

Do-it-yourself diversions

By BOB DAVIS

This year there will have been over 100 miles of diversion ditches laid out in Morrow County. Nearly four million feet are now on the ground within the county.

Each field has its own problems and opportunities. To finish with a good system of diversions that effectively reduce erosion and are easy to farm, adequate planning and lay-out time must be taken.

Four key factors influencing the spacing and location of

diversions must be remembered. They are (1) slope of the field, (2) soils, (3) availability of outlets and (4) tillage practices.

As slope increases, the potential for erosion accelerates since the velocity of the run-off water is greater. This tells us that to reduce the soil loss on steep ground the diversions have to be closer together.

Soils have a direct effect on the rate that erosion can occur. Normally, the more shallow the soil, the greater

the run-off. The soil profile acts as a water reservoir. When the size of the reservoir or depth of the soil is small the less time it takes to fill the reservoir or soil profile. Accelerated erosion then occurs when the soil can no longer hold any additional water. Intake rate of each soil also differs. This can be changed slightly by incorporating organic matter into the top soil.

The intake rate is not usually the reason for erosion occurring on the wheat-summer fallow land within the county. Only under cloudburst conditions does the rainfall rate exceed the intake rate.

The problem of inadequate outlets can make it seem impossible to drain a field. Outlets should be areas that will not erode or cause a new problem. This may be a natural or a man-made outlet.

Tillage practices have a surprisingly large effect on diversion spacing. Stubble mulch farming instead of moldboard plowing can make it possible to space the diversions farther apart. Contour seeding can also have the same effect.

In diversion lay-out and construction there should be enough grade in the ditch to present siltation but not so steep as to cause the bottom of the ditch to erode. A grade from 14 to 16 inches per hundred feet is adequate.

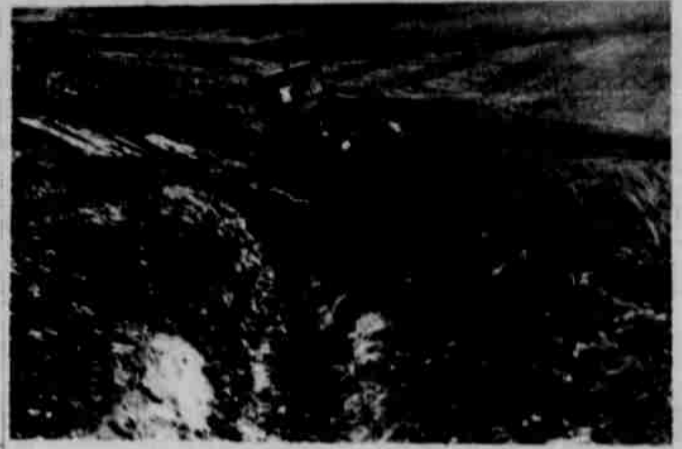
With or without the cost-share program the Soil Conservation Service, in assisting the Morrow SWCD, continues to provide technical assistance to farmers and ranchers in laying out diversions and other practices. In some cases farmers may wish to lay out their own diversions. Hand levels can be purchased for \$12 to \$15. Cheaper models are available, however, it is recommended that a level that can be adjusted for correction be purchased.

Some operators use a builders level and a rod. The rod can be easily made from 2 x 2s. The target on the rod can be painted on to the rod permanently or the target can be nailed on the rod.

Flags or stakes should be placed at a spacing of 100 feet. The distance can be paced.

Grade can be changed slightly from one end of the ditch to the other. The grade should never be reduced within a ditch. If a change in grade is necessary, always increase it. For example if you start at the upper end of a diversion at 1 per cent grade, it is possible to increase the grade to 1 1/2 per cent at some location farther down the diversion.

The useful life span of the standard diversion is approximately 10 years. With properly scheduled maintenance, the investment that the individual farmer and the U. S. taxpayer have put into the work rapidly loses its value.



Diversion construction work on 10-20 per cent slopes of Morrow Soils.

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