

A TRIAL TO MECHANICALLY SORT CLONES FROM A BULK SEED LOT

ROBERT P. KARRFALT¹

Increasing numbers of organizations are harvesting loblolly pine seed with net collection systems instead of collecting cones. With this type of bulk seed collection, the benefits of genetically uniform seed are forfeited. These benefits include more uniform germination, more uniform spacing of seed on the nursery bed, and ultimately more plantable seedlings per pound of seed. Differences among clones in seed diameter, weight, and color are familiar to anyone who has worked with individual tree collections of seed. A trial was made to determine if precision seed sizing could separate clones from a bulk seed lot.

Ten clones were collected from each of 20 clones in a seed orchard in South Carolina. The seed was kept separate by clone after extraction. Each clonal lot was sized with round hole screens. (Round hole screens separate seed by their diameters.) The empty seed was removed with a column blower. Total weight for each fraction within each clone was obtained, and also the weight of 100 seed from each fraction within a clone. A germination test of 100 seed was conducted on each screen fraction within clones. Days to 90 percent of total germination were computed.

Sizing the seed with screens did not separate the clones effectively. The total weight of the screen fractions showed that if all clones had been bulked together most clones would have contributed no less than 5 percent of the weight of each seed size. Weights of 100 seed from each screen size showed that weight separations following screen sizing still would not separate the seeds into clonally pure lots. Days to 90 percent of total germination was not related to either screen size or 100 seed weight, but was strongly associated with clone. Sizing seed with round hole screens and by weight is of value for more uniform placement of seed in the nursery, but cannot necessarily be relied on for recovery of clonally pure lots. Weight separations within a screen size can produce sublots with fewer numbers of clones. With these 20 clones, the weight separations probably would produce fractions containing 5 to 7 clones. Other seed orchards might present a different situation and the reader is cautioned not to generalize the results of this trial.

¹ Seed Processing Specialist, National Tree Seed Laboratory, Southern Region, USDA Forest Service, Dry Branch, GA