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DOES BEDDING PROMOTE PINE SURVIVAL AND GROWTH ON DITCHED WET SANDS?

Abstract.—Results from a study of prepared beds for planting slash pine on a wet sandy flat in Florida were inconclusive. Early growth was improved, but survival was not; and differences between a bedded site and an unbedded site were slight.

A question frequently asked is: "Does bedding help pine tree establishment and early growth on a ditched, wet, sandy flat?"

Some foresters contend that bedding is not necessary where the drainage system lowers the water table enough for pine trees to survive and grow. Others contend that bedding is a desirable supplement to a well-designed water-management system: they say that better stocking, better survival, and better early growth all result from this treatment.

In an attempt to answer this question, a research study was made on the Apalachicola National Forest in northwestern Florida.

The site selected for the study was adjacent to a 4½-foot-deep main ditch of the Ft. Gadsden Creek drainage project. The land was nearly

level. Soils were very fine sandy loam with slowly permeable, clayey subsoils. Predominant ground cover was a heavy stand of mixed grasses with a few palmetto, some scattered *Hypericum* spp., and an abundant supply of pitcher plant throughout. Drainage was provided by a main ditch adjacent to the bedding test site, a second ditch parallel and 15 chains away, and a third ditch on one end of the study area.

In August 1964, twenty 56 x 320-foot plots were laid out along one main ditch. A month later, in September, one-half of the plots were bedded with a fireplow. Later the unbedded plots were prescribe-burned; and in January 1965 all plots were hand-planted at an 8 x 8-foot spacing with ungraded 1-0 slash pine (*Pinus elliottii* var. *elliottii*) seedlings (fig. 1).



Figure 1.—Bedded and unbedded plots after planting with slash pine in January 1965. Edge of drainage ditch in foreground.

First-year survival of the unbedded and bedded plots was essentially the same: 93 and 92 percent, respectively. Growth likewise differed little: seedlings on the unbedded plots added 0.8 foot in height, and seedlings on the bedded plots added 0.7 foot.

After 4 years the picture changed. In that growing season, trees on

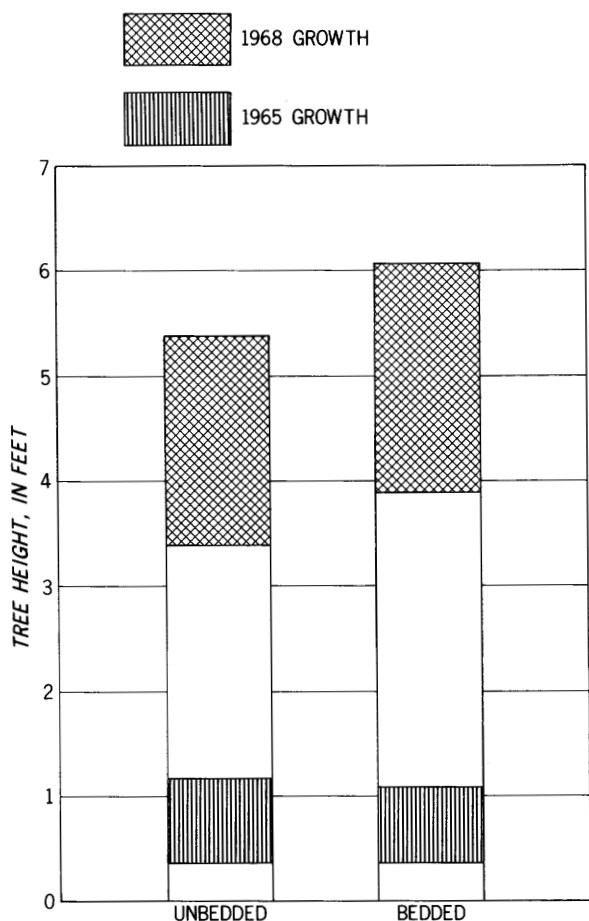


Figure 2.—Early height growth of bedded and unbedded slash pine trees, and total height after 4 years.

the bedded plots averaged 2.2 feet in height growth compared to 2.0 feet for those on the unbedded plot. Total height averaged 6.1 feet for the trees on the beds and 5.4 feet for those planted on the flats (fig. 2).

The ranking in survival remained the same as the first year: greater survival on the flats than on the beds, 89 percent versus 86 percent. Statistical analysis of the data showed that all differences—growth, total height, and survival—of the fourth-year measurement were significant.

Now we return to the original question, "Does bedding help pine tree establishment and early growth on a ditched, wet, sandy flat?"

Yes, and No, would be the answer. Early tree growth was improved significantly, while survival was not. However, the magnitude of the differences is not too great after 4 years: 0.7 foot in total height, 0.2 foot in growth, and 3 percent in survival (fig. 3).



Figure 3.—Bedded and unbedded plots at beginning of fifth growing season in May 1969. Same view as figure 1.

Another evaluation of the study is planned for the future. But for now, it looks as though foresters on both sides of the question will still have something to argue about.

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