

DOING MORE WITH LESS: EFFICIENCIES AT VALLONIA STATE NURSERY

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In today's economic environment, it takes some innovation and ingenuity to continue to produce seedlings of the high quality that has become our standard, with costs of production rising and budgets shrinking.

Our standard operating procedures include use of fallow field cover crops specifically chosen for compatibility with our programs to suppress weeds and pathogens. We fall sow our tree/shrub crop seeds with an overseeding of rye or wheat to hold the seedbeds in place against erosion caused by wind and rain. We mulch all our large seeded species [oaks (*Quercus* spp.), hickories and pecans (*Carya* spp.), walnuts (*Juglans* spp.)] with a 10 to 15 cm (4 to 6 in) layer of straw to protect them from seed predation and deep temperature injury during germination. We follow integrated pest management procedures in nursery beds and seed orchards. We scarify, stratify and treat our own seed as necessary. We follow a carefully tailored nutrient-loading regime based on research conducted by Purdue University at our site. We test every lot of seed bought or collected by the nursery to determine the total volume of "pure live seed". We use this information to calibrate our shop-fabricated specialty planters in order to strictly control our seedbed density.

When we have problems or issues that need to be addressed we make use of any available expertise. We can rely on the National Tree Seed Lab, and our local Plant Pest Diagnostic Lab, as well as a commercial soil and plant fertility testing lab. Often, however, there is no source of expertise available on the issues we have. In such cases we conduct our own studies. We have developed a spray protocol for herbicide control of broadleaf weeds in our seedbeds. We have developed a fungicide rotation protocol to decrease the build-up of resistance in the pathogens. We have developed seed treatment protocols to increase the level of germination in dry-stored seed. Finally, we have combined several methods to develop a successful program to reduce bird predation of seeds, and have evaluated several chemicals for reducing weevil infestation in our seed orchards.

The Vallonia State Nursery strives to increase its level of efficiency. If we can produce a higher percentage of viable seed, get a higher percentage of the seed to germinate, and raise a higher percentage of the germinated seed to a saleable size, within our budget, then we can reach that goal.