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FARM PLANNING

3.—Natural Cultivation Boundaries

By B. a'B. MARSH, B.Sc. (Agric.), Adviser, Soil Conservation Service

In Western Australian wheatbelt farming areas, cereal growing and stock grazing occur together; these two activities cannot go together without fencing, and the average farm may have 15 to 25 miles of internal fencing if it is adequately fenced. Usually these fences are not planned with any relation to the slopes or natural features. Farms are divided into many sections by a large mileage of natural features, such as creeks, gullies, rocky ridges and salty land, and also by a large mileage of fencing.

All these boundaries, natural and otherwise, cause erosion in many ways. Tracks and firebreaks usually follow such boundaries in preference to cutting across cultivated ground. If the tracks and firebreaks are not constructed properly, erosion can result. Fences and natural boundaries cause cultivating machines to turn corners and these corners are frequently an erosion hazard (see Fig. 1).

If natural and man-made barriers to cultivation have no logical relationship, contour practices are difficult to use in many of the small, odd-shaped, pieces of land. Erosion becomes more likely and if it occurs it becomes difficult to control. The erosion on a farm is fairly directly affected by the total length of cultivation boundary, as is also the degree of inconvenience encountered by the farmer. The cure is no more difficult than designing most fences so that they follow natural boundaries. Not all natural boundaries can be used, but the idea forms a sound basis for planning, and such planning can be made less time consuming and certainly much easier.

Natural boundaries can be defined as permanent features of the landscape which form an obstacle to cultivation. If these boundaries are extensive enough, they can be regarded as possible fence lines. The several types of natural boundary are listed and described overleaf:
1. **Rocky Ridges.**—These are usually gravelly ironstone, often too steep or too rocky to permit cultivation. In some parts of the State, long, narrow bands of dolerite (sometimes called diorite) occur; these are associated with heavy red soil with large, rounded boulders. These strips are often straight. Granite outcrops are often small and scattered and do not obstruct cultivation unless they occur in broken lines. Large areas of rocky granite country also obstruct cultivation and are often worth fencing around to form separate pasture paddocks.

2. **Creeks.**—These are watercourses which carry water from large catchments. Usually they have not been cultivated because they are uncrossable; in some cases where they have been cultivated, this has led to inevitable gullying and such creeks are now uncrossable. Fences along creeks do not interfere with cultivation.

3. **Gullies.**—Some gullies can be healed, and if protected from running water, can be safely cultivated across. These are not classed as cultivation boundaries. Only those gullies which could not be protected in this way are regarded as boundaries. Some knowledge of the required soil erosion control work is necessary before planning some fences.

4. **Uneroded Depressions.**—Many gullies in the wheatbelt have been caused by cultivation of depressions followed by removal of the loosened soil by running water. Most gullies would not exist if farmers had avoided cultivating the depressions and hollows. Even though most farmers do not realise that they still carry out this unwise practice, there are still some depressions which have not yet eroded. This can be attributed not to the good sense of the farmer, but to the possibility that each time the uneroded depression has been cultivated, rains have not been heavy enough to cause water to run.

Uneroded depressions then, are not obvious cultivation boundaries but should be regarded as such if they cannot be protected from running water. Fences should be taken along close to these depressions, not so much to keep the fences out of the way, but to make it obvious to the driver of a tractor that these are cultivation boundaries.

If a fence so placed is for other reasons illogical, some other means of marking the depression should be used, for example, tree planting.

5. **Salt Land.**—It is of course, possible to cultivate across the boundary of a salt area, but it will seldom do much good. Salt land often benefits from cultivation, but usually from cultivation at a different time to land nearby, being cropped. Salt land is a boundary to cultivation and...
fences around such land will not interfere with cultivation. In the same way extensive boggy or swampy areas or lakes can be regarded as cultivation boundaries.

6. Sandy Country.—It is often convenient to cultivate light and heavy country at different times. If the area of light land is very small it is not convenient, but if the area is sufficiently large, the boundary between heavy and light land should be regarded as a cultivation boundary.

7. Trees or Shade Belts.—Blocks of trees left for shade in otherwise cultivable ground come in this category. These can be regarded as cultivation boundaries. Where the trees are situated badly with respect to a satisfactory plan, their eventual removal should be contemplated and alternative trees planted in a more suitable place.

8. Natural Paddocks.—With no fences, a farm is divided into natural sections by the many types of natural boundary; these sections are called natural paddocks. Natural paddocks are seldom completely enclosed by cultivation boundaries and they vary in size. If many of the internal fences are placed along the natural boundaries, these fences do not interfere with most farm practices (see Fig. 2). To complete the farm plan, other fence lines have to be used. These fences can be placed so that they interfere least with cultivation, and fit in with water supplies, access tracks, and erosion control work. There is usually sufficient latitude to arrange the fences so that they enclose paddocks of fairly uniform area.

Planning fences by using natural cultivation boundaries is nearly automatic and it is difficult to make mistakes which might be regretted in the future.

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FLOCK TESTING SERVICE FOR STUDBREEDERS

The Director of Agriculture (Mr. G. K. Baron Hay) stated recently that a flock-testing service for Merino stud breeders had been introduced by the Department and commenced in March this year.

This service has been commenced in order that Western Australian breeders may apply the principles of fleece measurement in their flocks and use these measurements to further improve their sheep for the ultimate benefit of the wool growing industry as a whole.

Mr. Baron Hay stated that fleece measurement is a valuable aid to stud-breeders in the accurate selection of their sheep.

This service is in line with those provided in the Eastern States where a number of major Merino studs, including parent and daughter studs, are participating in similar services.

It is noteworthy that in New South Wales where a service is conducted by the N.S.W. University of Technology, 50 per cent. of the rams now annually sold by parent studs are from studs participating in the flock-testing service in that State.

Laboratory facilities to provide measurements on wool samples forwarded by breeders will be available in Western Australia shortly. These facilities are being established in collaboration with the Technical Education Division, Education Department, who are installing the equipment and hope in future to establish a school of Wool Technology to cover all phases of work in the industry.

Merino studbreeders desiring to participate in this flock-testing service or who require further information are requested to make application in writing to the Officer-in-Charge, Sheep and Wool Section, Department of Agriculture, Perth, or contact their local District Adviser.
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