

Soils and Crops

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To Get Big Potato Crops

Most of the potato growers of the province, in making plans for the 1922 crop, are giving special thought to the necessity of greater yields, perhaps, than ever before, of producing maximum acre yields at the lowest possible cost per bushel. A certain output is required to pay the costs of producing the crop. The profits are in the surplus bushels, and the farmer who grows, say, 2,000 bushels of potatoes on from eight to ten acres of land will ordinarily make considerably greater profits than the man who grows the same crop on from fifteen to twenty acres.

The potato as it is grown today is a highly specialized crop and responds to proper care and cultural methods better perhaps than most other field crops. The following suggestions cover briefly the chief factors in the production of a heavy, high-quality crop and are readily applicable to prevailing Ontario conditions:

Thorough preparation of the land before planting enables the plant to develop a large root system, through which it can take from the soil sufficient nutrients to produce a desirable crop.

Plenty of organic matter in the soil insures moisture-holding capacity. Use certified seed, if possible. Never use any but the best seed obtainable.

Proper spacing is important. It has been found that rows three feet apart with the hills from 15 to 18 inches apart in the rows, gives yields from 30 per cent. greater than the "33" method commonly practiced.

Frequent shallow cultivation during the growing period largely prevents evaporation of the soil moisture and helps tide the crop over the summer drought.

Spraying with fungicide-insecticide solution at intervals keeps the vines green and healthy right up to maturity.

Adequate fertilization is necessary to produce a profitable crop. The potato demands large quantities of nitrogen, phosphorus and potassium. On most lands which have been cropped for some years, at least 1,000 pounds of high-analysis fertilizer per acre should be used, from one-third to one-half of which may be broadcasted before planting, the remainder being applied along the row at time of planting.

Better seed and efficient spraying materials and fertilizers may call for an outlay of some additional money, but investigations have shown them to be worth while.

Long Fight With Quack

There are not at the present time very many farms in the older communities whose once clean and fertile fields are not infested with the dreaded quack grass. Anyone who has tried to work a field infested with quack is aware of the hardness to which it is apt.

There was a ten-acre field on the writer's farm which was infested with quack, bearing a point which made tilling this particular plot a failure. The farm for years had been in the hands of tenants and hence the neg-

lect. The first year we tried to cultivate the field we had all the plowing to do in the spring. This field was plowed about the last of April and worked up as best it could be. I say "as best it could be" owing to the density in places of the quack roots. We plowed this field about four inches deep, so as not to bury the roots too deep. This being done, we put in about the next six days with the disc harrow. Having disced this field four times—lengthwise, crosswise and cornerways both ways, we then put the spring-tooth harrow to work in some of the lower places where the seed was heaviest. Neither the disc or the spring-tooth would take hold. The latter would turn the soil over in chunks when it did take hold.

Having done all we could do, we planted this field to corn, drilling it in one way. Everything ran along smoothly until the corn was large enough to cultivate. The corn came on good a good stand under the conditions. But the quack was also a good stand. We kept a team and cultivator in this field every day that it was possible to do so. Although we managed to work up a mulch for a time, owing to frequent rains, our battle had only begun. The corn was a failure. We took off what fodder there was and plowed the field shallow, about two inches deep, about the first of October. Then again we plowed just before the ground froze up. Being a late fall, we finished plowing the second day of December.

The following spring, after seeding was done, we kept the spring-tooth harrow on this ten-acre field about two days a week until about the first of June. We had then just begun to win. In places it still grew. We again directed our labors to the plow, plowing about two inches deep and harrowing what we plowed immediately. Thus the soil did not harden but left a nice mellow bed. We had by this last plowing and harrowing turned up the soil to a depth which brought us victory. The weather at this time began to get hot and dry. Being about the first week of June after getting the ground loosened from the roots, we kept a team and spike-tooth harrow in this field every day for about a week. The days were dry and hot and with constant stirring and turning of the matted roots, we won a well-earned battle. We planted this field to beans June 15. On June 17, two days later, we harrowed this field again, once lengthwise and once crosswise. The next morning the beans began peeping through. We used a two-row beet cultivator, taking two rows at a time. As soon as the rows were visible until the beans were beginning to set runners, we cultivated shallow about twice a week. Not only did we eradicate the quack, of which I dare venture to say, there is not a spear; but we were well repaid for the labor. The beans harvested and threshed yielded three hundred and forty-two bushels, or about thirty-four bushels per acre, and were selling at the time at \$7.25 per cwt.

It is three years since we have seen a sign of quack in this field. Not only quack but other weeds gave way to the treatment.

THE CHILDREN'S HOUR

How Johnnie Woodpecker Lost His Voice

The birds were getting ready for a concert. Princess Lovely, Queen of the Fairies, had promised a pretty red cap to the one that sang the sweetest, and every bird, large and small, was doing his level best to win that cap. Even Mr. Blackbird, who already had a purple cap that reached down to his shoulders, was as anxious as any one else for the prize, for as he said to Mr. Owl, it would show up against his black coat better than the purple one. The larks were up earlier than usual that morning, practicing and filling the dawn with such delightful music that little Bobby got right up without waiting to be called a second time.

Across the grove Lady Dove sang softly to her mate and preened her pretty throat in the first sunbeams that raced over the hill. "I hardly need a new cap, do I?" she asked, and her admiring mate answered, "You certainly do not; with that lovely tan coat of yours, the soft pink and green cap you are wearing now looks better than red would." Yet Lady Dove went to the concert and tried her best for the cap. "I love to sing," she explained, "and I want to hear the others sing."

As the sun peeped into the nest that brimmed over with baby robins, Father Robin greeted him with a burst of song that made the roses hold their breath to listen. "He will surely win the red cap," they said, as they nodded their pink heads emphatically in the gentle breeze. The bluebirds were having a rehearsal of their own in the tallest oak, twittering and chirping away, their sparkling coats flashing like bits of blue sky fallen to earth. "There are so many of us, we should be able to carry off the prize; we could take turns wearing it."

"Dee-dee," sang Tommy Chickadee, "my song does not have many words, but my voice is clear and sweet, and I do need something to brighten up this dull brown coat; a red cap will be just the thing, so I shall do my best." Mr. Oriole said nothing. To be sure his own cap was black, but it matched his shining wings perfectly and contrasted so well with his bright orange coat that he good enough alone; he had better leave good enough alone; so he spent the morning singing apple blossom honey and singing to himself, just for the pure joy of hearing himself.

In the barn doorway Mr. Owl shook the sleep out of his eyes and blinked. "Who?" he inquired. "Not you," answered a saucy blue jay who was passing at that moment, "you couldn't stay awake long enough to sing, even

How to Have Running Water

Great interest is being shown in electric light and power plants and water systems, for the farm home. It is, no doubt, good business to buy a complete system and have it installed by an experienced man when one has the money to do so, and in some cases it might be good business to borrow the money. But to those who can not or will not invest the amount of money necessary to put in a complete system, but can afford something of the kind, we wish to recommend the kitchen sink with running water.

Many farmers have windmills, or gas engines, and elevated tanks to supply water at the barn, but have never thought of piping the water into the house. It is a comparatively easy matter for them to lay a pipe to the house and run water into a kitchen sink. It is surprising how much this one convenience will lighten the house work.

In planning to run water into the house it is well to see that the water has a good pressure at the faucet, or much time will be wasted in waiting for it to run. The flow of water will depend on the height, but not the size of the elevated tank, and also upon the size of the pipe from the tank to the faucet.

If the tank is twenty or twenty-five feet above the floor of the house, and not far from it, one-half inch pipe may give a satisfactory flow, but three-quarter inch pipe is recommended, especially if the tank is low or located some distance from the house. Under some conditions it will pay to use one-inch pipe.

Sometimes the elevated tank is put in the attic of a one-story house. This does not give as much pressure as is desirable, but is far better than not having running water. It has an advantage over the outdoor tank, in that there is very little danger of its freezing. Only a small tank of two to four barrels capacity should be put in an attic, on account of the weight. It should be placed over a partition so it will be well supported. The tank is sometimes put in the barn loft and covered with hay to prevent freezing. When the tank is located in the house or barn, it should have an overflow pipe large enough to keep the tank from running over.

The most common supply tank is the galvanized iron tank or wooden tower. This arrangement gives trouble on account of freezing. This trouble may be overcome largely by putting a wooden box around the supply pipe and stuffing it with straw, old paper, or some such material. After this has

been done there is usually trouble with freezing only where the pipe enters the bottom of the tank. A method recommended for preventing freezing at that point is to connect a piece of two and one-half inch pipe, about twelve inches long, to the bottom of the tank, and extending up into the tank, and then connect the supply pipe, which extends into the ground, to the upper end of the big pipe. This gives an air space between the two pipes for ten or twelve inches up into the tank and makes the outlet less likely to freeze up.

A concrete tank built to hold water from the ground up makes a very good reservoir if properly constructed. The supply pipe may enter from the bottom to eliminate danger of freezing. Such tanks should have a good foundation; that is, it should start from a concrete base, and extend to the ground, to the upper end of the big pipe. This gives an air space between the two pipes for ten or twelve inches up into the tank and makes the outlet less likely to freeze up.

In running water from the well to the tank, it is just as well to pump the water in and let it out through the pipe in the bottom of the tank, and this usually saves some pipe. A check-valve should be used at the well to prevent the water from leaking back. All pipes running horizontally should be laid deep enough underground to prevent freezing; and where the pipe is brought up to a hydrant, or into the house, a valve should be put in, which in freezing weather may be used to cut the water off from the tank, and which permits the water to leak out of the exposed pipe through the valve.

The waste water from kitchen sink may be handled in any way that dish-water or wash-water is disposed of; however, it is better to run it into an underground drain so it will not keep a wet spot in the yard. The waste-pipe should be one and one-half inches in diameter and should have a trap in it just below the sink. The trap consists of an S-shaped bend in the pipe which holds a little water and prevents obnoxious odors coming from the waste-pipe. The waste water should be carried twenty or thirty feet from the house in a tight-jointed pipe. It may then be emptied into open-jointed drain-tile and used for subirrigating a garden. Where only the water from a kitchen sink is emptied into the underground tile, 100 or 200 feet of four-inch tile will be enough; the larger amount will be needed in tight soil.

Smoke

OLD CHUM

The Tobacco of Quality

1/2 LB. TINS—and in p'kgs.

Parents as Educators

Hand Occupation With an Envelope

BY JENNY B. MERRILL, PH.D.

It will interest mothers to know how much can be done with an envelope and pair of scissors in the way of providing diversion, occupation and even instruction for children. These hints apply to different ages. The first eight may be used with many children of five or six years of age, the rest with children from six to ten.

1. Cut out the stamp neatly from the corner of an envelope, also cut out the post-mark. Explain why there is a post-mark. There may be more than one.

2. Keep stamps after cutting out, using them to make pretty borders and other designs. Mingle stamps of different colors.

3. Draw on the inside of the envelope the train that carries letters to us, or the rural delivery wagon, or the automobile.

4. Cut off one or more clean corners of the envelope in the shape of a triangle. Each triangle may be used as a book-mark by slipping it into the corner of a leaf. Decorate these triangles with simple designs. Older children may mount a pretty little picture on each triangle.

5. Cut an envelope into pieces using the creases as guides. Cut several and form designs with the pieces. Each piece may be colored with crayons, paint, or colored pencils.

6. Fold the envelope so as to form a basket or any other object you choose.

7. Draw a deer and windows on a long envelope. Press the corners of

the envelope out, so that it appears to be a house. The doors and windows may also be cut so as to open and shut. Color the house.

8. Play postman. Make a mail bag to swing over the shoulder. Make a letter box in which to mail letters. A child may deliver letters to the different members of the family. He should be made to appreciate this duty as letters are often very important. There is an ethical lesson here on responsibility.

9. Learn to open a closed envelope with a paper cutter without injuring the contents. This can be done by rolling a pencil carefully under the flap.

10. Open out the whole envelope and notice its shape, then try to make one of the same size; first measure the paper to be used, place the envelope on the paper, trace it and then fold carefully.

11. Practice, if old enough, addressing an envelope to a father, a mother, to an aunt, a cousin, or a friend. Also mount a stamp in the upper right-hand corner leaving a white margin around the stamp. Explain the importance of using the correct corner.

12. Write the name of the man whose face is engraved on the stamp. Write the names of the colors of these stamps under the name. Even quite young children are attracted by the coming of the postman, and love to play postman. A little girl of three once said, "This is my letter." Then, pretending to read the address, she said, "It says 'Miss Mc'."

ter and they puckered up my throat so that I can hardly talk, let alone sing; Johnnie Woodpecker told me he ate them to improve his voice, and I ate some of them too, but they spoiled my voice," he ended in a sob, tucking his head under his black wing, as if ashamed of himself for being such a failure.

Princess Lovely looked at Johnnie severely. "Why did you tell him that?" she asked in so stern a voice that every bird trembled and the pink roses nodded harder than ever. "He has a pretty hood already," Johnnie defended himself, "and I have none but this dull brown, and I knew that with him out of the contest I had no one else to fear," and Johnnie hung his head.

For a long time no one moved; the cap in Princess Lovely's hand gleamed in the sunlight, the bright red feathers folding over each other like petals of a chrysanthemum. "I will keep my word; the red cap goes to the one who sang best," said Princess Lovely, as she slipped it over Johnnie's head, "but, as a punishment for deceiving your best friend, I shall take away your voice forever; never again will you sing as you have sung to-day."

And now, as Johnnie flaps his lazy way across the sunpatches to the tree where his dinner waits, all he can say is a raspy "Clackity Clack!"

WISDOM WITHOUT PUNISHMENT

The barefoot boy very naturally avoids the thistle patch once he has stepped upon a dried member of the thistle family, and the youthful carpenter learns the better to hit the nail on the head after pounding his thumb or finger a few times. Experience is the great teacher. With her wielding the rod we learn well her many lessons. And so it is largely as the result of penalties and punishment resulting from our experience along life's pathway that we gain wisdom.

It is possible, however, for us to experience some of the activities of life without suffering the penalties. The painter, the sculptor and the author have all given us the opportunity to feel the passions which are aroused during intense moments of hatred, love, ambition, strife, etc., without requiring that we pay the penalty which is exacted in real life. Here is opportunity for one to secure for himself a much broader view of things and people than is possible to be gained in his own personal experiences.

Farm folks as well as city folks need this wider horizon. The satisfaction and pleasure that they will get from their work and play will be multiplied by extending the scope of their understanding and feelings to new fields of life. Broader sympathies, more unselfish service, greater co-operation are certain to follow not merely a mental perception of things new, but a real heart knowledge of the experiences, which other persons are called upon to suffer in life that no person or family whether in country or city can afford to overlook.

Treatment of Seed Grain for Smut.

The disease of smut, which is responsible for very serious losses in the grain crops of Canada every year, is well known to every crop grower. There are two leading forms of this disease, Bunt, more familiarly known as Stinking Smut, is recognized by an objectionable odor that reminds one of the pungent odor of burning brine. This odor persists for a considerable time and affords an excellent clue to the presence of the disease. In the field this smut is not noticed until the ears have reached a certain stage of maturity, when these containing the germ of disease will appear darker green and will remain so much longer than the normal unaffected ears. The infected ears will stand invariably more erect than the heads that are still increasing in weight by healthy growth. To control this smut the seed should be treated with solutions of formalin or bluestone according to the plan described in Bulletin No. 72 of the Experimental Farm Branch, Ottawa, entitled "Smut Diseases of Cultivated Plants."

The other variety of smut known as Loose Smut, of which is noticeable in the field at the time when the ears are being formed when some will be found covered with a black, sooty powder, which, when ripe, is readily shaken off.

This loose smut is not controllable by treating the seed with formalin or bluestone solutions but by treatment with hot water, which is equally suitable for wheat and barley. The treatment is given in the following manner:

(a) Preliminary Treatment.

Bring the temperature of a quantity of cold water in a barrel or tank up to 86 deg. F. by pouring in hot water until the thermometer registers 86 deg. F. and not more or less. Use a reliable thermometer. Fill the grain bag three-quarters full with grain and tie it up loosely. Immerse bag with grain into this water, moving it up and down several times. Allow grain to soak four hours. Should the temperature sink below 68 deg. F. allow five hours for soaking. Treat preferably in a heated room to avoid the inconvenient fall in temperature of the water.

(b) Final Treatment.

Bring the temperature of water in a second barrel up to 112 deg. F. Remove bags with grain from the "soak" and transfer to the second barrel. Keep immersed for 15 to 20 minutes. Meanwhile have water in a third barrel brought up to a temperature of 129 deg. F. After the 15 to 20 minutes in the second barrel transfer the grain quickly into the third barrel. Here the grain remains a further 10 minutes. Under no circumstances extend the time stated, or shorten it. Neither be careless nor disregard accuracy of temperatures, or the treatment will not be successful. Should the temperature in the third barrel sink below 122 deg. F. after the grain is put in, raise the temperature by carefully adding hot water from a sprinkling can. Never pour hot water directly on the grain. The larger the volume of water, the more easy will it be found to maintain the temperature. After the 10 minutes in the third barrel have expired, take out the grain, drain and spread out to dry.

Work, think, read.

Prove the seeds you plant.

A lazy hen in April has little to commend her, save as a roasting fowl.

Whatever your hands find to do, do it before the rush of spring work is on.

Poultry

Old oil drained from the crank-case of the automobile radiator is the very best kind of hen-house spray for the eradication of vermin.

Egg production must be bred into hens before it can be fed out of them. Hens must be well bred, before they will be most profitable, even though they are well cared for.

Animal food is required for the best growth in chicks, as well as for large egg yields. Where bugs and worms are scarce, it is well to feed meat scrap, fish scrap, or any form of milk products.

A fowl when cured is more of a menace than a benefit. When it is returned to the flock there is a possibility that it may be responsible for offspring inheriting weak constitutions, which render the offspring more than ordinarily susceptible to disease.

Vermin-proof nests can be made of shredded cedar bark. The bark is naturally tough and stringy, easily twisted, and has a pungent odor. It is claimed that the odor of cedar is just as destructive to lice and mites as it is to moths, and every housewife knows that a cedar chest keeps moths from whatever is put into it.

In keeping egg records, confusion, sometimes results by losing count of the number of eggs eaten. This difficulty can be avoided by setting down each day the number of nests gathered on that day, and then adding these figures at the end of the month to get the total number of eggs gathered for the month. Then subtract the number of dozens sold from the number of dozens gathered, and this will give an accurate record of number used.

White diarrhea has cost us the loss of a great many chicks. One day my wife called my attention to the afflicted chicks, and I remarked jokingly, "Oh, well, rub a little vaseline on their tails, for it will do no harm, if not any good." The next day all the chicks were scratching and feeding as though nothing ever was the matter. Their little tails were clean and fluffy. Since then we apply the vaseline as soon as symptoms of the disease appear, and in most cases one application is sufficient.

Sheep Notes

Sheep raisers have discovered that they receive a higher price, on an average, for the docked lambs, so it really pays to have the little fellow a "tailor." This extra money is easily made, and since the operation offers little danger, every sheep raiser should perform this operation, and that of castration. Both should be done on a mild day between the fourth and sixth week of the lamb's life.

Lay the lamb on its side, drawing the hind legs up close to the body, to remove testicles, cutting off the lower one-third of the scrotum and pull out the organs with a quick movement, using the thumb and forefinger. The docking may be done with a sharp knife, cutting from the under side of the tail up and between joints in the tail bone, about three-quarters of an inch from the body. Apply powdered alum to check bleeding. Hot pinners are best, designed especially for this work. These are heated to a dull red, and the tail seared off, a board with a hole in it, through which the tail is passed, being used, which serves to keep the pinners from burning the body.

The castrated lamb uses its food to make flesh, while the docked lamb presents a far more attractive article for market.

Every dead ear of corn means 900 missing stalks. Test seed.

Says Sam: So live that folks won't whisper at your funeral.

The man who is in right relations with his neighbor is a booster for the home community.

Blessed shall be the fruit of thy ground, the increase of thy cattle, and the young of thy flock.—Deut. 28, 4.

Problems will be solved only after we have discovered the real facts about them, so our big problem is the finding of dependable data on other problems.