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Agriculture.

The Effects of Lime on Land.

EDITOR CANADA FARMER.—Will you be so good as to tell me if lime is good for clay land? Also please state the quantity to be applied per acre, and the way to apply it.

YOUNG FARMER.

North Wentworth.

Like most of the great questions of Agriculture, the action of lime is a subject upon which further enlightenment is needed; and this can only be got by experiments conducted by some institution where operations can be carried on year after year without danger of all the results being lost by the death of the experimenter, as is the case where experiments are carried out by individuals.

Lime is one of the constituents, to a greater or lesser extent, of all soils that are capable of cultivation. All plants remove some of the lime from the soil, especially wheat, clover, barley, oats, and turnips. It follows that, unless the lime be restored, exhaustion will ensue. And yet lime cannot strictly be said to be a manure. It is rather a stimulant. Successive applications of lime without other manure being applied will only quicken the exhaustive process. As a means of bringing back run down land, lime alone is useless. Its action is to decompose vegetable matter and to render more quickly available the plant food that already exists in the soil. In this direction it acts like magic.

It follows that the best time to apply lime is immediately after the application of a heavy dressing of stable manure, or after the turning under of a green crop.

Newly-drained swamps, or new clearings that have much vegetable matter in the soil always respond liberally to a dressing of lime. Such land is also benefitted by lime uniting with acids and carrying off sourness. Clay lands are lightened, and sandy soils rendered more tenacious by lime. On the stiff soils it allows the roots to find nutriment more easily, and on light soils prevents drouth from being so destructive. It is also supposed to have some disintegrating effect on the mineral portions of the soil, reducing them to an available state.

Probably the best time to apply lime is in dry weather, during the early fall. It should be applied in an air-slacked, finely-pulverized state. Any quantity up to 200 bushels to the acre may be the right amount. It is well to begin with as little as forty bushels, and continue the application as long as good results are found to follow. This is also the best course for another reason, viz., that lime is of a peculiarly penetrating character. When applied it commences to work downwards in the soil and after a while is lost to the use of vegetation. Therefore even where a large quantity can be taken with benefit it is better to apply it successively than all at one time.

Wet lands are not benefitted by the application of lime. On pastures the good effects are immediate and great. Cereals are brighter, thinner-skinned, stiffer-strawed, more productive, and earlier in ripening.

Changes in Modes of Cultivation—Growing Potatoes.

EDITOR CANADA FARMER.—The changes that have been effected in farm operations within the past twenty-five or thirty years are very great, and have tendered to benefit the farmer. These are for at least two reasons. In the first place, Agriculture has been more thoroughly studied—looked upon as a subject of investigation for the purpose of increasing the profits resulting from the occupation, as well as enhancing the permanent value of the farmstead. And while men have not aspired to the noble position of being called "public benefactors" they have not only

caused "two blades of grass to grow where only one grew before," but have caused the soil to be more liberal in its increase, in the different crops that have been cultivated. And while the tendency has been to cause a marked increase in production, at the same time it has also been to effect this increase and the general production of the crop at a less expenditure of labor.

In the second place changes have been wrought by the introduction and general use of improved farm implements and labor saving machinery. In viewing the farm implements of early days in comparison with those of the present day, the great wonder is that anything could be accomplished with such rude apologies of farming tools, and that "old mother earth" did not refuse to give her increase in response to the abortive efforts of the husbandman of that day.

But progression is still the watchword, and what was considered good for to-day is surpassed to-morrow. The method usually pursued in the cultivation of potatoes, was to plough the ground as early in spring as could be conveniently done, without spreading any manure, generally of greensward, furrow the rows at least three feet apart, and manure in the hill no less than three feet apart, drop the potatoes and cover with the hoe; after they were of suitable size to hoe, an old fashioned plough, with wooden sides and an iron front, was run through between the rows, and the hoe brought into wearisome use; this operation was gone through with twice or three times, and the rest left to Providence until digging time.

But now how changed is the mode of cultivation; although there are diversities of opinion upon some minor points, such as the use of manure, etc., the important principles of cultivation are followed alike. It is very seldom now, except in case of some experiment or from necessity, that potatoes are planted upon sward ground, but rather in fields that have been undercultivation one or more years, by which means the soil becomes thoroughly pulverized and better adapted to the expansion of the growing tubers. The fact that the potato is a gross feeder is fully observed, and the soil has incorporated with it by having spread upon it, before ploughing or immediately after, a liberal quantity of manure; when this follows the plowing, the effective labor of the pulverizing harrow makes an excellent seed bed for the potato.

The rows are then marked with the plough, from two-and-one-half to three feet apart, (many preferring the distance first named) the potatoes dropped from one foot to eighteen inches apart with the use of a small quantity of phosphate and then covered with a plough, or better yet with a ridger, which performed the labor a little more satisfactory. About the time the potatoes are coming up a harrow is passed over the field in the line of the rows, which operation is repeated before the tops become too large. After this the horse hoe or cultivator accomplishes a large proportion of the labor of cultivation. In these changes it is proper to remark of the preparation of the seed; formerly the seed was cut once in two, while now it is cut to three, two, and often a single eye upon a piece. What has been the effect of this? While the product has not been essentially diminished in quantity, it has been found that the grown tubers are of much more uniform size, and hence better adapted to marketing. A successful farmer has laid it down as a rule, resulting from careful observations, that even if a whole large potato is planted in a single hill, there will be one or two stalks that will get the lead in growth, and that the others must to a greater or less degree succumb to the overpowering influence of the strong, therefore the result must be an average quantity of good potatoes, with a surplus of partially developed ones.

Geo. Hyde, the vice-president of the Connecticut State Board of Agriculture, had taken a new departure in growing potatoes, which promises to be worthy of being followed. The general impression has prevailed that above all things, green stable manure was poorly adapted to man-

uring potatoes in the hill; notwithstanding this, Geo. Hyde has practised the following method. He usually takes old ground, or that has been previously cultivated, and commences to plough upon one side of the field. After ploughing one furrow, which is generally to the depth of six or eight inches, a cart follows, strewing manure, the greener the better, in the furrow, upon which the potatoes are dropped, and the ploughing proceeds until three furrows are ploughed and then the operation repeated, and so on until the field is finished; in this he claims an ultimate saving of time, and is confident that he obtains excellent potatoes. He believes that in consequence of his burying the green manure to such a depth, the process of decomposition is retarded, and all the gases are absorbed into the soil, and the process continues just about as rapidly as the growing potato requires its food, and so cannot prove injurious. The past season even, he tried his method upon a meadow which had been underdrained, but in consequence of the severity of the previous winter, had been so covered with ice, as to kill a greater portion of the grass upon two or three acres; this he turned over as indicated above, the sod completely interlaced with roots, and planted as above, and did not touch the piece with hoe or cultivator afterwards, nor give any further labor until harvesting, and yet there was a rich yield of very large and smooth potatoes, as handsome as are often seen. The cost of production of the crop must have been very light, but the figures are not at hand.

Can it be said that agriculture is not making progress, or that "farming don't pay"?

WILLIAM H. YEOMANS.

Columbia, Conn., Dec., 1875.

Leaves from Farming Experience—No. 4.

Recapitulation of Rotation.

The following is the recapitulation of the revenue from the rotation before described:—

FIRST YEAR.—Twenty acres oats, 70 bushels per acre, 1,400 bushels @ 40 cents, \$560; straw, 30 tons @ \$5.00, \$150.....	\$710
SECOND YEAR.—Twenty acres peas, 33 bushels per acre, 660 bushels @ 70 cents, \$462; straw, 20 tons @ \$8.00, \$160.....	622
THIRD YEAR.—Twenty acres wheat, 30 bushels per acre @ \$1.10 per bushel, \$660; straw, 20 tons @ \$4.00, \$80.....	740
FOURTH YEAR.—Twenty acres oats, 70 bushels per acre @ 40 cents, \$560; straw, 30 tons @ \$5.00, \$150.....	710
FIFTH YEAR.—Seven acres of rye to cut green, valued at \$110; three acres potatoes, 180 bushels per acre @ 40 cents, \$216; turnips after rye, 700 bushels per acre @ 7 cents, \$343; ten acres corn cut green @ \$20 per acre, \$200.....	869
SIXTH YEAR.—Ten acres clover cut green @ \$20 per acre, \$200; ten acres wheat, 30 bushels per acre @ \$1.10, \$330; straw, 10 tons @ \$4. \$40.....	570
SEVENTH YEAR.—Twenty acres hay, 3½ tons per acre @ \$12.....	840
EIGHTH YEAR.—Same.....	840
NINTH YEAR.—Same.....	840

Total value \$6,741

The fifth crop should have 18 cartloads of good dung per acre, and in the fall, after the eighth crop, 18 loads also. But although all the crop be used as food on the farm, and all the manure used carefully, yet there will be a great deficiency in the supply of inorganic food where milch cows or young cattle are kept. To supply this food to plants, 100 lbs. common salt, 33 lbs. plaster, 4 bushels quick lime, and 50 lbs. superphosphate of lime ammoniated,