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Farm planning - 4. - Subdivision

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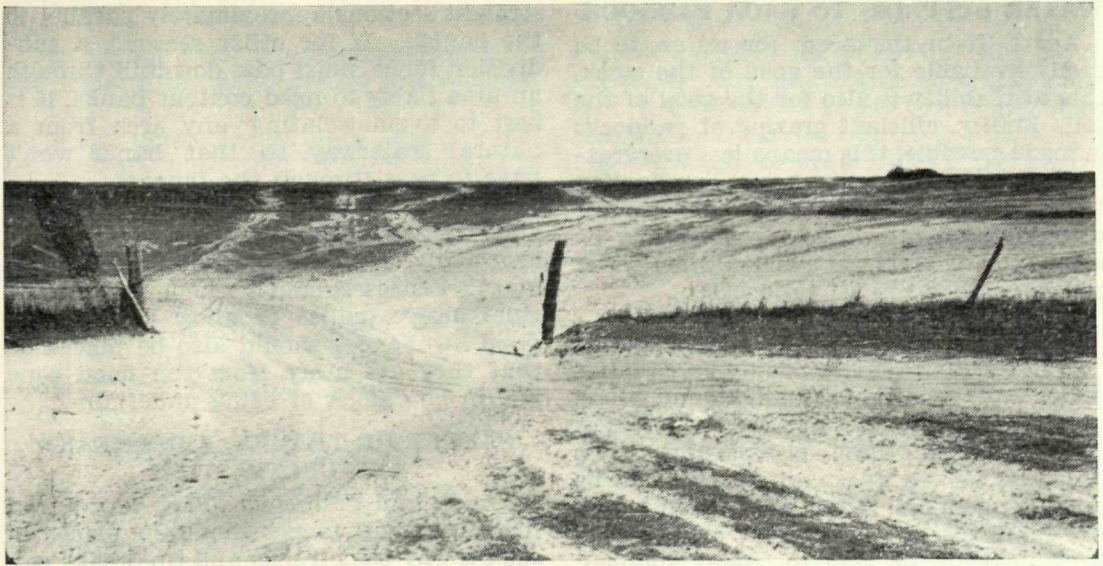
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This gateway has lost a foot of soil, blown and washed away. Sheep have had to pass through this gate every day to get to water. Damage could be avoided, not by moving the gate, but by supplying water in both paddocks.

FARM PLANNING

4.—Subdivision

By B. a'B. MARSH, B.Sc. Ag., Adviser, Soil Conservation Service

A NEAT layout of straight fences and rectangular paddocks looks, on paper, to be economical, efficient and easy to understand. Transferred to typical wheatbelt country, the fences no longer appear straight; they curve in a vertical plane over the hills and ridges, across gullies, creeks and salt land. The straight fences ignore water supplies and make reticulation costly; they ignore the shape of the country and make cultivation inconvenient; they ignore the natural drainage of the country and make erosion control difficult. As the relation to the shape of the farm is only by measurement and direction and not by logic, the fence construction is accompanied by tedious sighting and measurement.

Previous articles in this series on farm planning have shown how the natural features on a farm can form the basis for a logical fence plan. The natural paddocks which occur between natural cultivation boundaries are sometimes completely enclosed, but more often are incomplete and too large, and require that subdivision fences complete their enclosure. These subdivision fences will have to cut across cultivable ground, so some care must be taken to make sure that they will not interfere with safe cultivation and farm amenities.

While planning the subdivision it is desirable to consider several factors. These factors, listed below, may appear to be rather many for easy consideration, but

they are logical and quite easy to keep in mind.

- (1) Water supplies to each paddock.
- (2) Economy of water reticulation.
- (3) Convenience of cultivation.
- (4) Soil erosion control.
- (5) Safety of tracks, firebreaks and cultivation.
- (6) Convenience of access for vehicles and stock.
- (7) Economy of fencing.
- (8) Paddock size.
- (9) Topography.
- (10) The condition of existing fences.
- (11) The farmer's resources, ideas and ability.

Each of these will now be discussed in turn.

WATER SUPPLIES TO EACH Paddock

Apart from the need for water to be easily available for the good of the stock, this availability is also for the good of the soil. Firstly, efficient grazing of paddocks is made possible, this means less overgrazing and, incidentally, better production from pastures and stock. Secondly, trampling of gateways, day after day by stock seeking water, is avoided when water can be supplied in all paddocks.

ECONOMY OF WATER RETICULATION

Water supplies such as dams, earth tanks, soaks and bores are usually found along natural drainage lines and close to changes in land types; these are natural fence positions too, so water reticulation can be made economical. When subdivision fences are planned, they should be arranged to pass through, or lead to, water supplies. In addition, notice should be taken of the quantity of water available. In the case of excavated earth storages, it is usually possible to increase the supply by the use of contour banks or roaded catchments. Where no obvious supply is available but one is wanted, it is often possible to locate holding ground with no obvious catchment and then lead water to it by the contour bank or roaded catchment methods.

CONVENIENCE OF CULTIVATION

Fences along natural boundaries of course, don't hinder cultivation at all, but the land should be subdivided beyond this stage. While planning subdivision fences and keeping all these factors in mind, it is best to plan that fences lie along the crest of ridges, straight downhill or on the contour. Fencing in this way interferes least with contour working. Fencing regardless of topography might be convenient in other ways, until gullies form; such fences would then make the adoption of erosion control practices very inconvenient.

SOIL EROSION CONTROL

Fences along natural boundaries do not interfere with contour banks; subdivision of the natural paddocks could however interfere with proposed contour bank systems. To avoid interference it is necessary to determine where contour banks might be needed and plan fences so that they don't cross proposed banks, for instance, halfway between two banks and in

straight sections approximately parallel to the banks. If for other reasons, a subdivision fence, must pass downhill through an area likely to need contour banks, it is best to avoid isolating any area from a natural waterway, so that banks won't have to pass through the fence.

While planning fences, every erosion gully must be regarded as reclaimable, eventually, for grass growing (not cropping). Fences should be kept far enough from active gullies to allow them to be filled in. Fences should also be placed so that they are away from the flood zone and in no danger of being undermined.

SAFETY OF TRACKS, FIREBREAKS AND CULTIVATION

Tracks and firebreaks follow fences and for this reason, fences should be placed in such a way that tracks and firebreaks can be safely used.

Most farm tracks should be formed into a crown so that water can be collected and discharged every few chains. This is most easily and safely done when the tracks are taken along ridges or directly downhill. Contour tracks tend to collect water and, if used, should be on a gradient to cause drainage into suitable waterways. Formed roads also serve as efficient firebreaks.

Firebreaks can be safely cultivated on the contour. If a break is cultivated on a slope, it is best to use a plough so that water is collected in a definite furrow; by turning circles in an appropriate direction it is possible to discharge the water safely at frequent intervals. Generally, it is a good rule to keep the downhill side on the left and fences on the right when ploughing firebreaks and to turn the circles to the left.

As with roads and firebreaks, safe cultivation fits in best with fences along ridges, along the contour or directly down the slope. Fences placed in these situations are either parallel to, or at right angles to, contour working and do not cause awkwardly-shaped lands.

CONVENIENCE OF ACCESS FOR VEHICLES AND STOCK

All-weather tracks not only mean increased efficiency for the farmer, but they are also stable and do not increase or concentrate runoff. A system of formed tracks should more or less radiate out to all

sections of the farm; fences should be planned to allow this.

For taking stock from outlying parts of the farm, alternative routes are required to dodge paddocks in crop. Where fenced races are necessary to allow this, it must be kept in mind that such features are very likely to erode badly. To avoid erosion in races, the strip of ground should be formed into a crown, and spur drains installed before fences are constructed. If fences are put in first it is almost impossible to prevent erosion. Races should only be used when stock cannot be taken through the paddocks, where they can spread out.

ECONOMY OF FENCING

When subdividing large natural paddocks, the shortest length of fence should be considered against the several other relevant considerations. It should be remembered however, that a longer length of fencing is a temporary inconvenience; that is, while paying for it and putting it up. The other factors which may be considered and put aside in favour of a short fence might cause inconvenience year after year for the life of the fence.

It is rather surprising that farm plans compiled so far, have had only between 0 per cent and 15 per cent. more length of planned fence than the original fully-developed farm layout.

PADDOCK SIZE

It is not possible to state an ideal paddock size. Paddock size is a compromise between large paddocks for cropping and small paddocks for grazing. Paddock size must vary with the size of the farm, because the total number of paddocks is important. The size of sheep flocks and mobs is determined by the size of the farm and in turn must determine the size of the paddocks.

Most farmers favour a paddock size range, which they feel is suitable for their farm and management methods. In general it has been noted that farms from 800 to 3,000 acres require paddocks from 80 to 150 acres.

TOPOGRAPHY

Previous paragraphs have discussed the planning of fences, firebreaks, tracks and cultivation in relation to direction of slope.

In order to plan with topography in mind, it might seem necessary to have a contour map or model of the property. This is not necessary; the farm itself is a full scale model showing every detail of slope. With the planning carried out on the farm it is not necessary to draw up a paper representation of the topography.

THE CONDITION OF EXISTING FENCES

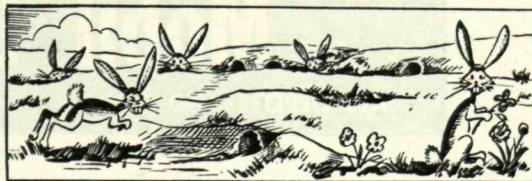
New fences, or any good fences which will not need replacing for 15 or 20 years should be retained as permanent fences but if possible, their eventual removal should be kept in mind if they cause an erosion hazard or some sort of inconvenience.

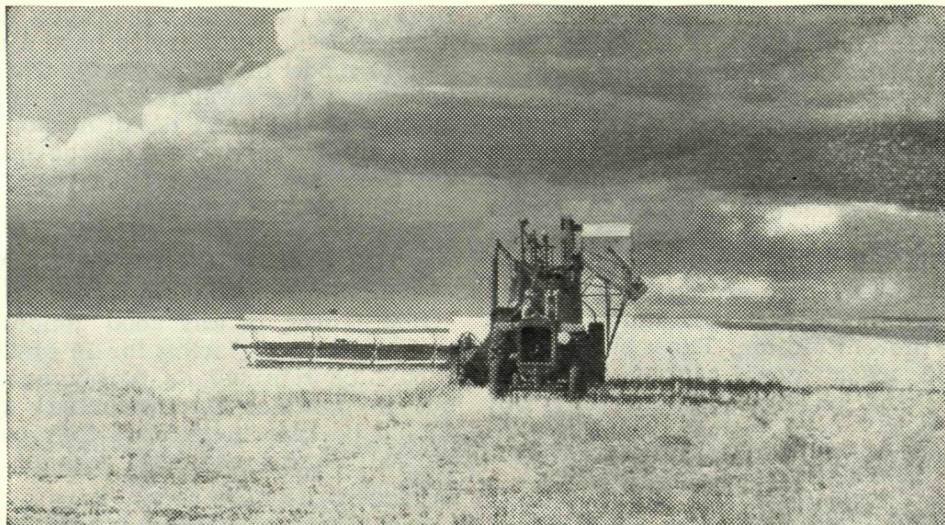
If many of the fences are new, then it is not possible, for many years, to consider implementing a soil conservation farm plan, unless the fences are destroyed in a bad fire.

THE FARMER'S RESOURCES, IDEAS AND ABILITY

Each farm has its individual characteristics, not the least of which is the farmer on that farm. A plan can be made to suit the farmer's ability to carry it through, taking into account the farm labour available, finance, machinery, the farm and stock management methods and the farmer's preferences for doing particular things in particular ways. As the Soil Conservation Farm Plan is drawn up and completed on the farm, the farmer is on hand to discuss and take part in the planning.

This and previous articles on farm planning have discussed grazing control and cultivation in relation to natural boundaries and topographical features. Very little mention has yet been made of soil erosion and its control in relation to this planning. The fifth article in this series will be on this subject.





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