

COST REDUCTION IN NURSERY OPERATION

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The first criteria in any cost reduction application in nursery operations should be, "How will it affect seedling quality and survival?"

We are fortunate today to have better basic tools and information than we have had in the past on such things as seed viability, soils and fertilization, control of fungi, nematodes, and weeds.

To me, cost reduction means using these basic tools to the fullest advantage. In doing so we actually save money while upgrading seedling quality. With men like we had on the Soil Management Panel, we are remiss in our duty and costing our employer money if we fail to take advantage of yearly soil tests and recommendations offered by these men.

I can vouch for the fact that in one nursery alone in North Carolina, Dr. Davey is saving the State over \$1,000 per year. In the combined nursery and tree improvement programs in North Carolina, his recommendations have, and continue to save us money. At the same time, quality has improved and problems have decreased.

The same principle applies to seed testing and use of test data. I can remember when North Carolina expected 5,000 seedlings per pound of loblolly pine seed. We now expect a minimum of 10,000 seedlings per pound; but more importantly, through proper seed tests, we are able to predict production more accurately and to save money by using the correct amount of seed.

These things that I am speaking of are procedures that we all know about and all should be taking advantage of. Some of us may not be doing so.

I dare say that less than half of the nurseries use life history plots. I admit that they are troublesome, but how else can we learn or know what to expect from the seed we plant, even with good seed tests, if we don't have some scientific method of determining what happens to the seedlings. Through life history use on plots. you not only are able to determine inventories, but also to evaluate many other factors affecting seedling survival and growth in the seedbeds--not to mention weed germination and survival, To me, this is a cost reduction tool and a tool for use in years to come through the data obtained.

Coordination with your best soils specialists and herbicide specialists on controls for soil pests whether they be weed seeds, fungi, or nematodes, is a money saving device. To date, solvent is still the standard in nursery control of grasses, but science has eliminated other soil problems that we used to fight and continued chemical development and experimentation will surely bring other breakthroughs in reducing costs. My main point here is to seek advice, try new chemicals experimentally, and sooner or later, the answers will come that will save us all money.

There is one note of caution here. Don't go off half-cocked in the use of chemicals. One improper application can be more costly than savings from any number of proper applications. We must know what we are doing in the use of chemicals.

All I have said so far is that we should take advantage of the advantages we have in order to save money. We have the experts. Let's not forget what they say here, and let's consult with them on a periodic, practical basis when we are at our home nurseries. Whatever you must pay for their services will be saved time and again in the operation of your nursery. Don't wait until trouble strikes you; avoid trouble by preventative consultations and recommendations based on your specific conditions each year.

John Hamner, our moderator, furnished us with a list of points in which interest has been expressed. There are several points on which I will speak.

One item is control of bale count. This is simple mathematics. Operating a grading belt with ten counters, one buncher, one tier, two packers, and one strapper (14 to 15 people) will process 400,000 seedlings per 8-hour day.

By weighing, regardless of packing method, seven people will process the same number of seedlings. For close quantity control, the eighth man is needed in weighing versus counting. The total packing operation saving in labor is approximately one-half of the cost of counting.

Another point is this: I am convinced that sizing seed saves money. Small seed planted with large seed germinate more slowly and will increase the cull percent. Planted separately, the small seed develops into plantable seedlings, and increases the uniformity of the stock produced.

In the same thought, I am convinced that broadcast seeding gives more plantable seedlings per square foot. Each tree must have room to properly develop. If you don't want to broadcast, do the next best thing--use wider rows. The principle is the same. Reducing the cull percentage will save money.

Common sense and good record keeping are keys to cost reduction. At the same time, we cannot sacrifice quality for economic reasons. We like to try new methods and materials, particularly if they prove cheaper to our operation.

This year, North Carolina planned experiments with paper mulch materials to replace pine straw. Because of economic factors in our area, pine straw costs us \$270 per acre, including baling, hauling, chopping, spreading, etc. When we read of St. Regis Paper Company's use of ground wood pulp, we made trips to see it. In addition, a demonstration was arranged in North Carolina.

Estimated cost of the ground wood pulp mulch is \$115 per acre, a savings of \$155 per acre to North Carolina. On 42 acres of mulching at Goldsboro, we can save \$6,500 in one season, enough to pay for the machine. And, we will be rid of weed seed that always come in the straw. A comparison of straw versus pulp on our hurried demonstration resulted in a density of 28.25 seedlings per square foot for pulp mulch to 29.15 per square foot for straw.

Mulching is only one area that we are working on. At the present, we are working on a seedbed lifter, using a two-row John Deere potato digger as the basic machine. We hope to have it operational during the coming shipping season. A simple, but workable seedling lifter will certainly reduce costs in nursery operations. If workable, the type lifter that we are designing will lift both broadcast or row seedling beds and the total cost of the machine will be less than \$3,000.

All of us have different economic factors affecting our nursery operations. For this reason, we can't all operate on the same basis. Some things work for one nursery or one area that may not pay off somewhere else. But none of us should be complacent or self-satisfied. We should not change just for the sake of change. But, we must continue to experiment with new ideas, individually or in cooperation with others.

Nursery practice has come a long ways since most of us started in the work. I am convinced that the public is getting more for its money in seedlings today than ever before. We are a quality-conscious and cost-conscious group. Let's continue to work in these directions.