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ON THE CONTOUR

More Corn
More Beans

By G. M. BROWNING

ONE WAY that Iowa farmers who have sloping land can produce more per acre and per man is to plant their crops on the contour. We have thought this is true, but during the past year the Iowa Station and the Soil Conservation Service in cooperation with Iowa farmers conducted some experiments to try to get some measure of how much increase one could expect by planting corn and soybeans on the contour as compared with planting up and down hill.

If the results of 1942 are what one may generally expect, then the increase in yield will be around 6 bushels an acre for corn grown on the contour and about 3 bushels for soybeans. Of course one should not put too much reliance on the results of 1 year. We shall need many more tests over a period of several years in different parts of the state to say positively that one may safely expect an increase of a certain amount per acre.

Our tests in 1942 were made on seven soil types in fields of 14 counties. The soil types used were: Fayette, Carrington, Tama, Haig, Shelby, Marshall and Knox.

Areas for the tests were selected within each field which had been cropped the same in the past and which were uniform in soil, slope and erosion. A part of each of these uniform test areas was planted and cultivated on the contour.

When we harvested these fields for yield, we compared areas side by side in each field that had been contoured and farmed up and down hill. In the 30 fields of corn where we made these tests, 27 showed larger yields from the contoured areas and 3 decreased yields. When the results were tested for statistical significance, 16 showed significant increases. Eleven more which showed increases were not significant and the decreases in the three fields were not significant.

With the soybeans, the contoured areas in 21 fields showed significant increases and six more showed increases, but not large enough to be significant—they may have been the result of chance or error rather than the way they were farmed. The other three fields showed decreases, but they were not significant.

In exact figures, corn on the contour outyielded the up-and-down hill corn 6.2 bushels an acre; the contoured soybeans outyielded the up-and-down hill beans 3.2 bushels an acre.

Over a period of years, the average increase in yield will vary some from these values, but for the moment let us assume the 1942 figures and calculate the increase in bushels of corn that Iowa farmers might have raised if all of the estimated 5 million acres of corn planted on sloping land in 1942 had been on the contour. Five million acres times 6.2 bushels per acre is 31 million bushels of corn—enough to fatten out 2 million hogs. Similar calculations can be made for increases in oil that might have been produced if all of the soybeans planted on sloping land had been on the contour.

The results we are reporting were obtained in a year when moisture was adequate or excessive. It generally has been thought that the beneficial effect of contouring was largely due to the extra moisture saved by contouring. How, then, can the 1942 results be explained when moisture was probably not a limiting factor?

Records of rainfall in 1942 show that there were more hard, driving
rains than usual during the growing season. These caused excessive gullying between the rows. Many of the roots were exposed and, in some cases, plants were even washed out of the ground. These roots were destroyed by exposure or later cultivation. Apparently the feeding power of the plant for water and plant nutrients was reduced enough to decrease the yields. Increased yields from contouring can also be expected in droughty years, when there are no heavy rains to cause damage by severe gullying.

Studies conducted on a Marshall silt loam soil at the Clarinda Experimental Farm from 1933–39 show that the loss of soil and water from rows listed up and down hill is about five times that from corn listed on the contour. Each furrow acts as a barrier which checks the velocity of the surface runoff, causing it to unload its silt and allow it more time to soak into the soil so that it will be available to the plant.

Listing, with its large capacity to hold water, is more effective in conserving soil and water than furrow openers or surface planters, the furrows and ridges of which have a rather limited capacity to hold water. But even though the furrows formed by the implements are small, the additional moisture which they save on the contour may be very helpful in carrying the crop through the dry period. Moreover, the fertility loss in the eroded material will, over a period of years, be sufficient to greatly decrease the productivity of the soil.

Corn on the contour must be drilled, and even if contouring increases yields and saves soil and water, can drilled corn be kept clean? This is a question frequently asked by farmers who have not contoured in the past. The experience of those who have tried it is that weed control may be a little more difficult in unfavorable seasons, but it is not a serious problem.

In addition to increasing yields and saving soil and water, contouring has another advantage—it saves tractor fuel. Tests have shown that savings of 5–10 percent in fuel may be expected when the tractor is operated on the level instead of up and down hill.

There is nothing complicated about contouring. It may require a little more time to begin

Left: Soybeans planted up-and-down hill washed more than if planted on contour.

Below: Much of this type washing can be avoided when planting is on contour.

with, but when you have it started it is just as natural as the old method of checkrow planting. Anyone with an ordinary level or other suitable instrument can lay out a contouring line. Bulletins and leaflets are also available which outline in a simple fashion the steps to be followed in contour farming.

Increase Most Years

In general, yield increases can be expected from contouring in years when rainfall is deficient or when there are a number of hard rains that cause severe gullying in the rows planted up and down hill. Since there are usually one or more intense rains each year that cause severe erosion, increases in yield from contouring can likely be expected in most years. The saving of soil that results from contouring is in itself sufficient to justify the practice without taking into consideration any immediate increase in yield or the saving in power that results from carrying out the farming operations on the contour. The loss of top soil is costly on any farm.

With all of the desirable features of contouring and with the additional food needed, farmers can help meet their goals by planting their corn and soybeans on the contour if the land is sloping and subject to erosion.

An increasing number of Iowa farmers with sloping land are planting crops on the contour and are finding it an excellent way to step up yields and prevent soil loss.

*You can obtain these from the county extension director, AAA committeeman, or representatives of the Soil Conservation Service.*