VIRGINIA DIVISION OF FORESTRY

DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

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Covering Pine Seeds Produces More Seedlings

The Study in Brief

Beginning in February 1962 a series of spot seeded rows (paired replicates) were established on cleared cut-over land on the Buckingham-Appomattox State Forest. Site preparation included bush and bog disking. The soil type is Nason-Tatum.

The sowing dates were February 2, March 14, and April 17, 1962. Both loblolly and shortleaf pine seeds, repellent treated, were used. Non-stratified seeds were used in the February sowings and stratified seeds in the later sowings.

The spot seeded rows consisted of 50 spots at regular intervals and were established in "pairs". A "pair" consisted of one row whereby the seeds were left uncovered laying on top of the soil and a companion row whereby the seeds were lightly covered (1/8" to 1/4") with soil. There were four such paired rows per treatment by species or 200 seed spots for each treatment. Three seeds were dropped in each planting spot.

Summary of Results

Field data were taken late October, 1962. Planting date means, covered versus uncovered, were compared using a "t" test, a summary of which follows:

		Avg. Percent Spots Stocked	
		(Covered)	(Uncovered)
Loblolly	Feb.	43.0**	34.5
	Mar.	42.5	32.5
	Apr.	41.0	33.0
Shortleaf	Feb.	40.5	43.5
	Mar.	62.0*	41.0
	Apr.	44.0	28.0

		Avg. No. Seedlings (Per 100 Spots)	
		(Covered)	(Uncovered)
Loblolly	Feb.	53.5**	41.5
	Mar.	57.0*	37.0
	Apr.	54.5	42.0
Shortleaf	Feb.	56.0	54.0
	Mar.	93.5*	51.5
	Apr.	64.0*	34.0

* 5 percent significance
** 1 percent significance

Other comparisons, by treatment, were made and are presented below:

1. The average percent of seed spots containing two or more seedlings:

		Covered	Uncovered			Covered	Uncovered
(Loblolly)	Feb.	9.5	6.0	(Shortleaf)	Feb.	14.0	10.0
	Mar.	12.0	4.5		Mar.	25.0	9.5
	Apr.	10.0	8.0		Apr.	16.5	5.5

2. The average number of seeds needed to produce one seedling:

		Covered	Uncovered			Covered	Uncovered
(Loblolly)	Feb.	5.6	7.2	(Shortleaf)	Feb.	5.4	5.5
	Mar.	5.3	8.1		Mar.	3.2	5.8
	Apr.	5.5	7.1		Apr.	4.7	8.8

3. Average seedling height, in feet:

		Covered	Uncovered			Covered	Uncovered
(Loblolly)	Feb.	0.25 29/*	0.27 23/	(Shortleaf)	Feb.	0.21 28/	0.19 25/
	Mar.	0.31 22/	0.25 22/		Mar.	0.29 40/	0.24 27/
	Apr.	0.27 27/	0.21 15/		Apr.	0.15 35/	0.11 15/

Conclusions

In this particular study lightly covering the pine seeds with soil rather than leaving the seeds lay on top of the soil resulted in:

1. Increasing the percentage of stocked spots.
2. Increasing the total number of seedlings established.
3. An increase in the number of stocked spots containing two or more seedlings.
4. Reducing the number of seeds needed to produce one seedling.

* 29/ Number of seedlings measured.

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