SURVIVAL OF HAIL-DAMAGED SLASH PINE SEEDLINGS HIGHER THAN EXPECTED

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M-7 Hailstorms are few and scattered in the South but when one hits a tree nursery, serious losses can result. One such storm occurred at Georgia's Morgan Memorial Nursery (near Macon) on May 28, 1965. The storm lasted 10 minutes, dropping ill-inch hailstones and more than two inches of rain. High winds whipped the 30-day-old slash pine seedlings and scattered the oat straw mulch.

Seedling Damage

Planting had been delayed by a wet spring until the last of April. There were 20 history plots, each 4 square feet. The plots were originally installed to obtain information on field germination. Beds in this area were seeded for a density of 30 seedlings per square foot. However, when the storm hit there were 21 per square foot, with germination almost complete.

Plot counts 3 days after the hailstorm showed that 7 percent of the seedlings had broken stems (fig. 1) , and the rest were either beaten into the ground or covered by drifted mulch. The slash pine crop looked like a complete loss.

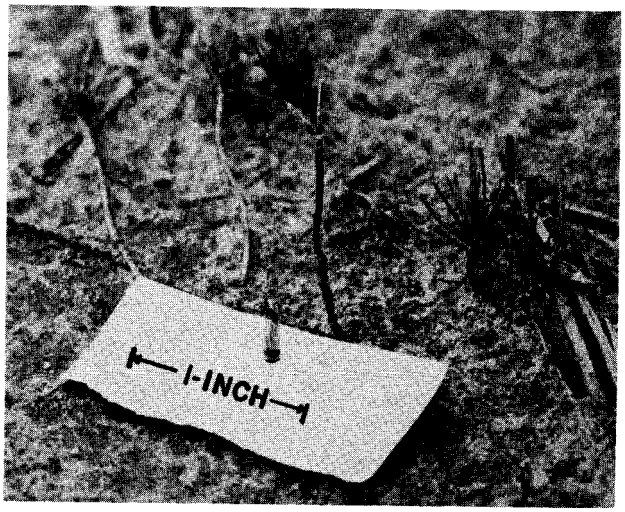

Figure 1.—Slash pine seedling damage 5 days after hailstorm.

1 Eastern Tree Seed Laboratory, operated in cooperation with Southeastern Area, State and Private Forestry, and the Southeastern Forest Experiment Station, U. S. Forest Service; Georgia Forestry Commission and Georgia Forest Research Council.

2 Reforestation Section, Georgia Forestry Commission.

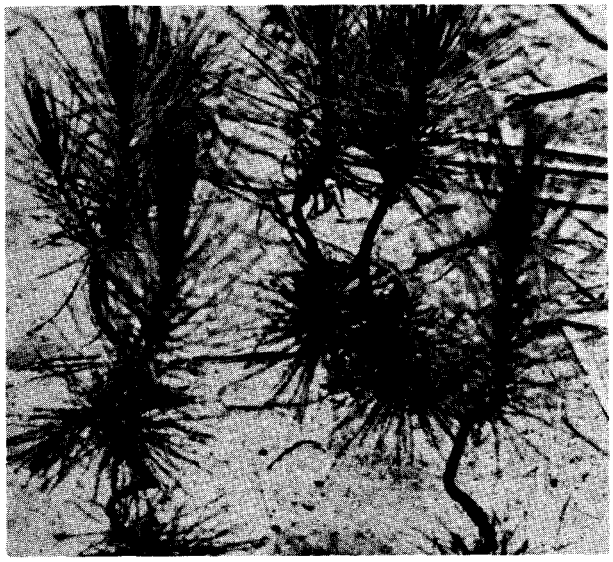

Figure 2.—Hail damage still evident 71 days after storm.

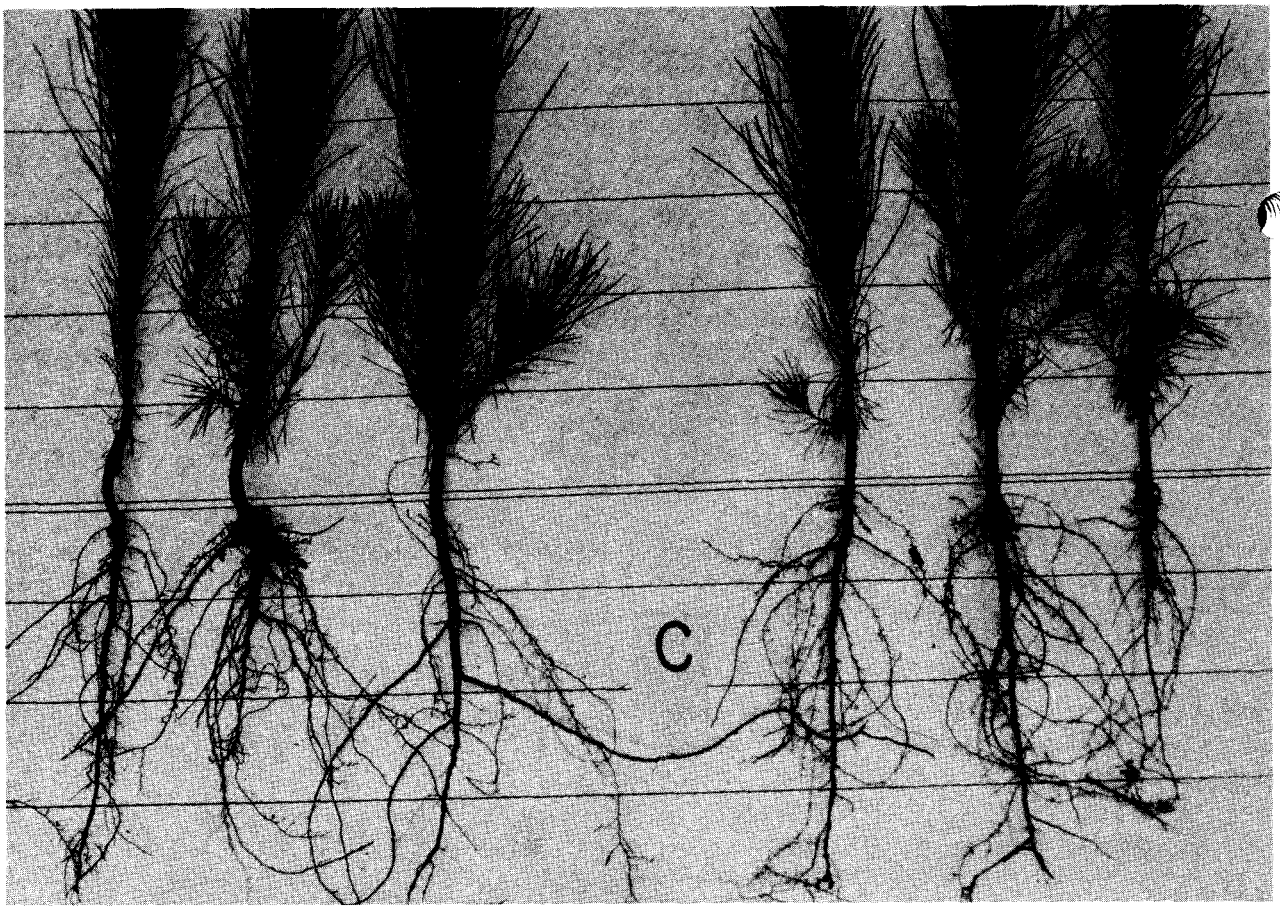

Figure 3.—Evaluation of plantable seedlings (*C*). At right, straight stems; at left, stems showing some crook, but still acceptable.

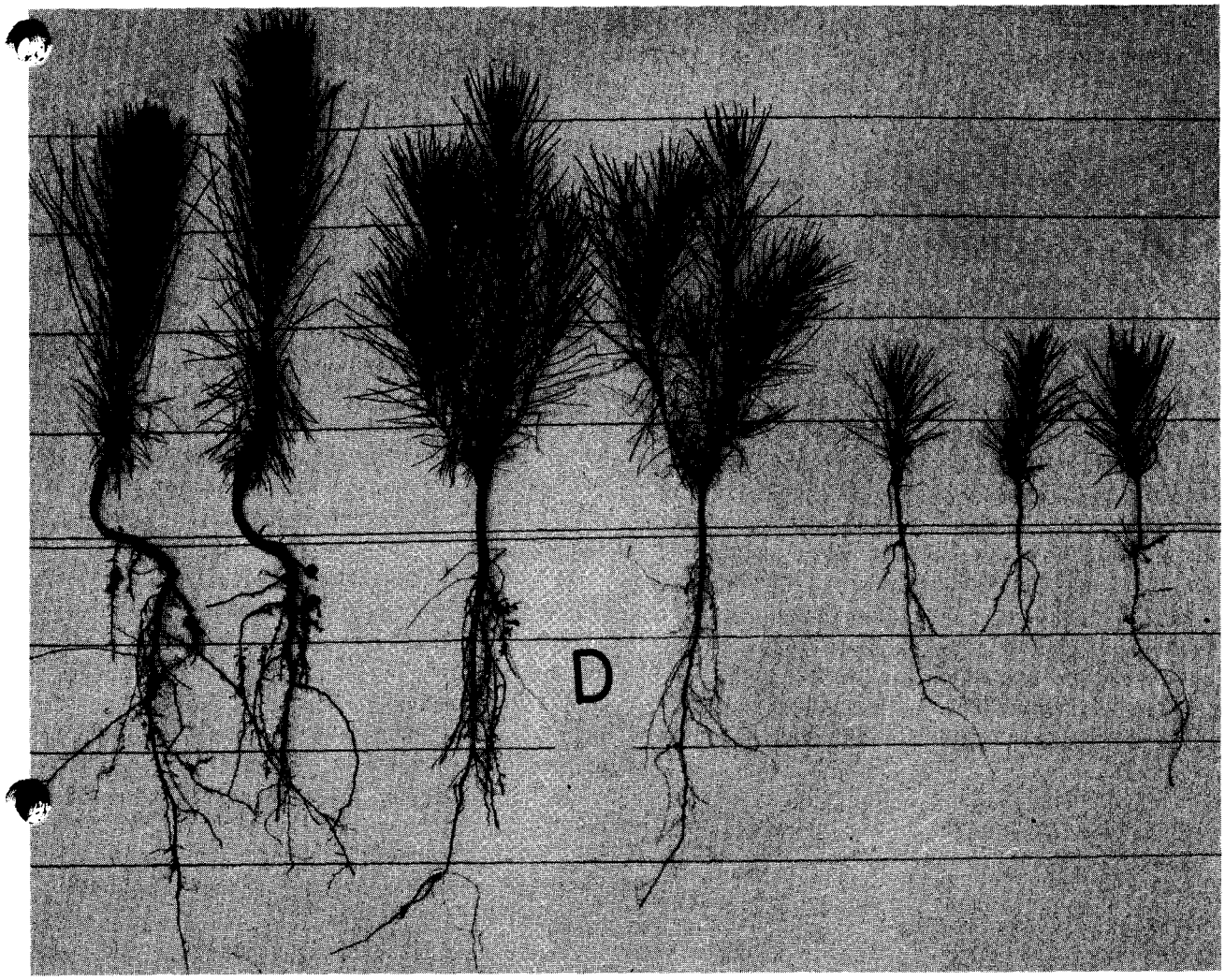

Figure 4.—Evaluation of culls (*D*). Left to right: 1 and 2, crooked stems; 3 and 4, forked top; 5, 6, and 7, too small. (Grid lines are two inches apart.)

Seedling Recovery

Although hail damage was evident for over 2 months (fig. 2), the living seedlings turned their tops skyward within 30 days and showed signs of renewed growth. A check of the plots showed that 18 percent of the seedlings had died.

In December, the plots were lifted and graded by nursery personnel, and close evaluation made of the graded seedlings. A summary of the plots showed there were 17 seedlings per square foot, of which 86 percent were plantable. An examination of these plantable seedlings (fig. 3) indicated that two-thirds still possessed noticeable, but acceptable, stem crooks. An examination of the culls (fig. 4) indicated that 57 percent were so rated because of excessive stem crooks and 15 percent because of forked tops. The remaining 28 percent could not definitely be attributed to storm damage.

Conclusion

The results of this incident indicate that hailstorm damage may not be as serious to slash pine seedlings as it would initially appear to be. Hail was responsible for fork-top seedlings and crooked stems; however, approximately 15 seedlings per square foot were salvaged from an expected total loss, or nearly 75 percent.