

Selecting Sound Acorns For Planting Bottomland Hardwood Sites

Nut or acorn weevils such as *Curculio baculi*, *Curculio longidens*, *Curculio pardalis*, and *Conotrachelus posticatus*, and the filbert worm (*Melissopus latiferreanus*) seriously limit the viability of acorns. Flotation in water is a commonly accepted method of separating weeviled from sound acorns before planting (sound acorns usually sink). Although more time consuming, separation by visual inspection is better for some oak species. Tests showed that hand-sorted acorns of swamp chestnut oak (*Quercus michauxii* Nutt.) produced two or three times more seedlings than an equal number separated by flotation. Likewise, hand-selected acorns of Shumard oak (*Q. shumardii* Buckl.) and cherrybark oak (*Q. falcata* var. *pagodaefolia* Ell.) were mostly sound.

The presence of weevils in a swamp chestnut oak acorn is revealed by one or more blemishes on the shell. A small dark spot on the shell marks an opening made by the egg-laying beetle, and if weevils are not already feeding on the acorn, they soon will be. Conspicuous dark spots or splotches indicate more advanced weevil activity. Accordingly, it is easy to separate good acorns from bad ones and collectors could be trained to leave most of the weeviled acorns in the woods.

The reliability of this visual selection method for chestnut oak has been established by a number of small tests. In one test, several

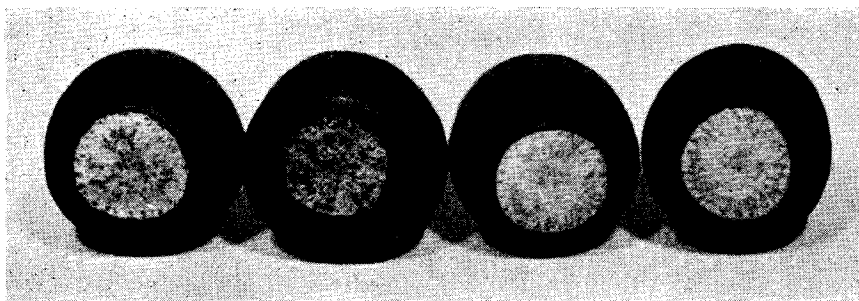


FIG. 1.—Shumard oak acorns. Those with light colored cup scar (2 on right) are sound, and those with dull coloration (2 on left) show evidence of weeviling or rot.

lots of 50 acorns each were sown in seed flats in a greenhouse. In this controlled environment, germination of the visually selected acorns averaged 92 percent compared to 41 percent for those sorted by flotation. In another test, 200 acorns in each category were field sown in areas suitable for growing bottomland hardwoods. These areas were second bottoms or terraces paralleling the course of a small stream. At the end of the first growing season, the acorns sorted by flotation averaged only 25 percent survival as compared to 82 percent for the hand-sorted acorns.

Shell blemishes are not conspicuous on the smaller Shumard and cherrybark oak acorns and weeviled acorns are more difficult to detect by the foregoing technique. However, the soundness of Shumard oak and cherrybark oak acorns can be judged with certainty by the color of the basal or cup scar. If the circular scar is a light tan, the acorn is sound; if a dull brown, the acorn is defective (Fig. 1). These color relationships are easily established in actual practice. Cutting tests showed that 90 percent

or more of the acorns selected as sound were not weeviled. All of the acorns with discolored basal scars were weeviled or otherwise damaged. As Shumard and cherrybark are red oaks, it may be that this method has general application to that group of oaks. On the other hand, it does not work too well with swamp chestnut oak, which belongs to the white oak group.

The success of visual selection, as evidenced by the high germination percentages, makes further weevil treatment unnecessary. If the flotation method is used, the selected acorns should be immersed in water at 120°F. for 30 to 45 minutes, or fumigated in a tight container for 4 hours with one ounce of methyl bromide per 25 cubic feet to kill the weevils. The elimination of this step will tend to offset the higher cost of visual selection when relatively small quantities of acorns are handled.

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