Laying Out Fields for TRACTOR PLOWING

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FARMERS who have been accustomed to laying out their fields for plowing with horses and an ordinary plow are often puzzled as to the best method to adopt when they change to the tractor.

For not only are the two methods different, but a lay-out admirably suited to a tractor of one size under certain field conditions may not do for one of some other size under other conditions.

This bulletin describes methods and plans for laying out fields for tractor plowing suited both to rectangular fields and to fields of irregular shape.

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LAYING OUT FIELDS FOR TRACTOR PLOWING

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FACTORS TO BE CONSIDERED IN MAKING PLANS FOR TRACTOR PLOWING

FARMERS who plow with tractors want to do a high-class job of plowing over the entire field and wish to reduce to a minimum the time spent in turning and in traveling with plow bottoms out of the ground. To accomplish this they must choose the method best suited to their conditions. Many circumstances must be considered in deciding just what method is best for a particular field with a particular outfit. No one method can be considered best for every size and shape of field.

Methods of laying out fields for tractor plowing fall into two classes: (1) Those in which the bottoms are lifted in crossing the ends; (2) those in which they are not lifted. The advantages of methods of the first class are that short turns are eliminated, except in some cases at the beginning and ending of the lands, and that it is generally possible to do a little higher quality plowing at the corners or turns. The advantages of methods of the second class are that little or no time is lost in traveling with the bottoms out of the ground and that ordinarily the number of deadfurrows and backfurrows will be considerably less.

The longer the time spent in turning or running with the bottoms lifted, the smaller the acreage that can be plowed in a day; on the other hand, the making of short turns is awkward with some tractors, particularly the larger ones, and the operator often has difficulty in getting the outfit in the correct position for starting the furrows after such turns have been made. Though it may pay to make some additional effort to avoid short turns when using a large tractor, it should be borne in mind that the loss in time and fuel due to making

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long idle runs across the ends of the field is just as serious with the large as it is with the smaller, more easily handled tractor. The time lost in making loop turns in starting and finishing a large number of lands is less with a tractor having brakes to assist in making short turns. This should be taken into consideration in deciding on the most desirable size and number of lands. From the standpoint of time lost in idle running, the size of the tractor should be considered only with reference to the relative difficulty in making short turns.

In deciding on the method to use, the ease of handling the tractor and plow is not always the most important consideration. In areas of heavy rainfall it may be best to make narrow lands with frequent deadfurrows and backfurrows as an aid to drainage; in dry areas the reverse may be true. In other cases the contour or shape of the field may be such as to determine almost entirely the method that must be followed.

If the field is rectangular and level enough for the contour not to be considered, the choice between a method of the first class and one of the second class will usually depend on how short a turn can be made with the tractor and plow and how objectionable the additional backfurrows and deadfurrows are.

METHODS IN WHICH BOTTOMS ARE LIFTED AT THE ENDS

If it is decided to use a method of the first class, in which the bottoms will be out of the ground in going across the ends of the field, it must then be decided into how many lands the field should be divided for best results, how wide to leave the headlands on which to turn, and where to set guide stakes or markers.

WIDTH AND NUMBER OF LANDS

The wider the lands are made the fewer will be the deadfurrows and backfurrows, but the greater will be the time consumed in idle running across the ends. Some idea of the distance traveled with the bottoms 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 5 lands of 132 feet each. If the tractor is pulling a 3-bottom 14-inch plow, it will take about 38 trips across the field to plow out each land. If the extra distances that the tractor must cover in swinging out of the furrow and back into it again, and in making the short or figure-eight turns in starting a backfurrow land or finishing a deadfurrow are ignored, the average length of travel across the ends—that is, the average distance in a straight line from where the bottoms are lifted out of the ground to where they enter it again—is half the width of the land, or 66 feet. This makes 2,508 feet, or almost half a mile, for each land, and almost 2½ miles of idle travel in plowing the entire field.

If the field were laid out in 11 lands, each 60 feet wide, the unproductive travel at the ends would be reduced to approximately 1 mile, but this reduction would be largely offset by the greater number of figure-eight turns necessary in starting the extra lands and also the probability of the plow running at less than its full width of cut

for a considerable distance in finishing the extra number of lands; if the field were laid out in only 3 lands the travel across the ends would be increased to about 4 miles, but there would be only 2 deadfurrows to finish out with the possibility of the plow not cutting its full width.

The longer time necessary to make the difficult turns at each backfurrow or deadfurrow, which must be added to the time to travel these straight-line distances, will reduce the advantage of the narrow lands in this respect to a certain degree; but ordinarily a tractor that pulls a 3-bottom plow, that has a comparatively short turning radius, and makes short turns fairly quickly will plow a strip 40 rods wide laid out in 5 lands in about 1 hour less than if it were laid out in 3 lands.

The length of the field also is of importance in deciding the width of the land, since the time lost in turning on a short field for a given width of land is much greater in proportion to the total time required to plow it than on a long field. For this reason a wider land is usually selected when the field is long than for short fields.

The dimensions of the field will determine whether the saving in time in making narrow lands is sufficient to offset the disadvantages of the extra deadfurrows and backfurrows and any difficulties of making short turns. The most popular width under average conditions seems to be about 100 feet for a 2- or 3-bottom plow. If the field has no irregularities, however, its entire width should be measured and divided into lands of approximately equal width.

HEADLANDS

The width of the headland will depend largely on the total length of the tractor and plow and the turning radius of the tractor. Some farmers having very easily handled outfits do not leave more than 10 to 15 feet; however, any extra ground in the headland can be plowed just as quickly as if it were plowed with the body of the field, and plenty of room should always be left to allow easy turning and to get the outfit headed in properly at the beginning of the furrows. The wider the headland, the less the tendency to go over the same ground repeatedly in turning at the ends and to pack it tight when plowing out the lands.

Headlands 15 to 25 feet wide may be suitable when one of the smaller outfits is to be used. Most tractors built recently can be turned in less space than is required by some of the older models. With a large tractor pulling two or more units of plows it may be desirable to make the headlands 75 to 100 feet wide. With most outfits a headland 1½ times the total length of the tractor and plow will give plenty of room for turning. It is a good idea, particularly with the larger outfits, to make the border or headlands a multiple of the width cut by the plow. That is, a headland 17½, 21, 24½, or 28 feet wide would plow out even in 5, 6, 7, or 8 rounds with a 3-bottom 14-inch plow taking a full cut every round.

If the field is fenced on all sides a border the same width as the headlands may be left on each side, and it will be possible to finish the field neatly by plowing around the entire field, throwing the furrows either in or out as is required to keep the field level.

If one end of the field is unfenced and the outfit can be pulled out into a road or lane or an adjoining field for turning, it may be preferable to plow up to the fences on the two sides as the body of the field is being plowed and leave only the one headland across the end that is fenced. Such a headland may be plowed later with either a deadfurrow or backfurrow through the center.

Many farmers mark the edge of the headland by plowing a shallow "scratch furrow" across the end of the field before starting on the lands. This makes it easier to keep the ends of the furrows even and the headlands uniform in width. It seems to make little difference whether the scratch furrow is thrown toward or away from the edge of the field, but throwing the furrow away from the edge of the field seems to be the more common practice. This furrow across the end of the field sometimes helps the bottoms to enter the ground more quickly at the beginning of each round.

SETTING STAKES AND MARKERS

To finish up a field in the best manner without having to plow irregular or wedge-shaped strips it is essential that the lands be started straight and parallel and that the headlands be kept uniform in width. If a field is once laid out accurately and marked permanently it will not be necessary to measure off lands at each plowing. In fields that are fenced, the locations of deadfurrows and backfurrows may be readily marked by setting stakes along the fence. After this has been done, old deadfurrows can readily be found when plowing the new backfurrows even if the field is covered with tall weeds.

Most farmers "step off" the distances between lands. This method is sufficiently accurate for a lay-out in many cases, but when a permanent lay-out is to be made or a large number of narrow lands are to be laid out it may be advisable to use a tape or some other accurate method.

METHOD 1

Method 1 is probably the most popular and the most generally used of the methods in which the bottoms are lifted at the ends of the field. Two plans used alternately are advisable to maintain a level field. The method as applied to a 20-acre field 40 rods wide and 80 rods long is here outlined. With headlands 33 feet wide, the body of the field will be 36 rods wide. For such a field plans A and B may be used alternately.

Plan A

1. Lay out a backfurrow through the center of the field at C, figure 1, and plow a strip 12 rods wide about the backfurrow, lifting the bottoms 2 rods from each end of the field. When plowing a backfurrow, it is desirable to turn the first furrow back over its original position on the return trip so that all of the soil is worked. The backfurrow will be less pronounced if the first furrow is made with the plow operating at less than the depth to which the rest of the field is plowed.

2. Plow along one side of the land already plowed; at *B*, figure 1, turn to the left and, on the return trip across the field, plow with the first furrow 2 rods from the edge of the field to allow for the

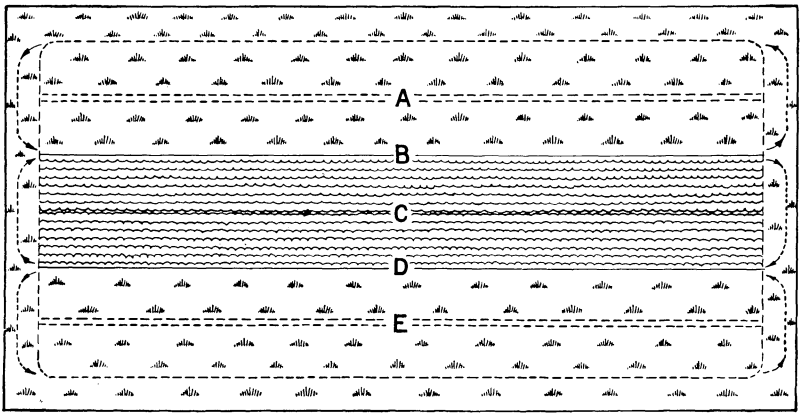

FIGURE 1.—Method 1, plan A, at the end of the first step. The locations of the two deadfurrows are shown by the double dotted lines, A and E. The direction of travel across the ends is indicated by dotted lines and arrows.

border. Continue plowing, turning to the left until the deadfurrow is finished at *A*, which will be 6 rods from the inside edge of the border.

3. Plow the last third of the field between the border and the furrow at *D*, figure 1, turning left at the ends and finishing the body of the field with the deadfurrow at *E*.

4. Plow the border, traveling around the field to the left and turning the soil toward the outside of the field. This will leave an open furrow headland-width in from the border of the field. This open furrow is only one furrow wide, so it is not so objectionable as a deadfurrow. If the headlands or borders are not plowed out cleanly, an extra round or two can be made.

Plan B (Alternate With Plan A)

Plan B is suitable for use at the next plowing after plan A, just described.

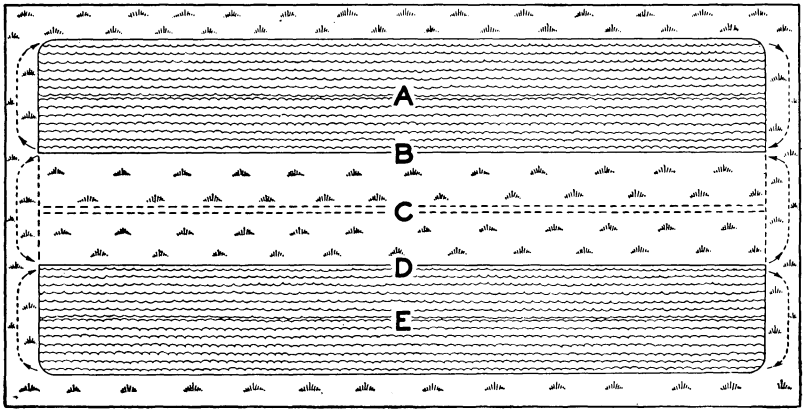

FIGURE 2.—Method 1, plan B, at the end of the second step. Note that the two backfurrows, at *A* and *E*, are where the two deadfurrows were in plan A, and the deadfurrow, at *C*, is where the backfurrow was at the previous plowing.

1. There will be old deadfurrows at *A* and *E* (fig. 2). Plow a backfurrow at *A* and, turning to the right about this backfurrow, continue plowing until the one side of the land is 2 rods from the side of the field. The border is to be the same width as in plan A. The land should then be 12 rods wide.

2. Lay out a backfurrow in the old deadfurrow at *E* (fig. 2) and plow, turning to the right until the one side of the land is 2 rods from the side of the field.

3. One-third of the body of the field, a strip 12 rods wide, remains to be plowed between the two lands plowed in the first and second steps. Plow this out, turning to the left and finishing with a deadfurrow at *C*, through the center of the field.

4. Plow the border by traveling around the field to the right and throwing the soil toward the center of the field. Thus the lands around backfurrows *A* and *E* are finished to the field boundary, leaving only an open furrow around the edge of the field.

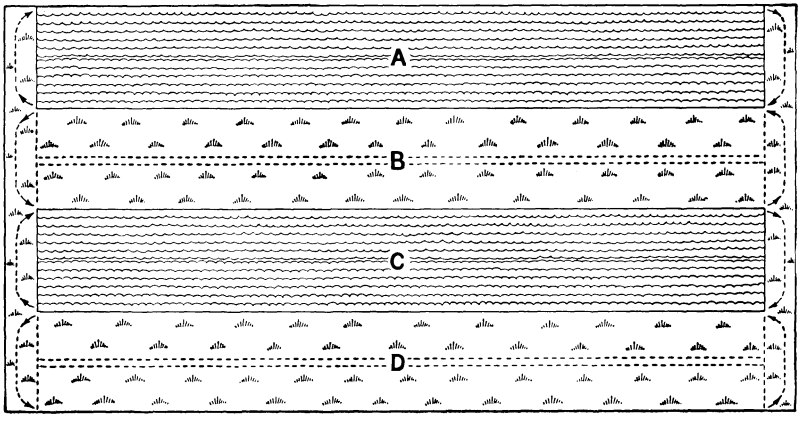

FIGURE 3.—Method 1, plan C, at the end of the second step. The order of plowing might also be *C*, *D*, *A*, and *B*. Each headland is plowed separately either before or after the body of the field is plowed.

Plan C

Where there is no fence at one end of the field and turns can be made on a road or in an adjacent field or where it is desirable to plow each headland separately, the border may be omitted, as shown in figure 3. This is called plan C. In either case backfurrows and deadfurrows are alternated with each plowing, as explained for plans A and B. This is true in the headlands also, as they are plowed with a deadfurrow in the center one year and backfurrows the next year.

Variations of Method 1

Variations of method 1 may be used with a greater number of lands in order to make the lands narrower than in this particular example or in order to adapt the method to wider fields. It should be noted that, in following method 1, half the land between any two deadfurrows in the body of the field is first plowed, turning to the right about the backfurrow, and the other half is then plowed, turning to

the left until the deadfurrow is finished. Disregarding any extra travel in making figure-eight turns at the beginning of a backfurrow or finishing a deadfurrow, and with any given number of lands, the least possible time is spent in unproductive travel across the ends. With this method, where a complete border is to be plowed, there should always be a plan similar to plan A, with an odd number of backfurrows, and an alternate plan similar to plan B, with an even number of backfurrows.

METHODS IN WHICH BOTTOMS ARE LEFT IN THE GROUND IN GOING ACROSS THE ENDS

The objections to the method already described are that they necessitate considerable travel with the bottoms idle and that there are many deadfurrows and backfurrows if an attempt is made to reduce the mileage of this idle travel. The use of method 1 usually results in a somewhat better job of plowing than use of a method involving an attempt to keep the bottoms in the ground all the time the tractor is traveling; but many farmers think that the possible reduction in quality of the work is not sufficient to offset the saving of time effected by eliminating idle travel.

METHOD 2

By method 2 a rectangular field is plowed around a single backfurrow in the middle of the field. The bottoms are lifted only in making the comparatively few short turns on the first few trips across the ends of the field. After the plowed land becomes wide enough for the outfit to turn around the ends, the bottoms are never lifted from the ground until the field is finished.

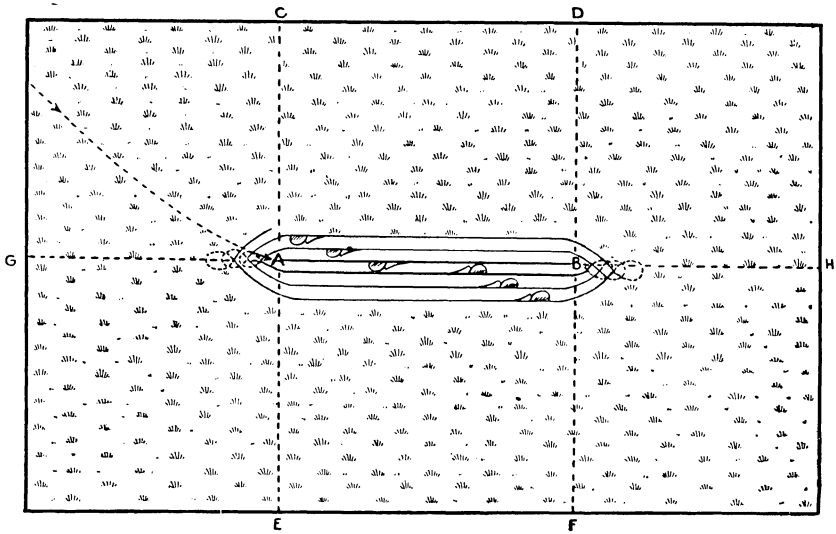

FIGURE 4.—Method 2, first stage. To begin plowing in the center of the field, a backfurrow *AB* is laid out in the center of the field, the distance from *A* to *C* equal to that from *A* to *E*. The continuation of this plan is shown in figure 5.

The position and length of the backfurrow (from *A* to *B*, fig. 4) at the center of the field is determined in much the same manner as is often done in laying out a field for backfurrow plowing with horses. Make the distance from *A* to *G* enough shorter than that from *A* to *C* so that when the land is rounded off at the ends and plowing entirely around the land is begun, as indicated in figure 5, the furrows across the end will be the same distance from the edge of the field as are the furrows down the sides. The point *B* should be the same distance from the end of the field as *A*.

On the first few trips across the field, pull the outfit over to the right every time as the end is approached, so as to get the corners rounded off as soon as possible sufficiently to permit the outfit to make the turn without lifting the bottoms. Lift the bottoms and make a complete circle to the left in turning. The number of times

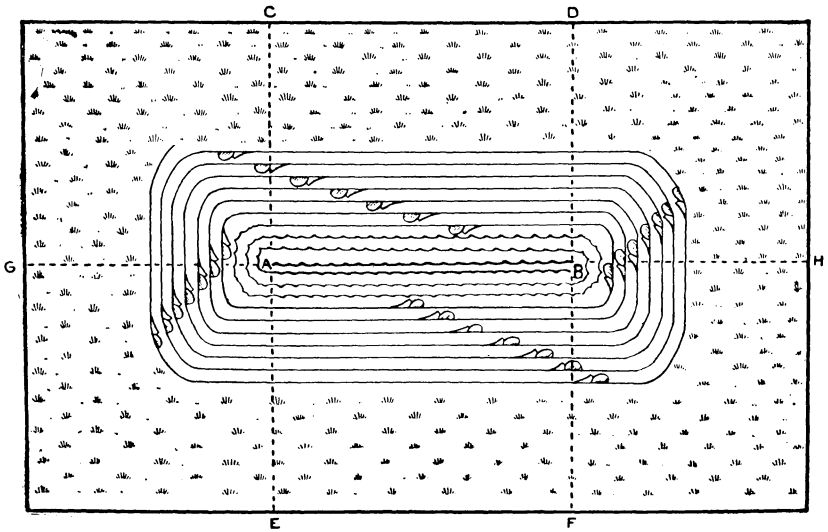

FIGURE 5.—Method 2, second stage. Plowing around the central backfurrow started in figure 4 until the field is finished.

the bottoms will have to be lifted at the ends and the outfit turned to the left in order to get the ends in shape to go around with the bottoms in the ground will depend mostly on the turning radius of the outfit and the width of the strip plowed at each trip. For some large outfits the land may have to be 75 feet or even more in width before this can be done, while a small outfit with a short turning radius may be able to turn about in a strip half as wide.

Some care will be necessary in steering the tractor at the turns after the land becomes wide enough to permit leaving the bottoms in the ground continuously, as in figure 5, if the turns are to be kept abrupt. The shorter the turns are kept the smaller will be the triangular pieces left in the corners of the field at the finish.

If the field is square, or nearly so, it can be plowed in two or more lands, each one laid out according to this method. In such a case extra pieces, each approximately twice as large as the unplowed pieces at the corners, will be left at the ends of the field between the lands.

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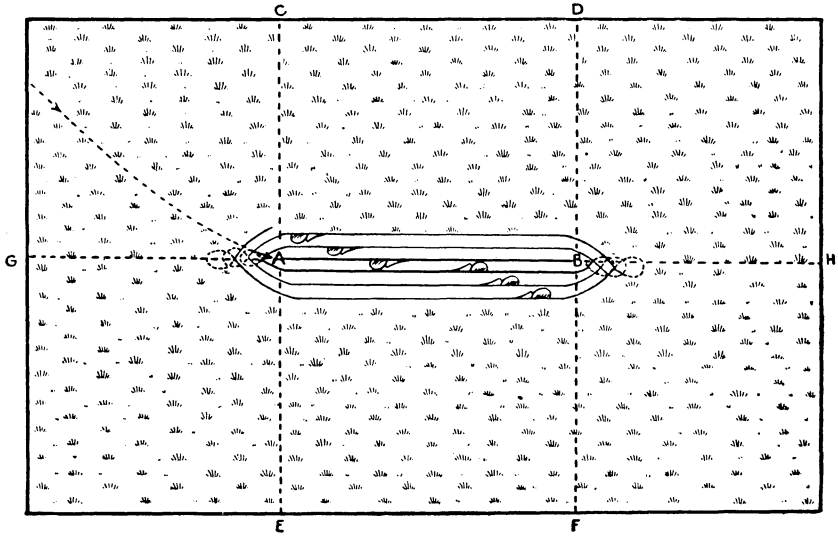

FIGURE 4.—Method 3, first stage. To begin plowing in the center of the field, a backfurrow *AB* is laid out in the center of the field, the distance from *A* to *C* equal to that from *A* to *E*. The continuation of this plan is shown in figure 5.

outfit and the width of the strip plowed at each trip. For some large outfits the land may have to be 75 feet or even more in width before

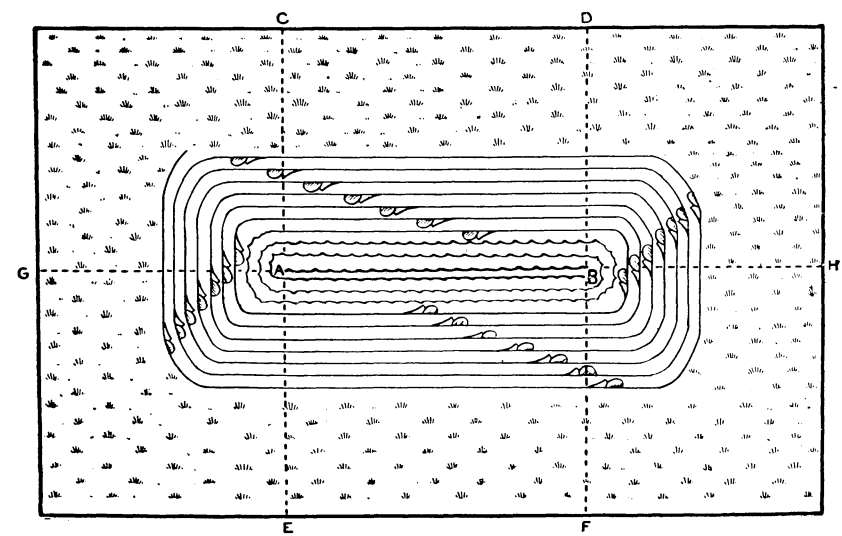

FIGURE 5.—Method 3, second stage. Plowing around the central backfurrow started in figure 4 until the field is finished.

this can be done, while a small outfit with a short turning radius may be able to turn about a strip half as wide.

Some care will be necessary in steering the tractor at the turns after the land becomes wide enough to permit leaving the bottoms

plete circle. For a tractor with a 20-foot turning radius, this means something over 100 feet of travel. Many large tractors pulling several units of plows require a considerably greater turning radius than this. Thus the loss of time in many cases would be too great for this method to be advisable.

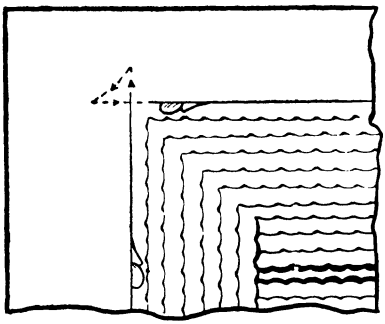

FIGURE 7.—Method 3. Corner turns shown in figure 6 may be made by backing around the corners on a triangle when using a tractor-mounted plow.

If the plows are hitched to the tractor in such a way that the outfit can be backed easily, the turns can be made by backing around through a quarter of a circle, as indicated in figure 7, with a comparatively small loss in time. Such an outfit can make these turns until the field is practically finished.

METHOD 4

In method 4 the operator starts plowing at the outside of the field, as shown in figure 8, throwing the furrows toward the fence and turning to the left at the corners without lifting the bottoms.

A rectangular field like that shown is plowed in a single land with one deadfurrow. The corners will have to be rounded to a certain extent on the first trip around the field and kept this way throughout the plowing, so as to permit the tractor to make the turns without encroaching too far on the plowed ground or getting the furrows irregular and crooked near the corners. The plow will be pulled away

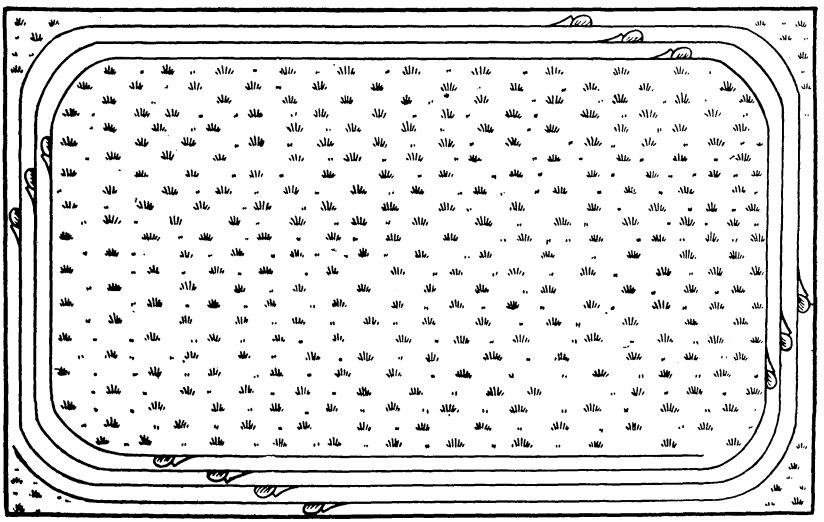

FIGURE 8.—Method 4, first stage. Plowing around a rectangular field by turning the furrows toward the fence, rounding the corners enough to permit turning without lifting the plows.

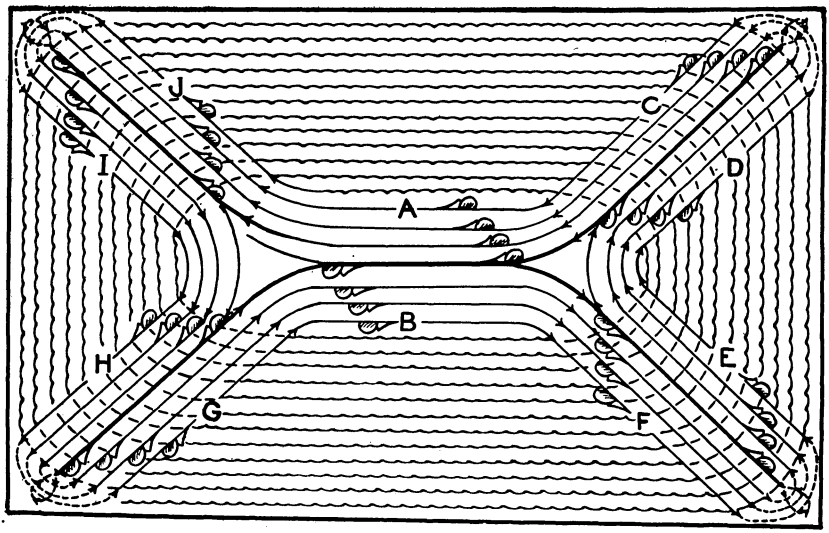

FIGURE 9.—Method 4, final stage. Plan for plowing the diagonal strips that are left imperfectly plowed at the turning points, leaving deadfurrows at the finish.

from the last open furrow to a certain extent in making the turns, and the diagonal strips running from the ends of the deadfurrow to the corners of the field will usually have to be replowed (figs. 9 and 10).

It is not necessary to measure any distances when this method of plowing is followed, and omitting the measuring will make this method

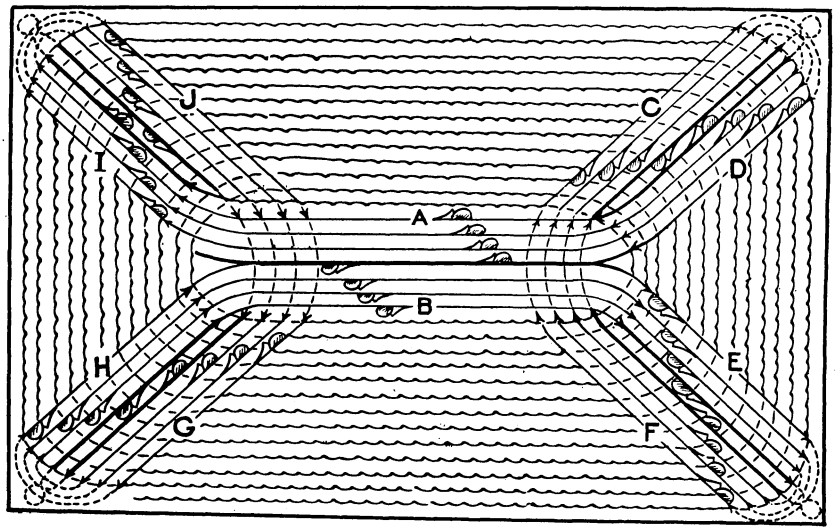

FIGURE 10.—Method 4, final stage. Another plan for plowing the diagonal strips that are left at the turning points in figure 8, leaving backfurrows at these points and a deadfurrow in the center.

quicker than any of the methods heretofore described. On the first round the plow can often be set over to the right and the ground turned nearer the fence than is possible in the two preceding backfurrow methods. The bottoms are left in the ground from the time the field is entered until the deadfurrow at the center is reached. This feature makes the method desirable if the plow is not equipped with a power lift. A field with slightly irregular or crooked boundaries can be plowed very satisfactorily by following this method—one that is very popular with many tractor operators and has been adopted almost exclusively where disk plows are used.

The body of the field can be plowed to a deadfurrow in the center, and the diagonal strips running in from the corners where the turns are made may be replowed one at a time if it should be deemed advisable. When this method is used, it is necessary to pull out onto the plowed ground to turn, as the deadfurrow is approached and the unplowed land becomes narrow; also it is necessary to travel over the plowed ground in making the turns at the center of the field when plowing the diagonals. Usually, however, one of the methods shown in figures 9 and 10, by which the diagonals are plowed out at the same time the deadfurrow is finished, will be preferred.

By the method shown in figure 9 a deadfurrow is left along each diagonal, and by the method shown in figure 10 a backfurrow is made along the middle of each diagonal and open furrows on each side. If the first-mentioned method is to be employed, when the distance from *A* to *B* (fig. 9) becomes the same as that from *C* to *D*, *E* to *F*, etc., the width to be replowed along the diagonals, turn to the right from the furrow next to *A* and follow along the line indicated through *J*, *I*, *H*, *G*, *B*, etc., and continue in this way until the diagonals and center are finished.

The tractor will have to do very little traveling over the plowed ground, and if care is taken to get all the distances exact the whole field, with the exception of the parts left for making the short turns at the corners, can be finished at the same time. The only places the bottoms are lifted are on the few short turns at the corners in plowing the diagonals.

If it is desired to have backfurrows along the diagonals instead of deadfurrows, the method of procedure will be that shown in figure 10. It is similar to that shown in figure 9 except that the backfurrows are thrown up on the first trips along the diagonals. The turn is to the right at the corner of the field each time, the bottoms are taken out of the ground in going between the two diagonals at the same end of the field, and the outfit will have to travel over the plowed ground a little more at these points.

METHOD 5

Method 5 is similar to method 4 except that the bottoms are lifted each time at the corners in plowing the body of the field and the diagonals are left entirely unplowed until the finish of the field. Care must be taken to get the width of all the diagonals—that is, from *C* to *D*, *E* to *F*, *G* to *H*, and *I* to *J* in figure 11—the same if either of the methods shown in figures 9 and 10 is to be used in finishing the field. The width should be ample for turning the outfit and getting it in line with the

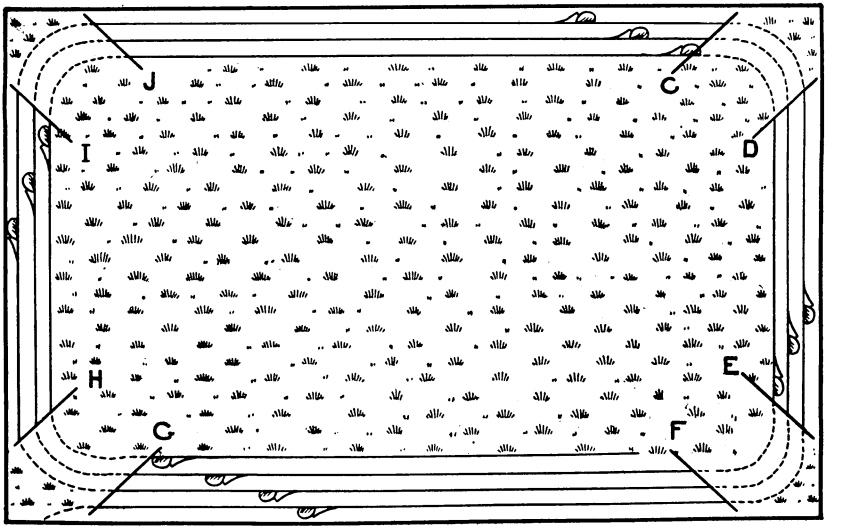

FIGURE 11.—Method 5. Plowing around a rectangular field, as in method 4. The plows are lifted at the turns, as shown by the dotted lines.

furrow before the point is reached where the bottoms are to be put into the ground again. It will be better to make an extra round in plowing out the diagonals than to be cramped for space at every turn in plowing the body of the field.

IRREGULAR FIELDS

Fields that are irregular because of topography or soil conservation practices may be of such shape or present such a variety of conditions that it is impossible to give any definite directions applicable to all. If the field is comparatively level and the irregularities are confined to the boundaries on one or two sides, usually one of the methods described for rectangular fields can be adopted.

Method 1, as shown in figures 1, 2, and 3, can be readily adapted to fields with two long parallel sides and one or both ends irregular. Plan A, B, or C can be used in fields of this shape. It is obvious that the lands should be plowed in the direction of the parallel sides of the field. Fields having only one long straight side can also be plowed by using method 1 and making the obvious adaptations. In fields where the ends are far from being a right angle to the direction of plowing it is suggested that the lands be made rather narrow in order to reduce the unproductive travel across long angular ends.

Figure 12 illustrates a field with the irregularities confined to a stream that forms the boundary at one end. Usually such a field can be plowed satisfactorily by using one of the methods in which the bottoms are lifted in traveling across the end, as is shown in figure 12. The procedure will be the same as in a rectangular field except in laying out the headland across the end adjacent to the stream. There the line for lifting the bottoms and letting them into the ground must be made parallel to the stream if the field is to

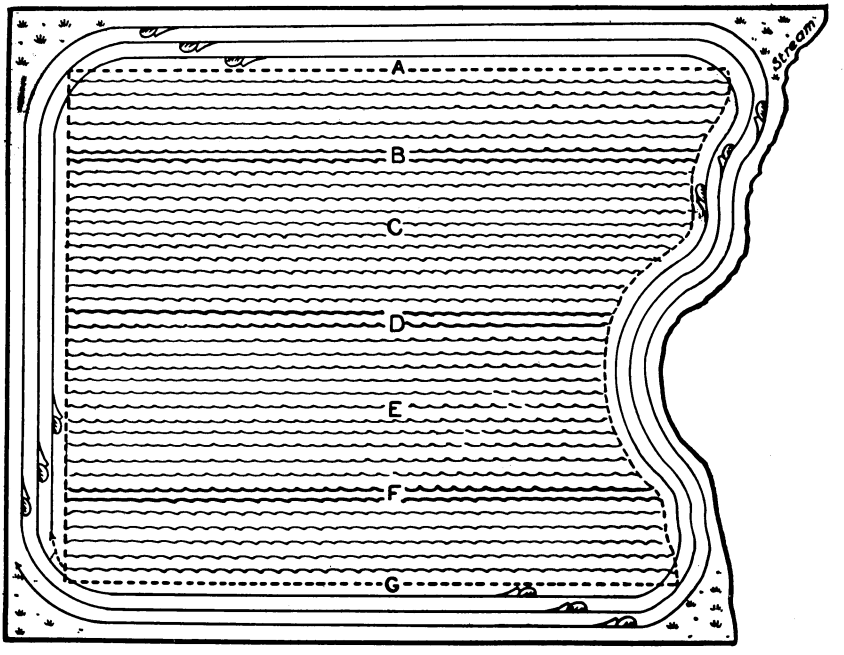

FIGURE 12.—Plan for plowing a field having one irregular side.

be finished without undue loss of time in plowing the headland along the stream. If the headland is plowed by turning to the left so that the first round will take in the irregularities along the stream, it will probably be less difficult to finish it satisfactorily than if it is plowed by turning to the right, as shown in the figure.

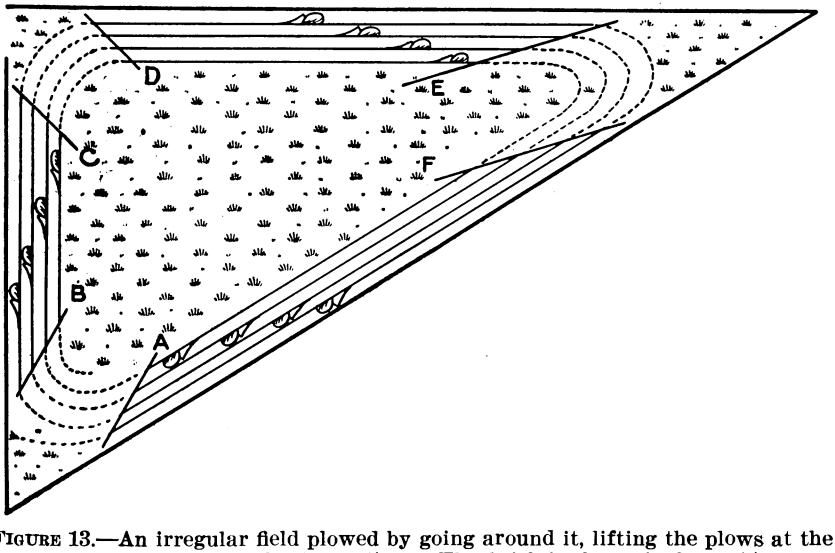

FIGURE 13.—An irregular field plowed by going around it, lifting the plows at the turns, as shown by the dotted lines. The finish is shown in figure 14.

If the irregularity is simply due to a road, railroad, or a farm boundary which is a straight line but does not run at right angles to the other boundary lines that join it, the problem of laying out and plowing the headland will be little if any more difficult than in a rectangular field.

The methods of plowing a triangular field shown in figures 13 and 14 are really a variation of method 5, described on page 12. The body of the field is plowed by starting next to the fence, going round and round the field, turning always to the left, and lifting the plows at the corners. The distances from *A* to *B*, *C* to *D*, and *E* to *F*, in figure 13, should all be made the same and should be great enough to permit easy turning at the most acute angle of the field. That is, in a field such as that shown, the distance from *E* to *F*, which must be left for the sharp turn at this corner, should determine the distance from *A* to *B*

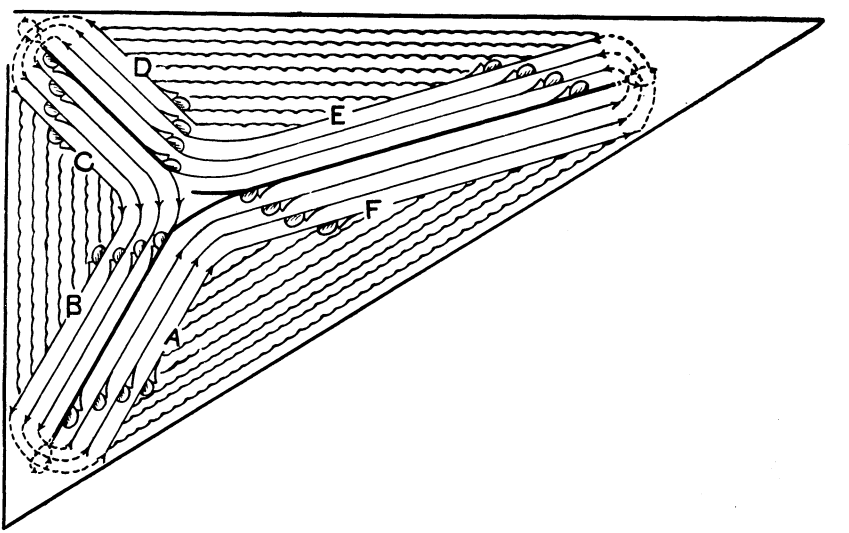

FIGURE 14.—Finishing the field shown in figure 13, leaving deadfurrows. The corners can be finished with a horse plow or direct-connected tractor plow.

and *C* to *D*. When the body of the field is finished there will be three strips, all the same width and extending into the center of the field from each corner, left to be plowed in the manner indicated in figure 14.

A four-sided field in which one of the long sides is not parallel to the other can be divided into two parts, one a rectangular plot and the other a triangular plot, as illustrated in figure 13. The rectangular part can be plowed in any desired manner, and the triangular part as previously described.

If a field that would otherwise be rectangular has had a square or rectangular piece taken off one corner for a feed lot, orchard, part of the farmstead, or the like, it will usually be better to make two separate fields in laying it out, with the imaginary dividing line between the two an extension of the line of the lot or orchard that is parallel to the longest side of the field.

CONTOUR-FARMED AND TERRACED FIELDS

The best procedure for plowing contour-farmed and terraced fields is described in Farmers' Bulletin 1789 [2] and Leaflet 214 [3] of the United States Department of Agriculture. One of these publications should be obtained if part of the plowing is to be done on sloping land, as the publications cover the use of both horse-drawn and tractor equipment. One point that should be stressed but is not discussed is the method of finishing the irregular lands between terraces or contours. The terraces and terrace channels should be plowed exactly as shown, and plowing out the land between terraces continued, as described in Leaflet 214, until the unplowed land is just wide enough at its narrowest point to permit turning the tractor and plow. Lift the plow at this narrow point and turn on the unplowed land to plow out the wide sections until a strip of uniform width is left the entire length of the interval. This strip is then plowed out as a land that can be finished with a minimum number of turns on the plowed ground.

Before plowing the ridges of terraces it is well to build up any low spots that result from settling or other causes and to cut down high places in the channel. These repairs can best be made before plowing, by use of a team and drag-pan scraper (fig. 15), as the subsequent plowing and scraping will smooth off the affected spots.

FIGURE 15.—Building up low spots in terraces and cutting down high places in the channel, before plowing, by use of team and drag-pan scraper. (Photo from Soil Conservation Service.)

[2] HAMILTON, C. L. TERRACING FOR SOIL AND WATER CONSERVATION. U. S. Dept. Agr. Farmers' Bul. 1789, 60 pp., illus. 1938. (Revised.)

[3] JOHNSON, E. G. PLOWING TERRACED LAND. U. S. Dept. Agr. Leaflet 214, 6 pp., illus. 1942.

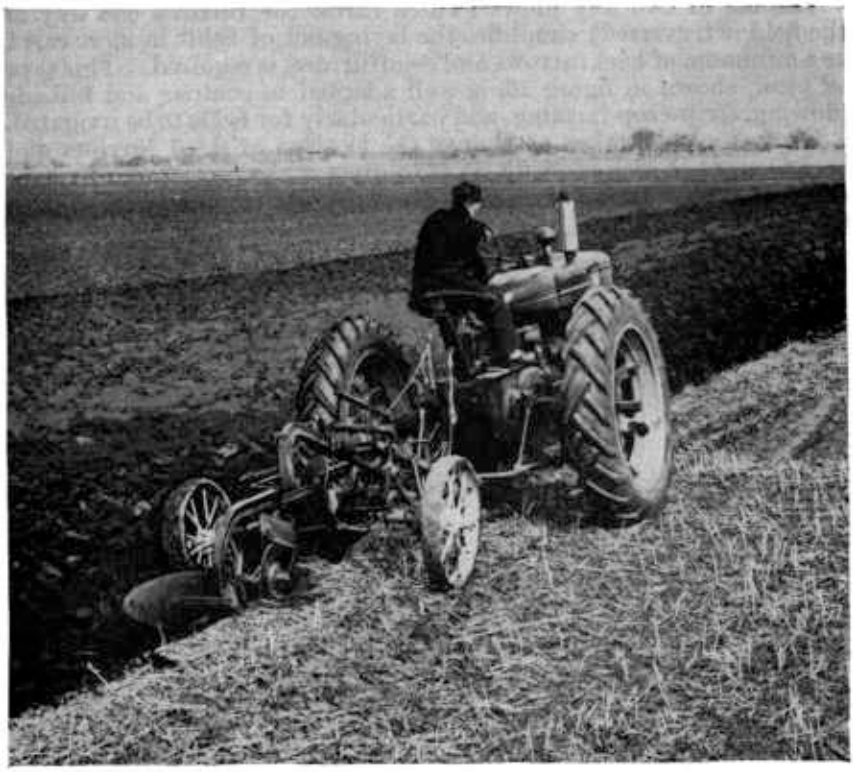

FIGURE 16.—Tractor pulling a two-way plow. The right-hand bottom will be in the ground on the return trip.

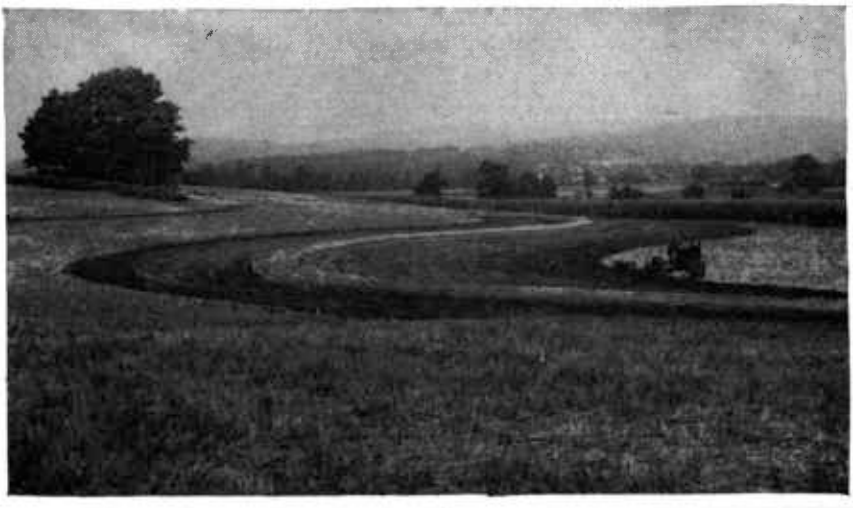

FIGURE 17.—Plowing in a new terrace system. The furrows are parallel to the ridges, or on the contour. (Photo from Soil Conservation Service.)

The use of two-way plows (which throw the furrows one way as the field is traversed) simplifies the laying-out of fields in most cases, as a minimum of backfurrows and deadfurrows is required. This type of plow, shown in figure 16, is well adapted to contour and hillside plowing, strip-crop farming, and particularly for fields to be irrigated.

Care should be taken to change the location of dead furrows and backfurrows at each plowing, so as to prevent the formation of ridges and low spots. In terraced fields the furrows are plowed parallel to the ridge of the terrace, or on the contour (fig. 17).

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