

## **COLD STORAGE CONTAINERS FOR PINE SEEDS**

Mason Cloud, Section Head  
Nursery Section, Forest Management Department  
Texas Forest Service  
College Station, Tex.

Storage of maximum amounts of pine seeds per unit of cold storage space is a must for all forest tree nurseries, especially where refrigeration costs are high.

Within the past 3 years, most State forestry agencies have expanded their forest tree nursery facilities. This development has been brought about primarily by the impact of the Conservation Reserve program authorized by Federal legislation known as the Soil Bank Act. The outcome of this program was a demand for seedlings, which in some States exceeded by four times the normal anticipated demands. Pine seed requirements of the various State nurseries were correspondingly high.

On a sustained annual production of approximately 22 million seedlings prior to the Soil Bank Act the Texas Forest Service normally required 4,271 pounds of pine seed each year. The Service maintains a 5-year seed cache in order to be assured of an adequate seed supply during years of low cone production. This meant that 21,355 pounds of seed had to be maintained in cold storage in order to meet the 5-year requirement.

The Service could store in its cold storage facilities only 88 of the standard 55gallon cylinder steel drums. Since each drum will hold approximately 200 pounds of pine seeds, the maximum amount that could be stored was 17,649 pounds.

To conserve space in the cold storage facility and thereby increase the quantity of pine seeds that could be put in storage, rectangular shaped containers were tried. Paul Kramer, Head, Forest Products Department, Texas Forest Service, conducted studies from which was developed a 20- by 20- by 20-inch storage container fabricated from marine fir plywood, three-quarter inch, AB exterior grade. The interior of each container was coated with paraffin. The exterior was given one undercoat of aluminum and two coats of finish paint. Materials for each container cost \$ 4.

Each container holds 100 pounds of seeds. The seeds are first placed in a 4-mil polyethylene sack and then the sack heat sealed. The purpose of the polyethylene sack is to stabilize moisture content of the seeds during the time they are in cold storage.

The change of cold storage containers from a cylinder to a rectangular shape has resulted in an increase of 21 percent in quantity of seeds that could be stored, viz., from 17,649 pounds to 21,355 pounds.

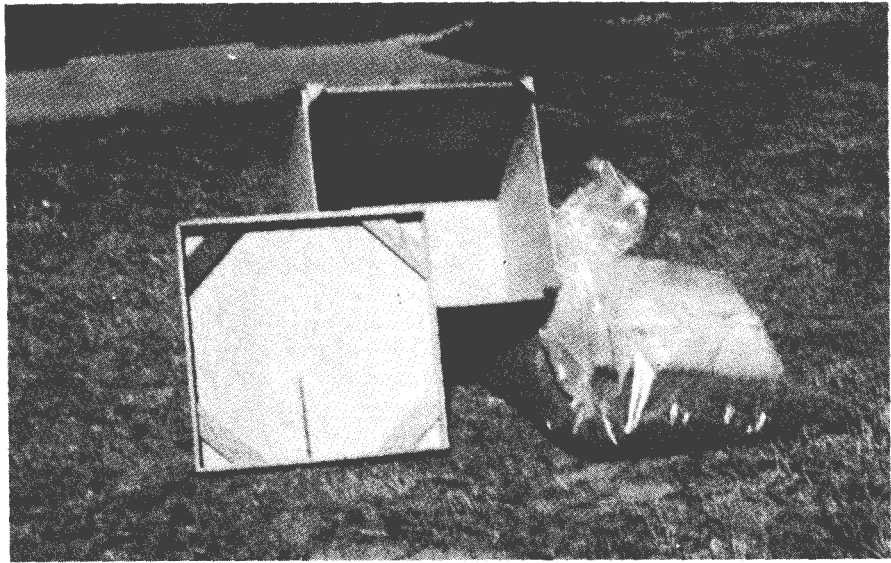


Figure 1.--Cold storage container with a 100-pound polyethylene sack of pine seeds.