

LOBLOLLY PINE SEEDLING PACKAGE AND STORAGE TEST

Kraft-polyethylene bags performed slightly better than jellyroll bales.

Dennis M. Eagle, Reforestation Manager, Arkansas Forestry Commission.

On the basis of several publications, (1, 2, 3, 4, 5), the Arkansas Forestry Commission changed its seedling package method from jellyroll bales to Kraft-polyethylene (KP) bags in 1974. Upon proposal of this change, several cooperative customers expressed skepticism of the results of bagged seedling storage as compared to results experienced with bales. In order to make this comparison, in 1975 the Arkansas Forestry Commission conducted a pilot test of package and storage combinations. In this cooperative project, assistance was given by Jack Luzader of International Paper Company, Camden, Ark., with the seedling project procedures in packing, storing, planting, and survival checks.

The object of the pilot test was to determine the effectiveness of the KP bags, and how the bag's storage results compared with bales under equal storage conditions. Two seedling packages were represented in the storage test—KP bags and jellyroll bales; three storage conditions were tested – open air, cold air (36° F), and a combination of open and cold air storage; and four packing media variations – no packing media, slurry, peat moss, and a combination of slurry and peat moss.

All study packages were packed on February 18, 1975, and outplantings were made on March 3, April 1, and April 22, 1975.

Each storage combination was replicated four times – a replication consisting of 25 seedlings planted on 2-foot centers. The following combinations were tested:

- I. Cold Storage - 9 weeks @ 36° F
 - A. Bale
 - 1. Bareroot
 - 2. Peat Moss
 - 3. Slurry
 - 4. Slurry & Peat Moss
 - B. KP Bag
 - 1. Bareroot
 - 2. Peat Moss
 - 3. Slurry
 - 4. Slurry & Peat Moss
- II. Cold Storage - 3 weeks
Outside Storage - 3 weeks; bales watered once per week.
 - A. Bale
 - 1. Bareroot
 - 2. Peat Moss
 - 3. Slurry
 - 4. Slurry & Peat Moss
 - B. KP Bag
 - 1. Bareroot
 - 2. Peat Moss
 - 3. Slurry
 - 4. Slurry & Peat Moss
- III. Outside Storage - 3 weeks; bales watered once per week.
 - A. Bale
 - 1. Bareroot
 - 2. Peat Moss
 - 3. Slurry
 - 4. Slurry & Peat Moss
 - B. KP Bag
 - 1. Bareroot
 - 2. Peat Moss
 - 3. Slurry
 - 4. Slurry & Peat Moss

Survival counts were made on July 3, 1975, with the following results:

I		II		III	
Plot	Survival (Percent)	Plot	Survival (Percent)	Plot	Survival (Percent)
Bale-1	91	Bale-1	90	Bale-1	86
Bale-2	99	Bale-2	96	Bale-2	98
Bale-3	98	Bale-3	98	Bale-3	98
Bale-4	98	Bale-4	97	Bale-4	100
Bag-1	99	Bag-1	92	Bag-1	100
Bag-2	98	Bag-2	98	Bag-2	98
Bag-3	98	Bag-3	95	Bag-3	96
Bag-4	99	Bag-4	93	Bag-4	97

SUMMARY

All study packages resulted in survivals exceeding 85 percent. The lowest survival, 86 percent, resulted from seedlings in bales that were stored outside for 3 weeks. Seedlings stored bareroot in KP bags, stored outside for 3 weeks, yielded a 100 percent survival. The lowest KP bagged survival was 92 percent.

Literature Cited

1. Bland, William A.
1976. North Carolina Forest Service Report No. 25.
2. Nyland, Ralph D.
1974. Protective packaging controls moisture loss among conifers during over-winter cold storage. AFRI Res. Rep. No. 18.
3. Ursic, S. J.
1963. Kraft-polyethylene bags recommended for packing and storing loblolly seedlings. Tree Planters' Notes No. 57:23-28.
4. Ursic, S. J., H. L. Williston, and R. M. Burns.
1966. Late planting improves loblolly survival. U.S. Dep. Agric., For. Serv., Res. Pap. SO-24, 12 p.
5. Williston, Hamlin L.
1965. Moss not needed in Kraft polyethylene bags during loblolly pine seedling transport and cold storage. Tree Planters' Notes No. 72: 10-11.