



# STATE FOREST NOTES

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## USE OF ANNUAL RYEGRASS AND UREA FOR POST LOGGING EROSION CONTROL ON JACKSON STATE FOREST

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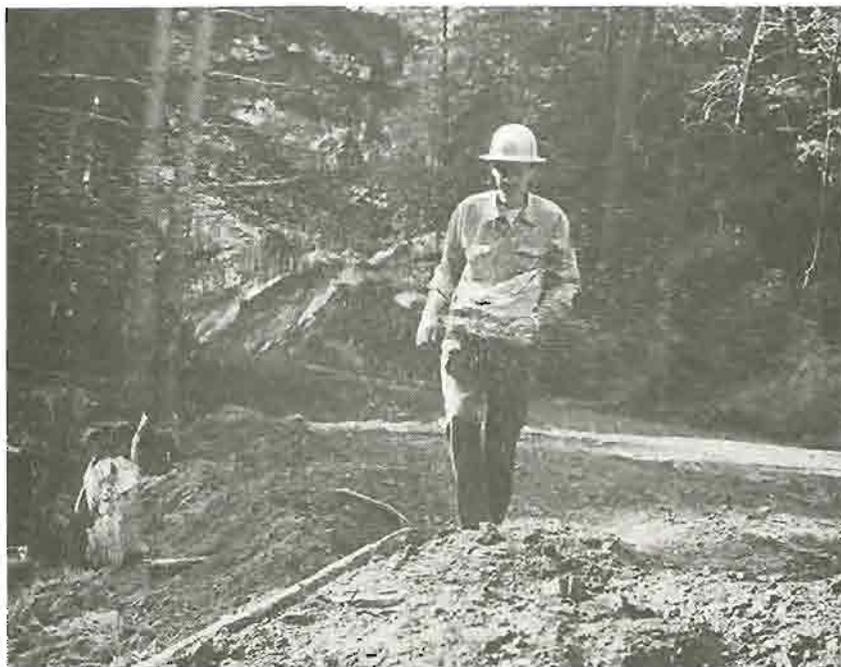


Fig. 1. Forester Gromacki spreading urea fertilizer on fresh road spoil with a cyclone seeder.

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From a study of several grass and fertilizer combinations, annual ryegrass (*Lolium multiflorum*) and urea (45-0-0) each applied at 50 pounds per acre,<sup>2/</sup> were found to provide good ground cover in disturbed areas. Subsequently, use of ryegrass and urea have become a standard practice for erosion control on Jackson State Forest. Findings on Jackson State Forest should be useful to land managers on many of the soils in much of the north coast redwood--Douglas-fir timber types.

A cover early in the season is important because the first winter after soil disturbance produces the greatest damage from erosion. Establishing a grass cover on exposed soil in road spoil slopes not only provides surface protection from rain and subsequent runoff, but also improves the appearance of the logged-over area. This is becoming an increasingly important factor in road building and logging operations. Natural vegetation may take several years to provide adequate protection and a pleasing appearance.

On Jackson State Forest all new road spoil and log landing areas are sown with annual ryegrass and fertilized with urea at the close of the logging season, usually in early October. The first rains in the fall allow the seed to germinate and develop before the more intense storms of November and December. At least a half inch of rain is required to produce germination and six to nine days are required to germinate the seed after adequate rainfall.

Seed and fertilizer are broadcast with a cyclone seeder. A man walking along the berm of the road can usually cast seed to the toe of fill slopes. An occasional trip down the longer fills is sometimes necessary to cover all exposed slopes. Log landings and some larger cutbanks are also seeded. In some cases where skid roads intersect small drainages, the steep disturbed areas near the drainages are seeded and fertilized.

The seeding progresses at about one acre per hour for one man. Fertilizer can be applied a little faster, about one and a third acres per hour because of ease of handling. Handling, opening bags, pouring seed or fertilizer and vehicle movement takes up about a fifth of the time on the job. The lineal distance of roadside seeding from a quantity of seed varies due to slope and subsequent distance down the fill, however seeding usually progresses at a good walking speed. Calculations of materials needed should be made on an acreage basis.

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<sup>2/</sup> STONEMAN, Norman N. 1971. Grass and Fertilizer Selection for Road Spoil Erosion Control on Jackson State Forest. State of Calif., Dept. of Cons., Division of Forestry. State Forest Note No. 46. 9 pp.

Usually the seed is put out over an area in one operation, then the fertilizer afterward. This is done as a matter of convenience in handling the seed separately from the fertilizer. With care in mixing both materials can be spread simultaneously.

Fertilizer is equally as important as seed. In studies on Jackson State Forest, reported in State Forest Note No. 46, it was found that grass cover and survival are dependent on fertilizer coverage.

It works well if two men are available because the need to backtrack for supplies is avoided. The vehicle can be parked at a distance from the first man calculated to be where he will need additional seed or fertilizer for the spreader. When he has reached the vehicle, he then drives beyond the second man that same distance. With the "leap frogging" of the vehicle, no time is lost backtracking as one man would have to do. Also, it is sometimes possible for one man to slowly drive while the other casts seed from the rear of a pickup down onto roadside fill slopes.

The managers of Jackson State Forest have many of the same erosion control problems as many timber owners. With materials and equipment readily available, this erosion control practice can be easily done by any timber owner or operator who desires to reduce erosion and improve the looks of freshly disturbed areas. The following data sheet gives 1970 cost information on a per acre basis.

#### Cost Data

##### Grass seed:

Annual ryegrass seed	\$320.00 per ton
Application rate	50 lbs. per acre
Application time	One man can seed one acre per hour

##### Fertilizer:

Urea (45-0-0)	\$89.50 per ton
Application rate	50 lbs. per acre
Application time	One man can fertilize 1-1/3 acre per hour

##### Cyclone seeder:

Purchase cost	\$6.00 approximately (estimated replacement needed after 100 acres of use)
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Cost per acre:

Seed	@ 16.0¢/lb.	@ 50 lbs.	= \$ 8.00
Labor	@ \$4.00/hr.		= 4.00
Fertilizer	@ 4.5¢/lb.	@ 50 lbs.	= 2.25
Labor	@ \$4.00/hr.	@ 3/4 hrs.	= 3.00
Seeder	@ \$6.00/100 acres		= <u>.06</u>
Total			\$17.31

On the average a mile of roadside on Jackson State Forest can be given this treatment at a cost of about \$108.01 (\$17.31/acre X 6.24 acres/mile). This cost is reasonable considering the benefits gained in reduced erosion and the improved appearance of the timber sale areas on the forest until conifer seedlings restock the disturbed areas and other natural vegetation stabilizes the slopes.