

# Soils and Crops

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

## The Removal of the Honey Crop and Requeening.

In both extracted and comb honey production, sufficient storage room on the hive for the whole crop should be provided. This should have been given consideration when planning and ordering for the season's work.

In the production of extracted honey, allow three full depth Langstroth supers or six shallow supers for each colony spring count; and for comb honey, six supers of twenty-eight sections each.

As it is desirable in extract honey production that most of the honey should ripen on the hive, supers should not be removed till, at least, two-thirds of the honey is capped over.

In comb honey production, however, supers should be removed as fast as they are capped, to prevent travel stain.

To get the bees out of the supers, the best method employed is by means of the bee-escape, which prevents both disturbance and robbing. The escapes should be placed late in the afternoon when the supers should be clear of bees in from twelve to twenty-four hours' time—depending on weather condition. One escape board, equipped with two 2-way bee-escapes should be allowed per colony—thus, with a full equipment, but one trip is necessary to remove the crop of an out-apiary. The springs of the escapes must be set properly; that is, so that a bee can just pass through; otherwise much brushing, shaking and smoking may be required to clear the supers of bees.

To place an escape all that is necessary is to tip the stack of supers to be removed and to slide the escape board underneath. If, however, clustering space for the bees and room to take care of the fall honey which may be gathered are required, place a super of empty combs on the brood chamber after which the escape and the supers of honey may be placed above.

Having placed the escapes, make a careful survey of the hives to see that there are no openings through which robber bees can enter the soon to be ungarded supers.

If the supers, after removal, are not immediately taken from the apiary, they should be stacked at different points in the yards with escape below and above to exclude robbers; till they can be removed by truck or wheelbarrow. This distribution of supers, by distributing the attention of the robbers, reduces the disturbance and facilitates the work of loading the

truck. In loading a truck or wagon, supers should be placed that all combs are parallel with the axle; but on a wheelbarrow they should be parallel with the wheel. Robber cloths, also, may be used to cover and protect the supers when taking them to the honey house. As a further means of preventing robbing, the entrance of the honey house should be large enough to permit the vehicle being driven through it.

Having considered the removal of this season's crop, we turn our attention to the first step in the production of the crop of next season—requeening.

Though the time and method of requeening will vary with the system of management employed, it is necessary that a vigorous queen shall head each colony in time to fill the hive with plenty of young bees for wintering. Therefore, all weak or failing queens should be replaced.

A good method of requeening—also of swarm control—is that practiced at the Central Experimental Farm, Ottawa, for the past two seasons. It consists in removing the old queen, on the appearance of advanced queen cells early in the clover flow, and destroying all cells; and nine days later again destroying cells and introducing a young laying queen.

## Silage Cuts Milk Costs.

Dairymen have found that the cow's board bill is the largest item connected with cost of milk. The man who buys a first-class dairy herd is inclined to believe that the original cost of the cows is the expensive part. After he has a few years of experience he changes his mind. It is the feed bill, in season and out, year after year, that totals up the big expense.

Our experiment stations have conducted many tests to determine the value of silage in the ration. The figures vary to quite an extent, but they all show the economic value of silage. Several years ago it was demonstrated that corn silage saved the dairy farmer ten cents a pound on the cost of producing a pound of butter, and forty cents on the cost of producing 100 pounds of milk. Many of the early cow-testing associations demonstrated that the silo was one of the most important factors in lowering the cost of milk. All of these experiments and tests, however, are only a small part of the proof of the economy of the silo. The most important proof is the fact that one-half million silos are now being used by our most progressive farmers.

## Wealth in Stones

By Louis Hurtubise

The Federal and Provincial Departments of Agriculture are continually urging Canadian farmers to follow methods calculated to produce larger yields from the areas they already have in crop rather than in increasing the acreage and being unable to till it properly. Crop yields in general are very much below what is possible, in many cases below that which is profitable. Compare, for instance, the achievements of Seager Wheeler and J. G. Hill with the harvests secured by the average farmer. Dr. Shutt, the chief chemist of the Dominion Experimental Farm says: "We have now arrived at that stage where we must change from extensive to intensive farming. It is going to be easier and more profitable to farmers to get sixty bushels from one acre than to get thirty bushels from two acres."

**Fertility Depends on Many Factors.** It is a postulate that what comes out of the soil must be put back if it is to be maintained with its productive powers unimpaired. One of the prime necessities for soil improvement is lime. Annual replenishing of the soil is necessary because the rainfall each year continually leaches the soil to such an extent that it becomes acid and the yields of nearly all common crops are reduced considerably. Expert agriculturists on both sides of the line are unanimous in the opinion that the cheapest, quickest and most prolific means of correcting this acidity is through the use of lime, and the wonder is that supplies of this product being easily procured in almost all farming areas, lime is not in more general use by Canadian farmers, particularly in the Provinces of Ontario and Quebec.

Lime occurs under different forms, burned lime, water-slacked lime and ground limestone. The last is the most important for correction of soil; it is a simple material to handle and apply and under most conditions, the cheapest. Within certain limits it may be said that the more coarsely the limestone is ground the slower will be its action on the soil. Agronomists have recently and after elaborate experimentation reached the conclusion that the most economical form in which limestone should be applied to the soil is in the size of one-quarter inch and finer (almost the size of the average waste from commercial rock crushing plants). In this form, the limestone will be so graded that the finest particles will become almost immediately available to the soil; the coarser

particles gradually taking effect, and the coarsest (one-quarter inch) being a reserve supply available after all the finer have been utilized. Such application will need, therefore, only to be made at longer intervals than if all the limestone applied were so fine as to be immediately utilized by the soil, leaving no reserve supply for future seasons.

## Dr. Shutt's Recommendation.

Dr. Shutt, the Dominion Government Agricultural Chemist, recommends that this crushed rock be applied from two to ten tons to the acre but generally about four tons to the acre will be required for practical purposes. The application offers no difficulties as a spreader may be used or the ground rock be distributed by a shovel from truck or wagon. The spreading may be done at any time of the year, the rock being suited to light loams, heavy clays and soil poor in organic matter. The material should be harrowed in on cropped land but merely spread on the surface of meadows or pastures. The coarser limestone described above can be applied once in four or five years, the finer ground limestone requiring more frequent applications.

The Washington Department of Agriculture states "that the application frequently pays a dividend of 100 per cent. the first year and the profits in agriculture from its continual use are estimated to be from 300 to 500 per cent." The same department goes on to say that "if all sources of artificial chemical fertilizers failed, our total farm output could not only be maintained but even increased for a time simply by the application of lime to acreage that are now low in yield or lying fallow because they are too sour to grow profitable crops."

## The Early Riser.

This morning a rumble, bumble bee flew to my window and buzzed at me. "Z-Z-hame on you! Z-Z-hame on you! Zleepy-head, Open your eyes and hop out of bed. Fill up your lungs with the morning air, Polish your teeth and comb out your hair."

Then bumping and bumping he flew over the borders of flowers gay. I hopped and I hurried for, no siree! I wouldn't be beat by a bumble bee. —Myrene M. Garrison.

# Poultry

Here is a description of the worst case of feather eating I have ever seen. There were about thirty hens and two cockerels penned in a small bare yard. They were fed largely on table scraps emptied on the ground, plus a small amount of corn at night. The house contained no scratching litter and there was no place to scratch in the yard. The hens were in fair condition as regards bodily weight.

The two cockerels were nearly denuded of feathers and many of the hens showed large bare patches. Those cockerels would stand patiently while certain of the hens tugged away at the feathers until they came out. Then the hens promptly swallowed the feathers. A few of the hens were undoubtedly about ready to become sick because of the crop-bound condition caused by mats of feathers in the digestive system.

The cause of the feather eating was apparent. The cure is also made by removing the causes. I have not seen many cases of feather eating in a farm flock with abundant range and a chance to exercise and scratch some place. It usually occurs in the small flock owned by a town or city breeder who is compelled to keep his poultry within a very narrow range. This lack of exercise seems to be the prime cause. It is the idle hen that has time to stand around and pull feathers from her flock mates. When one hen starts the habit it may spread through the flock through imitation. Turn such birds on the range if the weather is at all favorable. Give them plenty of deep scratching litter in the laying-house and furnish a balanced dry mash. Possibly kill the worst offenders or isolate them until they can be turned on the range where they may forget the habit.

## Playing the Game.

The first thing necessary, if we expect to be successful in playing the game, is an understanding of the rules and regulations by which it is played. No amount of strength, or mental alertness, or skill of hand will make us a good sportsman unless we know how to take our part.

Then to this knowledge must be added skill of hand, head and heart to put the rules into execution. Often there are men in the bleachers who can repeat every word of the rule book forward and backward, but who cannot play a single position on the team. They may preach, but they do not practice, while the game was planned to exercise the body as well as the mind.

Finally, we must co-operate and not knock. If we insist on having our way regardless, then we are likely to be put out of the game, even though we may have a knowledge of the rules and the physical and mental ability to play.

And these suggestions apply to the great game of life. First, we should learn the golden rule and then fit ourselves to practice it, which means co-operation with our neighbors.

Even the rich should be conserving of the natural resources as extravagance on their part makes less for others to use, and adds to them the burden of higher prices.

## Parents as Educators

Nature Study for Little Children—By Augusta M. Swan

When Froebel was looking for a name suitable for his system of education, he did not call it "Child School," or "Child House," but "Child Garden," and he intended that the "garden" of the kindergarten should be the teacher herself.

Nearly half of Froebel's Mother Plays deal with the things of nature. At one time he said, "A little child that freely seeks flowers and cherishes and cares for them in order to wind them into a bouquet for parents or teachers cannot be a bad child, or become a bad man. Such a child can easily be led to the love, and to a knowledge of his Father—God—who gives him such gifts."

Love of nature is the heritage of childhood. It is a tendency in every child of every land, be he black, white or yellow.

All nature is akin to childhood; birds, animals, flowers, insects are all beautiful to children, even the "lovely crawling caterpillar," and the "creepy snail."

We all know how a dog will allow a child to stumble over him, recognizing the action by only an expression of long-suffering indifference; he will stand all kinds of teasing which he would not tolerate from an adult.

There seems to be a silent but mutual understanding among young animals of all kinds whether they have four legs or two.

As primitive man opened the early scenes of his life among the wonders of nature, so the child needs the experience of the race in nature wonder and play. All natural phenomena are matters of personal interest to the young child; and towards the moon, stars, sun, wind and rain he feels the inherent interest of the race.

It is well to be able to tell the children the names of the plants and flowers they bring, and to awaken in them a longing to know more of the wonderful life of the bird, bee and other insects.

## Easy Way to Pick Geese.

One of the most heart-breaking jobs on the farm is the picking of feathers from ducks and geese. We have a method of doing this work which removes the objectionable features and makes it comparatively easy.

When we have poultry to pick, we first scald the birds in hot water at a temperature of about 160 deg. F. A minute or two at this temperature is all that is required. The bird is then taken from the water and quickly wrapped in a burlap sack, or similar covering, leaving only the head and part of the neck exposed. This allows for a thorough steaming.

The feathers are removed by rubbing instead of picking, starting from the head and working back. The burlap sack is pushed back as the work proceeds. Care is used so as not to push the sack away too far, as the feathers must be steaming while being rubbed off.

It never requires longer than ten or fifteen minutes to clean a goose or duck completely by this process, and the feathers can be removed from a chicken in three or four minutes.

—F. T. MacF.

## Dipping the Lambs.

The presence of ticks on lambs and sheep often cause much annoyance and occasionally result in stunted growth, and even a loss in bodily weight. These ticks can be easily discovered by parting the wool.

The insect is killed by dipping. One dipping will kill all the living ticks, but the eggs then on the sheep will hatch when a second dipping is necessary. This should be given about ten days after the first one is made.

There are a number of standard dips on the market, any of which are good. Directions are always given on the package and these should be followed closely. Where many sheep are being dipped a tank should be provided. This will save much time. In case only a few are treated, a barrel or tub can be employed. The water should be heated slightly and the mixture thoroughly stirred into the water before using. The bottom of the tank or barrel should be kept well agitated. Hold the sheep in the mixture for one or two minutes before removing. The work should be done on a warm day, preferably right after the sheep have been shorn.

## Vitamines in Meat.

Scientists now tell us that vitamins also exist in the muscle fibre of beef, veal, mutton, lamb and pork. The latter meat is said to be particularly well supplied with these vitamins.

Various cuts of the different kinds of meats were fed to rats and pigeons. In every instance pork was found to be relatively rich in vitamin content. It was fed in the form of pork tenderloin, fresh ham, smoked ham and pressed boiled ham. The results were much the same in each instance. In lamb, the amounts varied greatly, while beef and veal showed a relatively lower content.

In considering this evidence the reader should not be led to the conclusion that certain meats are low in nutritive value because they may be deficient in vitamins. Even though none was found in meats they would still have the distinction of ranking among our most important foods.

## The Value of a Tractor

By E. S. Hopkins, Dominion Field Husbandman

The Dominion Experimental Farm system owns on its farms throughout Canada a total of 26 tractors. The information which it has collected, therefore, on the operation of these tractors may be of some interest and value to our readers. Since the advent of the small tractor, no little discussion and dispute has arisen regarding the comparative value of horses and tractors for farm work. It is not the purpose of this article to engage in this discussion, but rather to point out where, in the experience of the Experimental Farms, the tractor has been found very valuable.

Presupposing that the farmer is not maintaining the necessary extra horses to meet emergency work of the rush seasons of seeding, harvesting and fall plowing, or is not keeping a number of brood mares, whose extra services may be used in such emergency, one of the main advantages of the tractor consists in being able to prepare land for seeding very quickly. Many tractors will disc as much in a day as from six to eight horses; and, moreover, may be operated if desired longer hours than horses. It is an ordinary day's work to double-disc from 16 to 20 acres. Such rapid work frequently enables fields being seeded before a rain storm, thus avoiding additional cultivation of the land and delay in seeding the grain. The value of early seeding in Ontario and Quebec is sometimes not fully appreciated; the following data secured from an experiment conducted over ten years at the Central Experimental Farm, Ottawa, shows the value of early seeding.

In this experiment the first seeding was made as soon as the land was ready to sow and five successive seedings were made at one week intervals. The best results in every case were secured at the second date of seeding, that is, seven days after the land was ready to sow.

The decrease in yield by delaying seeding one week beyond the period which these experiments have shown most favorable has entailed a loss with wheat of 30 per cent., with barley of 24 per cent., and with oats of 15 per cent. By delaying seeding two weeks a loss has been entailed with wheat of 40 per cent., with barley 28 per cent., and with oats 22 per cent. By delaying seeding three weeks a loss has been experienced with wheat of 50 per cent., with barley 40 per cent., and with oats 32 per cent. Finally, by delaying seeding four weeks a loss has been suffered

with wheat of 58 per cent., with barley 46 per cent., and with oats 46 per cent. The object of presenting these figures is to show how a tractor by doing the work of from six to eight horses in discing land enables seeding to be finished earlier, with a consequent increase in the yield per acre. This point is of very great importance in estimating the value of a tractor and should not be overlooked.

Another important advantage of the tractor consists in permitting plowing to be finished in the summer and fall when the land is in the best shape. Plowing may be done rapidly, from 4 to 5 acres being an ordinary day's work, and, moreover, no delay is experienced on account of hot weather. In addition to plowing and discing, the tractor has also been used for harrowing, and for hauling the binder, hay loader and road drag. For belt power, the tractor has been used in threshing, cutting ensilage, grinding feed and sawing wood.

It is difficult to present figures on the cost per acre of plowing or discing with a tractor compared with the cost when such work is done by horses. This cost will depend to a large extent on the acreage handled and the number of days per year the equipment is used. Two important items of expense in operating a tractor are depreciation charges and cost of repairs; these items are profoundly influenced by the type of man operating the machine. Careful attention is required if these costs are to be kept low, but the tractor should not be held responsible for neglect on the part of the operator.

To answer the pertinent question, "What size and type of farm should use a tractor," no definite statement can be given. Varying conditions and different inclinations alter each case. However, some general information may be given. A farm which requires only two or three work horses obviously cannot support the expense of a tractor. A farm which requires five or more work horses and which uses or could use considerable belt power, might very wisely consider buying a tractor and dispensing with two horses. It is true that dispensing with these two horses would cause some slight inconvenience during harvesting, but the much greater gain in power for spring cultivation and fall plowing might more than counter-balance this. Moreover, the remaining horses would be idle fewer days in the year, the amount of hired help would be less during plowing, and the capital invested would not be much greater than that in a good team.

farm and explaining about the use of each thing.

I find many things to like about a farm, but very few to dislike.—Margaret McKibbin, aged 16.

## THE CHILDREN'S HOUR

### Why I Like the Farm.

Where we live we expect to work and farm life means pretty much of outdoor work, while city life means mostly inside work. Out of doors there is always plenty of good fresh air, often scented with sweet blooming flowers, while inside the air cannot be perfectly fresh and is often scented with stale tobacco and coal smoke.

On the farm the wonders we see are made by God. In the cities nearly everything is made by man. Although man has made wonderful and beautiful things they do not compare with the works of nature.

The farmer never knows his exact income. There is always little mysteries being worked out. One year crop will do extremely well and another will nearly fail. The same way with the stock increase. There is always wonder and expectancy that keeps one hoping. The city man can figure everything in plain dollars and cents, but loses much in anticipation.

The farm is the ideal place for children. Here they can run and play over acres of green fields without being in danger of losing their lives by the traffic. They can gather beautiful flowers by the wayside without fear of rebuke. Running brooks are free for their pleasures. They learn many lessons from nature and learn to fear God instead of the cop.

Give me the farm life for all around natural existence.—Wayne Church, aged 16.

I have always lived on a farm and I tell you why I like it.

The air is pure and healthful and void of disease germs. A great variety of amusements can be found on a farm. I like the woodland swing, horseback riding, and even riding cattle—which some folks find difficult. I like the farm because I like farm animals. It is a pleasure to gather eggs and hunt nests, feed the stock, milk, and drive cattle to and from the pasture and water.

I like to pick berries and work in the soil, drive a team and dress as a boy and roam at will all over the farm.

I find real fun in picnics in the woods and a plunge in the lake on a hot, dry day.

The birds make music to wake me in the morning and the hill back of the house furnishes excellent coasting in winter. The lake over the hill furnishes skating.

The farm gives you a broader mind and good judgement. It makes you think clean thoughts and you are not always spending money on movies. I enjoy telling visitors about the

## THE SMALL TOWN

For the past few generations the trend of population has been toward the large cities where beat the hearts of industry with cold efficiency, and sanitation, but where the human heart grows restless and weary with the pace. During this trend the small town, with its sociability, freedom and quietude has dropped to mediocrity from the standpoint of public attention. In many cases it has been lured into an annul because all of the young life has gone to the big city. But the tide shows indications of turning.

It is said that steam made the big cities but that electricity will make the small town and the country. Steam transportation and steam power made the centralizing of industry necessary but electrical transportation and electrical power which can be transmitted hither and yon will make possible the development of manufacturing in the small towns.

With this apparent change in tendency it behooves the small town to advertise its advantages so that it may grow larger. And when industry and life comes back to it, the laborer, though he may pound steel all day, can get out to peace and quietude in the evening. He can get in closer communion with nature, which seems to be the fundamental longing of every human heart.

For the farmer the development of the small town will mean a better market in which to buy and sell. He will also find the entertainment and educational features of a well-developed community. Then, too, he may find a better place to get labor and when there is a lull in the farming business he can go to town and help industry a little.

The development of the small town will undoubtedly bring a closer relation between industry and agriculture and perhaps a better understanding of each other's problems. So let's speed the day.

## Potato Scab in the Soil.

It has been learned that the potato scab disease persists in the soil for a long time after potatoes have been grown there. This is particularly true of clay and loam soils. Less trouble is experienced on sandy land. Seed tubers should be disinfected in the usual way with corrosive sublimate or formalin. This treatment will prevent scab in soil that is free from the disease, but if the soil is already badly infected, then the seed treatment is likely to be of little benefit. In such instances the best course is to grow other crops on the land for a few years and probably plow under a green manure crop, such as clover or rye. The decomposition of these crops develops an acidity which will prevent growth of potato scab.

## Lime Necessary for Breeding Stock.

Where marsh hay has been grown in districts deficient in calcium or lime, trouble in breeding animals has been observed. Investigations have led to the general suggestion that the cause may be due to a deficiency of calcium in the diet. Supplementary investigations indicate that young animals from mothers who have received 45 of a pound of calcium oxide per day are strong and healthy where other conditions have been normal.

## Keep Colts from Mares.

If mares are being used for farm work, do not let colts run with them in the field. Keep the colts penned in a roomy, clean, cool, ventilated box stall in the barn. If the stall is screened to keep out flies, so much the better. Let the colts nurse morning, noon and night, and run with their mothers in the horse paddock at night.

## The Dairyman's Dreams.

No. T. B. bugs. Easy milkers. A clean barnyard. Cows all profit-makers. A steady worth-while market. A hired man who doesn't need a guide book of the farm. Methods of production that will be approved by the cost accountant.

## The Wicked Worm.

Cuthbert had been listening for half an hour to a lecture from his father on the evils of late nights and late risings in the morning.

"You will never amount to anything unless you turn over a new leaf," said the father. "Remember, it's the early bird that catches the worm."

"Ha, ha!" laughed Cuthbert. "How about the worm? What did he get for turning out so early?"

"My son," replied the father, "that worm hadn't been to bed all night; he was on his way home."

Don't forget to salt the cattle and sheep on the back fifty.

Forest fires destroy your inheritance. Help to prevent them.

Apparently the man who put "mins" into vitamins knew what he was doing.

Without doubt thousands of infants are being conscientiously sacrificed upon the altar of ignorant feeding.

Most indelible ink stains contain nitrate of silver, the stain of which may be removed by soaking in a solution of common salt and water and afterward washing with ammonia.