POLYETHYLENE FILM FOR SEEDBED MULCH

Albert Engstrom

Assistant Forester, Oklahoma Planning and Resources Board
Oklahoma City, Oklahoma

Obtaining good germination of redcedar seed was a vexing :problem in Oklahoma C-M 4 nurseries before the technique of covering newly sown seedbeds with polyethylene sheets was developed. With polyethylene film for seedbed mulch, germination has been satisfactory. Preliminary trials with film mulching were started in 1946. The results were so favorable that for the past 6 years all cedar seedbeds have been mulched with this material.

Polyethylene has become available and relatively inexpensive in the last few years. One common use is as wrapping material for fresh vegetables in a store. Polyethylene is waterproof, it stretches slightly and has some elasticity, and it tears with difficulty but cuts easily.

The current supply was purchased from E. I. Dupont de Nemours and Company at Wilmington, Delaware. The film was supplied in rolls, 53 inches wide and approximately 1000 yards long. Cost was approximately 10 cents per linear yard. Thickness was 200 gauge, yielding 15, 000 square inches to the pound.

Sowing technique is simple. Clean, dry, untreated seed is sown on conventional seedbeds. A light covering (1/8 to 1/4 inch thick) of sawdust is spread over the beds after sowing. After the beds have been watered thoroughly the polyethylene film is laid over the beds. Burlap is laid over the polyethylene and both are pegged to the soil with 5 inch soil staples made from no. 9 wire.

The beds are then sided with 1 x 6 inch boards. This gives some wind protection to the burlap and polyethylene and provides support for the lath shade which is laid over the beds when germination has been completed. The purpose of the burlap is primarily to hold the polyethylene in place. Other covering such as straw, hay, -and cottonburrs have been used successfully, but these were considerably more awkward.

The seedbeds are sown about December 10. Germination usually begins about March 1, and is completed by March 10 or 15. The burlap and polyethene are removed from the beds at this time. Lath picket snow fencing is then laid over the beds; the fencing is supported by the 1 x 6 inch side boards. The burlap is then laid over the lath shade and re-

mains over the lath for an additional 10 days. This gives the new seedlings a chance to straighten up and completely open their cotyledons before being exposed to the sun and wind and also provides some additional insurance against unseasonable freeze damage that might occur after germination. This protection was sufficient to protect the seedlings at temperatures as low as 12^0 F. during the hard freeze occurring on March 21, 1955, about 10 days after the seed had emerged.

The principle advantage of polyethylene mulching appears to be that the seed is held in a uniformly moist medium throughout the after-ripening period. The moisture rises to the top of the soil, and the undersurface of the polyethylene collects moisture as a pane of glass does. The seed is completely protected in a moist medium with enough air to prevent any stagnation. The soil under the polyethylene does not become hard and crusty. No irrigation is necessary while the seedbeds are covered in this manner. The polyethylene can be rolled up and used a second and third time before it deteriorates.

Similar mulching techniques have been used very successfully with early spring sown Austrian pine, ponderosa pine, sycamore, lilac, multiflora rose, and several other bed-sown species. A trial sowing of shortleaf pine sown in late May suffered heavy loss from solar radiation heat under polyethylene. However, this was obviously too late in the season and no supplemental covering of burlap or straw was used to shade out the sun.

Stratified redcedar, sown in March, showed good results. If germination can be completed before hot weather sets in there appears to be no adverse effects from solar radiation.