

# Soils and Crops

Address communications to Agronomist, 73 Adelaide St. West, Toronto.

## Destructive Insects Lessen the Food Supply.

The toll taken by destructive insects from field, orchard and garden crops not only diminishes the yield, but reduces the returns the grower should derive from his crops. A conservative estimate places the loss from this source alone at \$200,000,000 annually.

Under favorable conditions, such as an increase in the food supply, or the decrease of natural agencies for keeping them in check, such as our wild birds, some insect or other will at times increase to such an extent as to become a veritable scourge. Instances of this are found in the army-worm outbreak, and still more recently in the grasshopper outbreak in western Canada. Last season the governments of the western provinces expended large sums in combating this menace, undertaking the work in a wholesale manner with the assistance and direction of experts in the service of the Federal Agricultural Department. It is estimated that in Saskatchewan alone 1,400,000 acres of crop were actually saved by systematic organization for the distribution of poison bait, at a cost of some \$338,000. Preparations on a wholesale scale are now being made to meet the outbreak that again threatens western grain growers, and Dominion officials are now advocating the substitution of sawdust for bran in the preparation of the bait, at a considerable reduction in cost.

The presence of the European cornborer in western Ontario is another menace to which expert attention is being directed. To prevent the spread of this pest, it has been found necessary to prohibit the shipment of shelled corn from infected areas, aggregating some three thousand five hundred square miles.

While the greater portion of the work of the Entomological Branch of the Dominion Department of Agriculture consists in the application of control measures, research work aiming at the discovery of better and cheaper insecticides is another of the many activities engaging its attention. Continuous investigations are carried on into the life history and habits, and means of control, of insects affecting live stock, fruit, grain and even forest trees. To facilitate work of this kind, field laboratories are maintained at many points throughout the country.

### Winter Feed From Muck Soil.

Growing root crops as a winter feed is a good idea which is not being used. Root crops were extensively and entirely used as a source of winter succulence before the silo was generally known.

It must be understood that there is nothing better for silage than a good corn crop yielding from eight to fifteen tons to the acre. But frost is the serious factor which has made corn, either for silage or grain, a risky crop on muck soils. On the other hand, there are other silage crops for the muck farmer. The importance of the sunflower was especially well shown on muck under extremely varying conditions last year. Exceedingly hardy to frost,

drought, excess moisture, giving a high tannage, the sunflower is only waiting for complete agreement by specialists on its feeding value as compared with corn, to be given unqualified recommendation for the muck farmer.

Of course, the muck farmer should have a silo. If he is situated where he cannot grow corn he can grow the sunflower, or oats and peas for silage. The silo is an important factor in farm management of the muck farmer growing general crops.

There are three situations in which it would appear that the growing of roots would aid the muck farmer. It would provide the farmer, having a silo with additional winter feed; it would be of greater assistance to the one who expects to purchase a silo but who desires to keep stock until the time when he can make that investment and it is the only sensible course for the man who cannot use the silo at all.

Most muck soil is ideal for root crops. As long as agriculture has existed, roots have been a basic crop in the dairy districts of Europe. Many sections depend entirely upon roots for winter feed. Four tons of roots, such as beets, carrots, rutabagas and mangels equals three tons of silage. Twenty tons of roots to the acre is common on fertile muck soils. Thirty tons have been noted. Blocking and thinning is much easier on muck soil than on upland.

Feeding carrots and millet may not sound ethical, but horses on heavy hauling have come through the winter in splendid condition on such a ration. A test of various root crops has shown rutabagas to be the most satisfactory. The reasons are summed up as follows:

"Besides being the largest yielder among root crops rutabagas have several other advantages: (1) seed is cheap; (2) germination is better than with mangels or sugar beets, therefore insuring a more even stand; (3) rutabagas sprout quicker and can be thinned and weeded sooner, which is a great advantage; (4) being of quicker growth they are less likely to be damaged by insects when small; (5) they are the most hardy of the root crops; (6) they are the best keepers, especially as compared with the flat turnip, which is likely to grow hollow and rot in storage.

"In feeding, a pulper chopper may be used, though this is not necessary unless one wishes to mix them with grain feed. When feeding rutabagas in considerable quantity to dairy cows, it is important that the feeding should be done after milking time, as the aroma from the roots may taint the milk."

There are several very important practical advantages in growing roots. They can be planted later. Roots are adapted to new land. On numerous occasions my attention has been called to successful crops of carrots which have been grown on new muck. Harvesting may be delayed in the fall until the main work is done. Nothing but a hard freeze can harm roots. Root crops should be considered by the muck farmer as a winter feed. They should be considered as an integral part of his farm management plan.

### About Broken Bones.

The stock owner may find it necessary to apply simple surgical treatment when a veterinarian cannot be conveniently employed, or if the value of the animal does not warrant expense. He should, therefore, be able to determine if a bone is broken, which bone is affected, whether it can be set, and how that should be done.

A fracture may be suspected when, after a fall, kick or other injury, the animal refuses to place weight upon the leg, or is extremely lame when made to walk. If the bone is broken, a grating or scraping sensation may be felt when the palm of the hand is held upon the part, or heard when the ear is applied while the leg is moved in different directions by an assistant. Fractures of the pelvis are diagnosed by passing the hand into the rectum and against the bone while an assistant moves the leg.

If the animal is small or young a simple fracture usually will unite successfully. In heavy animals that are well up in years chances of recovery are poor, especially if the broken bone is one that has to bear much weight or is in a part that is much moved.

Breaks implicating joints seldom are worth treating. That, too, is often the case when a bone is smashed to pieces or where broken bones have pierced the flesh and skin. Union will be most likely to take place when a bone of a young animal has broken in such a manner that splinters of one end fit dovetail into splinters of the other end.

Broken bones of calves, foals, pigs, lambs and puppies readily unite if held in apposition and kept rested. The following bones of an adult horse when fractured seldom can be successfully treated: Neck of shoulder blade, humerus or arm-bone, femur or thigh-bone. The leg bones, radius or forearm, and metacarpus or cannon-bone in the foreleg, and tibia or gaskin and metatarsal or cannon-bone of the hind leg, sometimes may be mend-

ed, if the fracture is simple and not in a sloping direction. Fractures of the pastern-bone usually knit readily, but the united part may be left in a thickened or even club-footed condition. Breaks in the pelvis unite readily if the hip-joint is not involved. Breaks causing distortions in contour of parts, such as a fracture of the point of the hip or of the buttock, generally give little trouble, but in some instances pus forms and pieces of bone have to be removed, or a troublesome fistula results. Fracture of the spines of the withers tends to cause stilted. Breaks in the back-bone usually cause paralysis, but partial fracture of the neck will sometimes merely result in a distortion.

Successful treatment of a fracture depends upon bringing the severed parts together perfectly and keeping them immovable until knitting has taken place in from four to six weeks. Joints above and below the broken bone must be rendered immobile. In small animals bandage the leg lightly with cheese-cloth, bring the foot of the injured leg into exactly the same position as the one of the other leg, also matching joint for joint in position. Then fit padded splints of light wood, gutta percha, strong cardboard or tin upon the leg from ground level to top, and hold there with starch bandages or a plaster of Paris cast. A horse has to be supported with slings, and after putting splints and a cast upon the leg from foot to body an iron brace may also have to be applied for support and to keep the leg rigid. If the pastern is fractured, it will suffice to put on a strong plaster cast and turn the horse loose in a box stall bedded with sawdust.

### "Corners" in Harrowing.

In harrowing with a tractor—using either disk or tooth-harrow—the beginner usually has trouble in turning corners. He tries not to miss any of the surface and, as the land rapidly narrows down, it becomes impossible to turn quickly enough, and there develops something like a "peninsula." It is much better to begin turning soon enough to make the circle without trouble, leaving a little strip of land each time. Then when the field or land is finished, he can make a trip or two along each turn-row and harrow these missed places. Or, if the operator wants to cover every inch of the land on the first trip—corners as well as ends and sides—he can "circle out" corners when they become troublesome. To "circle out" means to harrow around and around in a circle at a corner until the curve of the turn is more gentle. Three or four circles will help a corner wonderfully.

### For Soldering.

Farmers have a great deal of soldering to do. Oftentimes when it is desired to mend something, it is found that the supply of soldering flux has been used up. It is very easy to make a good flux by dissolving pieces of zinc in hydrochloric acid. The reaction forms a solution of zinc chloride. Just keep adding zinc to the acid until no more chemical action is observed. The solution can be kept in a glass bottle and applied in the usual way.

## Raising Capons for Profit

Once a year poultry-raisers meet the question of how to dispose of cockerels to best advantage. If sold as broilers, they bring a fair price, but weigh only a couple of pounds. If kept till fall, they weigh more, but then the broiler price cannot be obtained. Caponizing is one practical answer to the question.

According to the latest Government reports the industry is growing rapidly year by year but the supply does not yet equal the demand.

The best time to caponize cockerels is when they are from two to three months old, or when they weigh from one and one-half to two pounds. The smaller broilers mature earlier than the larger ones.

To get the cockerels in the right shape for caponizing, it is necessary to confine them in a dry cool place without food and water for from 24 to 36 hours. Thirty-six hours is best for beginners. This is done to empty the intestines and have them shrink so as to make the organs visible and easily accessible.

As the organs to be removed are located in the body cavity, very good light is also essential, either bright daylight—preferably out of doors—or electric light. Light prevents bungling.

A very small incision between the ribs on either side is all that is required to successfully remove the testicles. This is much less trying to the bird than a single large incision on one side. As soon as the operation is over, the cockerels are eager for food and water, which may be given them at once; they rarely show any signs of discomfort and are hurt much less than if they were left to grow up as roosters and fight among themselves.

From the time of castration or caponizing, the combs and wattles stop growing, the birds do not crow nor fight and become tame and gentle. The flesh remains sweet and tender as that of a spring chicken. They can be kept with the other chickens or in a separate enclosure, whichever is most convenient. On the farms where they can have free range, they will forage for themselves very much like turkeys and can just about pick their own feed till late fall.

## Poultry

The temperature of a setting hen's breast has been found to be one hundred and five degrees, while the temperature of the plumage varies from ninety to one hundred degrees. This proves that the chick is not confined to one temperature when brooded by a hen, but can select a place where it is comfortable. This idea must be followed out in artificial brooding. Do not confine the chicks in a brooder without ventilation and expect them to thrive.

The hen-brooded chick can at any time stick its head out of the mother's plumage into the cool fresh air. When brooding with stoves keep a good fire burning so that the chick can obtain plenty of warmth when it is needed but also give the chicks a chance to run out away from the heat where they can occasionally breathe the cool fresh air which seems to give them health and vigor.

When chicks huddle tightly together around a brooder fire it is a sign that the right amount of heat is lacking. A coal burning brooder fire should be warm enough so the chicks will spend the night close to the outer edge of the deflector. Then if the stove cools down the chicks can move closer. Chicks that are warm enough will not huddle but will rest quietly on the floor beneath the deflector. Only an occasional found peep will tell the operator that several hundred lively young chicks are resting comfortably for the night.

Do not suddenly go into a brooder house at night with a lantern as the chicks may scatter away from the heat and have difficulty in finding their way back when the lantern is gone. It is best to use a flashlight and only keep the light on when it is very necessary.

### Summer Shelter for Hogs.

The practice of keeping breeding swine and growing litters enclosed in expensive hog pens, more especially during the summer months, has been almost entirely discontinued on the outdoor life has been found very much more advantageous, but some sort of shelter is necessary to protect the hogs against inclement weather and the sunshine of midsummer.

Various types of small pens designated hog cabins have been kept under observation for several years on the Experimental Farm at Ottawa. These have included: (1) the A-shaped cabin; (2) the straight-walled cabin with tight sides; (3) the straight-walled cabin, with (a) roof section hinged, (b) one side hinged upwards, (c) roof section and both sides hinged so as to be hooked upwards. The latter cabin (c) was found to be infinitely superior for the summer months because it affords relatively cool shelter for hogs that had access only to tight-sided cabins preferred to remain in the bright sunshine rather than to use the shade that the house provided. The sectional cabin with hinged sides and tops can be made thoroughly adaptable for winter use by proper fastening down and battening the joints.

## The Welfare of the Home

### Providing a Motive.

"I don't want to get up. I'm going to stay abed this morning. I'm sick," came the grumpy call from the boy of the house.

Neither opposition nor argument was offered by the wife mother. She ignored the remark and merely spoke over the banister to her husband below. "Did you say, Daddy, that those of the children who were ready on time could ride out to see the circus unload?"

Two bare feet slapped to the floor and a smiling boy in good health made a prompt appearance at breakfast.

In another case—"I hate to sell tickets," was the irritable reply to the mother's request.

"These are stamps, John, not tickets. Every one you sell gives food for a day to a starving little Chinese boy."

Visions of a black-queued laundry man who had given John a nut arose in the boy's mind. "So it's saving Chinks," was the boy's wording of his motive, and with zest he sold three dollars' worth of the three-cent stamps.

The mother who can supply motives in place of arguments finds a harmony in her home that generates peace, which in its turn is a strong factor in promoting good health. Constant friction reacts upon the physical condition of the members of the family.

Many pleasures and joys are due the children, yet it is only right that they should share in a simple way the burdens and responsibilities that go to make for comfort in the home. Where a mature mind can vision the needs and outcome of the work re-

quired, a child can see only the irksome task to be accomplished and often must be provided with a motive.

At one time when a new garden plot was plowed many stones were turned up. The father of the family left word in the morning for the children to toss out the stones after school that day. It was easy work for a while, but soon the interest lagged. Suddenly the oldest boy had a happy thought. "Let's get all the stones we can find and build a gate-post. Father will fix the cement and help us when he gets home." The garden plot was searched for every stone and a wonderfully fine piece of work was accomplished there before the father returned.

Many fine acts and homely accomplishments are recognized with honor for Boy Scouts and Girl Guides which provide motives within their vision. However, the motive must be a right one, and not of the kind one mother offered in holding up a twenty-five cent piece to calm her boy in his fit of temper. It was an easy way to earn money and the temper fits became frequent. That bit of silver might have accomplished more if offered to the child of that tendency for every week or month when no temper was allowed to show itself. In that way the child would have learned self-control of life-long value.

Neither rules nor laws can be fixed for the varied situations a mother faces, but if she can be equipped with a point of view from which to work, it will often meet a wide stretch of needs. To be able to offer a legitimate motive for action is one step towards happy home harmony.

### Less Danger from Fire.

We live about a mile from town, our electricity coming from there. We have all our rooms wired, also our front and back porches, cellar and barn. It would be very hard to decide which light we value the most, as we feel now we could not do without any of them.

I also have an electric iron with which the week's ironing can be done in less than half the time taken with other heat. We think no other money invested on our place has paid such returns as our electricity, and when one considers the great danger of fire from lanterns, too much praise can not be given electricity on the farm.

### Mark Your Pigs.

In marking the pure-bred spring pigs use a punch making a long oval notch, as that kind is more satisfactory than a V-shaped one. Any accidental tear is apt to be mistaken for a V-shaped notch, while the oval is unmistakable. Tags are not generally satisfactory for marking pigs, as they are difficult to read and are easily torn out. The system of notches is swift and certain. In marking young pigs the notches must be out of proportion to the size of the ear, for the pig's ear will grow, while the notches do not get larger. Thus when the animal is full grown, notches that were plainly seen on the young pig are barely visible.

Blindness, in nearly 40 per cent. of cases, occurs after the age of 45.

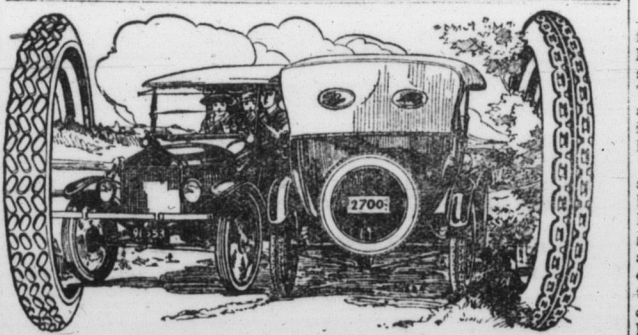
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## THE SCHOOL ON THE FARM

There is an item of danger in hanging onto old tools too long. It was not so long ago that the boys on one Ontario farm revolted against the continued use of one-horse cultivators when the neighbors were getting double and greater service from two and three-horse implements. There is a point where the farmer, like every other user of machinery, can no longer afford to get on with the old tools because of the handicap it gives him in production costs. The boys who opposed the continued use of the one-horse cultivators were right in their contention. Fortunately the father complied, and in doing this he not only saved his boys to the farm, but this very act put new spirit into the whole family. From then on father took the boys into conference when he wished to decide matters regarding the farm business.

And here is one of the great advantages of the farm for the family with children. The farmer's business, unlike the business of the city man, is closely tied up with the home life and every member of the family is more or less intimately acquainted with what is going on. No educational institution can create better conditions than this for inculcating into the lives of the boys and girls those fundamental principles of business and good sense, providing the parents are awake to the opportunity, and on the other hand, if the parents are found wanting there is no place where children can be made to abhor the work of their fathers with greater intensity. There, then, is a great opportunity for parents, but it carries responsibility of equal magnitude.

### International Dairy Congress.

There is probably no branch of agriculture in which Canada has made more progress in recent years than dairying. An opportunity will be afforded next year to the world know how far this is the case, for in the summer is to be held at Chicago, Ill., the Seventh International Dairy Congress, at which there will be present officially appointed representatives from thirty to fifty different countries. At the sixth congress, held at Bern, Switzerland, in 1914, Mr. J. A. Rudick, Dominion Dairy and Cold Storage Commissioner, was Canada's representative, among a total of 800 delegates representing twenty-nine countries or states. The congresses are organized under the auspices of the International Dairy Federation, of which any person interested in dairying, corporation or association can become a member on payment of the annual fee, which at present is twenty francs. Papers are read at the congresses and the reports are published in English, French and two other languages. Already Mr. Rudick is engaged, by authority of the Dominion Minister of Agriculture, in preparing for Canada's representation at next year's congress in Chicago, and a committee is being formed on which the heads of the dairy branch in every province will be invited to act. This committee will arrange for the questions to be discussed and the papers to be read as far as Canada is concerned. A pamphlet will also be prepared and distributed among the delegates descriptive of the dairy industry in this country. It is further proposed to establish in connection with the congress a bureau of information at which facts will be set forth regarding not only dairying in Canada, but agriculture generally and the manufactures and resources of the country. In addition, leaflets will be circulated suggesting itineraries for delegates who might like to visit Canada before returning home.

### Sheep Clean Up Waste.

"I would not know how to do good farming without sheep," says George McKerrrow, of Wisconsin, "because my sheep use up the wastes of the farm. They clean up the grass, weeds, brush and gleanings, and in so doing turn into cash what otherwise would be lost."

After harvest, George turns the sheep into the oats fields for a few hours the first day; an hour or two longer the second day; the time is gradually increased until at the end of a week they have complete possession of the fields. He lets the lambs into the cornfield before the corn is cut and they clean up the weeds and lower leaves of the corn-stalks. Roots are grown for the cattle and sheep, and after the larger roots are stored, the sheep are turned into the field to eat the smaller ones that remain. After harvest weeds fields are plowed, sown to rape and turnips, and later the sheep are turned in. They eat the rape and turnip tops with relish, and will later hollow the meat from the turnip.

### Novel Selling Plan.

An unique, although very successful plan of selling pure-bred stock has been worked out by Edwin Houston. He loads into a truck some of his good swine and drives to neighboring county towns, where he books orders for stock he has for sale. He guarantees that the animals sold will be fully as good as the samples in the truck, and ships C.O.D. This novel selling plan has proven to be very successful and might well be adopted by more swine breeders. A very considerable amount of publicity is secured on the trip besides the sales that are made.

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Then, too, the general commodities advertised in our columns are worthy of consideration. It is desirable that readers should ask merchants to supply advertised goods wherever possible. By doing so the cycle of trade is kept alive and inter-community commerce stimulated. We repeat—read the advertisements.