

ever, it should not be trifled with, but should rather be smitten wherever it is seen.

I did not see any wild mustard in Manitoba, nor wild oats, but I am told both are there. If so they will become great scourges in such a soil and under the present conditions of agriculture. Either one would be nearly if not quite as bad as French weed. Therefore look out for them and give them no place.

I saw wild flax, lots of it, but I do not think it should harass your farmers very much if the land is carefully stirred before sowing wheat or spring crops. It should commence to grow in autumn to be seriously harmful. Pig weed and lamb's quarter are very plentiful, but with careful cultivation they should be kept at bay.

It seemed to me a great pity that weeds should, so soon in the history of the country, have been allowed to get so extensive a foothold. They were not there when the prairie was broken. The farmers brought them, therefore they are responsible. They might have been kept away. The measures that should be adopted for the destruction of these pests cannot be discussed at length in this paper. To do that would be to write a book. But I may say I think it quite possible in Manitoba, as in other countries, to destroy noxious weed life, if the farmers would only set about the work in earnest. With a continuance of their present system of farming, the outlook on the weed question is not encouraging. It looks dark. Think of it, farmers! Continue to grow one crop only, and, in a good many instances, in a careless way, and the country will be filled with weeds. A heritage will be handed down to the next generation, which will give them great labor and no end of trouble. I will only touch upon two remedial measures that may be adopted, because of their extreme adaptability to your conditions. First, modify the rotation. This would mean destruction to great numbers of weeds, for the cultivation given at different seasons would first make havoc with one kind and then with another. Second, summer fallow often, and when this is undertaken, make thorough work. When a field is summer fallowed, let it be stirred often. The work of summer fallowing should commence the previous autumn. The cultivation in the summer should be by stirring the soil rather than by plowing it. Weed seeds would thus be encouraged to grow. Each successive stirring of the soil would encourage many seeds to sprout, and would destroy those that had sprouted.

Two very dangerous weeds do not seem to have obtained a footing in Manitoba. Farmers, keep them out. In your country they would work great harm, owing to the nature of the tillage. These are the Russian thistle and a species of mustard, which is rapidly spreading in the neighborhood of Indian Head. Both are tumbling weeds, and both will become scourges in wheat-growing sections where they once get a footing. The former is looked upon with alarm in Dakota. The legislators of the state are calling upon the Congress of the United States to come to their help. I have seen these weeds tumbling about in the neighborhood of Minneapolis, but this state is going to take the bull by the horns in time—at least the indications point in that way now. The other species is spreading like wildfire over the prairies around Indian Head. Both species produce an enormous number of seeds. Both readily break off when they have ripened, and then tumble before the winds in every direction, scattering their seeds where

ever they go. See to it that they never get a footing in Manitoba, for if they do it will be a long, costly, and stubborn fight to get rid of them.

N. W. Farmer.

Breeder and Grazier.

STOCK FEEDING.

Following is the substance of two addresses given before the Douglas, Man., Farmers' Institute, by R. Waugh, of *The Nor'-West Farmer*:—Mixed farming is the cuckoo cry of the day. Men with a great deal of reliable knowledge tell us so, and men with little or no skill repeat the advice till it has become stale. In my opinion, mixed farming is the only kind of farming that can permanently enrich any country, the profit of it will depend largely on the way the mixing is done. One man has a natural taste for horses, another for cattle, another for sheep, and if his past experience and present conditions are fairly suitable, he is likely to succeed best by making his natural taste a guide in his selection. If even with that taste, he is easy and careless, and not habitually attentive to the every day details of his work, such a man is bound to prove a failure in any kind of stock breeding he may put his hand to. We hear a good deal of the unprofitableness of stock feeding just now, and certainly the prices for most kinds of stock are very discouraging. But if we follow the majority of the complainers for a month we must come to the conclusion that it would be a very bad thing for the rest of the world if prices were high enough to afford that sort of men a good living. We may as well make up our minds at once that it is only by superior skill and diligence that a profit can be taken out of any kind of farming.

How is that skill to be got? One way to get it is to set to work under the eye of a man with sufficient skill, and persevere at the work till we have got to be able to do it as well as himself. Knowledge got in that way we call experience. But if a man is ever to be worth his salt in any calling he will want not only to be able to do a thing well and do it always at the right time as a matter of habit, but he will want to know why it is done in his teacher's way, and not in some other man's way. To know is important, to know why is a stage in advance, and the man who knows why is a scientific farmer, no matter where or how he got his knowledge. When we have found a man fairly well acquainted with the how and why of everything he does, and steadily carrying out that knowledge in his every day practice, it will be found, as a rule, that he can make a living by his business, and every one is pleased with his success. If he will not take the pains to learn, and put in practice what he knows, he is a fraud and a humbug and has no right to succeed in any calling.

Keeping these points in our mind's eye all along, let us now try to investigate in a methodical way the main points of stock feeding. Take the feed to start with. The cheapest and most digestible of all foods is grass, and we find it here in abundance. The weeds growing among the grass furnish variety and there are still places here where, in addition to abundant summer herbage, hay can be put up at a dollar a ton, and cattle made into fair beef on such feed. This easy way of doing it is fast going out, and food produced by cultivation must be the general practice henceforth.

There are half a dozen ways of producing very cheap feed on any average farm. One of the first and best is sheaf oats cut on the green side. One acre of oats will maintain a full grown horse, steer or cow from 100 to 125 days, and as far as one kind of food can be depended on there is no better combination of bulk and nutrition. If it is butter fat we are after, there is more butter in oats than in anything else I know of, and every kind of beast will eat them heartily. Peas and oats are, if possible, still better than oats alone. Turnips and rape are also extremely palatable to all kinds of stock, and I need not repeat what every reader of *The Nor'-West Farmer* sees there so frequently about their production at very low cost. I do not think it will ever pay to grow turnips here as a bulk feed, like Scotland and Ontario, but if we sow them very thinly with a drill on the flat, and horse to keep down weeds, or grow them broadcast on clean summer fallow, gathering the best to be stored for winter use and letting the stock have the rest in the fall on the ground, turnips will be found both cheap and highly profitable feed. If I were feeding I would want to have an acre or two of flax, most of it to be cut green and used the same way as sheaf oats. Indian corn is one of the very cheapest and most palatable feeds, and, with reasonable treatment, a very heavy yield per acre can always be depended on. Even when dried in the sheaf, it is profitable, but its great value in this country of long winters is as ensilage. Either for store or fat stock, ensilage furnishes a most agreeable variety of food and as a succulent feed that can be stored in small bulk, it cannot be beaten. Either along with straw or hay, or in combination with more concentrated feed, the man who can put up a silo and fill it, must come out ahead of all other feeders. Everybody knows the feed value of bran, shorts and oil cake, and it is only necessary to use these feeds with judgment to get their full value out of them. The same may be said of wheat, barley, oats and peas.

The nutritive value of all these feeds is largely dependent on the skill with which they are cured and put up. Ensilage, either of oats, peas or corn, if cut too green will be of less value. Hay, cut when ripe, is half valueless, and the straw of ripe cut grain has much less feeding value than if it had been cut a week earlier. Either in plants or animals, nature concentrates her best efforts in the way of reproduction, and that is the reason for the high feeding value of all the seeds we use for that purpose. But if cut early a part of the strength of the plant is still in straw, and therefore the straw will be more palatable and more nutritious. You cannot have ripe timothy seed and choice timothy hay. Musty feed is always more or less unsafe and in many cases positively dangerous. To make our feeding successful, we ought always to know a good deal about the digestive organs of the different animals we feed. A full grown ox or cow has room for 60 lbs. a day of feed, but the horse could never use such a load and therefore wants his feed in more concentrated form. The cow has, I may say, 3 or 4 stomachs on a string, and all the bulky feed it eats is stowed away in the uppermost, to be brought up and chewed over again at its leisure, and so prepared for perfect digestion in the last stomach of the string. Rich food, such as bran or chop, goes past the pouch in which the grass or straw is stored for a second chowing. Because of this digestive arrangement, a cow or steer does

not need more than one-sixth of its winter feed in a concentrated form. In fact, the necessity is all the other way. An animal of the ox species ought to have its stomach fully distended with bulk feed if digestion is to be carried on satisfactorily, and a young beast that for the sake of show form gets more than a proper proportion of concentrated feed will always be deficient in the power to take good value out of its feed. An important point in the up-bringing of heifers meant for milch cows is to keep stretching the stomach with bulky but nutritious food. If I could get plenty of turnips or ensilage I would never give a growing heifer any chop, just for the reason here stated. The pig has a small stomach and needs its food in concentrated form, the same as the horse. Let me remind you here, that the greater demand you mean to make on the muscles of a horse the more concentrated must his feed be. A 240 horse would be spoiled by getting all the good hay he would eat, just as a feeding steer would be spoiled by giving him 15 or 20 pounds of chop a day. A good cow or steer will take profit out of 10 or 12 pounds of chop and cake a day. All they get beyond that is wasted or positively injurious. If any one of you has taken in hand to fatten a scrub steer or an old ox, you will find them sadly deficient in the faculty of taking the full value out of any kind of rich feed. And it will soon be noticed by every wide awake feeder, that there is a considerable difference between two animals of the same breed in their capacity to take profit out of the same feed. The Scotch proverb about putting good food in a bad skin has ample illustration here. One man buys a big coarse boned hard skinned steer with tuckered up flanks, and thinks it a big bargain. Another selects one with a thick soft, mossy skin, low set and front legs wide apart, with a lazy contented look, and every day they live this last will furnish an object lesson on the difference between two things that to a careless eye are very much alike. If milk is wanted, the same look out will select a female of milking type and reject one with good beef form.

There is a right and wrong time of the year to feed for profit. Nature supplies abundance of the best of food in the season of Indian summer, so that all wild animals may get well hearted up against the cold and privations of winter. The bigger half of my farming friends do exactly the reverse. They think it would never do to waste good feed in fine weather when there is such a long winter ahead of them. Dry prairie grass and weedy stubble are good enough to support any beast in good weather, and when I go out to an institute and tell them to sow an acre of turnips or rape, and throw a good feed of them over the fence every night in the fall, they smile very loud and say to themselves: "That's all a city farmer knows about feeding." I say here plainly and defy contradiction, that it is easier to make two pounds of gain on any healthy animal in October than it is to make one in March off the very same feed, and if you scrimp and pinch in the fall, or feed half-dead hay to save better feed, the chances are you could not do more with stock so fed, than keep them from making a loss even if your feed later in winter is all right. For dairy cows I would be still more emphatic on this point. Liberal treatment in the fall is money made next summer. If we do not know our business, nature knows here. She does not make milk freely till the living machine that makes it has been