

Woodland Drag Chain Seeder

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The increase in Western juniper fuelwood harvest in Northeast California has created a unique revegetation situation. This fuelwood harvest leaves numerous small acreages that can be vegetatively enhanced if seeded. The Alturas Resource Area, Susanville BLM District, was faced with the above-described situation on a 75-acre commercial woodcutting area.

The woodcutting areas are rather trashy after the useable wood has been removed. Even after the slash has been broadcast burned, there were still significant amounts of woody debris and stumps that impeded drill-type seeding equipment.

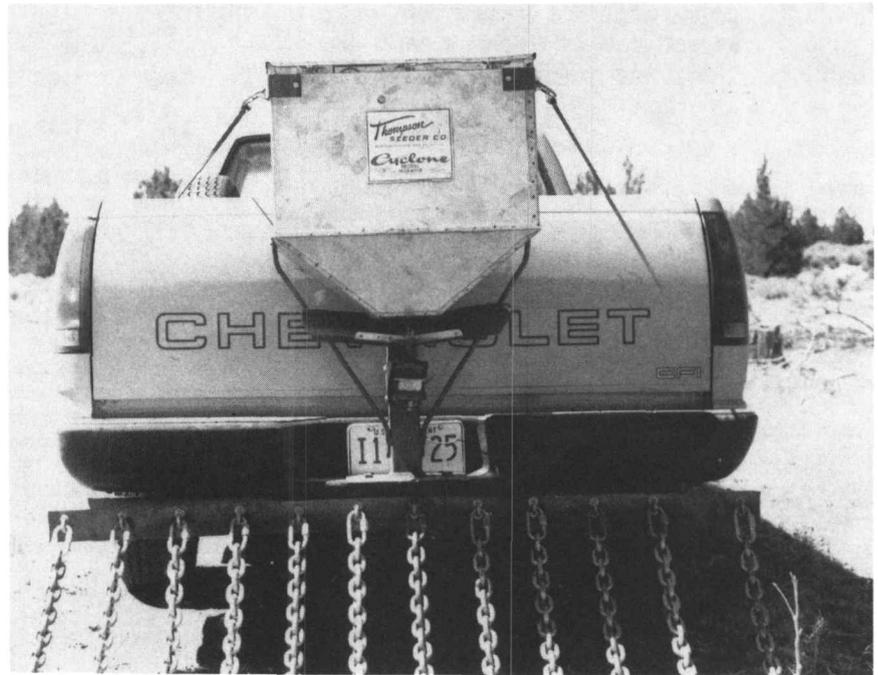
Additionally, leave trees further impeded the use of farm or rangeland type drills. Cheatgrass and annuals with a few remnants of Thurber's needlegrass were the only species which would naturally re-establish. Site conditions for revegetation required the seed be covered to ensure seedling establishment.

It was decided that the seed could be broadcasted followed by a drag to cover the seed. The original seeder consisted of a pickup bed-mounted cyclone seeder with a series of chains dragged behind to cover the seed. The chains were No. 2/0 Coil Link with six inch by three inch, 1/4 inch thick steel plates bolted to the end of each chain.

Several deficiencies of the seeder were noted. The drag chains were too light and bounced off the ground, reducing the amount of seed covered. A second difficulty was that the steel plates collected limbs and would snag on stumps and roots.

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¹Use of company product names is for information only and is not an endorsement of the product.



Rear view showing the bumper mounting of the cyclone seeder, drawbar and drag chains with quick-link mounts.

A second cyclone seeder and drag chain system was developed to overcome the above short-comings. The seeder was a 12-volt electric Thompson cyclone-type mounted on top of the bumper of a standard pickup truck.¹

The drag chain apparatus fits below the seeder and beneath the bumper of the pickup. The seed is distributed and covered by the drag chains in one pass of the vehicle. The drawbar was made from a six-foot length of four-inch angle iron. U-bolts were fastened at six-inch intervals on the drawbar and provide the attachment point for the individual drag chains. The chains are 1/2-inch coil links, attached in alternating 10 and 12 foot lengths across the width of the drawbar. Attachment of the drag chains to the drawbar is made by 1/2-inch Quick Links attachments which allow the chains to be easily removed from the drawbar for transport and stor-

age. Cost of the drag chain apparatus was \$568.00. The total cost of the seeder and drag chain combination is approximately \$900.00.

The seeder is equipped with an electric rheostat control that determines the speed and dispersal distance of the seeder. The optimum dispersal distance is 7 to 8 feet, leaving 2 to 4 feet of the drag chains to cover the seed with soil.

The straight length of chain rarely hangs up on debris or stumps, even under very trashy seeding conditions. The chain will pick up small branches, but is basically self-cleaning due to the twisting motion of the chain.

The seeder and drag chain has been successfully used to establish perennial vegetation in fuelwood cutting areas and for rehabilitating small prescribed fire and wildfire control lines. It has been used on small acreage fire rehabilitation projects



Side view showing the action of the drag chains over woodcutting debris.



View demonstrating the seed covering pattern created by the series of drag chains.

and portions of larger burns with rocky areas too rough for the efficient use of rangeland drills.

Range staff observations indicate that the seeder is capable of establishing perennial vegetation on loamy and sandy range sites. These observations indicate that wheatgrasses and alfalfa can be established. An attempt to establish four-wing saltbrush was unsuccessful. The Range Conservationist said the seed was well covered and may have germinated, but was probably grazed off by rabbits during the establishment phase.

Several points of caution need to be raised. Drag chains will not cover the seed if the soils are frozen or partially frozen. Severe damage may occur to the bumper of the truck if the truck rolls backwards over the drag chains. The mounting plate on the bumper of many pickups is only spot welded and the joining seam filled with putty. Additional welding may be needed to strengthen the joints.