

well adapted to the needs of the family.

All the buildings necessary to the farm are sufficient for the cattle kept. The implements are almost sufficient in number, and good of their kind.

Manure is well preserved and increased in quantity.

General order, good.

Mr. Smith keeps no books. Besides the farm-manure, he uses 100 loads of sea weed and 50 barrels of fish. He has also planted some forest trees on his farm.

Stock. 1 brood mare, 1 work horse, 1 bull, 5 cows, 3 yearlings, 2 calves, 1 ram, 8 ewes, and 6 lambs.

Crops: 1½ arpents of wheat, 1 of barley, 20 of oats, 1 of buckwheat, ½ of seed timothy, ½ of swedes, 3 of potatoes, 18 in meadow, 20 in pasture, and a garden of 150 x 160 feet.

M. Smith gains 75.05 marks, so he is entitled to a bronze-medal and a diploma of Great Merit.

No. 51.—M. JOHN B. CYR.

September the 9th saw us at the farm of M. John B. Cyr, Little Cassapedia, Bonaventure. It contains 216 arpents, 80 of which are arable, 12 non-arable, 100 in bush; Soil: partly sandy, partly clay.

As to his system of cropping, we like the way he makes one crop succeed another, but we think he ploughs more land than he can manure, wherefore he loses ½ a mark out of the 4.

The fields are sufficiently divided, the fences are well made and of good stuff; there are no weeds in the fields.

The house is pretty good; the barn, stable, cowhouse, piggery, sheepshed, are all good and conveniently arranged.

The implements are well kept, and almost sufficient in number.

The manure is taken good care of, and increased by the addition of seaweed and fish in compost.

General management good, but no books kept.

There are not many permanent improvements on the farm; but we found the ditches sufficient in number and well cleaned out.

Stock: 1 brood-mare, 1 work horse, 1 yearling colt; 2 half-bred Shorthorn bulls, 9 half-bred Canadian cows, 1 butcher's beast, 4 2-yr.-old beasts, 2 calves; 13 ewes and 11 lambs.

Crops: 8 arpents of wheat, 2 of barley, 12 of oats, 2 of buckwheat, ½ of seed-timothy, ½ of flax, 6 of swedes, 2 of potatoes, 18 in meadow, 20 in pasture, and a garden 100 feet square.

We accorded M. Cyr 75.05 marks, which entitles him to a bronze-medal and a diploma of Great Merit.

Reviews.

THE U. S. EXPERIMENT-STATION'S RECORD.

The bulletins of the Experiment-stations of the United-States are, as most of our readers know, sent into the office at Washington, where they are digested by the Director, Mr. A. W. Harris, and published monthly in the form of a record of the most salient points mentioned in them. We propose to examine these records for the months of October, November, December 1892, and January 1893, and to give in a condensed—very much condensed indeed—form, the conclusions the agricultural experts of the States have deduced from their experiments.

FERTILISERS.

"In the little State of New-Jersey, \$1,346,000 were expended in the purchase of fertilisers. The cost per pound of nitrogen, phosphoric acid, and potash in raw, unmixed materials, is less than the stations, valuations, while that of the same elements in mixed fertilisers is at least 25 o/o greater." Thus, a farmer who buys his materials, as we have so often advised, and mixes them himself, would save 25 o/o by so doing. A vast amount of rubbish has to be paid for, and increased freight, in these mixed fertilisers.

POTASH is not so much needed in Rhode Island as phosphoric acid. Why? Because of the granitic origin of the soils of that state, and their consequent natural supply of potash. Do not the foothills of the Laurentides also contain an abundant supply of that element?

VALUATION OF FERTILISERS:—The New-Jersey station gives "the average composition, sale price, and commercial valuation of complete fertilisers for the years 1891 and 1892:

Year	Total nitrogen	Total phosphoric acid	Available phosphoric acid	Insoluble phosphoric acid	Potash	Seedling price	Station valuation
1891	2.71	10.12	7.29	2.84	4.21	31.23	25.31
1892	2.74	10.38	7.70	2.67	4.50	34.19	25.66

By this table, it will be seen that the buyer of complete fertilisers pays about \$9.00 a ton more for his goods than the man who buys his fertiliser-materials separately, in the open market, and mixes them himself.

FIELD CROPS.

POTATO-DISEASE. — Experiments were tried, at the New-York station, on the relative values of the Bordeaux mixtures and an ammoniacal solution of copper, as remedies for the potato disease. They were both effective, but the Bordeaux mixture gave the better results. We should fear that the ammoniacal solution would be apt to produce a continued growth of the haulm, and thereby injure the quality of the tubers.

Ashes:—Rhode-Island station tried the relative effect of the application of "Canada ashes" on new meadow-land in winter and in spring. One-third of an acre of old sheep-pasture, seeded to timothy and red-top, got half a ton of ashes on January 6th. On a similar plot of the same size, the same quantity of ashes were applied on April 10th. The yield of hay was:

Winter application.....	1,906 lbs.
Spring do	1,497 "
Balance in favour of winter application....	409 lbs.

i. e. 27 o/o in favour of the earlier application; thus proving, for the thousandth time, that potash is, as we have remarked in this publication over and over again, the most refractory of all the manurial elements; and showing why those who apply ashes to their potato-crop in May in this country, hardly ever, if ever, reap any benefit from the outlay.

COÖPERATIVE TESTS: — Thirteen farmers, in Virginia, carried out, in connection with the station, a series of experiments on corn. "The details are

incomplete and inconclusive." It is not every one who is capable of carrying out a series of even the simplest experiments. It requires no mean powers of observation, great patience, absolute indifference to the bearing of results, freedom from foregone conclusions, and constant attention to minutiae. We have always felt that the present Prime-minister of England, had he turned his attention to that business, would have made one of the most capable experimental philosophers that ever weighed things in a balance.

MAIZE-TASSELS:—The experiments on the removal or non-removal of tassels from maize seem to have left the experimenters completely in the dark as to the benefits derived from the removal-process. There is no uniformity in gain or loss of yield with respect to the treated or untreated rows. In one case, the row in which the tassels were removed gave, as compared with the unremoved row, a yield of 151:100; in another a yield of 37:100!

WHEAT.—For fall wheat, the quantity of seed that seems to be the most effective, in Indiana, &c., is 6 pecks to the acre. This is about the average seeding in well farmed English soils. Four pecks grow our own great crop of 1852—60 bushels an acre—but we always found, that if any disease attacked the crop, the thinner the seeding the more certain the crop was to suffer. For spring wheat, in this country, we should begin with 8 pecks in April, and gradually increase the quantity until we reached 10 pecks by the 20th May.

MOWING WHEAT in the spring was tried, at the Indiana station, on the 26th April, the wheat being then about 6 inches high. The result was that the growth was considerably retarded, and the crop, both grain and straw, very much reduced. In England, when wheat is looking too luxuriant in a mild winter, we used, many years ago, to turn the sheep into it. But no one would have, even then, dreamt of doing so after the spring growth had once begun.

Ripe wheat, as seed, produced 22 bushels of grain and 1.04 tons of straw; and wheat cut in the milk, 19.75 bushels and 0.80 ton of straw.

Spring-pastured wheat at the Kansas station—a cow was turned into it on April 6th!—yielded less than the unpastured lots. If our United-States' friends would harrow, horse-hoe, and roll their fall-wheats in early spring, as soon as the land is dry enough, and before the new growth has begun, they would soon find a difference in the yield.

Average yield of wheat from seeding at different rates.

Rate of seeding.	Grain.	Straw.
	Bushels	Tons.
2 pecks.....	20.46	1.18
3 pecks.....	31.83	1.75
4 pecks.....	31.76	2.13
5 pecks.....	35.05	1.76
6 pecks.....	36.99	1.87
7 pecks.....	36.16	2.06
8 pecks.....	37.91	2.17

It will be seen by the above table that there is no greater difference between the seeding of 5, 6, 7, 8 pecks on acre, so far as yield of grain is concerned, than may have been caused by variation of soil, &c. Wheat, from its marvellous tillering powers, requires less seed to the acre than any other grain.

POTATO-SETS:—"When tubers are

of the same variety and weight, the number of shoots does not perceptibly increase with the increase of eyes in the tuber." Interesting, perhaps, but of no practical importance.

FOODS—ANIMAL PRODUCTION.

CATTLE-FEEDING. — Old working oxen were fed against 30 months' old steers, at the Alabama station. Food: cotton-seed, cotton-seed meal, hulls and hay, continued for 12 weeks. The oxen, which were 18 years old and very poor, were fed at a loss of \$8.08; the steers, in good condition when put up to fat, gave a profit of \$11.36. The two oxen gained 202 lbs. and fetched 1½ cents a pound; the steers gained 476 lbs. and sold for 3 cents a pound. The former cost, when bought in for the purpose of the experiment, 1½ cents a pound, and the steers, 2 cents a pound. Fancy eating an eighteen-year-old ox! What was the object of this experiment does not appear.

BREEDS OF DAIRY-CATTLE:—The investigation of the value of the milk-products of the different breeds of dairy-cows has been carried on at the New-York station during the last four years, and the conclusion arrived at is, what we all knew before, that the Jersey and Guernsey breeds are "noticeable for their low cost in butter production, while the Dutch, Ayrshire, and Guernsey breeds are characterized by their relatively low cost of milk production." This being so, can any one doubt that the Guernsey is, of all breeds comestable on this Continent—with a saving clause in favour of the Dairy-shorthorn—the veritable farmer's cow. "The Devons and the American Holderness stand nearly midway between these other breeds." A most interesting statement is given by the Director of the New-York station, comparing the conclusions derived from the experiments carried on there, on the "Relation of food constituents to milk constituents, with the opinion of Dr Foster, an eminent physiologist, at Cambridge, England. Dr Foster says:

That the quantity of fat present in milk is largely and directly increased by protein (nitrogen matter), but not increased—on the contrary, diminished—by fatty food.

Now, the experiments of the New-York station, carried on, as we have just seen, for four years, go to show that the average of 13 cows, during August, gave a consumption of 62.3 lbs. of albuminoids (nitrogenous matter), and 26.4 lbs. of crude fat, with a production of 19.6 lbs. of fat in the milk. In September, they consumed an average of 78.9 lbs. of albuminoids and 22.3 lbs. of crude fat, and only produced in the milk 17.3 lb. of fat; or a decrease of 15½ o/o of fat consumed, resulted in a decreased production of 11.7 o/o of milk-fat. This result is diametrically opposed to Dr Foster's statement, and to his quotation from Liebig: The butter fat present in the milk of a cow is much greater than can be accounted for by the scanty fat present in the grass or other fodder she consumes.

Again, in July, the nitrogenous matter fed was somewhat less than in June (63 o/o less), while the fat was 14.9 o/o less in July than in June; but the decrease of albuminoids did not decrease the production of fat in the milk, nor did the decrease of fat in food increase the fat in the milk, since in July it was within .05 o/o of what it was in June.

SOURCE OF FAT IN MILK:—(pp. 124 129).—Bearing upon this question, the amounts of crude fat in the food