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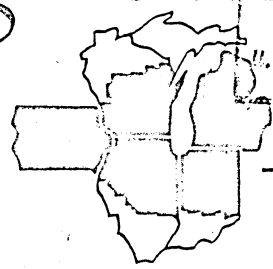
Agricultural Letter



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MINIMUM TILLAGE is of great interest to many Corn Belt farmers this year, in part, because of the wet, late spring which has greatly reduced the time available for doing field work. Minimum tillage involves the combining or elimination of some of the usual steps in the preparation and planting of cropland. Hence, when plowing and disking are delayed, it is possible to plant a given acreage in a shorter time if the so-called minimum tillage procedure is followed.

Another important factor has been the continued cost-price squeeze for cash grain farmers. The Government support price for corn in 1960 will be 6 cents per bushel below the 1959 level. This, coupled with an expected further increase in production costs, will likely reduce profit margins for corn produced in 1960, unless exceptionally high yields should be obtained. Since minimum tillage involves elimination of some of the preplanting operations, cost reductions can be achieved.

The extent of the cost reductions depends both upon current tillage operations presently employed and the type of minimum tillage which suits the farm operation.

Cost of Soil Preparation and Planting
Under Different Tillage Practices

Operation	Conventional tillage	Minimum tillage	
		Disk-plant	Plow-plant
	(per acre)		
Cut stalks	$1.24	–	–
Disk stalks	1.08	$1.08	–
Plow	2.32	–	–
Harrow	.33	–	–
Plant (2row)	2.04	2.04	–
Plow-plant	–	–	$4.35
Rotary hoe	.72	1/	1/
Cultivate dry land (1 cultivation)	1.40	1.40	1.40

1/ Optional operation depending on condition of land.

SOURCE: Purdue University. Above figures include labor, power and equipment costs only and assume 3-plow tractor and the most common size equipment. Labor is calculated at $1.10 per hour.

If corn is to be planted on land used for corn in the previous year and the soil is in good condition, one common minimum tillage practice is to plant after tandem disking. Elimination of the plowing reduces total costs per acre about $2.32. In addition, other operations such as stalk cutting and harrowing would be eliminated. Altogether, total savings could amount to more than $4 an acre which would mean a reduction of 6 to 7 cents a bushel of corn, assuming a yield of 60 bushels per acre.

Where more intensive tillage is needed, a plow-plant operation is a likely minimum tillage practice. This would save about five trips over the field and reduce costs nearly $3 an acre or 5 cents a bushel of corn, again assuming a yield of 60 bushels per acre.

However, there are some definite limitations in using minimum tillage. For example, where corn follows a legume, a very thorough job of soil preparation may be necessary to prevent excessive moisture loss from growth of plants other than corn. In addition, areas of extremely heavy or light soils may not be easily adaptable to minimum tillage practices. For instance, it is sometimes necessary to till a field several times to prepare a seed bed on clay soils. Consequently, yields obtained with minimum tillage on soil of this type may be highly variable.

The secondary effects of freeing labor and equipment and a more timely planting likely will have a greater impact on the total net income of grain producers than the reduction in cost of operation. Even though the variable costs (gasoline, tires, repairs, etc.) may be reduced by minimum tillage, fixed costs (depreciation, interest, taxes, insurance) will continue largely unchanged unless the investment in machinery is reduced. However, because of lower labor and machine requirements per acre, the farm operator may be able to farm a larger acreage or the labor time made available as a result of minimum tillage may be used for expansion of livestock or other enterprises. Thus, if resources for enlarging the size of farm or for adding new enterprises are available, the farmer could benefit by a gain in labor income in addition to the cost savings of minimum tillage.

Experiments conducted on corn yields in Nebraska and Illinois in 1958 and 1959 indicated only slightly lower yields for minimum than for conventional tillage.

Other advantages of minimum tillage include: reduction in wind and water erosion; less surface evaporation in the spring; fewer weed problems; and somewhat less soil compaction which, in turn, increases water intake of the soil.

Minimum tillage, however, should not be thought of as a lazy man's way of growing corn. According to farm management experts, the managerial ability required to maintain yields under minimum tillage is at least comparable to that for conventional tillage.

Research Department