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EC766 Irrigation Equipment Series

Aldert Molenaar

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CONSERVATIONIST

Nebraska
COOPERATIVE EXTENSION WORK
IN AGRICULTURE AND HOME ECONOMICS
U. of N. Agr. College & U. S. Dept. of Agr. Cooperating
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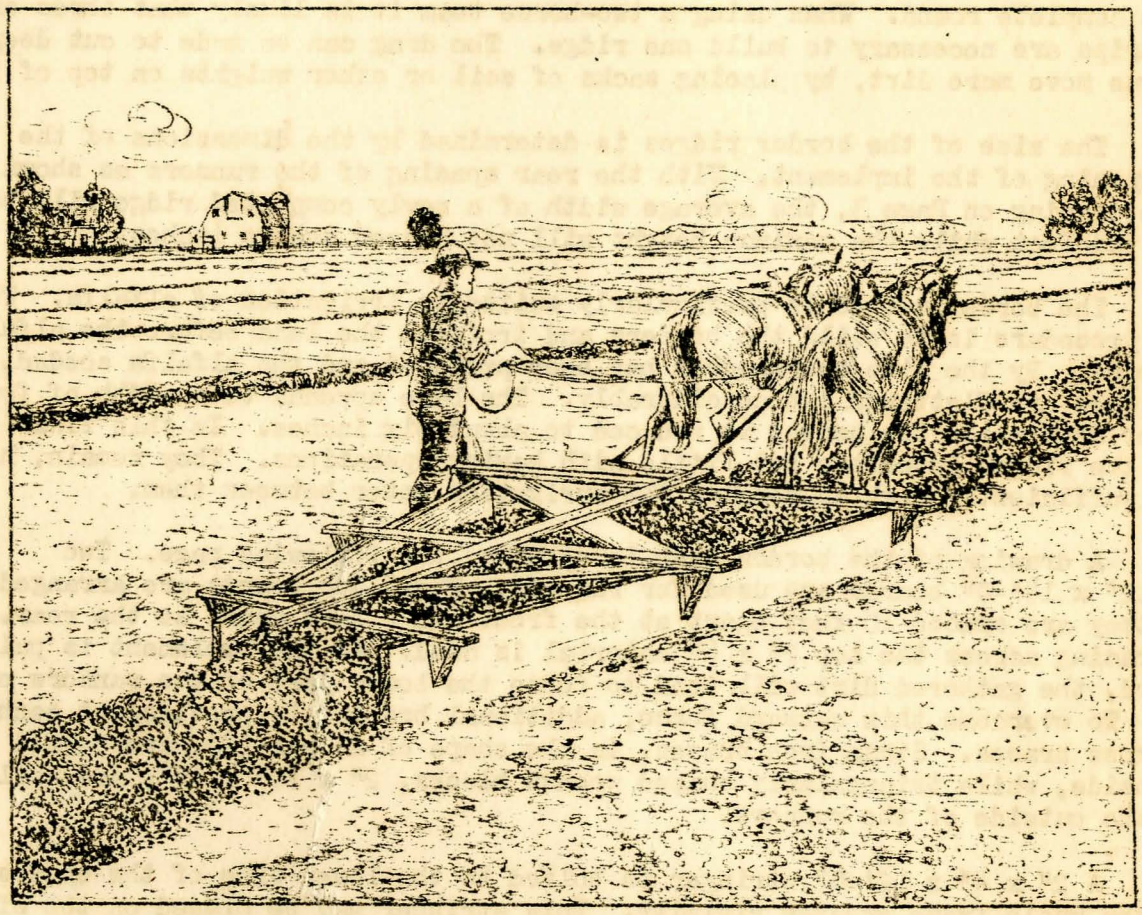
Extension Circular 766

IRRIGATION EQUIPMENT SERIES

BORDER DRAG

An important part of preparing land for irrigation by the border method is the building of the ridges. These ridges can be built with various types of equipment such as a small blade grader, a "Fresno" scraper, A "V" type crowder, or a border drag especially designed for this purpose. This circular is devoted to a description of construction features and use of the border drag.



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The border drag is perhaps the most widely used implement for building border ridges. Three outstanding reasons can be given for its popularity:

1. It builds borders of uniform size and shape.
2. It can be operated easily by one man.
3. Its cost of construction is not excessive.

Its greatest disadvantage is the fact that it is not adapted to perform other functions.

It is essential that the field be plowed or disced before using the border drag. The implement is not designed to cut a hard surface. Its cutting action can be improved, however, by lining the lower inside edge of the runners with a $\frac{1}{4}$" x 2" strap iron. This also prevents the boards from wearing along the lower edge.

If a tractor is used the border drag will build a sufficiently large ridge in one complete round. When using a two-horse team it is likely that three or four trips are necessary to build one ridge. The drag can be made to cut deeper, and thus move more dirt, by placing sacks of soil or other weights on top of it.

The size of the border ridges is determined by the dimensions of the rear opening of the implement. With the rear spacing of the runners as shown in the drawing on Page 3, the average width of a newly completed ridge will be about two feet while the maximum height will not exceed twelve inches.

The border method is particularly suited to irrigation of alfalfa. The usual procedure is to build the borders and irrigate the land before the alfalfa is seeded. By the time the seedbed has been prepared and the alfalfa seeded, the ridges are flattened out considerably. The base spreads to a width of four feet or more while the height is reduced to about six inches. In this final shape the ridges interfere but little with haying operations. They remain, however, sufficiently high to confine the irrigation water between them.

A drawing of the border drag is shown on the following page. Two 2" x 12" x 14'-0" boards are used for runners. These two boards are arranged so that they are spaced 10 feet apart at the front and 2 feet apart at the rear. For bracing across the top 2" x 6" material is used. As the implement is pulled forward, the gathered dirt will tend to force the lower part of the runners outward. To overcome this outward force, additional bracing is provided at each of the cross braces. Strap iron braces, in the shape of an ell (L), are bolted onto the inside, while triangularly shaped wooden blocks, 2" x 10" x 10", are nailed onto the outside of the runners.

A 2" x 4" x 12'-0" stringer is bolted to the lower side of the braces to give the whole frame greater rigidity. This stringer may be placed on top of the brace if so desired. The eye bolts for the hitch are located 3 feet from the front end of the runners. To prevent these bolts from pulling through the wood, a piece of strap iron is bolted to the outside of each runner.

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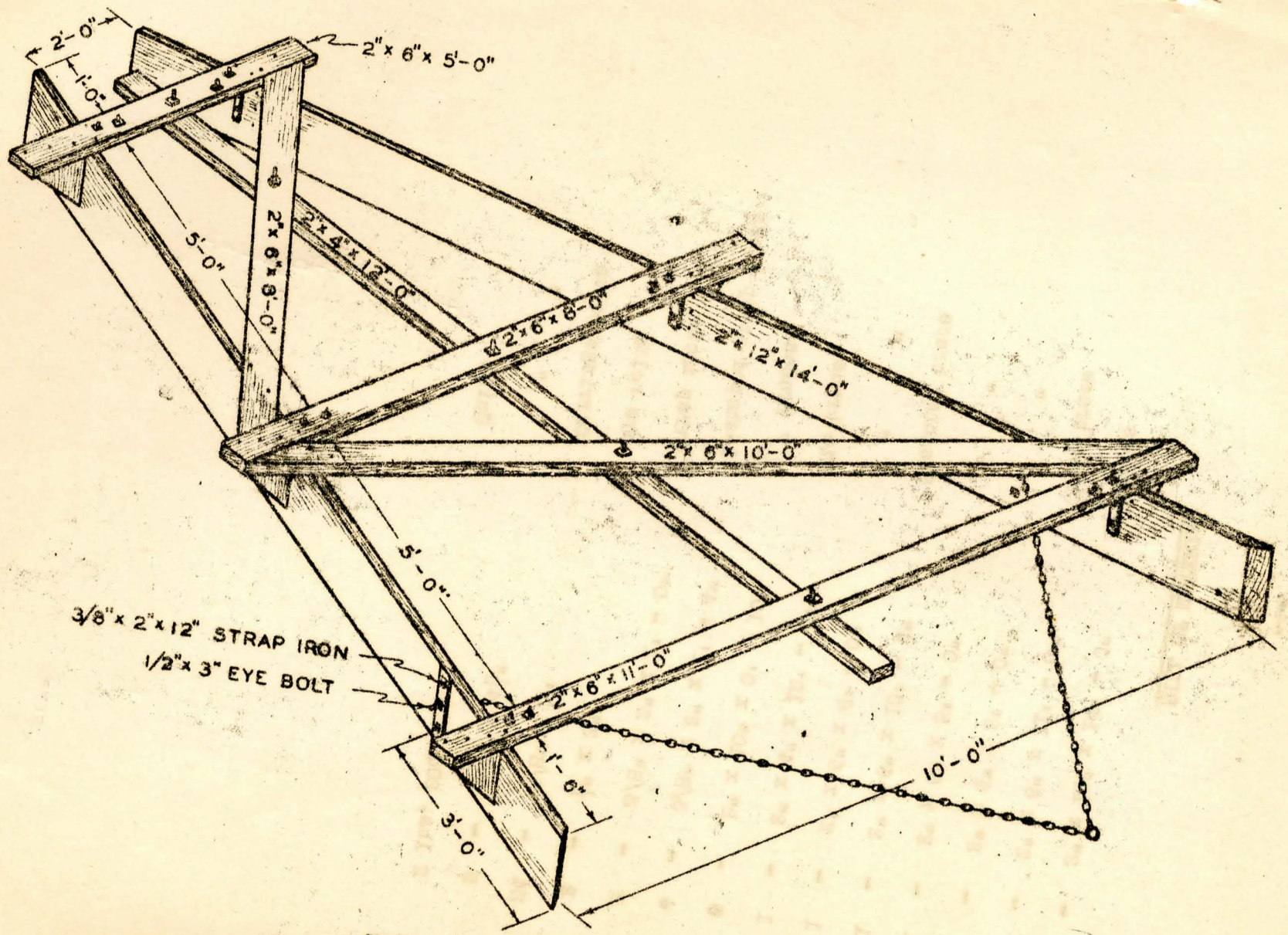
2'-0"
1'-0"
2" x 6" x 5'-0"
2" x 6" x 8'-0"
5'-0"
2" x 4" x 12'-0"
2" x 6" x 8'-0"
2" x 12" x 14'-0"
2" x 6" x 10'-0"
5'-0"
3/8" x 2" x 12" STRAP IRON
1/2" x 3" EYE BOLT
2" x 6" x 11'-0"
1'-6"
3'-0"
10'-0"

BORDER DRAG

BILL OF MATERIAL

2	-	2" x 12" x 14' - 0"	Runners
1	-	2" x 6" x 11' - 0"	Cross brace
1	-	2" x 6" x 8' - 0"	" "
1	-	2" x 6" x 5' - 0"	" "
1	-	2" x 6" x 10' - 6"	Diagonal brace
1	-	2" x 6" x 8' - 0"	" "
1	-	2" x 4" x 12' - 0"	Tie brace
6	-	2" x 10" x 0' - 10"	▽ Braces
6	-	3/8" x 2" x 1' - 4"	L-shaped strap irons
2	-	3/8" x 2" x 1' - 0"	Strap irons
2	-	½" x 3"	Eye bolts
24	-	3/8" x 3"	Carriage bolts
5	-	3/8" x 4½"	" "
2 lbs. 20d			Nails

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