

the honey bee. In its deep, porous subsoils they seem to find a most congenial harbor. The farmers with one mind should give no quarter to the intruder during any part of the growing season until the last of the race shall have died. Although the accomplishment of such a feat is very difficult, it is not impossible.

### Stock Raising in Ontario.

BY W. J. STOVER, NORWICH, ONT.

This paper was read by Mr. Stover, who is a graduate of the Ontario Agricultural College, at the experimental union held there, February 24th and 25th. It is a valuable production, and will be completed in the two following numbers of the JOURNAL.

Whole volumes have been written on the various branches of this theme. "Best breeds of cattle," "Best means of improving stock," "Scientific feeding," etc., have been much discussed, and with valuable results, but the more practical questions of detailed management have been in a measure overlooked. Ontario adapts itself more safely to mixed husbandry than to specialties; consequently it involves us in more complications and makes our pursuit more indefinite. We find it necessary to direct our attention to such productions as may be best adapted to the locality and size of the farm, while at the same time we are often obliged to vary our system of management to suit unforeseen changes of circumstances. In stock-raising one of the most difficult problems is to keep stocked to just the right number that can be managed to the best possible advantage. In this age of close competition we cannot allow much margin. It is necessary to manage with the closest economy, and to determine what will give the best result, is often a serious question.

With the opportunity of purchasing their stock for feeding, from the ranges farther south and west, the farmers of the western States have at the present day advantages over us. They are not put to the expense of providing room for so much young stock, and those which they do raise from breeding are kept through the first two years at much less expense. Within the last few years the surplus of ranch cattle has increased to such an extent as to more than fill the demand in western markets, and they are now looking to the east for outlet; consequently we have the wholesale western production to compete with, and so long as they can raise such vast numbers at but little more expense than the cost of herding, they can undersell us and still realize a decided profit.

But with all its disadvantages, stock raising is an essential and important branch of industry to the Ontario farmer, and by no means unprofitable under thorough and scientific management, even though the returns may be largely indirect.

A practical and comparatively minute experience in stock-raising and management, having recently come under my own personal observation, I have thought it might be of value to stock-raisers in general; and therefore endeavor to give here some ideas gleaned both from observation and experience.

In beginning our preparations—for stock raising, the first necessary arrangement the providing of buildings and stable room—was the most expensive, and proved to be one of the most important items of consideration connected with farming. Buildings must by all means be convenient, and stables must be warm, well ventilated, and comfortable. The convenience of management in our own buildings is such that one man can attend to sixty head of cattle, do all the stable-cleaning and preparing of food, with help only to do the straw-cutting.

On the barn there is a wind engine—a wheel of 16 feet diameter—with which all the power work except threshing is done. The first cost of this machine is the only cost, and it stands in readiness to be used at any time when the wind is blowing. The greatest importance of this is that the straw-cutting, grain-grinding, etc., can be done in weather unfit for work outside; no fuel, no time in preparing to start, and no horses being required. Horses, of course, have little else to do in winter, as a rule, and can work on the power, but in the winter when it is muddy, and in early spring when the horses and hands should be at other work, the wind-power is invaluable.

The stable is cleaned by means of a dump-car, working on a track similar to that of a pitching machine, and the manure is piled under a shed, where it

is saved and thoroughly decomposed. The food is all prepared, and dry fodder and uncut hay are used for a change only, which is very necessary. When depending on hay as the principal coarse food for cattle, I consider it only a useless expense to cut it; for the object in cutting fodder is not so much to improve the quality, as to make it more palatable, and when mixed, much rough food is eaten, which would otherwise be wasted.

But the most important feature in our feeding experiment is this. Three years ago we commenced a system of cooking the food with cold water, that is, we made it soft and moist by simply wetting it, and allowing it to heat and soften, by partial fermentation. This experiment was carefully managed and noted through the first winter, until we learned how much water to use, and the length of time it should be allowed to lie before feeding; and now we practice the system altogether, being fully convinced of the success and value of our experiment.

The food is prepared in different lots and in quantities to suit the number of cattle, so that some is being prepared while another lot is being used. The food must be fed as soon as it begins to get warm, and used up before it gets old or sour. Stock will eat the driest of straw when prepared in this way; they relish it and thrive on it, and we find that it is much cheaper to use such food and add small quantities of grain, bran, etc., to give a nutritive ratio equivalent to that of a whole food, than to feed so much hay and more expensive food.

I consider roots well worth raising and a valuable food when used with coarse and rough fodder; and prefer them freshly cut and thrown upon the food in the manger immediately after it is put in. The meal seems to give better results when fed with other food, as it takes the animal longer to eat it and it is more thoroughly masticated and better digested. As convincing evidence that this system of wintering is more profitable than the ordinary plan of feeding uncut dry food, we are now keeping a large number of cattle; have sold from thirty to sixty tons of hay annually, while previous to this we sold none; and are raising as much of other kinds of grain as before.

(To be continued.)

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

### Sheep Husbandry.

BY JOHN JACKSON, "WOODSIDE," ABINGDON, ONT.

That sheep husbandry was one of the first occupations that man engaged in as a special calling, we have abundant proof, inasmuch as one of the sons of Adam was a keeper of sheep. And from many accounts given in ancient history of the shepherds and their flocks, we have reason to believe that it was amongst the most honorable and profitable callings of ancient times.

It is also a well-known fact that on this continent, in South America, Australia, France, Spain, Great Britain, and many other countries, sheep husbandry has been a great source of wealth to those engaged in the business. In England at the present time farmers are put to their very wits-end to realize any profit, owing to the keen competition from all parts of the world in everything.

Yet sheep-farmers feel comparatively secure, and in Scotland it has long been proverbial that sheep farmers are about the most prosperous and independent of the agricultural community, although the sheep farms comprise the poorer and more barren portions of the country, where the sheep climb and graze those rugged hills and bring wealth and prosperity to their owners, utilizing land that would otherwise be almost useless: there they have the hill-sheep, light and active, well adapted to the situation.

#### ITS PROFITS.

But the question that more especially interests us here is, can sheep husbandry be made profitable in Canada, and particularly in Ontario, as compared with other farm products. Our own opinion is that it can. We might here enumerate a few of the reasons why we think so.

In the first place the products of sheep-farming are mutton and wool, and those are commercial commodities, the price of which compare more favorably with that of a bushel of wheat than they did thirty years ago. Our mutton finds a ready market in the old country, and there is always a demand at home and in the States for our wool. Our soil and climate are admirably adapted to sheep-farming. Our climate is one of the most healthy for sheep to be found in the world.

In England the fly and foot-rot are great annoyances to flock-masters, but owing to our dry, clear atmosphere we scarcely know what these are. And although England is the headquarters of the world for prime mutton sheep, that we can breed and raise as good here has been abundantly proved; and that a farm devoted entirely to sheep husbandry here would pay well, I think there is not the slightest doubt. But at the present time it will perhaps be more practical to consider the subject in connection with our more common system of mixed farming.

One of the great advantages in that case is that sheep are the very best scavengers to destroy noxious weeds, eating what other stock won't, allowing nothing to go to waste. Another advantage is that they spread their droppings more evenly over the land, the larger portion going to the knolls and poorer spots, thus increasing the fertility of the soil to a greater extent than other stock, and would be profitable on the poor and more worn-out lands of this country. Now the number that can be profitably kept on a farm depends on circumstances—the quality of the soil, the value per acre, convenience to market, what other crops are to form a part of the mixture, etc. If the soil be a valuable sandy soil, and fruit is to be largely cultivated, it would not be advisable to keep so many sheep, for they don't agree well with young fruit trees.

I think a clay soil the best for sheep; the pasture is richer, produces more bone, and sheep on such land will increase in size. It may be rough or hilly, but not necessarily so; and if a good quality of clay or clay loam, and more especially if somewhat distant from market, I think about one sheep to the acre may be profitably kept in a good system of mixed farming; of course something would depend on the kind of breed. If they were of the larger coarse breeds, such as Cotswold or Lincoln, that number might be too much; but if we take some of the finer Down breeds, I think one to the acre is not too many; and if we say Southdown I know whereof I speak, and am quite within bounds.

#### SHEEP BREEDING.

But that sheep husbandry may be made more profitable in any country, it is necessary to have two distinct classes of sheep-farmers, the success of each depending on the other. Belonging to the first class, which is perhaps the most important, although the smallest in numbers, are those who breed the pure-bred, the fancy sheep, or what may more properly be termed the ram-breeding flock. This branch of the business requires the greatest amount of skill and knowledge to make it a success; in fact, only a few are, either by nature, or could be by practice, well adapted to succeed in this important branch of the sheep industry. This not only requires a man with good natural judgment, and a taste for the business, but who must be well trained by practice in all the finer points that go to constitute a perfect animal of the kind he is breeding; also a knowledge of how to mate to produce certain results, as well as a thorough knowledge of their care and management.

Our agricultural societies have done much to foster and stimulate this branch of sheep husbandry in this