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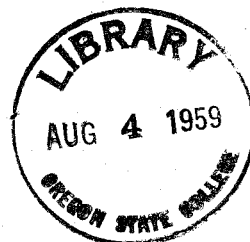
Dick Berry, Research Director

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THE MODIFIED CYCLONE SEEDER AS AN
AID IN OBTAINING UNIFORM SEED DISSEMINATION
IN DIRECT SEEDING

by

Jack F. Gartz



One of the problems associated with experimental seeding is to obtain better uniformity in tree seed dissemination than is possible by hand broadcasting. A reasonably satisfactory solution to this problem is found by using a common Cyclone seeder modified for this specific purpose.

The seeder, which may be purchased at most hardware or feed-and-seed stores, is designed to sow agricultural seed at rates per acre which considerably exceed those at which tree seed is applied. When it is to be used in direct seeding a modification is necessary to reduce the rate of seed flow to a point where tree seed can be sown at quantities which vary from one-quarter to one pound per acre. This can be accomplished by replacing the original seed container, a cloth bag, with a sheet metal hopper (Figures I and II) enclosing a chute formed by four sloping plates. The hopper and plates, by restricting the volume of seed exposed to the seed agitator (Figure III), reduce the quantity of seed flowing into the disseminating mechanism. This permits the selection of lower rates of application by an adjustment of the seed flow control lever with which the Cyclone seeder is equipped.

After a machine is modified it should be tested to determine the effective swath width and pattern of seed fall with the seed which is to be used.

A machine, modified as illustrated in Figures I and II, was tested with Douglas fir seed. The swath was found to be 26 feet wide; 11 feet to the left and 15 feet to the right. The seed was evenly distributed with approximately two feet between individual seeds.

The machine was calibrated, by trial and error, for an output of one-half of a pound of seed per acre. This was done by adjusting the seed flow and coordinating the operator's speed of travel with the operating speed of the machine. Repeated tests over a strip 208 feet long were made with 1/16th pound of seed. It was found that one complete turn of the operating crank with every step, while the operator walked at a normal

speed, distributed this quantity of seed uniformly over an area 208 feet long by 26 feet wide.

Since the above procedure requires considerable coordination and timing, it is recommended that the operator make several practice runs until he is thoroughly familiar with the operation of the seeder.

Production with the modified seeder was found to be eight acres per man-day with the operator walking at right angles to the contours. This production can probably be increased when paralleling the contours.

Experience in the use of the seeder has been limited to Douglas fir, therefore the information regarding seed flow and swath width only apply to this species and others of similar seed size and weight. For small seeded species it is probable that changes will be required.

Allowances must be made for the speed of travel and operation of the seeder where the ground is littered with large logs, slash, and other obstacles which hinder travel at a normal speed.

It is believed that this seeder can produce a higher uniformity in the dissemination of seed than is possible by hand broadcasting. It has a definite place in seeding small areas where uniform distribution is desired.

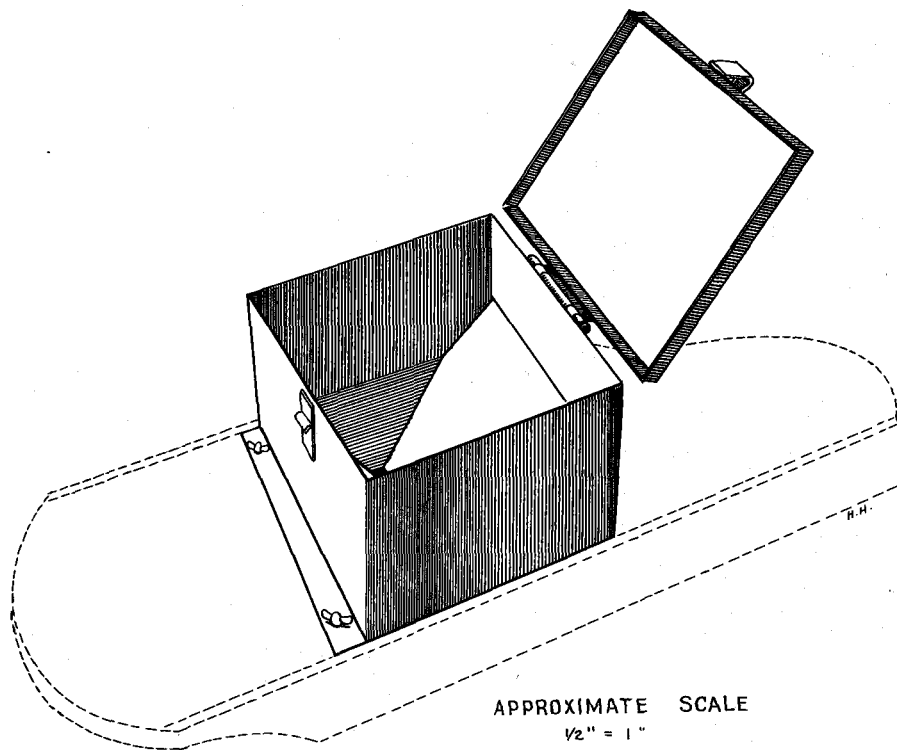


FIGURE I . INTERIOR VIEW OF HOPPER SHOWING ARRANGEMENT OF SLOPING PLATES.

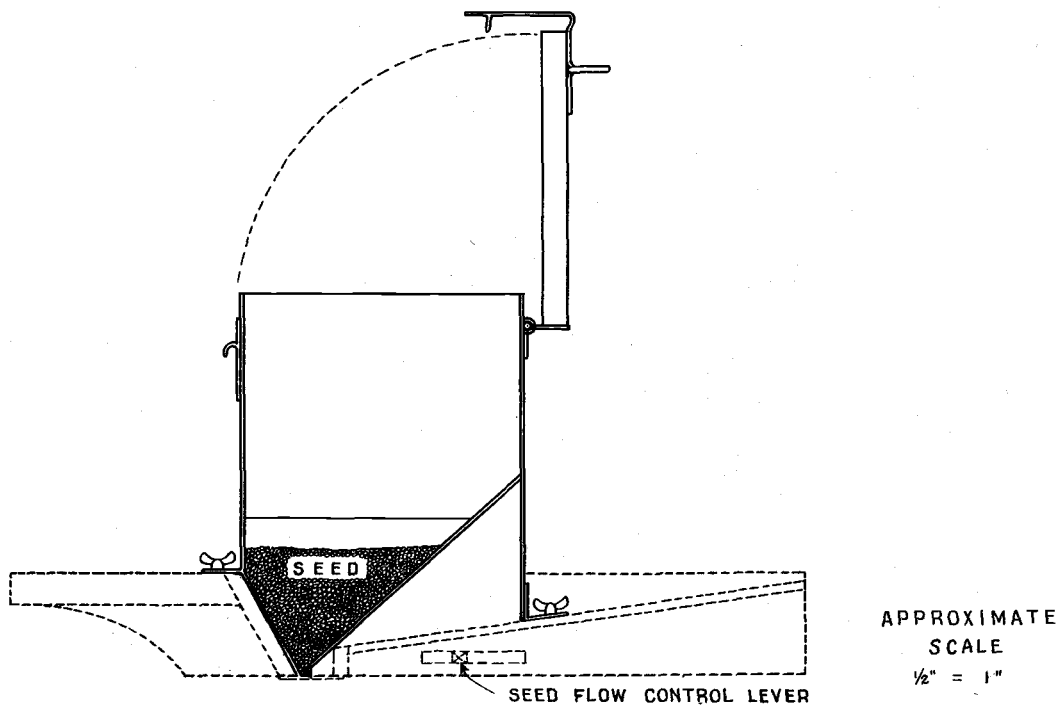
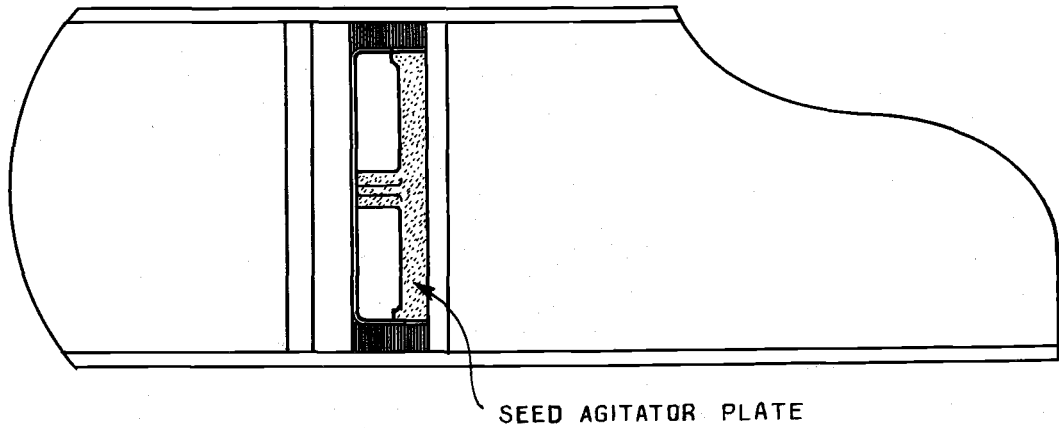


FIGURE II . SECTIONAL VIEW OF HOPPER SHOWING RESTRICTED OPENING INTO SEED DESSEMINATING MECHANISM.



APPROXIMATE SCALE
 $\frac{1}{2}'' = 1''$

FIGURE III. PLAN VIEW OF AGITATOR PLATE

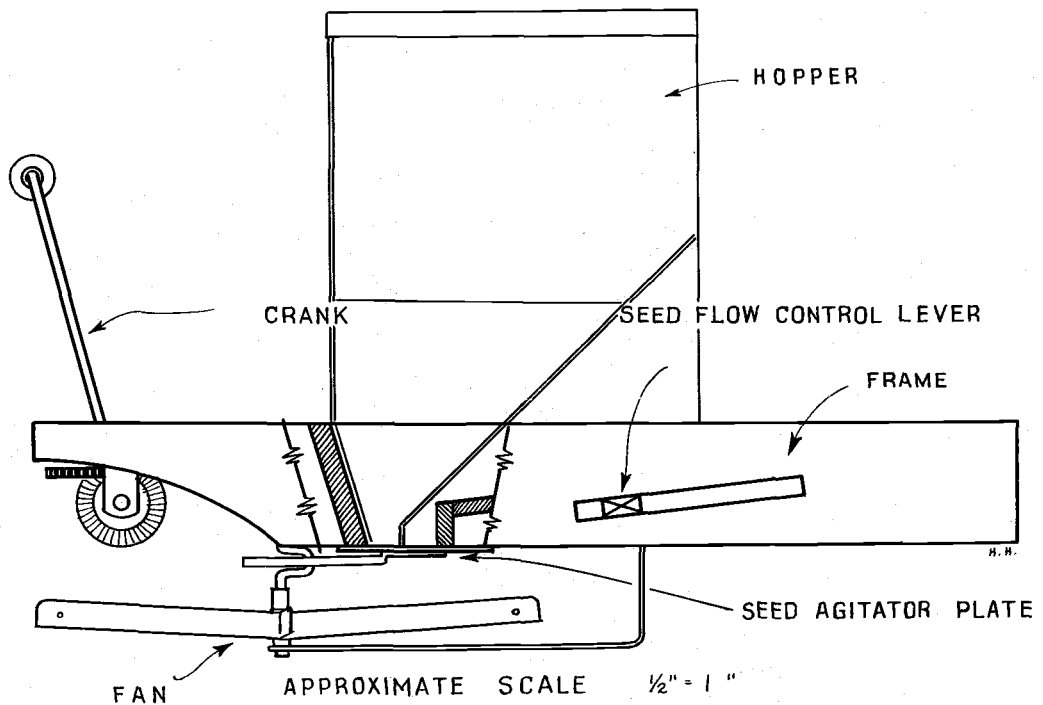


FIGURE IV. CUTAWAY SHOWING OPENING TO AGITATOR PLATE.