

very rapidly. Experiments having been commenced by Dr. Lawes in 1869 without manure of any kind the crop yielded 36½ bushels, and decreased to 12½ bushels in 1875. Such is the rapid degeneration of the oat plant under the practice of continuous growth without proper food supplies.

The weak point in American farming has always been the small attention to roots, and the comparatively poor quality of those grown. Unless more roots and hay be raised, and the area in cereals in the East be curtailed, every crop grown will suffer. The common practice with most cultivators in the Northern States appears to be the alternation of grain, grass and potatoes, and scarcely that, since from sixty-five to eighty per cent. of the area is under grass. If the area under grass were reduced to about 35 per cent., or less, the Scotch system of a six-course rotation would fit very well. Under this practice one third of the soil would be under grass or fodder crops, another under grain, and a third under roots. (1) By restricting the area of some crops and increasing that of others, it does not follow that a lessened product will result. Diminished areas mean more intensive culture. Thus, the first year, clovers and grasses might be sown in proportions to suit the different kinds of soil to be dealt with, then grains, as corn, oats and buckwheat, and afterwards roots. Thus: mixed clovers, corn, potatoes and roots, grasses, oats, and buckwheat, and mixed clovers. Under this system, fully one-half the area would be devoted to the growth of forage crops. Clover would stand two years, and would absorb one-third only of the land, corn would take one-sixth, potatoes and other roots a like amount, grasses another sixth, and buckwheat and oats the same area. The theory on which all rotations are based is, that different plants require different treatment in the matter of food or nutrition. Clovers love lime and sulphuric acid, potash and magnesia; wheat, comparatively little lime and less sulphuric acid, while roots make a heavy demand on all the mineral sources of food. This is why clover is immensely benefited by a liberal dressing of land plaster. Potatoes, large doses of kainit for their sulphates of potash, and magnesia and chloride of magnesia and sodium, while wheat delights in phosphoric acid with only moderate supplies of magnesia and potash. To illustrate this more forcibly, let a comparison be made of some grain, root, grass, and tobacco crops, and we shall find the dried products varying from 1 to 18 per cent — cotton lint, 1; cotton seed, 3.9; wheat grain, 1.9; wheat straw, 5; Indian corn, 1.5; red clover, 0.8; cabbage, 8; Irish potatoes, 4.3 turnips, 10; tobacco, 15 to 18. These analyses are the averages of a great number of tests by Playfair, and German and American chemists. Plants drawing heavily upon one kind of mineral are alternated with those needing it only in very small quantities.

To be continued.

## CORRESPONDENCE.

Quebec 12 Dec. 1883.

A. R. JENNER FUST, MONTREAL.

DEAR SIR,

I have your esteemed favor regarding the crushing of Linseed. I now enclose a sketch of my small place, which I purchased last spring, and would like your opinion as to the most profitable crops to grow. My occupation is Bee Culture, principally, but I wish to make the farm pay. In winter, I thought of producing Devonshire butter for sale, it fetches 30 c. netting me 25 c from 2 or 3 cows, the skim milk goes

(2) Hardly The Scotch six course rotation is divided thus. one sixth roots, two-sixths grain, three sixths grass A. R. J. F.

to feed 2 young Suffolk sows, which I intend to breed from: What is the best feed for them, and how much a day? I keep no horse, finding the food costs more than the hire for what I want done. Referring to the sketch, the N. W. field did not produce much hay this year, but the aftermath was very strong, and I think I shall get a good crop off it next year. The N. E. field I propose cropping as marked, this is the one which you recommend me to dress with 15 Scotch cart loads of manure and 20 bush. ashes, for potatoes, and 300 lbs. bone meal for Turnips. The West half of the S.E. field is ploughed for oats, but I believe you recommend barley; if I can grow at least as much of the latter as of the former I shall do so, as oats can be purchased to day at 45 c. p. 32 lbs. The whole of the S. W. field I propose to sow to Barley, with Clover and Timothy, the Western part should be manured, I think. What had I better put on? The Turnips (about an acre) gave me about 400 bush. (Sutton's Champion swede) with the aid of 1000 lbs. of Goemon Liphosphate mixed with about ¾ rotten leaf mould and cost me \$16.00 p. ton (it is now offered a \$12.00). It is admitted I had the finest if not the largest crop per acre around Quebec this year. Potatoes were a failure, as I gave them too much manure this spring. I would not have planted this crop a second time running on this spot, but was over-persuaded by my man. What would be the best dressing for barley on clay loam? Mr Cochran's crop of black oats is enormous—70 bush: is this by weight or measure? I can get gas lime at 30 c. a load, if it is any use, and the works produce Sulph. Ammonia. I should like to grow peas, as they sell at a \$1.00, but am told my land is too rich. How many bushels could one expect? How much butter should a cow produce in the 9 months to pay expenses? Trusting I am not taxing your kindness too much and enclosing stamp for an answer, I remain,

YOUR'S TRULY

\*\*\*

Gas lime—¾ earth to ¼ lime—for old grass; 10 cartloads to the acre.

Skim-milk, barley meal, and corn-meal, for *fattening hogs*; to be finished off with pease for a month. Small pork, *no pease*.

Try clover and orchard-grass—*ductylis glomerata*.

The barley, where the land seems poorest, might have 120 lbs. of sulphate of ammonia and 150 lbs. of superphosphate.

Pease sown *thickly* in rows, 27 inches apart, would not find the land too rich. Don't they do well in your garden?

Mr Cochran's crop of black Tartar oats was large for the climate, but my farm-tutor, Rigden, grew, near Brighton, Eng., 420 bushels on 3 acres.

The question about the cow's yield of butter cannot be answered without a previous knowledge of the food given.

A. R. J. F.

## New method of washing butter.

It is stated that a new method of washing butter has been patented in Germany. As soon as gathered in the churn in particles of about a tenth of an inch in size, it is transferred to a centrifugal machine, the drum of which is pierced with holes and lined with a linen sack that is finally taken out with the butter. As soon as the machine is set in rapid motion, the butter-milk begins to escape; a spray of water thrown into the revolving drum washes out all foreign matters adhering to the butter. This washing is kept up till the wash-water comes away clean, and the revolution is then continued till the last drop of water is removed, as clothes are dried in the centrifugal wringer. The dry butter is then