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WATER EROSION CONTROL—5
Contour Working Increases Effective Rainfall
By B. a'B. MARSH, B.Sc. (Agric.), Adviser, Soil Conservation Service

Contour working holds rainwater where it falls; as a result erosion is reduced, and the effectiveness of rainfall is increased. Contour working is the working of the land in such a way that a large proportion of the furrows are fairly close to the contour. In short, furrows are level and will hold water.

Erosion by water occurs when water runs over the surface or when raindrops pound bare soil and splash it downhill. Raindrop splash can carry soil downhill even when there is no water running over the surface. (For more detail see March-April issue, p. 250.) Contour working will reduce erosion caused by run-off but will not stop erosion caused by splash effect; only plant cover will do this. It is necessary to help contour working with improved farm and pasture management.

As water is held where it falls, dry ridges benefit and water is kept out of low-lying wet patches. Crops benefit from the increased moisture available. Where the rainfall is less than about 18 inches per annum, contour working can be used to improve the moisture distribution. Where rainfall is more than 20 inches don’t use contour working unless cropping is fairly infrequent; there is too much risk of furrows over-flowing.

As the effect depends on the capacity of the working furrows, contour working is not effective on steep slopes and it is suggested that it be limited to slopes less than about 8% (8 feet in 100
This is the sixth article of a series which commenced in the January-February issue of the Journal—a series which outlines the principles of soil conservation and their main applications in Western Australia. It is hoped that the articles will help to impress upon farmers the need to conserve the soil and prevent erosion, and will point the way to the practical application of suitable soil conservation techniques.

The Soil Conservation Service exists to co-operate with farmers to this end. If you would like an officer of the Service to visit your property to discuss your soil conservation problems, write without delay to the Commissioner of Soil Conservation, Department of Agriculture, Perth.

There are very many small eroded areas which farmers can reclaim, or protect from further damage, with their present equipment.

Soil Conservation Schools lasting one day will be conducted for groups of farmers to show how they can do this work themselves. A district organisation can arrange this for a group as small as six or up to sixty or seventy.

To help you to understand what is involved in contour working, it may be best to describe a paddock as shown in the diagram (Fig. 1). The paddock which slopes to the west is not eroded except for one gully. To stop the gully eroding further, it is filled and equipped with short spreader banks. The rest of the paddock is marked for contour working. The guide lines are marked with one round of a disc plough or similar implement to make a small ridge which will last for a few years. These lines are level.

Lines 1 and 2 are surveyed from either corner of the timber so that there are not too many sharp corners.

Lines 3 and 4 are surveyed four to five chains apart on the fence line.

Line 5 is further than 5 chains from Line 4 because it is surveyed from the new gate. This line is then used as a farm track. The south end of the line is continued off the contour (shown as dotted line) so that it meets the timber in a suitable place. The old track is abandoned and the gate is moved.

Harrow reduce the furrow capacity and should not be used.

Fig. 1.— A diagram showing a 90-acre paddock marked for contour working. (See text for detailed explanation.)
uphill to the end of the new track. The lands are worked between the lines and from fence to fence except below Line 5, where the gully divides the land into two. The gully, though filled, will still receive some water and must not be crossed while cultivating. Finishing off furrows are close to the level.

Working is carried out round and round between the lines and, except for the ends of the lands, the working is on the level; bogging in loose or wet soil is greatly reduced and fuel savings of up to 10% have been reported.

As the working at the ends of the lands is up and down hill, the concentration of water down long furrows is avoided by close spacing of the guide lines. It is wise to avoid working out the corners.

Contour working alone is not adequate where many gullies (filled or unfilled) are present or where the paddock has more than one steep sided or well defined depression. Soil should not be cultivated where any appreciable quantities of water may run. Where contour working is not safe it is fairly certain that the existing method of working (round the paddock) is also not suitable.

If time and economics allowed, all such areas, to be safe, should be treated with contour banks or furrows. Where time or economics do not allow this, it is perhaps wise in many cases to consider taking some risks in using contour working.

Contour working guide lines are easily and quickly surveyed and large areas can be covered in a short time. Large areas should be treated in this way. Soil Conservation Officers do carry out this type of work, but to have large areas treated it is necessary to teach farmers to do their own work.

Soil Conservation Schools are now conducted to teach farmers some of the principles of Soil Conservation, and to teach them how to attack their problems and how to design and survey their own layouts.

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