

## CONTAINERIZED SEEDLINGS: A NEW TOOL IN SEEDLING DEBARKING WEEVIL CONTROL

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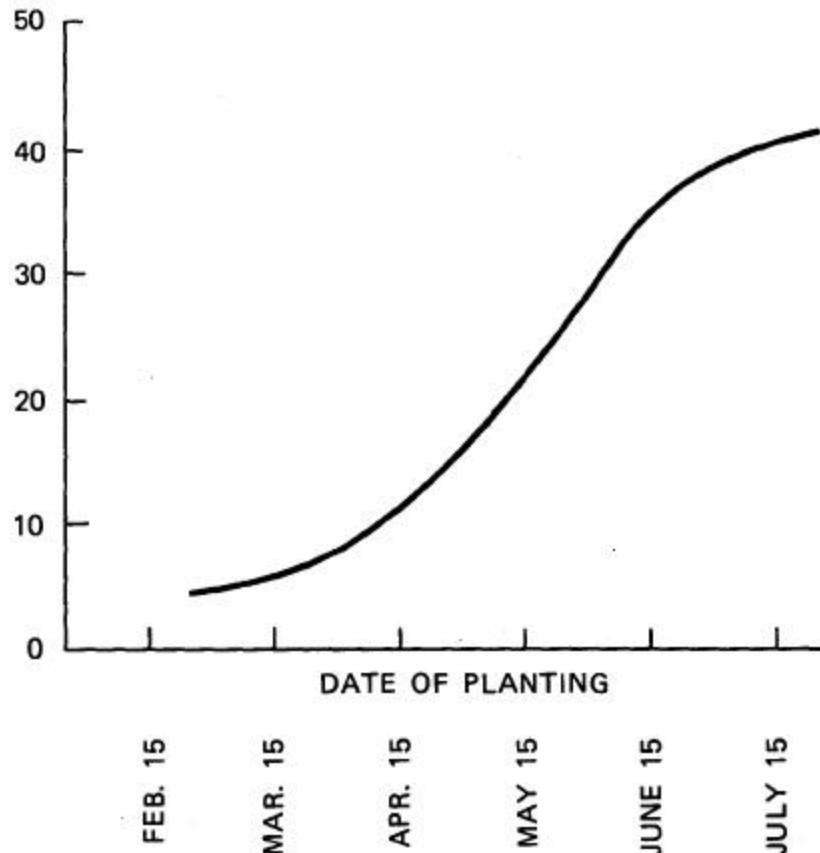
Seedling debarking weevils, primarily pales weevil, (*Hylobius pales*, Herbst.) and pitch-eating weevils, (*Pachylobius picivorus*) cause serious damage to pine seedlings in North Carolina. Adult weevils are attracted into recently cutover pine areas to breed and feed upon pine stumps and logging debris, and will feed on the planted seedlings. The danger of debarking weevils seldom extends past one planting season following cutting. Present control recommendations are: postponing planting for one season or chemically treating seedlings that are to be planted in recently cutover areas.<sup>1</sup>

In 1976, the N.C. Division of Forest Resources began producing containerized seedlings operationally. One purpose of the containerized seedling program was to extend the planting season through the summer months, since mortality from debarking weevils decreases after May (fig. 1). Field studies were set up to determine if containerized seedlings would escape attack if planted on high-hazard weevil sites after the peak months of weevil feeding.

### Materials and Methods

A 2-year study was conducted on high-hazard weevil sites on Federal Paper Board land in Columbus County, N.C. In the 1976 study, treatments were to

Containerized loblolly pine seedlings planted on high hazard seedling debarking weevil sites during June, July, and August have little mortality. This offers an alternative to the present control methods.



**Figure 1.**—Average pine seedling mortality by month—Columbus County, N.C. 1964-1971.

control: (1) bareroot 1-year-old loblolly pine planted in April; (2) 9-week-old containerized stock planted in June; (3) 9-week-old containerized stock planted in July; and (4) 9-week-old containerized stock planted in August.

<sup>1</sup> Speers, Charles F. and John L. Rauschenberger, 1971. Pales Weevil. USDA Forest Service Pest Leaflet 104.

The 1977 study duplicated the 1976 study except that the control plots were: planted 1 month earlier; the August containerized planting was omitted; and additional blocks of containerized seedlings were planted in March, April, and May.

In both the 1976 and 1977 studies, each treatment was randomly assigned to three 10-

seedling rows. All containerized seedlings used were grown in Ferdinand Rootainers using a 1:3 vermiculite and sphagnum soil media. After planting, seedlings were checked monthly, and mortality was classified as either being weevil-caused or as natural mortality.

### Results

In all instances, fewer containerized seedlings than bareroot seedlings were lost to debarking weevils. However, unacceptably high losses occurred in both bareroot and containerized seedlings planted in March, April, and May. Containerized seedlings planted in June, July, and August showed little mortality from weevils (table 1).

### Discussion and Conclusions

Even though there was an unacceptably high loss of containerized seedlings planted in March, April, and May, in all instances containerized seedlings had lower losses than bareroot stock. This is probably because containerized seedlings are smaller and offer less woody tissue for weevils to feed upon. Another possible reason for the reduced losses is that containerized seedlings were planted later in the year, thus shortening the time they were subject to debarking.

Containerized seedlings that were planted in June, July, and

**Table 1.** —Comparison of seedling debarking weevil mortality with natural mortality in bareroot and containerized seedlings

Treatment	Weevil-killed	Natural mortality	Total mortality
		1976 (percent)	
Bareroot control planted—April	47	8	55
Containerized seedlings planted:			
June	1	2	3
July	4	6	10
August	1	7	8
		1977 (percent)	
Bareroot control planted—March	83	0	83
Containerized seedlings planted:			
March	17	40	57
April	46	6	52
May	30	17	47
June	0	27	27
July	0	0	0

August showed very little weevil-damage. This could probably be attributed to weevil feeding patterns. Earlier studies<sup>2</sup> indicate that little debarking damage occurs after June. However, in the past, we have been unable to capitalize on this fact since bareroot seedlings planted during the summer have a very low survival rate.

This study indicates that containerized seedlings may be planted on high-hazard weevil sites during June, July, and August with very little weevil damage resulting. This offers another alternative to the present control methods of chemically treating

seedlings or postponing planting for a year. It also gives managers a chance to replant areas where seedlings have sustained unacceptable losses, since containerized seedlings can be safely planted in the summer following loss occurrence. This alternative should eliminate the need for a costly second site preparation, which is often needed if planting is delayed, and it will prevent a year's growth loss.

<sup>2</sup> Dogget, Coleman A. and C. R. Grady, et. al. 1977. Seedling Debarking Weevils in North Carolina. N.C. Forest Service Forestry Note # 31.