WEED SEED IN TREE SEED SAMPLES

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Abstract

Purity tests were performed on submitted samples in accordance with the Association of Official Seed Analysts Rules For Testing Seeds. Seed were identified using Martin and Barkley's Seed Identification Manual and the seed herbarium at the National Tree Seed Laboratory. Many samples from net collected lots contained weed seed. Some lots had up to 4% weed seed. The most common weeds were: Virginia Creeper (Parthenocissus quinquefolia), Wax Myrtle (Myrica cerifera), and Blackgum (Nyssa sylvatica). Greenbiiar (Smilax glauca), Poison Ivy (Rhus radicans), and Supplejack (Berchemia scandens) were also present in some lots. Five species listed as troublesome weeds in the Southern Pine Nursery Handbook were also found: Sicklepod (Cassia obtusifolia), Ivy Leaved Morning Glory (Ipomoea hederacea), Crabgrass (DiRitaria sanauinalis), Lambsquarters (Chenopodium spp), and Smartweed (PolyRonum pensylvanicum). Seed orchard managers, seed processing plant operators, and nurserymen need to be alert to the possibly of collecting weed seed on net. The seed orchard manager can control weed species in the orchard. The seed processing plant operator can remove weed seed from the lot. The nurseryman can plan herbicide control of any weeds present in the lot.

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Methods

Seed samples submitted to the National Tree Seed Laboratory were mixed ten times and working samples of about 2,500 seeds were randomly drawn in accordance with the Association of Official Seed Analysts Rules for Testing Seeds (AOSA Rules). Each component of the working samples was inspected using magnification and light and was put in one of four categories: pure seed, crop seed, weed seed, or inert matter. Weed species, as used here and in the AOSA Rules, are all non-crop species. The weed seeds were identified using Martin and Barkley 1961 and the seed herbarium at the National Tree Seed Laboratory.

Results

Occasional incidental seeds, such as wheat seed in Eastern White Pine (Pinus strobus) extracted from cones stored in used wheat sacks, have been found in tree seed samples for many years. The 1984 and 1985 seed collections, however, showed a marked increase in the quantity of weed seed found, the number of lots contaminated, and the variety of weed species included. Many samples contained more than one species of weeds and some contained 2% to 4% weeds. Of special interest is that, whereas few of the weeds came from cone extracted samples, many of the net collected samples contained weed seeds. The three species that accounted for most of the weed seeds found were: Virginia Creeper (Parthenocissus quinquefolia), Wax Myrtle (Myrica cerifera), and Blackgum (Nyssa sylvatica). Three forest vines seed were also present in a few lots: Greenbriar (Smilax glauca), Poison Ivy (Rhus radicans), and Supplejack (Berchemia scandens). Five species listed as troublesome weeds in the Southern Pine Nursery Handbook were also found: Sicklepod (Cassia

obtusifqllia), Ivy Leaved Morning Glory (Ipomoea hederacea), Crabgrass Lambsquarters (Chenopodium spp), and Smartweed (Polygonum pensylvanicum).

Conclusions

The recent increase in tree seed samples contaminated with weed seed is probably due to the greater usage of net collection of tree seed. If net collection continues to increase in usage, the number of contaminated seed lots will probably also continue to increase, unless steps are taken to prevent contamination.

Weed seed contamination of tree seed lots raises several questions. Is it feasible and practical to attack the contamination problem? If so, which control method should be used: try to prevent contamination at the seed orchard, or try to remove the contamination in the processing plant, or try to kill the weed seedlings that germinate at the nursery?

The fact that many tree seed lots collected on net now contain weed seed has several consequencies. The most obvious probably is that planting contaminated lots introduces weeds into the seed bed after fumigation and at the beginning of the growing season. The relative worth of the seed is affected by contaminates because nurserymen prefer noncontaminated lots over contaminated lots. State seed control officials have had little or no interest in tree seed regulation because tree seed have been largely free from weed seed and relatively little tree seed enters the open market, but if these perimeters change, so will their lack of interest. Finally, tree seed certification qualifications may need to set tolerance limits for specific weeds and total weeds, and may need to add a requirement for

the noxious weed test.

References

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