

sults will have left the land firm and with sufficient moisture near the surface. Nothing could be much worse for the young plant than a layer of loose soil at the bottom of the furrow, such as would result from leaving the plowed land without the necessary after cultivation. Never sow alfalfa with a nurse crop. Cultivate properly and let the alfalfa use the moisture that the "nurse" crop would use and thus prevent the so-called "nurse" crop from becoming a "murder" crop.

The crop should be seeded during the last half of May or early in June, or at such time as there is an abundance of warmth and moisture in the soil. The quantity of seed per acre varies, but from 12 to 20 pounds per acre is sufficient for our conditions. If there are weed seeds in the soil, more than this might be sown. A well worked summer fallow having reasonably heavy soil will carry a heavier stand of plants than will sandy soil spring plowed. Alfalfa can be seeded with an ordinary drill by mixing it with chopped wheat or barley and adjusting the drill to sow the required quantity. Or, if one is going to sow a quantity that will make it worth while it will be found advantageous to buy a wheelbarrow grass seeder. Sowing broadcast by hand and harrowing with a light harrow may be resorted to if the other facilities are lacking. Seeding twice, using half of the seed each time, and sowing the second time at right angles to the first seeding, will give good results. The seed should be planted to a depth of 1 to 1½ inches.

The seed should be clean and of a hardy strain. Turkestan alfalfa is most commonly grown in this country and has proven hardy and suitable for our climate. As it is easy to practice deception in supplying seed, patronize a seedsman with a reputation for fair dealing.

For success in growing alfalfa it is necessary to have present in the soil the root nodule bacteria peculiar to alfalfa. These bacteria are not present in all soils, and the absence of them is denoted by the alfalfa plants turning yellow, thus indicating a lack of thriftiness and vigor. The remedy is to apply at the rate of about 100 pounds per acre soil from an established alfalfa field. One sack can be obtained from either the Indian Head or the Lethbridge experimental farms, the applicant paying the freight charges.

During the first year the plot should not be allowed to produce a crop of hay. It should be mowed several times during the first season. Nor should the plot be pastured before the third year. Sheep crop it too closely, and swine are liable to root it up. If any weeds are noticed the mower should be run over the plot before they have a chance to form seed. The last cutting should not be later than the beginning of August and when the crop goes into the winter it should be about 8 or 10 inches high so as to collect the snow and thus protect the plants during the winter. The cuttings during the first year may be felt on the plot where they will act as a mulch.

### Hints on Flax Growing

EDITOR FARMER'S ADVOCATE:

Noticing a request for information on growing flax in a recent issue I will give you my opinion. I have grown it for five years, and I might say, successfully. Our worst crop gave about \$10.00 per acre. It was sown on June 20, 1907, and was badly frozen.

I have also seen it grown extensively by our American neighbors. Their practice is to break by steam, roll (and I might say here to have a straight roller, not one in three sections—one in front, two behind—but the three sections all on one axle) or float, and then sow with the drill. My experience is that it pays to work the land thoroughly for flax, as well as any other grain, but I do not think it needs as much work.

I recommend breaking about three inches deep; then give one stroke with the disc harrow, but two would be better, one stroke with the square harrow. Then sow with the disc drill, and give another stroke with the square harrows. This leaves the land in shape to cut with the binder without being tied to the seat. While paying crop, the grown here by the American style, good wages are also obtained for all the extra

time spent, and I have seen several examples. I would recommend plowing the flax ground in the fall or spring and sowing to oats, summer-fallowing the third year. We have had enough wheat to see how it would do several years, and have always had about two-thirds as much as we had on breaking and back-setting or summer-fallow, and when we have sown the third time we have never had more than a third of a crop.

So my advice to a man wanting quick returns (as most of us do) on heavy land would be to break and sow flax until June 10 or 15, then break and backset for wheat the next year, with the object in view of getting one-third of the land into summer-fallow each year. We have always sown half bushel of flax to the acre, but many recommend 3 pecks.

Sask.

J. J. THURSTON.

### Quack Grass Eradication

C. O. Nichols, of Northfield, has outlined his method of destroying quack grass in *Farmer's Institute Annual No. 21*. His method, where large fields are to be treated, is to cover the ground heavily with manure in the winter or spring. After the grass has started he harrows the manure two or three times so that it will work down among the roots and stimulate the rapid growth of the plant, his theory being that the ranker it grows the nearer its roots approach the surface. He then allows the grass to stand until it heads out and begins to blossom. At this stage the plant is putting forth all its energy, and most of the vitality is in the stalk and head, which is regarded both by Mr. Nichols and the experiment station as the most feasible time for destroying it. He then plows, using a chain so adjusted as to turn under the tops, turns over the ground for a depth of six or seven inches, using extreme care to turn under all the grass. He then rolls the ground and goes over it with a disc harrow, using the discs nearly straight, so as to slightly loosen the upper soil. Then buckwheat is sown at the rate of two bushels per acre, and harrowed with a slant tooth harrow. The crop shades the ground and chokes down the quack that subsequently grows. The ground is not plowed again until just before freezing in the fall, when the few roots left will have hard work to exist through the winter. Mr. Nichols does not expect to harvest any buckwheat, being satisfied to devote one year to the eradication of the pest. Aside from sowing a crop of buckwheat, where the experiment station recommends using a hoed crop, there is little difference between Mr. Nichols' experiment and that tried at University Farm.—University Farm Press News.

### Alfalfa in North Dakota

The superintendent of demonstration farms for North Dakota, in his third annual report discusses the trials made with alfalfa on the demonstration farms in that state. In some cases the trial was a pronounced success, in others the alfalfa did not stand the dry summer and cold winter and was practically a failure. The best results showed a yield of hay of approximately four tons per acre.

The superintendent, in concluding his report of these trials, says:

"Every farmer should plant one acre of alfalfa on his farm to see if his land is adapted to raising this valuable forage plant. He should seed about 15 pounds per acre without a nurse crop on land that had been previously manured.

Do not pasture it down in the fall or cut it after the first of September, as alfalfa needs a mat of dead vegetation to cover the crowns, so the warm sun of early spring will not start growth too early. This is best supplied by a fall growth of alfalfa from 6 to 8 inches high. If the plants have a sickly appearance or pale green color, inoculate by using soil from an alfalfa field; spread this over the field on a cloudy day and harrow in immediately at the rate of 200 lbs. per acre. Harrow the alfalfa field thoroughly in the spring after the growth is nicely started. This breaks up the soil crust and forms a dust mulch, which is very beneficial to the alfalfa plants.

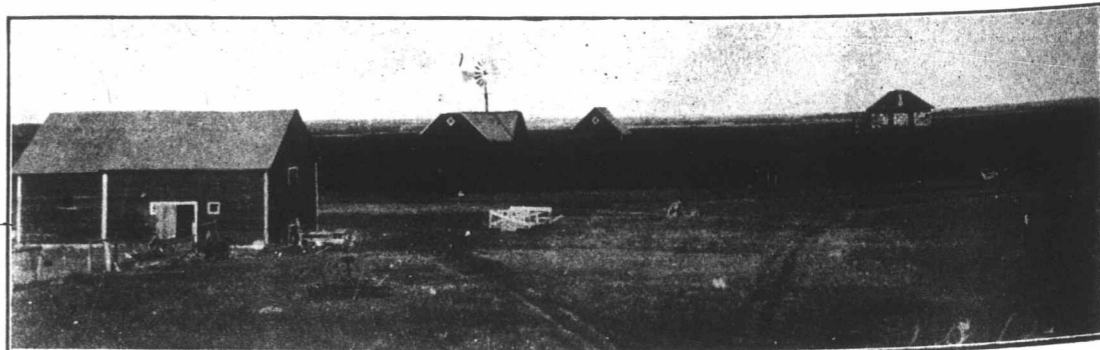
### Labor Incomes of Farms

The Agricultural Experiment Station of Cornell University issued recently a bulletin in which is reported the results of investigations of the incomes derived by the owners of 178 farms in New York state. The average receipts of these farms was \$2,829, and the average expenses, exclusive of household expenses, \$1,291, leaving an average net income of \$1,538. Deducting interest at the rate of 5 per cent. per annum on the capital invested, there is a labor income per man of \$981. This income is for labor alone. In addition the owner has the value of such products as were used on the farm, a rent for dwelling and other items of expense that are ordinarily included in the cost of living. Of the 178 farmers 47 received from nothing up to \$250 as a salary; 26, from \$250 to \$500; 51, from \$500 to \$1,000; 20, from \$1,000 to \$1,500; 20, from \$1,500 to \$2,500; 7, from \$2,500 to \$3,500, and 7 more than \$3,500. To make the comparison broader, 124 farmers, or about 20 per cent. of those investigated, received less than \$1,000 per annum labor income, while 54 or about 30 per cent. received \$1,000 or more.

The income on the most profitable farms averages about double that of the least profitable farms, but the expenses are about the same. The better farmers seem to have secured their greater profits not by spending less but by taking in more.

### Waterproofing of Concrete

Concrete is porous, not absolutely waterproof or damp-proof, according to a paper read by R. A. Plumb, chemist, Detroit, at the Cement Convention, lately held in London, Ont. The explanation was that the water with which concrete is mixed, being incompressible, leaves, on drying out, the tiny spaces which it had occupied. Many preparations for rendering concrete absolutely waterproof are on the market, but in most cases these may be said to be yet in the experimental stage. On the one hand, water-repellent powders to be mixed in with the concrete, are offered, and there are also preparations to be applied as coatings after the wall is completed. In many important substructures and buildings of concrete, anything which would render them strictly waterproof is greatly to be desired, and the progress made in producing such materials has been rapid and satisfactory. For most farm structures a wash of pure cement and water, applied on the inside, is sufficient for practical purposes. Mr. Plumb warned against using for surface coating any preparation containing linseed oil, as the vegetable oil will combine with the alkali of the concrete, forming a kind of soap, and making matters worse, instead of better.



FARM BUILDINGS OF R. D. MANN OF THE ELMORE DISTRICT, SASK.