FURROWS AID PINE SURVIVAL DURING DROUGHT

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During a dry spring and summer season in east Texas, pine seedlings that had been planted in furrows survived and grew better than those in sod. Mulching the seedlings with sawdust was not helpful, either in the furrows or on sod.

Loblolly (Pinus taeda L.) seedlings were planted in 14-inch-wide furrows and natural sod, with and without sawdust mulch. The planting site, an open field with Cahaba soils, had been burned in December 1959. The furrows, about 3 inches deep, were plowed shortly before the pines were planted in late January of 1960. Pine sawdust was spread 2 inches thick in a 14-inch-wide strip over the planting row. Seedlings were 4 feet apart in the row, with rows spaced on 6-foot centers.

Seedling survival was recorded on February 23, April 28, June 15, September 13, and November 2, 1960. Heights were measured in February and again in November.

March and April were drier than normal, though 2 inches of rain fell at the end of April. June had better than average rainfall, but May, July, August, and September were below average. From October on rainfall was adequate.

Seedling mortality attributable to drought was noted on all plots by late April, but survival on the mulched rows was still as good as on unmulched (fig.. 1). The greatest

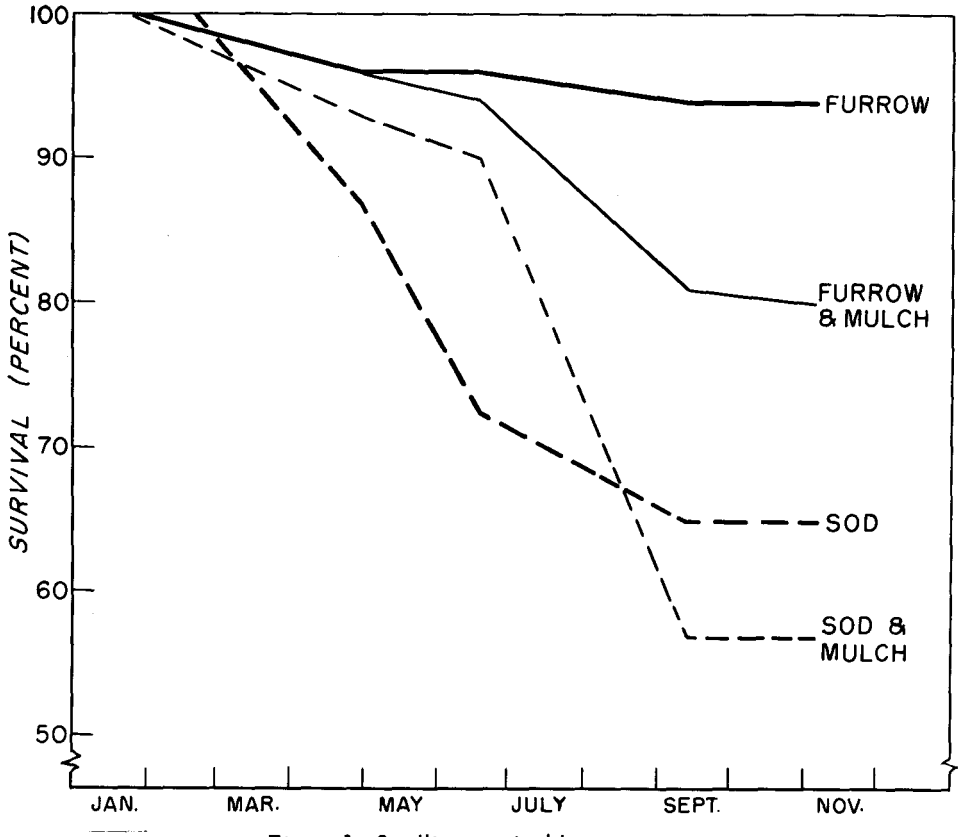

Figure 1.--Seedling survival by treatments.

seedling losses, particularly on the mulched plots, occurred between June and September.

Average survivals and heights at the end of the first growing season were analyzed statistically. In the following tabulation any two means not connected by the same line differ at the 0.05 level of significance:

Treatment	Survival	Height
	(percent)	(feet)
Furrow	94	1.44
Furrow and mulch	80	1.42
Sod	65	1.29
Sod and mulch	57	1.28

Survival and growth was better in furrows than in sod. Apparently furrowing conserved soil moisture by reducing competition.

Mulching was not beneficial, though previously this material never gave indications of an adverse effect on survival. While the mulch reduced evaporation and conserved soil moisture for some time, it also withheld some rain from the soil. It was found, for example, that the 2-inch sawdust layer was able to retain 1.3 inches of water. This effect may have been critical during July, August, and September, when the rain fell mostly in light showers.