Department of Primary Industries and Regional Development
GOVERNMENT OF WESTERN AUSTRALIA

Journal of the Department of Agriculture, Western Australia, Series 3

Volume 8
Number 6 *November - December, 1959*

Article 4

10-1959

Opposed discs for furrowing in pastoral areas

W. M. Nunn

Fig. 1.—The Gascoyne Research Station "crowder"—constructed for work in cultivated irrigation soils

OPPOSED DISCS FOR FURROWING IN PASTORAL AREAS

By W. M. NUNN, B.Sc. (Agric.), Officer-in-Charge, North-West Branch

THROUGHOUT our pastoral regions in all land divisions from Murchison to Kimberley, there are extensive areas of bare country which must be broken in some way to enable water penetration and to provide a place for seed to lodge before regeneration of pasture species can be expected. Earlier articles in this Journal have explained the occurrence of these bare areas, and described methods of furrowing. Checkerboard designs have been successful on perfectly level locations but contouring becomes essential where there is a slope of any dimension.

In trial and demonstration work carried out at Meekatharra, Port Hedland and at several points in East and West Kimberley, a range of standard implements have been used and compared. The mouldboard plough did a good job at Port Hedland where working conditions were not heavy, and earlier articles have stressed success obtained using a three-furrow plough with the centre mouldboard removed.

This provided two separate furrows and ridges and offered the largest obstruction to ground level winds of all the implements in use in those trials.

On much heavier soils in Kimberley, where surfaces were baked hard after years without grass, Agricultural Adviser Fitzgerald found that a mouldboard implement simply could not be made to penetrate, and the heaviest disc he could pull made only a scratch on the cement-like surface. Success was achieved here by waiting till rains had collected in the disc scratching and then re-working over the same lines. Sufficient water had penetrated as a result of the first scoring of the surface, to enable the second operation to open up a suitable furrow.

Agricultural Adviser D. Wilcox, working in the upper Murchison, has tried to apply these lessons but he is up against the toughest conditions of all. Soil surfaces are baked hard and rains are so far between, and so uncertain as to season, that follow-up work would be quite impracticable except perhaps on very restricted areas.

All this experience has led to a good deal of thought by those concerned, on the possibility of special implement design. Massive traction would, of course, do the job anywhere, but then the cost would become so high that the job would not be undertaken.

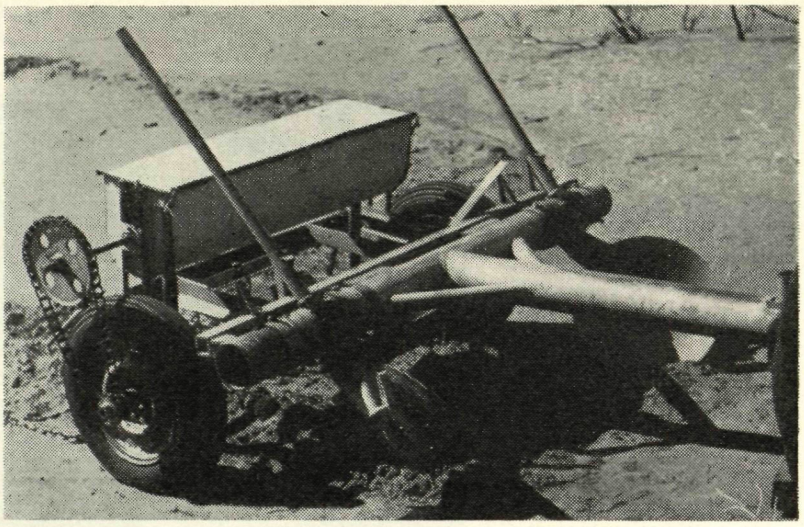


Fig. 2.—Mr. L. McTaggart's drawn implement with seedbox attached, as used at Bidgemia Station

Most stations now have wheel tractors of some description and the search is for the implement which will make the greatest disturbance to the ground while being drawn by such a tractor at working speed.

An implement assembled at the Gascoyne Research Station with two discs set at opposing angles to crowd soil into a bank, was tried out on hard country, and demonstrated that the balance of the discs against each other enabled them to bite deeper and the machine to run more truly.

In addition to cutting deeper furrows, the discs could be set to the distance apart, varying with the country, which would aggregate the soil lifted into one ridge and thus leave the maximum obstruction possible to ground level winds and to surface water movement.

There are advantages too, in having a furrow each side of the central ridge. Wind-borne seeds and debris collect best in the furrow on the windward side of the ridge. If there is a furrow on both sides, then all winds are contributing.

On sloping country most water collects and is held in the furrow which is on the uphill side of the ridge. With a furrow on both sides, all lines of work are collecting as well as can be expected, while

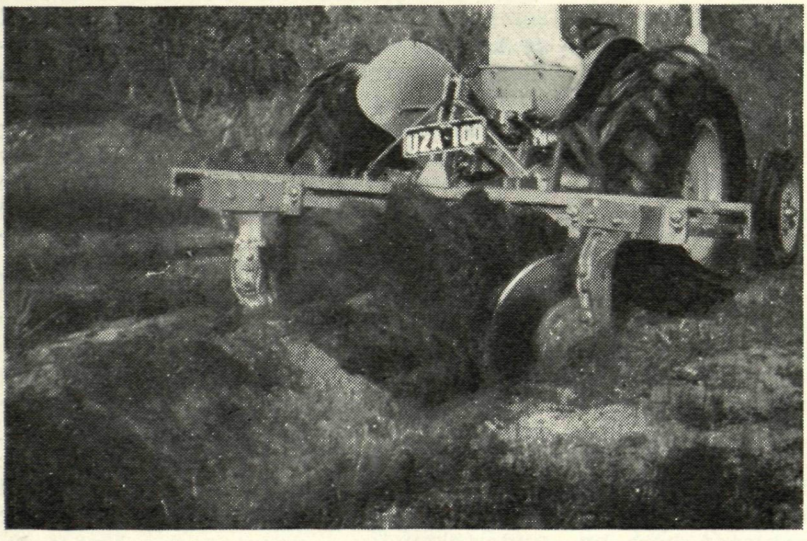


Fig. 3.—Mr. A. Robinson's opposed disc plough on hydraulic toolbar under test in black sandy soil

in a standard furrowing operation only 50 per cent. of lines could have the furrow uphill.

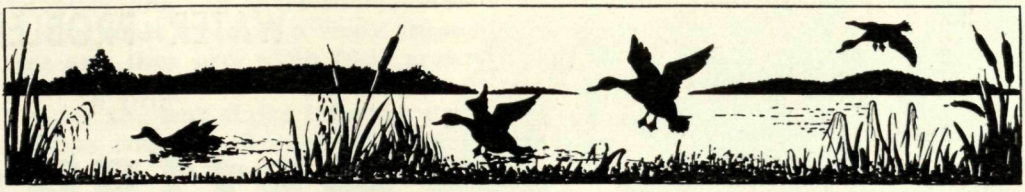
The Gascoyne Research Station implement (Fig. 1) was, of course, too lightly contructed for the work. It was designed for crowding banks between irrigation bays working in soil already broken up by standard ploughing. It served however to test the theory in brief practices and as an illustration of requirements to interested pastoralists and machinery manufacturers.

Since then two opposed disc ploughs have been constructed, each on rather different lines, and put to work in pastoral areas.

The first of these was made to the order of Mr. L. McTaggart, of Bidgemia Station. It is a drawn implement and is fitted with motor car wheels for speedy transport as a trailer unit. It has done many miles of furrowing work this season and, as can be seen from the illustration (Fig. 2), it is fitted with a seeding attachment for sowing Buffel grass as the farrows and banks are formed.

The second unit was made for Mr. A. Robinson, of Beringarra Station, for attachment to the 3-point linkage of a Ferguson tractor, and the illustration (Fig. 3) shows it undergoing trial in an area of black sandy soil. It is now facing much harder work than this at Milgun Station, 100 miles north of Meekatharra.

Mr. McTaggart and Mr. Robinson are to be commended for their initiative in applying so promptly and so effectively the lessons learned in this field.



FORRESTANIA AREA TO BE TESTED

A ten-acre demonstration plot in the Forrestania area has been ploughed and will be fenced in preparation for test sowings of cereals and pasture plants next autumn. The work is being carried out conjointly by the Department of Agriculture, the Kondinin Road Board and the Hyden Progress Association.

In announcing this, recently, the Minister for Agriculture (Mr. C. D. Nalder) said that the news would recall memories of the "3,500 Farms Scheme," an ambitious land settlement project of some 32 years ago. After World War I, arrangements were made for the spending of £34,000,000 of British loan money on land settlement in Australia. The 3,500 Farms Scheme was put forward calling for extensive land settlement of some 8,000,000 acres of land in 12 to 13 inch rainfall country east of the No. 1 Rabbit Proof Fence. Some preliminary road-making, clearing and water conservation was carried out in the area but the project was abandoned when it failed to meet with the approval of a commission charged with investigating all schemes submitted by the States.

The onset of the depression years caused the scheme to be almost forgotten, but not by settlers in the Kondinin and Hyden districts who have constantly pressed for an extension of settlement eastward.

The plot selected, said the Minister is situated about 8½ miles east of the Rabbit Proof Fence on the south side of the Hyden-Forrestania road on light scrub plain country. The Kondinin Road Board has carried out the ploughing and undertaken to plough the land again next year. This body will also transport fencing material to the plot and supply labour to erect the fence.

The Department of Agriculture is supplying the fencing materials, seeds and fertilisers and will be responsible for the sowing of the plots, together with periodic inspection and assessment of results.