

their roots and convert the nitrogen of the air into the form they can use. Alfalfa is specially dependent on this and when sown on land that has not previously grown it should be helped by supplying the bacteria by means of nitro culture. Red clover and alsike are also benefited; sweet clover seems able to accomplish self-inoculation.

Annual Forage Crops

In this dry country with its severe winters annual forage crops are more easily grown than perennial, but they do not have the value as fodders, nor as soil improvers that the others have. Therefore they should be considered as supplementary to the perennial crops and not as the main source of fodder.

Grain Crops Cut Green.—The main source of forage of this type is obtained by cutting our ordinary grain crops in an immature condition. Two especially, oats and rye, are used for this purpose.

Oats are used for this purpose more than all other crops, and experimental work done at Brandon confirms the general opinion as to their excellence. They produce more feed than any other annual crop we have tried, and the quality is very good. A mixture of peas with oats adds to the nutritive value of the green feed, but in our experience it is very hard to get any peas worth considering as they are crowded out by the oats. The best grade of oat hay is made by cutting when the oats are fully headed, but have not begun to ripen.

Rye is also used for this purpose. The quality of the feed is not quite equal to oats, nor is the yield as great. On the other hand, it is ready to cut much earlier, and in that way is a more effective weed fighter. Rye sown in early spring is ready to cut for hay early in July, thus preventing weed seeds from ripening and allowing for a partial summer fallow after it has been harvested. Rye should be cut for hay immediately it heads out. If left later it rapidly deteriorates in quality.

Millet is decidedly inferior to oats as green feed, both in quality and yield. It has, however, a place in sowing very late after some other crop has failed. It

requires better prepared soil than either oats or rye, and does not do well if sown early when the weather is cool. Twenty to twenty-five lbs. of seed per acre is required. Common and Hungarian are the best varieties.

CONSERVING MOISTURE FOR 1919 CROP

(Experimental Farms Note.)

MOISTURE is one of the main controlling factors in crop production in the Prairie Provinces.

Three methods of conserving moisture are:

First, to have the ground in such a condition that the rainfall will soak down and not run off.

It is sometimes thought that plowing down a crop of weeds will have manurial benefits. Experiments conducted have shown that there is not only a loss of moisture due to the weeds using it, but it is difficult to cover the weeds and make them decay in a reasonable time. Then, too, the ground is left in a more open condition, permitting drying out. Experiments at the Scott Station have shown that plowing down green crops, such as peas and vetches, does not give as good returns as does incorporating barnyard manure into the soil.

Early plowed summer fallows, well cultivated with the duckfoot cultivator, will mean an increase in yield and the frequency with which the land is summer fallow-

bushy to warrant the use of a tractor for such a purpose.

We also disked and harrowed about 120 acres of summer fallow, attaching the disc to the engine and dragging three sections of ordinary straight teeth iron harrows. On this job it did perfect work. I am no expert nor mechanic to give you profuse details, but I think 50 to 65 cents per acre would be an average cost.

I should perhaps say that before I had this tractor I was inclined to be prejudiced against them for the simple reason that I was vitally interested in raising horses and perhaps the scarcity of these only induced me to invest. This is a mixed farming district, and immense fields of grain very uncommon, and I still believe the large outfit is not a success.

I was in the habit of doing all the plowing with a gang plow and five horses and a sulky with three horses. The former took the long rounds and the latter the short rounds. This took two men, whereas the tractor was operated by one man and he turned three furrows and pulled one section of diamond harrows behind that. The balance of the work was done by the brood mares and we had a very successful foaling season.

I can never foresee these tractors however displace the horse on the farm, but they most certainly are to be commended as a very useful service of power on these prairies. It is a fallacy to suppose however that all one needs to do is to "fill up" fuel and oil, throw in the plows and make a record—not so. I find there is a considerable "chore" around such an outfit if one expects to meet success in operating them, but one must bear in mind that when it is idle it is not to feed.

I might also say that the amount of work done and the way it is done lies entirely with the zeal of the operator. His main effort ought to be to get the wheels turning early and quit when it is dark. The fact that the tractor never gets tired permits of this, and not only so but one feels inclined to believe that this is perhaps the main advantage possessed by the tractor over the horses and it is these extra (Continued on Page 58A.)



A Sea of Red Clover.

Courtesy: Manitoba Dept. of Immigration.

Second, to keep the surface of the soil sufficiently fine and loose that the upward movement of the water is checked two or three inches from the surface and held there.

The third method of conserving moisture is to destroy all weed plants on cultivated ground.

Most farmers summer-till a part of their farm with two objects in view, to store up moisture and destroy the weeds. Experiments at the Scott Station have shown that early plowed summer fallow will store up more moisture and give heavier crops the succeeding year than late plowed fallows. Plowing the middle of May has given 3 2-3 bushel more wheat per acre than plowing in July. June plowing has given 2 2-3 bushel more than July plowing. This increased yield from early plowing is due to not only storing more moisture but to less loss of moisture from weed plants, that grow up on the late fallows.

ed and the number of weeds present will be determining factors in regulating the amount of cultivation necessary.

It might be pointed out that where summer fallowing alternate years is practised and there is a reasonable amount of moisture the land will not stand the same amount of cultivation than land will that is only summer fallowed once in three or four years. Especially is this true in the northern districts where early autumn frosts prevail.

A HORSEMAN'S TESTIMONY

Box 33

Strome, Alberta, Jan. 24, 1918.

REGARDING farm tractors, I may say I have an 8-16 Mogul Tractor. The work principally accomplished by this machine has been plowing, and this proved very satisfactory. We also used it in seeding and dragged two seed-drills, but I consider this district here just a little too