

i.e., the bugs are killed. This is done in large air-tight chambers built either outside or inside their warehouses. These chambers are filled with peas in the bags as they are delivered by the producer. A place sufficiently large is left to enable a man to place on top of the bags a shallow pan containing a certain amount of a liquid known to commerce as the bisulphide of carbon. This evaporates and the heavy gas penetrates everything in the room, killing the bugs in this way. It requires about forty-eight hours to treat each lot, and a very small quantity of the liquid will treat a great many peas.

As a Green Manure.—As a green manure peas are valuable, especially on light soils where it is difficult to get clover to catch. They should be plowed down about the blooming stage. They not only make humus, but they store up a considerable amount of nitrogen for future use.

As a Soiling Crop.—Anyone who practices the sowing of peas and oats or peas and barley together as a soiling crop will readily understand that peas are very valuable used in this way. The peas give most of the flesh-forming ingredients of the food. It does more, it seems to help the growth of the oats or barley, as either one grows ranker with the peas than if sown alone on the same ground. It would appear that the peas, besides being able to draw free nitrogen from the atmosphere and use it, affords some to be assimilated by the associated crop.

Pea Straw.—The straw of peas has often been condemned as comparatively useless food. With the modern methods of harvesting it is found that the pea crop can be harvested while the straw is still green and leaves attached. When well cured it is only a little less in feeding value than clover hay. Bright pea straw should never be fed for any length of time alone, as constipation is sure to follow such a practice. If mixed with other bulky feed or changed often the danger is overcome.

Prince Edward Co., Ont. T. G. RAYNOR.

Growing Roots and Supplementary Crops.

- 1.—How, when, and in what quantities do you apply manure to land for (a) turnips, (b) mangels and carrots?
- 2.—How much mangel and carrot seed do you sow per acre, how wide apart do you make your drills, and how far apart do you leave the plants?
- 3.—How do you manage to secure uniform germination of mangel and carrot seed, and what time do you prefer to sow?
- 4.—What do you think of sowing cabbage seed with carrots to fill the blanks, and thus secure cabbages for stock, market, and other purposes?
- 5.—How do you prepare the ground for turnips, and at what time do you consider it best to sow?
- 6.—Have you ever grown pumpkins alone or with any other crop for fall feed for stock? If so, how do you grow them, and how much value do you place upon them for hogs and milch cows?
- 7.—Have you grown rape alone or with a grain or other crop to be pastured in the fall? If so, what do you think of it in either or both cases?
- 8.—What variety each of turnips, mangels, and carrots is giving most general satisfaction?

Successful Methods of Root Culture.

- 1.—Broadcast during the last ten days in May, at the rate of twenty loads per acre.
- 2.—Turnip seed, 1½ lbs. per acre; mangel seed, 3 lbs. per acre; carrot seed, 2 lbs. per acre; drills 22 inches apart. Mangel plants and turnips about 14 inches apart; carrots, 4 to 6 inches.
- 3.—By sowing with a drill, burying the seed about 1½ inches, and having the land thoroughly pulverized.
- 4.—I think the plan an excellent one, always securing lots of cabbage.
- 5.—Plow, if possible, twice in the fall. Gang plow in the spring before applying manure. Harrow the land until worked very fine, then plow in your manure. Harrow and roll. Let it remain until a few days of seed time, then plow again and drill up. Sow from June 15th to 25th.
- 6.—I always grow pumpkins with corn and potatoes. I never grew them alone. I consider them good for cows, but not worth much for hogs.
- 7.—Never grew rape with grain or other crop. It is an excellent thing grown alone, either for pasture for sheep or store cattle, or to plow under for manure. I think our farmers should greatly increase their acreage of rape.
- 8.—Any variety of turnips can be grown successfully in this township. I have not had a failure of crop in 18 years. I usually sow more Skirvings than any other—about six acres of those, and one acre Greystones for early feed, and an acre of the fancy varieties that seedsmen advertise highly, but I consider the old Skirving equal to any of them. Mangels, the Mammoth Red; carrots, Beith's White Belgian.

G. E. MOWBRAY.

Ontario Co., Ont.

Farmers Must Use Their Heads.

To grow carrots and mangels successfully, the land should be well fitted in the fall, and must be clean, so as to plant as early in the spring as the condition of soil will allow. Turnips are our root crop. Cattle are always in good health when they have plenty of turnips. They give the stock an appetite for any other kind of food. We would not like to give up the turnips. Yet it will not pay to feed them to your cows when you are making butter for market. The Greystone turnip can be fed to cows when making cheese without any bad effect, and there is nothing excepting green clover which can beat them for a great flow of milk. The way we grow turnips is to take the dirtiest field on the farm and plow it in the fall, but never drag it, leaving it so that the frost and air can act upon the soil, then early in the spring we plow it again and then put on the cultivator and work it well. We

then let alone until we get through our spring work. We then put the cultivator on again and work it up well. After this we manure it well, putting about thirty loads to the acre; then we plow in the manure, after which we put on the drag and work it down fine; then we put it up in drills twenty-eight inches apart, and sow as fast as the drills are made, putting one and one-half pounds of seed per acre. We sow from eight to twelve acres per year. We never sow before the 15th of June. We have grown pumpkins for cows, planting the seed with corn, putting a seed in every fourth hill and in every fourth row. I never could notice any great increase in the flow of milk. I think, unless the seeds are removed, they cause too great a flow of urine. We do not feed them to pigs. We think there is only one way to handle pigs at present prices and make money. This is to never let them slack from the time the sow farrows them until they are ready to sell. This should be at five months old, and they should then weigh two hundred pounds on an average. Managed in this way, you can then go ahead. I think if farmers will use a little head work they can make money as fast as they have at any time in the past. A farmer, to be successful, must know the ability of every thing he keeps. The land is able to do a lot of work, but it is just like a cow, it won't do much when it is half-starved. Feed the land well and it will feed you and run your measure over. J. B. STONE.

Northumberland Co., Ont.

Corn and Potato Growing.

- 1.—How, when, and in what quantities do you apply manure to land for (a) corn, (b) potatoes?
- 2.—How do you select and prepare seed potatoes; how do you prepare the ground; what time do you plant for a field crop, and for very early potatoes? How wide apart do you put sets, and how many in a hill?
- 3.—In the light of your experience and observation, kindly compare hill and level cultivation for potatoes.
- 4.—After what crops do you prefer to grow ear and fodder corn; how do you prepare the ground; and at what time and how do you plant the seed, and how much seed per acre do you consider best?
- 5.—Have you ever grown pumpkins alone or with other crops for fall feed? If so, how do you grow them, and how much value do you place upon them for hogs and milch cows?
- 6.—Have you observed or grown rape alone or with grain or other crops to be pastured in the fall? If so, what do you think of it in either or both cases?
- 7.—What varieties of corn are giving most general satisfaction in your district for ear, fodder, and the silo?

Prefers Leaming and Canadian Dent Corn for Ensilage.

- 1.—I apply barnyard manure on land for corn and potatoes by drawing and spreading in winter if depth of snow permits and field is fairly dry and level; if otherwise, by drawing from shed just before sowing or planting, to be plowed under. If applied in winter, plow under as soon as land is dry in spring; from 12 to 20 loads is what is usually given per acre.
- 2.—I select well-formed potatoes, avoiding extremely large or small ones or those lacking vitality, cutting good-sized sets, and spreading on dry floor to dry for a few days before planting. Prepare the ground by plowing lightly immediately after harvest the previous season and deeper before snow-fall, plowing again in the spring; of course, thoroughly harrowing the land, also using cultivator and roller if necessary. Plant from the 15th to the 24th of May for field culture, and last of April for early ones. I plant from 10 to 12 inches apart in drill 30 inches wide. When ready to plant, make three drills on one side of field, then plant outside drill; cover with plow, going one way, and make another drill coming from opposite end. Then leave drills until potatoes are coming through, then harrow, afterwards scuffle and mold up. Very little hoeing is required on fairly clean land.
- 3.—Cannot make comparison between hill and level cultivation, but between drill and level cultivation would say that on dry land level cultivation is probably the best, especially in dry seasons, but prefer the other plan in ordinary cases for the reason that they are less liable to rot either as seed in spring or as crop in the fall, besides being easier to contend with weeds with drill cultivation.
- 4.—I prefer to grow corn after an oat crop which has been grown on sod. Prepare ground same as for potatoes. Sow as early as the 20th of May if I can get land ready. Sow with ordinary seed drill, using two hoes which sow it about three feet apart. Sow a little over one-third bushel per acre.
- 5.—Have grown pumpkins among potatoes, but not to any extent. Know that cows will eat them, but have no knowledge of their feeding qualities.
- 6.—Have grown rape and seen it grown alone for fall pasture. Think it is excellent for sheep and young cattle if care is taken not to allow them to gorge or bloat themselves with it on the start, but not good for milk cows.
- 7.—The varieties of corn that are giving the most general satisfaction in this district are the Leaming and Canadian Dent. Some people favor the Southern Sweet, however. Anything I have said in regard to corn only applies to silo or fodder corn, as it is not grown for the ear to my knowledge, but think it will in the future. THOS. A. CHISHOLM.

Bruce Co., Ont.

Prefers Inverted Sod for Corn and Potatoes.

- 1.—As long as the snow is not too deep our manure is spread on the ground as it is drawn out during the winter. When the snow is deep it is put in small heaps, to be spread in spring. About fifteen to twenty loads per acre is the quantity generally put on; potato and corn ground treated alike.

2.—Best results have been obtained by planting potatoes on sod, plowing them in early in the season; put them in every third furrow, plowing shallow; then work the land well with disk harrow. If not on sod the land is plowed in the fall, manured in the winter, and potatoes either plowed in or put in drills, sets put ten to twelve inches apart.

3.—Have never tried level cultivation—always drill them up, but not very high; but in a dry season on our soil think level cultivation would be the better way.

4.—Like potatoes, our best corn is always grown on sod, plowed in the fall and manured in the winter if possible. If the manure is short it is worked in with disk harrow, but if long it is plowed crossways, but would rather not plow. Sow the seed as early as the ground is dry and warm, before the 20th of May if possible. Use a Noxon grain seeder for sowing; drills 35 inches apart; half bushel of seed per acre—depends on variety, size of kernel varies so much.

5.—Have never grown pumpkins for feed more than a few planted with the corn.

6.—Have sown rape the last two years; first crop was bird rape and of no use. Last year the weather was so dry it did not germinate, if the seed was good.

7.—For ear—Compton's Early or the common yellow corn grown mostly. For fodder—Mammoth Cuban, Cloud's Early Yellow, Leaming, and Red Cob stand the test as well as any.

Glengarry Co., Ont.

E. C. MCCALLUM.

Culture of Potatoes, Corn and Rape.

- 1.—We put out the manure as it is made, on land that was fall plowed, about thirty loads to the acre, and spread it at the same time until the ground freezes. After that it is put in small piles and spread shortly after the snow goes in the spring. When it is spread on the frozen ground and snow, part of the strength of the manure goes away some springs. There is no manure taken out from the time the snow goes away until we start to put in the root crop; it is well rotted then. The ground for the potatoes is manured then and well worked in on the surface. For the corn it is mostly taken out in the winter.
- 2.—We select out enough potatoes of each kind for seed, of nice shaped and good sized ones, when we are digging them, and put them in separate bins, and cut them in two lengths just before planting and sprinkle them well over with land plaster. They are mostly planted on land that was broken out of sod the year before, being well plowed in the fall and again in the spring and manured after and well worked in the surface soil. We plant about 15th or 20th of May, and for early potatoes as soon as there is any growth. We mark out the ground in rows three feet apart with the plow and run it very light and drop the half potatoes 2½ feet apart and cover with the hoes.
- 3.—We have the ground very near level; just put the ground very lightly up to them and think they do much better that way than ridged up. A few of the potatoes will be partly exposed and will be green; they make good seed or can be fed to stock.
- 4.—No ear corn of any account grown here. We grow the fodder corn, as the soil suits it, and it is grown on the same ground a good many years in succession, and grows heavier crops now than a few years ago. It gets quite a lot of manure. Last year before planting the corn we plowed down a heavy crop of rye that was sown just after the corn was cut the year before, and the corn did well. We plant from the 10th to the 20th of May, with a grain drill, using two spouts, which leaves it about three feet apart, and sow from 8 to 12 pounds to the acre. After a little of that comes out in harrowing it is not too thick.
- 5.—Do not grow any pumpkins.
- 6.—We had nine acres of rape last year. It grew a fine crop. The milk cows and sheep feed on it a long while. They were put in a short time at first. Both the cows and sheep did extra well on it. A neighbor two years ago mixed some of the seed with his oats when they were sowing them, thinking after the oats were cut that the rape would grow up and make good feed in the fall, but it did not wait that long; when they were cutting the oats the rape was up higher than the bands of the sheaves and he could hardly get them dried. He doesn't intend trying it that way any more.
- 7.—For fodder corn and the silo, Thoroughbred White Flint is liked well.

Renfrew Co., Ont.

JAMES MARTIN.

The Crust in the Grain Field.

Among the essential conditions to successful germination of seed grain in the soil are heat, moisture, and air. The two former may be present in sufficiency, but if, as from the effect of a heavy shower of rain falling upon a finely pulverized surface of clay soil, a crust be formed, followed by drying winds and sunshine, which shuts out the circulation of air, germination of seed is seriously retarded if not rendered impossible, and if it has commenced, will make little, if any, progress in growth while the crust remains unbroken or until it is softened by a subsequent rainfall relieving the pressure upon the pent-up plants. To avoid loss of time and loss of strength in the crop under such circumstances, we are fully persuaded, as the result of experience and observation, it is wise and profitable to apply the harrow vigorously as soon after

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