

be fully able to master, rather than to hear a cleverly rendered song.

We are not sure that the Institutes should be largely multiplied, yet *locality* should be considered in holding them. Like the Provincial amongst the fairs, it would in all probability be better to change the places of convening within the county, as circumstances might dictate. This would obviate all necessity of organizing in a less area than a county. The chief objections to township Institutes are, that they are too weak to secure suitable talent to prepare the papers, and cover an insufficient area to sustain the Institute in the vigor of usefulness.

When Institutes are organized with a view to permanence, great care should be taken in the selection of the officers. The most suitable men should be selected, chosen altogether with a view to their fitness. We have already said the president is half the meeting when once convened. We now add that the secretary is half the staff in the convening of the meeting. We look upon him as not equipped for his position unless possessed of energies that do not flag, and that loftiness of purpose that impel to work unremunerated (by salary at least) for the good of his country. Some will smilingly ask, "Show us the man." Never fear: patriotism still lives, and lives and flourishes in Ontario, or our opinion of our countrymen is quite at sea.

The nature of the talent secured to prepare the papers to be read and discussed is an important matter. These should be well prepared, and by those capable of handling the subject, especially such as come from abroad. It is vexatiously disappointing for intelligent farmers to convene to listen to a stranger telling them what they already know. In one of their own section this would be tolerated, but not in one who had been advertised as the lion of the occasion. Thoughts full and deep and vigorous and leaning to the practical side should characterize such a paper, one which the farmers might well feast upon for many days.

Then *native talent* must not be overlooked else one of the principal objects of the Institute is lost. One paper might always come from such a source. In this way we would soon ascertain our strong men, and the individuals themselves would ascertain the same.

The most suitable times for holding these meetings are those when the farmers are less busy, the state of the roads being considered carefully.

Their frequency must be determined by the measure of success attending them. Usually two or three are sufficient in one winter. It is important that they should be successful in the true sense of the term, rather than frequent. Now that they have been so successfully inaugurated we shall watch them with anxious expectation, till the balances of time shall have more accurately determined their worth.

For the CANADIAN LIVE-STOCK JOURNAL.

Root Culture.

Though root culture is now receiving more attention than it did in former years, yet there is only a small acreage grown in proportion to other crops and the number of cattle kept in this country. To keep stock in a healthy condition during our long winter there should be more roots grown here than in other countries where the winters are shorter. Instead of this, we are far behind Great Britain and Europe in this respect. We should take advantage of what nature has provided for Canada, that is, the natural abilities of making one of the best countries in the world for growing roots. The largest specimens ever exhibited in England have been grown in Ontario.

The first and most important consideration in preparing land for field roots is to have it underdrained, especially in clay soils, and thoroughly subsoiled. Without this we cannot expect to grow roots successfully. In a wet season, only small "scraggy" roots can be expected, and in a dry season the ground will become so hard that we need not expect even a catch. My mode of preparing the soil for roots on my farm (which is a stiff clay, mostly underdrained) is as follows: In the fall soon after harvest, I put on the land intended for roots the following season, 15 to 20 loads per acre of well rotted barnyard manure, which is plowed under, not too deep. I may here say that I have learned by experience that too deep plowing of clay is a mistake, that the cold sterile soil, 12 inches below the surface, should only be loosened with a subsoil plow, but not thrown on top of a rich mould. In eight or ten days after plowing under the manure I harrow and cultivate the land with a broad shear cultivator that will cut off every thistle or other weed. The cultivating is repeated in eight or ten days more. Beginning of November I rib the land with drill-plow 18 or 20 inches apart (north and south preferred), and between those narrow drills I run the subsoil plow deep as two horses can draw it. In this condition it is left for the winter. As soon as the land is dry in the spring I harrow, cultivate and re-harrow, and roll if need be, the portion intended for mangel wurzel and carrots. I sow broadcast per acre 200 lbs. salt, 200 lbs. plaster and same quantity of either bone dust, superphosphate or blood manure. Having had good results from the latter, I am using it this season. After the artificial manures are sown I have it drilled with a double mould plow and marker, which I consider important to ensure having the drills an equal width for horse hoeing. It is important to sow the seed on the same day as the drills are made, while the soil is moist. For mangel wurzel and turnips I make the drills 30 inches apart, and for carrots 26 inches. Last year I subsoiled between the drills about a week after the seed was sown, a course I intend to pursue in the future, as the yield last year was the largest I ever had. The judges appointed by the East Riding of York and Markham Agricultural Society reported that my crop of long red mangels weighed over 59 tons per acre, and carrots 37 tons per acre. As soon as the plants begin to show I start the horse hoe, and keep it going. Roots cannot receive too much cultivation. Soil that is kept loose will collect moisture, but as soon as a crust is formed it will dry out. The plants should be thinned before they get too large. Mangels and turnips should be left 12 to 15 inches apart in the rows, and carrots half that distance. While mangels and carrots should be sown early in the spring, turnips are better not to be sown until 15th of June, so that they will grow more rapid and escape being destroyed by the fly. A rapid growth also improves the quality. Mangel should be harvested from the 15th to 25th of October, carrots the last week in October, and turnips the first week in November. A very slight frost will injure mangels and carrots after they are pulled, so that it is necessary to cover or haul them in as soon as pulled.

The kind of roots to grow depends on the soil and whether to be used for fattening stock or for milch cows. While turnips are considered the most desirable for fattening cattle, they cannot be recommended for milch cows, as they give the milk and butter a peculiar flavor which is distasteful to some. On strong clay soils turnips are not a sure crop, while this is the most suitable for mangels and sugar beets. Of varieties of carrots, the White Belgian is the heaviest cropper but the yellow and red carrot are superior in

quality. The Scarlet Intermediate is a good cropper and rich in quality. Of mangeis, I sow the Mammoth Long Red, Yellow Intermediate, and Golden Tankard, and the large sugar beets. I do not consider the Mammoth Long Red equal in quality to the other varieties, but it is a larger cropper. There are several good varieties of Swede turnips, but I must be excused for expressing the opinion that my prize Swede stands at the head. Yellow Aberdeen, Greystone and White Turnips can be sown in July for early feeding.

Root growing should be one of the most important products on every farm in Ontario. Stock cannot be wintered so profitably as when they are fed a liberal quantity of roots every day. For the past two years I have charged my feeding cattle with the roots at \$50 per acre, and the grain and hay at market price. After making the above allowance I have had a satisfactory margin of profit. The crop of spring wheat which followed (Scotch Fife) yielded nearly 30 bushels per acre, which is quite as much as if the field had been summer fallowed.

If each of our farmers would grow a field of roots and feed them to his cattle in winter, it would not only improve the stock and make them more valuable, but would also increase the value of the manure heap. The manure applied to the land will enrich it so that it will increase in fertility year by year, and the crops as a result, will be correspondingly increased, and so make many "Happy homes in our country."

WM. RENNIE.

Toronto, April, 1885.

Grasses For Permanent Pasture,

Mr. Albin Rawlings, warden of the county of Lambton, has sent us the following. His long experience in reference to these grasses adds much to the weight of his testimony on the above subject, which we regard as one of very great importance:

EDITOR CANADIAN LIVE-STOCK JOURNAL.

DEAR SIR,—As you requested me to send you a list of the best grasses for permanent pasture, after many years' experience I would say the more in the mixture the better for fattening or milk. Those I have found most valuable are Orchard grass, Alsike clover, and White Dutch. The quantities I sow are as follows: Red clover, per acre, 2 lbs.; Alsike, 3 lbs.; White Dutch, 1 lb.; Timothy seed, 4 lbs.; Orchard grass, 4 lbs.; Italian Rye, 1 lb.; Perennial, 1 lb.; Hard Fescue, 1 lb. If one wishes to add some of the other grasses, all right, as the more complete the admixture the better. One acre will be worth two of common Timothy and Red Clover for fattening.

Forest, April 16th, 1885.

Barn Building.

EDITOR CANADIAN LIVE-STOCK JOURNAL.

DEAR SIR,—I see a correspondent in the April number of JOURNAL asks for the plan of a good barn. I would advise him by all means to build an octagonal or eight-sided barn, as being the cheapest and most convenient. For which see "Stewart's feeding animals," as advertised in *National Live-Stock Journal*, Chicago. The book will only be \$2, and gives valuable information aside from the plan, cost, and timbers required. I would not think of the ordinary shape were my present buildings to get destroyed. Much more room may be had with less expense, to say nothing of convenience.

E. J. YORKE.

Wardsville.

"I take several agricultural journals, but none is more warmly welcomed than yours. Think I can safely say that no journal, considering the short time of its existence, contains so many original articles on various subjects pertaining to the farm."—JOHN R. KEYES, St. Catharines.