dr. May and was pretty sharp, so we may be looking at the progress that has been made in nursery site selection since then.

The topic of my talk is site preparation. It starts when the seedlings are lifted. Surface drainage is important because seedlings will not grow where water has been standing all winter.

In the spring, a layer of pine bark 1/2 to 3/4 inches is applied and is disked in with about 200 lbs of ammonium nitrate. Any other fertilizers needed, determined by a soil test, are also applied at this time. A cover crop of millet or other forage type grasses is planted. The cover crop is managed for maximum growth with nitrogen and water applied as needed. This crop is bush hogged down in the early fall, and a crop of winter wheat is planted. The wheat is plowed under the following spring and another round of pine bark is applied. Millet is planted again, but this time it will be plowed under in July so it will break down in time for us to subsoil and apply a soil fumigation in the fall. The soil is not disturbed after fumigation until bedmaking time the following spring. After the soil dries out in the spring, a couple of good diskings gets it ready for the bedmaker. We use a 22 inch disk which does a good job of breaking up the soil. The block will then be in seedling production for two years.

The biggest disadvantage of our soil is in lifting seedlings. If the soil is wet, it is almost impossible to get it off the seedling roots. Bags of seedlings that normally weigh 35 to 40 lbs start weighing 60 to 70 lbs. The Grayco Harvester used in our lifting operations puddles the soil on the roots of the seedlings rather than shaking it off. A belt lifter would probably jerk all the tops off because they have a very firm hold on the ground. Lifting under these conditions for the last 40 years has not helped our problem. Hand lifting during wet weather is the best way for us.

Enough of this running my nursery down. I have a tight soil and unless we move to a new location it will stay this way. With minor inconveniences we can grow as good a seedling as anyone else.

From a very broad point of view in soil classification, I have the same soil as anyone with a coarse sand. My partical sizes are just smaller. When they have a buildup problem in sand, it can be flushed or leached out. The buffering action of a clay soil with high organic matter keeps small buildup from being a problem.

*My* soil will retain more available fertilizers, water and organic matter than sandy soils. I can cut the water off on the seedlings today and will still have plantable seedlings this fall.

Traffic in the nursery is no problem as long as the alleys are compacted before they get soaked.

Running a nursery is a challenge at best. If I were to change to a sandy nursery, I am sure it would be a different challenge.