

Although but partial returns have as yet been forwarded, these have established the fact that the Riga wheat will ripen in Manitoba and the Northwest from ten to fifteen days earlier than the Red Fife, which will go far to secure the growth of this important cereal from the danger of injury by early frosts. The seed was necessarily late in going to the Northwest, so that another season even more favorable results are expected. A special bulletin will be issued later, giving its characteristics and qualities in bread-making. The very large number of applications from the Northwest for samples to sow next year, have necessitated the ordering of another consignment from Russia. It is hoped that its cultivation within two or three years may become general, if the farmers so desire it, owing to its very general distribution. No reliable data can be given as to results from the testing of the wheat sent from Manitoba to Ontario and the eastern provinces, and it is well to bear in mind in this connection that the favorable season in Manitoba may have produced the Riga at its best.

#### GRAIN TESTING.

Sixty-seven varieties of spring wheat were tested on the farm, thirty-one of barley and sixty of oats, but the season proved so dry that we shall have to wait another year for more reliable results.

#### POTATOES.

Two hundred and forty-five varieties of potatoes were obtained chiefly from Europe, but most of them in small quantities. The most promising productive sorts among the newer introductions are August Kidney, White Star, Emperor William, Queen of Potatoes, Manhattan, Jackson's Improved, Niagara, Ganea, Paterson's Napoleon, Crimson Garnet, Kings White Kidney, Erfurt Incomparable, Sugar and Giant. A very promising seedling, originated by Mr. Thomas A. Sharpe, of Wakopa, Manitoba, was also tested, and proved to be an excellent cropper. As the yield from the small quantity obtained was necessarily limited, it has been thought best to save the whole crop for seed and leave the question of quality for consideration next year.

#### HORTICULTURE.

Of large fruits, 297 varieties of apple trees were planted, of which 174 are Russian; 101 varieties of pear trees, of which 45 are Russian; 72 varieties of plum trees, of which 32 are Russian; 71 varieties of cherry trees, of which 54 are from Russia and other parts of northern Europe; 11 varieties of American peach trees; 4 varieties of apricots, of which 2 are Chinese and 2 European; and 12 varieties of crab-apple trees.

Small fruits—127 varieties of grapes have been planted, 20 varieties of standard currants and 100 new seedlings, 30 named sorts of gooseberries and 50 unnamed seedlings, 38 named varieties of raspberries and 200 unnamed seedlings, some of which give promise of great utility; 20 named varieties of blackberry plants, and 90 named sorts of strawberries, and 50 unnamed seedlings.

#### FORESTRY.

Eighty-eight thousand young forest trees and ornamental shrubs have been planted, comprising both evergreen and deciduous sorts, including many native and foreign species. The total number and varieties exceeds 500, among which are many never before introduced into Canada. This collection will be largely augmented by the product of the seed beds. Such sorts as prove hardy will be propagated for testing in other parts of the Dominion.

#### THE SEED BEDS

consist of 278 frames 12 feet long and 4 feet wide, in which there has been sown a large collection of the seeds of trees, shrubs and plants. Three hundred and thirty-five packages came from the Royal Gardens at Kew, London, England; 300 packages from the Imperial Botanic Garden of St. Petersburg, Russia, which included succulent and herbaceous plants from the northern regions of Europe, with a number of species of shrubs and trees from Turkestan and Siberia. One hundred and ten sorts came also from the Imperial College of Agriculture at Tokio, Japan, including 40 species of trees and shrubs from the most northern provinces of the empire, where the temperature is severe and the snow-fall heavy during the winter months. In addition, 1,200 sorts have been secured by purchase in Europe and America. Seeds from native Canadian forest trees and shrubs have also been planted, gathered in all parts of the Dominion. Thus and thus the good work goes on.

When we consider that ploughing was only begun on the 2nd day of May and seeding on the 6th of the same, the quantity of the work done is certainly astonishing, and we have no fears as to its quality, as we have not a doubt will be shown under present management when time will enable complete results to be given.

#### The Grazing of Sheep on Improved Pasture.

BY W. BROWN, C. E., PROFESSOR OF AGRICULTURE.

We have been trying for twelve years to impress our farmers with the fact that one of the prominent weaknesses of Canadian agriculture is unappropriated land and non-production of wool and mutton. The country is really doing nothing in this respect in correspondence with others, and what we could do by improvements, what by ordinary management, and what we are only doing now, may be thus illustrated:

Canada annually.	
Present wool and mutton.....	\$9,280,000
By ordinary attention.....	20,000,000
By improvements.....	30,000,000

These have no reference to production of pure breeds as a specialty, but the use of them with the common sheep of the country in order to realize annual crops from our so-called comparatively worthless possessions, in addition to pasture connected with arable.

If the 3,793,800 acres of ranches already rented in our North-West Territories are equal to the ordinary hill grazings of Britain, they will maintain 1,250,000 head of sheep in place of the present 75,000 cattle, 6,318 horses, and 16,431 sheep (see Dr. McEachran's report just issued). These represent about 400,000 sheep; hence, were these natural runs improved, it is safe to estimate they would carry over 2,000,000 head, in addition to cattle, and would thus stand at an annual revenue of \$8,500,000 in wool and mutton alone.

We are not believers in an equal revenue being realized in wool and mutton by any breed per acre from our best cropping soils, as compared with, for example, dairy products, and so the object of the experiment now to be submitted was to test the ability of improved pasture on such soil to maintain so many sheep per acre per annum, and compare with cows and store cattle.

For this purpose we chose a four-year-old acre of permanent pasture, the wake-up, condition and management of which are now familiar to all interested. Divided field in two equal parts, and on 5th May put on five shearling ewes—Oxford, Shrops and Cheviot—that weighed an average 107 lbs. On 23d May put two others to keep down roughness of pasture, that averaged 139 lbs. As these seven sheep were unable to do this, we added seven stock rams on 9th June, thus making fourteen in all. Of course these were kept separate, and rotated from field to field. Removed the rams on 2d July, and on 3d August also removed the two extra ewes, when the extraordinary dry season was telling. No grain nor extra food of any sort was allowed.

At this critical time of grazing we made the following observations on appearance of the grasses and clover that composed the pasture in question:

Meadow Fescue.....	Most plentiful of any.
Alsike clover.....	A large quantity.
Canadian blue.....	Considerable quantity.
White clover.....	Medium in quantity.
Orchard.....	Medium.
Timothy.....	A good average.
Red top.....	Good.
Red clover.....	A small quantity.
Italian rye.....	Very little.
Fall oat.....	Very little.
Perennial rye.....	None.

The experiment with these sheep was closed on 1st October, as they were required for distribution to service. At this time the pasture looked well, a good bite having been left; hence other sheep were put on and grazing continued until snow came, on 20th November. It was not necessary to take advantage meantime of this subsequent depasturing.

The average grazed through the term from 5th May to 1st October was fully seven head per acre; the increase to weight was 22 lbs. per head. That is the statement; what does the Canadian farmer think of it?

Some will say, "Only \$7.00 value of wool and mutton per acre per annum after all." True in that respect, though the animals were pure bred, and upkeep of vigorous growth their case and not one of immediate consumption. The grazing of sheep is not usually looked upon as worth more than \$1.00 a summer in Ontario, but unfortunately the average is not a very bright thing, and usually requires one acre per head.

The correct criticism is to compare the result with something more familiar and under equal conditions. We had this immediately alongside the acre in question as given in Bulletin XX. There during 1887 4,010 lbs. of milk were obtained per acre, and consequently a value of about \$40. Then, again, it is usual to say that from four to five sheep are equal to one cattle beast upon pasture; in this comparison, therefore, we have this pasture representing actually one and one-half cow per acre.

But apart from these facts, we are gratified in placing on record for the use of our people the continued prominent good conduct of our mixture of grasses and clover under very severe circumstances, as a piece of temporary or permanent pasture in association with crop-growing. We have now demonstrated beyond doubt that such pasture produces milk, beef and mutton in quantity three times more than the present average of the Province of Ontario.—*Bulletin XXIII, Ont. Agr. Col., Guelph.*

#### The Ontario Agricultural and Experimental Union.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—Being aware of the deep interest which the press of Ontario takes in the welfare of the agriculturist, and in whatever tends to the advancement of farming as an occupation, we beg space in your publication to set before your agricultural readers the objects of the Ontario Agricultural and Experimental Union. The next annual meeting of this Union will be held at the Agricultural College, Guelph, on Feb. 16th and 17th, and we issue a hearty invitation to all to be present and join us in the discussions and assist in such work as may claim the attention of the meeting. The Union is composed of students, ex-students and the officers, past and present, of the Agricultural College. In order to secure the co-operation of the farmers, the presidents of the various Agricultural Societies have been elected honorary members of the Union. The above, and any others interested in the advancement of agriculture are invited to take part in such experiments as the committee appointed by the Union may decide upon.

The course of testing during the last two years has been for the object of obtaining a better practical knowledge of the effects of some of the most easily procured Canadian fertilizers upon cereal crops. Not less than 180 packages of fertilizers, and 330 packages of grain have been sent free of charge from the Experimental Farm to members of the Union and other prominent agriculturists during the last season. The results of the tests will come before the next annual meeting. Many farmers are desirous of gaining a better acquaintance with the most economical methods of obtaining the greatest results from their fields, stock, &c., and often resolve to do a little testing on their own farm. The advantage of co-operative experimenting is that each individual, while making the tests, knows that many others over the Province are carrying on precisely the same line of work, with which