

AUTOMOBILES, FARM MOTORS AND FARM MACHINERY.

Factors to be Considered in Making Plans for Tractor Plowing.

Farmers who plow with tractors desire, first of all, to lay out their fields so that they can do a high-class job of plowing over the entire field with the minimum use of a horse-drawn plow in starting and finishing the work. It should usually be possible to open up a field without the use of horses, but it will not often be possible to finish the ends and corners as satisfactorily with the tractor as with horses. Many farmers, regardless of the method followed in plowing with the tractor, use horses for finishing up the corners and plowing the last few furrows near the fences.

Then the plowman wishes to reduce to a minimum the time spent in turning and in running with the plow out of the ground. Time spent in useless turning or travelling long distances across the ends with the plows out reduces by that amount the number of acres which can be plowed in a day, making the tractor that much less efficient. The ideal in this respect would be for the plows to be in the ground all the time that the tractor is moving, but the quality of the plowing can often be improved by spending a little more time in turning or running with the plows idle. However, on every job there is a point beyond which we should not go in sacrificing speed for quality of work.

Making short turns is awkward work for most tractors, and where such turns are necessary the operator often has more or less difficulty in getting the outfit in the correct position for starting into the furrows at the right point. The type and size of the tractor will have much to do with the ease in making short turns, but short turns are always troublesome. The plowman should decide before he starts work on his field to what extent he can afford to drive the outfit with the plows idle, so as to make a long, sweeping turn instead of a short one, or just how much he can sacrifice in the quality of his work in order to avoid awkward turns.

While it may pay to make some effort to avoid short turns with a large, cumbersome outfit, it should be borne in mind that the loss of time and fuel due to making long idle runs across the ends of the field with an outfit pulling several plows is just as serious as it is with the small, easily handled tractors. From the standpoint of time lost in idle running, the size of the tractor and the number of plows pulled should be considered only with reference to relative difficulty in making the short turns in starting or finishing the lands. For instance, it might pay to lay out in five lands for a 4-plow outfit a field that would have been plowed in six lands with a 2-plow outfit, but it would rarely, if ever, pay to lay it out in only three lands for the big outfit.

Some tractors turn more easily in one direction than another, and with an outfit of which this is true it may pay to lay out the fields accordingly. If the outfit is not equipped with self-lift plows, a certain amount of time must be taken to stop the tractor and lift the plows out by hand and this time may be so great as to make it more profitable to adopt a method by which the plows will have to be lifted a very few times, if at all.

In deciding how wide the lands are to be the ease of handling the tractor and plows may not always be the most important thing to consider. In regions of heavy rainfall, it may be best to make narrow lands with frequent dead furrows and back furrows as an aid to drainage, while in more arid regions the reverse will be true. The contour of the ground or the shape of the field may be such as to determine almost entirely the method that must be followed in the plowing.

In short, many circumstances must be considered before deciding just what method would be best for a particular field with a particular outfit. Every job of plowing presents a problem of its own, and there can be no one best method for all cases.

The methods in general use can be divided into two general classes: (1) those in which the plows are lifted and no plowing is done across the ends; and (2) those

in which the plows are left in the ground while going across the ends.

The advantages of plowing by the methods of the first class are that the short awkward turns are eliminated, except in some cases at the beginning and ending of the lands, and usually less space will be left at the corners to be plowed out with horses. It is generally possible also to do a little higher quality of plowing if the plows are lifted at the ends.

The advantages of the methods of the second class are that little or no time is lost in travelling with the plows out of the ground, and that ordinarily the number of dead furrows and back furrows will

be considerably less. However, the turn at each corner must be made as short as possible if the space left to be plowed by horses is to be reduced to a minimum, and the land at the turning points, lying in diagonal lines extending from the corners of the field into the ends of the dead furrows or back furrows is likely to be poorly plowed.

Taking the country as a whole, the methods by which the plows are idle across the ends are the more popular, but a large number of farmers have a decided preference for those by which the plows are kept in the ground continuously.

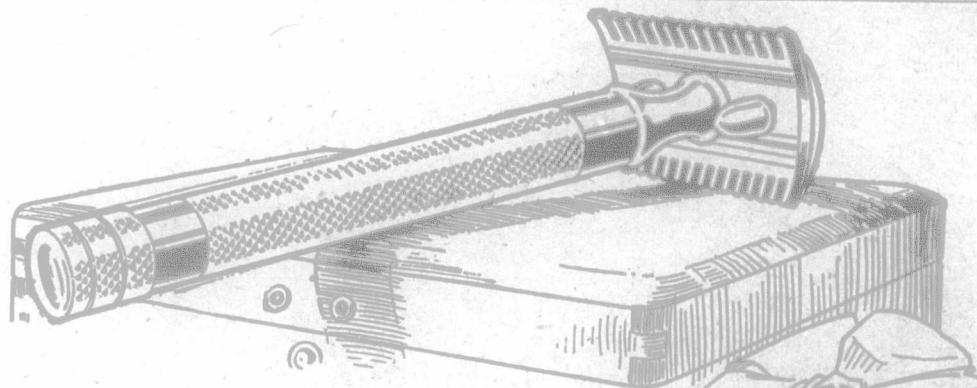
If the field is rectangular and level, or nearly enough so that the irregularities do not have to be taken into consideration in laying it out, the choice between some method of the first class and one of the second class should depend on how hard it is to handle the tractor and plows in making short turns, and how objectionable

additional back furrows and dead furrows are.

WIDTH OF LANDS.

If a method in which the plows will be out of the ground in going across the ends is chosen, the first things to determine are how wide to make the various lands and how wide to leave the headlands on which to turn. The wider the lands are made, the fewer will be the dead furrows and back furrows, but the greater will be the time consumed in idle running across the ends.

Some idea of the distance travelled with the plows out of the ground can be obtained by considering a specific case. Suppose a field 40 rods wide is to be plowed in this manner, one land at a time, and that it is laid off into six lands. Each land will be 110 feet wide. If the tractor is pulling three 14-inch plows it will take 32 trips across the field to plow out each land. If we ignore the extra



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