Competitors are to enter an experi-that, it may be worked in during the ment-field of one arpent. This arpent, spring with good effect. divided into two equal plots, is to be. The two above manures, then, are manured thoughout with from 12 to 15 to be mixed with dry earth or plaster,

tons of dung. receive in addition the following che- plot No. 2 receives no manure, mical manures:

1. In the fall, at the time the dung is applied, 25 to 50 lbs of chloride of po- kind of seed. tassium (muriate of potash.) The chloride of potassium may be replaced by 3 to six bushels-200 to 400 lbs. of unlixiviated wood-ashes.

2. In spring, before sowing, the following fertilisers are to be spread and intimately mixed with the soll by means of a thorough ploughing, followed by the grubber, viz. :

Superphosphate (plain).... 100 lbs

Plaster.... 100 lbs 3. After sowing, the plot is to receive. as a top-dressing, at once or better at twice, 100 lbs. of nitrate of soda.

Nitrate of soda now costs in Montreal less than \$3.00 per 100 lbs. While the carrots and mangels are growing, the farmer will carefully note the appearanee of the two plots; he will watch their development and mark, at harvest, the difference, both in quantity and quality, in the yield of the crops.

The prizes will be given to those competitors who shall best dis, I y the effect of the artificial manures on these root-crops.

5th COMPETITION.

Cultivation of the potato with both dung and chemical terulisees- Effect of wood-ashes and superphosphate of lime.

The experiment-field is to be one ar vent in superficial measurement, divided into two equal plots, No. 1 and No.2.

The field is to be ploughed deep, and, it possible, subsoiled, so as to work the hand thoroughly to at least a foot in depth. Ten tons of dung are to be applied to the arpent, beside which, plot No 1 (2 arpent) shall receive an addition, in the fall, of from 400 to 800 lbs-5 to 10 bushelss of good unharmated ashes, according to the quality of the land, light or heavy.

In spring, before planting the sets, sow and mix with the grubber or the spring-tooth harrow, on both plots, 200 to 300 lbs.of plain "Capelton" superphosphate.

Thus, the two plots will have received an equal dose of dung and superphosphate; but plot No. 1 will have had in addition a dose of wood-ashes.

The difference in the results found during the growth of the crop and at its harvesting will show clearly the effect of the ashes, and the prizes will be assigned to those of the competitors that shall the most accurately demonstrate that effect.

6th COMPETITION

Cultivation of leguminous plants: pease, beans, lentils, clover, etc., with chemical manures alone.

Competitors must enter for competition at least an arpent of land to be sown with legumens and divided into two equal plots.

Before seeding, one plot, No. 1, shall receive the following chemical manures (on the ¼ arpent) :

Muriate of potash.... 50 lbs Cost, about \$3.00.

When possible, the competitors ought to be obliged to plough in the potash in growth of the grasses, timothy etcthe previous fall, which is the best way Effect of phosphoric acid and of nitroof treating it. But, if it be too late for gen.

ons of dung. One of the two plots (¼ arpent) is to rowleg, or grubbing, on plot No. 1;

The two plots are then to be sown as uniformly as possible with the same

The 50 lbs., of muriate of potash may be advantageously replaced by 400 lbs. cabout 5 bushels) of unlixiviated woodashes, provided they be applied in the previous autumn, and ploughed in after being well mixed, for they must not be applied at the same time as the superphosphate of lime, in spring, especi-

ally on account of their injurious effect on the superphosphate. Whatever sort of legumen and of potassie manure be chosen, by the club, for the competition, the competitors are

to show in their report, which must be verified by the judges of the competition before being sent to the Depart ment, the following points :

The nature of the soil of the experiment-field; the kind or kinds of the le gumens cultivated ; the manures used; the time and method of their application; and the results obtained on both the plots, No. 1 and the comparisonplot, No. 2.

7th COMPETITION

Improvement of an old pasture

Effect of liming

The experiment field consist of one arpent of old pasture, more or less exhausted, fairly rich in humus, and diided into two equal plots.

One plot (1/2 arpent) is to be limed in the fall with 5 bushels of quick-lime.

When the lime is slaked in a heap, by the side of the pasture, those precautions mentioned further on (see "Liming") being observed, it is to be mixed with 3 to 5 times its bulk of earth, spread on the plot and harrowed in.

The spring arrived, the two plots (an (rpent) are to be sown with a few pounds of white, or other clovers, mixed with pasture-grass seed.

The seed may be sown on the last of he snow.

The mixture of grass-seeds for the cre may be the following :

White clover..... 3 lbs Alsike clover... 2 lbs Orchard grass 4 lbs Meadow fescue 4 lbs The club is at liberty to select other mixtures, but always with a ba sis of white-clover, better suited to the onditions of the locality, and the competitors must get these seeds and sow them in the proportions fixed upon by he club.

If the grass-seeds are not sown before the snow goes, the pasture is to be harrowed, with a sharp toothed harrow, after seeding, and then rolled.

The report of the competitors, verified by the judges, shall show in detail the nature of the soil and the state of the pasture before its improvement, as vell as the differences observed during the growth of the grass between the limed and the unlimed plots. The experiment-field, in its entirety is also to be compared with the surrounding pastures. The prizes will be accorded to those competitors who shall have best demonstrated the effects of the liming.

Sth COMPETITION

A newly laid down meadow, in which it is especially desired to promote the

The experiment-field is to be a-half arpent; the rest of the meadow may serve as the "comparison-plot."

As soon as vegetation begins in spring, the following chemical manures are to be sown on the experiment-plot :

"Capelton" plain superphosphate.... 100 lbs

Nitrate of soda...... 50 lbs The superphosphate is to be mixed with twice its bulk of dry meuld, sand, ctc., and the nitrate of soda thoroughly blended with the whole, which is then to be opened as a top-dressing on the 12 arpent of meadow as soon as vegetation starts; harrowing and rolling complete the work.

After the first crop of hay is off, 50 lbs more nitrate of soda, mixed with its own bulk of dry mould or sand, is to be spread on the 1/2 arpent. Careful notice is to be taken of the variations between the plot thus treated and the rest of the meadow. The prizes will be given to those competitors who shall have best displayed the effect of these manures on the hay-crop, and after-math.

9th COMPETITION.

A meadow, in which it is specially desired to encourage the growth of the clovers .- Effect of wood-ashes and superphosphate of lime on leguminous plants.

The experiment-field is to comprise an arpent of meadow, divided into two equal plots, Nos. 1 and 2; the rest of the meadow may serve as a "comparison-plot."

On the whole piece (1 arpent) is to be applied in the fall, after the last hay is cut, 500 lbs. (about 6 bushels) of unlixiviated wood ashes, and, if possible, the land is to be harrowed.

As soon as vegetation starts in spring. 200 lbs. of plain superphosphats-"Capelton "-, after being mixed with its own bulk of dry mould, or plaster is to be spread on plot No. 1 : both plots are then to be harrowed.

In this experiment, plot No. 2 is in tended to show the effect of woodashes used alone, while No. 2 will show the effect of the addition to the ashes of phosphoric acid.

10th COMPETITION.

Catch-crop, for fodder.

Competitors are to enter for comptition a-half arpent of land that has grown an early crop of potatoes, or any other early crop, which shall be se lected by the club in accordance with the conditions of the locality.

After the severance of the early crop, the land shall be worked with the grabber or rather with the plough, and on the half arpent shall be spread and worked in with harrow or grubber, 200 ibs of Capelton complte manure, "Victor": turnips to be immediately sown. Or, in place of turnips, rape may be sown, var. "Dwarf-Essex," at the rate of 3 lbs. to the half arpent; or Hungarian grass (1/2 a bushel), harrowed and rolled in.

In their report, to be verified by the judges, the competitors must state:

1. The nature of the land, the date of the sowing of the main crop, the ma nures used, and when that crop was harvested.

2. What plant was selected for the catch-crop; details of its growth; the date of harvesting it; its yield, and every other interesting piece of information connected with it.

11th COMPETITION.

Catch-crop for green-manure. The experiment-field shall be an arpent in extent, divided into two equal and the hard, unslaked lumps are to be plots, Nos. 1 and 2.

The chief crop must be of grain: wheat, barley or oats, cultivated in precisely the same way on each plot.

After harvest, the stubble is to be cleaned and ploughed on both plots, and, on plot No. 1, shall be sown tares or vetches, pease, beans, horse-beans, or any other leguminous plant chosen beforehand by the club. Oats or buckwheat may be added to the aforesaid pulse to hold up the tares, etc. To be harrowed and rolled.

This catch-crop is to be allowed to stand as late as possible, but when there is danger of frost, or as soon as the plants are in flower, it is to be ploughed - in.

In the following spring, plots 1 and 2 are to be worked precisely alike, and sown with roots or with maize, either for silage or grain. No manure of any kind is to be used on either plot, but their treatment is to be exactly the same.

Competitors are to state in their reports any interesting features apparent in the experiment. They will point out, among other things, the nature of the soil, the kind of plants grown, in the chief crop, in the catch-crop, as well as what sort of crop followed the plougning in of the green-manure, and the final yield of each plot.

THE LIMING OF LAND.

Lime in its caustle state (quick or slaked) has a great tendency to enter into combination with the carbonic acid gas of the air to return to the state of carbonate of lime, in which it existed before being burnt; and in this state, of carbonate, it can no longer produce in the soil all the good-effects it produces in the caustic state. The secret of successful liming is to slake lime away from the air and then to spread and plough it in as soon as possible.

Lime should be used as soon as it is burnt, or else it will become more or less carbonated, and consequently less active.

The quantity to be used should be enough to last for 4 or 5 years, and varies with the nature of the soil and the style of farming pursued. Heavy land requires a larger dose than light land, particularly if the latter is not rich in humus.

From ten to twenty bushels of lime to the arpent may be advantageously used on heavy land ; on light land, pretty rich in humus, from five to ten bushels to the arpent may suffice; but on the latter soils, and on meadows, it is better to use lime in the form of compost. when the lime will lose part of its causticity, and become associated with organic compounds; still, on meadows, lime, mixed with a sufficient quantity of earth, may be used.

Lay down the lime, as it comes from the kiln, in small heaps of from 3 to 5 bushels, on the land ; place the heaps at regular intervals, and cover them care fully with a layer of earth of several inches in thickness. The heaps must be watched for several days, and any cracks that may show through the covering of earth must be stopped. The lime sown becomes a hydrate, that is, it absorbs moisture from the air and falls to powder.

In eight or ten days, but it sometimes takes several weeks, according to the season, it becomes slaked. In droughts, the slaking may be hastened by watering the heaps. This being done, the earthen covering is mixed up with the lime, gathered and slaked before spreading.