PLOWING MARSH LAND

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The subject of plowing marsh land naturally divides into two parts:

1. The plow and plow equipment
   (a) For sod
   (b) For stubble

2. The power to draw the plow.

The plowing of virgin marsh presents special difficulties in that, the surface is frequently very boggy, the sod is extremely tough, the soil does not scour well, and brush (usually willows) are frequently present.

It is ordinarily desirable to plow marsh 7 to 9 or 10 inches deep in order to bury deeply the grass, brush and rubbish, and this is especially true of boggy land.

It is also better to completely invert the furrow slice if possible as the sod is too tough to work down if the furrows are lapped one on the other as is the practice in ordinary plowing.

In order to meet these conditions most successfully a single bottom plow turning a furrow 18 to 24 inches wide is best. If properly designed and adjusted this plow will lay the furrow over in nice shape and absolutely prevent its turning back into its original position which frequently happens when regular 14 or 16-inch plows are used.

The most popular size now used is a 20-inch and at least five of the principal plow manufacturers now produce this size for marsh and brush plowing.

Where the marsh is quite soft extension rims are sometimes needed to hold the plow up, but this is unusual as these plows are commonly equipped with wide wheels.
Cutting the tough sod requires a large rolling coulter 24 to 32 inches in diameter. This is frequently set to cut the full depth of the furrow slice, and this together with the need for considerable clearance for trash, below the bearing and hanger, explains the need for such a large blade.

Where the sod is extremely tough and trouble is encountered keeping the plow in the ground it is advisable to set the coulter as low as possible, and also keep the plow fairly deep, this causes the coulter to present a nearly vertical edge to the sod, which causes less lifting action.

The point of the share on a marsh plow is shaped differently than regular plows, being more pointed and the share edge being almost straight from the point to the wing. Many blacksmiths will attempt to shape up the share similar to the regular plow unless instructed to the contrary. This specially shaped point is used to prevent tough roots from hanging onto the point.

The rolling coulter cannot be used in brush or willows that are of any size as the coulter will usually roll over the roots rather than cut through them. Under these conditions the standing or duck bill cutter is used. This cutter usually requires a different share, one having a little round lug forged on the point, onto which the bottom of the cutter attaches. The top of the cutter is clamped to the beam, usually in such a way as to be adjustable backward or forward, to decrease or increase suck. This is the type of cutter that is always used for brush land but is not as good for marsh land as the rolling coulter which should be used wherever possible.

The pusher used on one marsh plow serves to crowd the furrow over very tightly against the previous one, thus leaving a wide,
open furrow for the next round. This wide, open furrow permits the furrow slice to fall over completely inverted, and makes a smooth job of plowing as well as preventing almost entirely the growth of grass between the furrows.

The plowing of stubble or fallow marsh land presents an altogether different problem. After the sod is rotted, a true muck or peat soil is usually light and fluffy, so much so in fact that a mouldboard plow of any type will not scour. Disc plows were originally designed for very hard land, and consequently were equipped with very narrow wheels, most manufacturers, however, can supply so-called marsh, or wide-tired wheels. We have found, however, that this is frequently not enough, and have bolted on a solid row of 2 by 4-inch pieces about 6 inches long on to the rim of the wheel thus giving a wheel rim 6 inches wide.

Twenty-six inch discs rather than the regular 24-inch discs also give a little more clearance and less trouble in clogging in corn stubble.

Considerable side draft is encountered if the tractor runs on the land rather than in the furrow which is usually the case, and may cause serious trouble but this can be overcome to a large extent by lengthening the draw bar 2 or 3 feet. This should be done by bolting the extension securely to the old bar so as to be stiff and rigid for proper control of the plow. Disc plows can be secured in 2, 3 and 4 disc sizes or multiples of these. The 2-disc size can be handled by a small 2-plow tractor, and the 3 and 4-disc sizes by a 3-plow tractor.

Tractors as a rule will do the work better and more easily than horses, and if properly equipped will go where horses cannot go.

A good 3-plow tractor, developing from 15 to 20 horsepower at
the draw bar is required to handle a 20-inch breaker. It should weigh not less than 5,000 or more than around 7,000 pounds for best results, and requires special equipment in the way of lugs for practically all marsh conditions.

Extension rims should be used to give a total wheel width of from 18 to 24 inches and high angle iron lugs used. Most tractor companies can furnish what is known to the trade as rice land lugs, these are angle iron lugs 4 to 5 inches high and very long, usually from 2 to 3 feet, but making a wheel only 24 to 28 inches wide due to the angle at which they are attached.

Extension rims are also needed on the front wheels so as to give a total rim width of 8 to 12 inches, and sometimes a very high steering flange is also used on the front wheels to aid in steering. In breaking it is usually better practice to operate the tractor with one side in the furrow, as this gives less side draft, and makes control easier. Contrary to common opinion, the wheel in the furrow has better traction than does the one on the land, providing proper lug equipment is used. If the land is very wet, however, this is not true.

The pusher mentioned before widens the open furrow somewhat permitting a 26-inch wheel to operate in the furrow, without cutting up the former furrow. Any of the 20-inch plows, however, leave a furrow wide enough so that little damage is done to the former furrow.

This discussion would hardly be complete without speaking about getting over or out of soft spots. In the first place, equip the outfit with a good long heavy log chain, preferably 30 or 40 feet long, attach one end permanently to the tractor, ready for pulling so as to save time. Just as soon as the tractor stops going forward and starts going down, stop. Stop immediately as an additional half turn of the drivers may mean an additional half hour's time.
A wide breaker is best for marsh soils. If a tractor is used, the wheel type with extension lugs is best. Correct commercial fertilizers and marl help marsh soils.
in getting out. Back the tractor just enough to loosen the clevis pin, do not permit the wheels to spin, just back a half inch or so. Drive ahead to the best footing available within reach of the log chain and pull the plow through the soft spot, then hitch up close again.

When stuck in a hole, lay posts or rails in front of the wheels and cross ways of the tractor, shove them up in under the lugs in good shape, otherwise they will be forced out ahead of the wheels and do no good.

It is said an ounce of prevention is worth a pound of cure, and this is a place where it surely applies as a few feet of chain judiciously used may save a half day's work getting the machine out of a hole.

Some Results of Fertilizer Tests on Peat in 1924.

O. R. Zeasman.

Fertilizer tests on peat soils bring out the striking fact that the different deposits vary. In general those in central Wisconsin are low in the mineral elements, potash, phosphate and lime. After a number of years cropping perhaps all three elements will need to be supplied but when comparatively virgin, field plot tests show varying requirements.

At Valley Junction in 1924 the unfertilized plot grew corn less than 18 inches tall, the manured plot made about 1/2 normal growth, while the plot treated with marl (rate 1 ton per acre) made a normal growth. Only very slight increase over lime alone was shown on the plot where potash and phosphate were used in addition to lime. With continued cropping, the addition of these elements will undoubtedly become necessary.