

Soils and Crops

Address communications to Agronomist, 72 Adelaide St. West, Toronto.

Shall We Cultivate Orchards?

This question can not be answered definitely with "yes" or "no" and laid away on the shelf as a final settlement. In order, even, to approach an answer, it is necessary to know just how much territory is covered in the term "cultivation," and what other practices are followed in the absence of cultivation.

Cultivation as a method of handling soil in an orchard consists of early spring plowing, establishment of a dust-mulch after a few weeks and the maintenance of this dust layer until late in summer, at which time a cover crop is planted and allowed to remain on the ground through the winter. One modification of the cultivation method is to use clover for a cover crop; plow alternate strips in alternate years, leave the clover strip a full season without plowing, but cut the clover and allow it to remain on the ground. This plan lessens the cost of cultivation materially.

Contrasted with the cultivated orchard is the one left in sod. Sod-mulch carries with it the idea of no stirring of the soil, but, as a means of moisture control, the application of a blanket of grass, hay, straw, or similar material, about the base of the tree, extending out from the trunk to a distance somewhat beyond the length of the limbs. This mulch is renewed and maintained permanently.

The advantages of cultivation are, in brief: It increases aeration of soil; increases the moisture content during July; starts growth early in spring; makes it possible actually to control moisture in fall. The disadvantages are: It is more expensive; it makes the ground soft at spraying time in some seasons; it breaks roots.

In sod-mulching the advantages are: Solid ground for spraying; windfalls are not so badly injured; cheaper on rough and hilly land; prevents high-lying. Its disadvantages are: Danger of damage to trees in case of fire; more danger from mice; moisture lacking; wet season in fall, moisture excessive.

Clean cultivation, sod mulch, clean cultivation with cover crops, and cultivation every other year were the methods compared by expert orchardists with a mature orchard of Baldwin.

The sod orchard was left permanently in sod. Grass was mowed when too long to permit orchard operations and left on the ground. The orchard in clean cultivation was plowed every spring and cultivated every two weeks till September 1. The cultivated orchard in which a cover crop was used received twenty pounds of crimson clover, was sown July 10.

Yield of fruit is, of course, one of the best yardsticks by which to measure the merit of the various practices. Judged in this way, clean cultivation made an average yield for ten years, of nearly double the yield on sod. The growth of trees was also greater on cultivated trees. There was, however, less variation from year to year on the sod orchards. Also, this orchard suffered less from frosts and freezes than did fertilized trees in clean cultivation. There was a larger percentage of cull apples on the sod orchard than on cultivated trees.

Better still than clean cultivation was the modification of this method, clean cultivation followed by a cover crop. The yield was a trifle higher than from the orchard in clean cultivation without a cover crop, the tree growth was a little better, and the washing of soil not so bad.

Determining Dairy Costs.

In the feeding of dairy cattle, the largest single cost is the feed cost, and the dairy business is conducted

The Dairy

Dairy experts are constantly called upon to explain why apparently clean milking machines so often give milk with a high germ content which is very unwholesome to the man who is trying to produce high-grade milk. This condition is due to the fact that even though the machine may be scrubbed and as thoroughly cleaned as other milk utensils, still there are many places which may harbor bacteria that later contaminate the freshly-drawn milk passing through the machine.

These bacteria, it is asserted, must be killed, and it is pointed out that two methods are giving the best results at present. The usual procedure after cleaning the machine is to place the tubes and teat-cups in a sterilizing solution, usually a strong brine. Some dairymen use commercial hypochlorite solutions, but these soon lose their strength and fail to sterilize the tubes. The addition of hypochlorite to the brine is said to give satisfaction as the hypochlorite sterilizes the brine.

Placing the tubes in water and heating to 160 to 170 degrees F. also kills all the bacteria, but the rubber parts of most milking machines soon deteriorate with this treatment.

Passing a stream of cold water through the tubes continuously has been found to give some satisfaction through checking the growth of the bacteria.

in the dark unless a record of this feed is kept. Many farmers feed their crops to hogs, sheep, or steers and thus do their marketing through these animals, while other farmers haul the crops to market and sell feed instead of animals. The question of which is the most profitable of these two methods of marketing can be answered only by feed records and without them it is impossible to form even a close estimate.

Feeding all classes of stock out of a common crop or bin, but weighing or measuring the daily ration fed to each class, is a common way of keeping a record of feed. This may be called the ration method. Another way is to have separate bins out of which each class of stock is fed, and to measure the feed as it is put into these bins. This may be called the bin method. The first method is ordinarily used for hays and silage and the second for grains, while a combination of the two will fit any set of farm buildings. "I have a bin in my chicken coop, and I keep track of the feed as we carry it over there," said a farm woman, "so we know exactly how much we feed our hens."

Another farmer has an oat bin in his horse barn and feeds nothing but his horses out of it. Furthermore, silage is mostly fed to dairy cattle, while most of the feeds bought are intended for a single class of stock and can, therefore, usually be charged directly to that class.

Where this simple method will not apply the ration method will be found practically as easy. A careful feeder will figure his daily rations closely. And he will use a ration that is well balanced, and will make it up from the most economical feeds on the market. When he has done this all that is needed from a feed record standpoint is to multiply this daily ration by the number of days it is fed without any change, and then to compute the total cost of each feed in the ration.

Figuring feed rations and records furnish some good practice in farm arithmetic. If you have a boy or a girl in the family, have them figure rations, too. They will find them fine practice in multiplication and addition. Assume for the purpose of the problems that the same ration was fed on each of the thirty-one days of January, and figure the price of oats at forty-one cents and corn at ninety-eight cents a bushel if you prefer that method to the price per ton method.

One more point merits consideration. It is the question of weighing and estimating the weights of feed. One will need to weigh or measure a ration a few times until one becomes accustomed to estimating its measure or weight, but it is surprising how soon the eye becomes trained to measure with practical exactness.

An illustration will drive this point home, and similar experiences will occur to every reader. Two college students were working in the college dairy barn, and were instructed to weigh the feed fed to each cow. After they had done this for a time one of the students began to argue that it was useless to carefully weigh the feed each time, and to prove his point he turned the face of the scales away from him and instructed the other student to record the weights as he measured out the grain and fed each cow, and without knowing what the scales were recording he fed some twenty odd cows and gave each one the right amount as recorded by the student watching the scales. This feat can be duplicated by any farmer with only a little practice.

The matter of feed records is therefore simple enough and requires little enough of time, and, furthermore, to feed stock without measuring the feed is like paying out money without counting it.

Directions for cleaning milking machines emphasize the importance of cleaning the milker tubes before placing them in the sterilizing solution; releasing the air from the tubes so that the solution can reach all parts; the use of brine as a basis for the sterilizing solution; and cleaning the stanchion hose and check valves on the pail lids in order to prevent leakage back into the machine from the air line.

The investigators find that it is a relatively simple matter to produce continuously milk containing few bacteria with any of the standard methods of milkers, provided certain very simple details in the cleaning process are cared for each day. Records showing that this can be done by ordinary dairymen now extend over five and six years of continuous observation.

Power and Farming.

It requires more power to carry on the business of agriculture than is required by all other industries combined. A hundred years ago one family living in town demanded the surplus farm products of four families living in the country. To-day the condition is reversed and one farmer grows sufficient on his land to feed four city families. The increased use of power on the farm is the reason for this big change.

Better disturb the rule than spoil the boy.

Poultry

In many poultry houses that are properly constructed little time has been spent in making good nests to go with those houses. A poor system of nests will mean broken eggs. Open nests soon become dirty in winter from the hens roosting on the sides of the boxes. The hens will scratch in the litter in an open nest and kick the eggs against the sides of the box. Then the eggs are broken and it helps to start the egg-eating habit.

Nests should be in portable sections so they can be taken outside occasionally for sunning and spraying. When nests are nailed to the poultry house walls they form cracks and crevices where mites and lice hide.

Some of the best nests we have seen were built so the hens could enter from the rear. These nests were slightly dark so the hens could not easily see the eggs. The hens like the seclusion of such a nest and it reduces the danger of egg eating. There should be about one nest to every four hens as this prevents crowding, which is another cause of broken eggs.

Nests need a steep sloping roof so the hens will not roost on them. They must be deep enough so the eggs will not roll out, but not too deep so the hens will jump on the eggs. Twisted hay makes a good nesting litter, but the hens will gradually pick it out of the nests so that more is needed every few weeks. A straw litter packed into the corners of the nests is about as permanent as any. The changing of litter does not take long and broken eggs result from a lack of nesting material. So it pays to watch the nests and keep them in the condition that means perfectly clean and unbroken eggs.

Changing Potato Seed.

When a grower has found that it pays him to obtain seed of a certain variety from a certain source, says the Dominion Horticulturist in his bulletin on "The Potato in Canada," he should endeavor by experiment and calculation to learn whether it will pay him to change his seed every year, every two years, or every three years. Experiments at the Central Experimental Farm, Ottawa, have shown that by getting new seed every year from certain places, good yields can be obtained. While such marked results as have accrued at Ottawa might not eventuate elsewhere, it may safely be said that a change of seed is advisable where satisfactory yields are not being obtained. It is the observation of the Dominion Horticulturist that as a rule wherever potatoes grow vigorously until the tops are cut down by frost in the autumn, good seed potatoes will be obtained, provided disease be absent. Such sources of seed potatoes can be found in all the provinces of Canada, particularly in those sections where the days and nights during the growing season are relatively cool, and where there is usually a good supply of moisture in the soil. Experiments at Ottawa have further shown that the best results were derivable from the seed that was used in the autumn of the year. While doubtless there is some factor other than immaturity which ensures such good results and which may be termed vitality, it would seem, with our present knowledge, that the best seed will come from the cooler parts of Canada, where the main part of the crop is least mature when harvested, although of good marketable size when the tops are cut down by autumn frost, provided there is little or no disease present.

Parents as Educators

The Call of the Clock—By Nelie Gardner White

Dear Mother:

Have your children ever said—"I can't come just now, Mother—I'm busy with my blocks!" No doubt the building of blocks was at that moment very important,—more important than we can realize. But more important still should be the response to the demands of time. Some of us are marionettes—always insisting on the accomplishment of a given task at a given time, till our children come to look upon time as a relentless, hateful giant. I think a great deal of the slothfulness of this world comes from that arbitrary insistence that things be done on time. The things hated in childhood are gladly cast aside as soon as maturity comes.

But isn't there some way to make punctuality and a well-ordered life a beautiful and desired instead of a dreaded thing? For it is beautiful. Time is not hard and relentless; if it is used rightly, life becomes smooth, peaceful and happy; if used wrongly, life is a tangled mass of fretting and discord. You've seen folks who always had to rush to get to places on time—who rushed to get their meals ready—who rushed about their cleaning and their sewing. It is an unlovely quality. It is nearly always when you come down to the facts the result of previously not having done things on time. Their clothes weren't in order for calling—the dishes weren't clean—their materials had not all been purchased for the proposed sewing—there wasn't any scouring powder on hand for scrubbing. Not one of us wants a child to grow up to be that kind of a person, who neither gives nor gets happiness.

However, that state is only a natural one, arising from a failure to appreciate the importance of time. It is not the "rusher" who has the most

Horse-Sense in Building Fences.

My grandfather tells me that he used to figure on building new fences every ten years—and it took some pretty careful planning to make them hold up good and strong that long. He farmed for more than fifty years on the same place, so he had to build new fences five times in his own farming experiences. He started out with rails and ended up with oak posts and barbed wire. Think of the labor it took in replacing these fences, and the cost in money involved!

He used to have a lot of animals from lightning. Most of those losses hit him pretty hard because it was in the day when lightning insurance was unknown. I saw him skin eight heifers one morning after a bad storm. They'd gotten too close to the wire fence.

Farming certainly has been revolutionized in the last ten years, even in the fences that are built. Who would have thought of a steel post twenty years ago? Now farmers are killing two birds with one stone; they set their fence posts with sledges by driving the steel posts into the ground. And they are using horse-sense in putting up that kind, for fence posts made out of steel or concrete will last longer than any man on earth now.

There's one other advantage that is worth a great deal, when steel posts are used. You won't have any losses from lightning killing the stock. Every steel post on the farm is insurance against that, for the post grounds the wires and sends Mr. Lightning down where he belongs. If lightning strikes your fence, it can travel only the distance to the next post. It won't run around the whole farm.—C. C. S.

Early and Late Layers.

Under the supervision of the Dominion Poultry Husbandman, experiments have been made at the Central Experimental Farm, Ottawa, to determine which hens would lay best during the summer months; also to ascertain if there is any relation between winter and summer laying, that is, to find out if a hen that lays during the winter will be more likely to lay better or worse during the summer than a hen that fails to lay during the winter months. It has frequently been claimed that a hen will lay just as many eggs whether she starts in November or April. On the contrary, these experiments show that the pullet which does not start to lay until near spring never catches up with one that begins in November or December. To help solve the problem, the pullets and hens in these experiments were divided into three groups—those that started to lay in November, those that started in January, and those that started in February. The birds that started in November laid in that month and December an average each of 14.8 eggs and for June, July, August, and September averaged per bird 32.8 eggs. The January birds in that month and February averaged each 14.5 eggs and for the four summer months averaged 30.1. The February group averaged in February and March 21.75 eggs and for the four summer months 27.5. This appears to indicate that the earlier the bird begins to lay after November 1, the more eggs she will be responsible for in the year and especially in the summer months. It is also generally conceded that the bird that lays late in the fall—not molting until near winter—is the heavier layer. It is not a good plan to kill in the autumn those hens that are not fully feathered, as they are usually the best layers.

SMOKE OLD CHUM

The Tobacco of Quality

1/2 LB. TINS

and in packages

Planning the New Home

A great number of farm homes will probably be built this year and also an equal number of old houses remodeled. It pays to spend considerable time in planning; it should also be remembered that a house is not built for the present alone. A house in order to give the best service must actually be built ahead of the times. Perhaps this is impossible, but we should at least plan for every convenience possible. It does not cost much to plan for these things although we may not be able to install everything now.

Take plumbing, for instance, no farm house should be built to-day without some provision being made for a bathroom and the necessary plumbing for the kitchen and laundry. The value of plumbing is forcibly impressed on any one who has had any experience in installing plumbing in the type of farm house built twenty years ago. It is almost impossible to locate a bathroom in a convenient place or to get the piping in properly.

Even though the plumbing may be a later consideration, something can be done now that will make it easier to install later. First, the location of the bathroom can be planned. This may be on either floor, although I think for the country a bathroom located on the first floor which is easily accessible from the rear of the house would be found the most convenient. However, an additional closet, or even a complete bath room on the second floor will be found very useful. The

bathroom need not be large. It is possible to install a bathtub, lavatory and closet in a room six by eight feet, although a room eight feet by eight feet is much better.

Besides arranging for the bathroom the planning may be carried a step farther if the finances will permit, by having the "roughing in" done. That is, the waste pipes and water pipes which are usually concealed in the walls and under the floors can be put in so that the fixtures can be attached at any time. The "roughing in" can usually be done for \$50 to \$75.

Of course, if the bathroom is on the first floor the "roughing in" is very simple, consisting merely of the soil pipe extending through the roof. The other piping can easily be put in from the basement at any time. One thing should be remembered, however, in planning for plumbing, that the soil pipe which connects with the closet is four inches in diameter and has enlargements at the joints which require a six-inch partition to conceal it.

If the "roughing in" cannot be done when the house is built, a "chase," that is an opening between two studs and covered with a panel, can sometimes be left in which the pipes leading to the second floor can later be placed. This will save mutilating the walls when the plumbing is finally installed and will also make the pipes very accessible when in need of repairs. It should be remembered, however, that this "chase" must be six inches deep in order to hold the soil pipe.

THE CHILDREN'S HOUR

Janet's Good Luck.

All day long the rain had fallen and as night closed in it showed no sign of weariness but beat with the same monotonous patter against the window and on the roof. On the street the people were hurrying with large bundles under their arms.

On this cold, dreary night a little child was out. Wishing, to be sure, that she might go somewhere to get warm, but where should she go? Her mother was very sick and she had bidden Janet go for a doctor. Janet and her mother were strangers in the city and Janet did not know where any doctors lived. Ah! here was a place; there was a sign which read: "Dr. A. F. Lovell"; that sounded like a nice name and nice people always have nice names, the child thought.

She was a frail, pale-faced child with very little clothing on, and what she had was ragged and dirty. In her hand she clutched the money her mother had given her with which to pay the doctor. She reached the steps, went up, and trembling, rang the bell. No answer. She rang again. Then the swift sound of feet; someone opened the door, and before Janet had

time to open her mouth, said "No, the doctor is not home," and slammed the door.

Poor Janet, weary, cold, hungry, and sad, she slowly went down the steps again.

"Oh, dear!" sighed the child. "If only I could find a doctor. Then she broke down utterly, and sinking to the ground, cried bitterly."

"My dear little girl, what is the matter?" asked a kind voice. Janet looked up to see a kind face bending over her.

"Come, get up, and tell me all about it," said the stranger; and taking hold of her hand he helped her up and led her over to a waiting motor car.

Seated in the car, Janet sobbed out her sad story.

"Well, that certainly is too bad; but I am a doctor, and if you tell me where you live I'm sure I will be able to cure your mother."

Janet's face broke out into smiles. "Oh, sir, if you only would," she said gratefully.

The kind doctor took her home and looked after her mother. One morning Janet found a large basket of food and clothing on the doorstep and at the bottom was a cheque signed "Doctor Lovell."—Vera Plaxton.

Where Timothy drives out clover there are many callers at the poor house.

Direct from TRAPPER to MANUFACTURER

J. SCHWARTZ & CO.

MANUFACTURING FURNISHERS

King St. West		Toronto, Ont.	
Fine Ex. Large	\$2.00	Medium	\$1.50
Dark	\$1.50	Small	\$1.00
Ordinary	\$1.00	Extra Large	\$2.50
		Large	\$2.00
		Medium	\$1.50
		Small	\$1.00
		Extra Small	\$0.50

Also: Kites Damaged and Shot \$2.50-\$1.00

Good Upright \$25.00-\$15.00

Ship by Express or Parcel Post. Quick Returns Guaranteed

Bank References—Dominion Bank, Toronto.

BLADES OF GRASS

The train was speeding westward through a desolate region of the Southwest. "I have just discovered," said a passenger, turning to his seat mate, "what it is that I've been missing from the landscape; it's the grass. I haven't seen a patch of grass for hours. Isn't it strange how much grass means in a landscape? And yet a single blade isn't especially beautiful."

The man made no further remark and soon afterwards left the car. After he had gone his travelling companion pondered his remark. Suppose, he thought, that each particular blade of grass should realize that it was not beautiful and that no one appreciated it. Suppose that on making the discovery the blade turned sullen and refused to grow. What a dreary landscape we should have! Just imagine a city without lawns, a countryside without meadows, a cemetery without its cool, green pall!

Then by a natural transition he imagined a world in which each person grew bitter because he was neither handsome nor brilliant, and sullenly refused to use what small gifts God had given him. How dreary a world it would be. What pleasant things we should miss. The traveler thought of a neighbor of his—a woman. She sang a little; her voice was uncultivated and of no great natural beauty, but as she went about her work her song seemed to lighten the air. When she opened the door to shake her dust cloth and, seeing him at the window, waved her hand gayly and smiled, he would turn to his task more bravely and cheerfully. She was just a "blade of grass," but how she and other friendly neighbors brightened the spiritual landscape for him! How pleasant in the aggregate do the folk of little gifts make the world! How blessed, he thought, is the life that is a "blade of grass," and that is content to do its modest share in keeping the earth fresh and pleasant!

Poultry Record Ready

The second annual report of the Record of Performance for Poultry "Section A" will be issued about the middle of March, and will contain much information valuable to poultrymen.

The 1920-21 entries totalled 7,511 birds entered by 81 breeders, and of the 7,408 birds banded, 1,942 qualified for Record of Performance certificates, and 287 for Record of Performance advanced certificates. These figures show a considerable increase over 1919-20, when entries were 4,436 birds representing 67 breeders, 681 of which qualified for certificates, and 80 for advanced certificates. The figures show an increase of 20.9 per cent. in the number of breeders and 69.5 per cent. in the number of birds entered.

All provinces were represented with the exception of Nova Scotia. Ontario led with 2,576. British Columbia a close second with 2,488. Quebec third with 1,503. New Brunswick 400. Saskatchewan 363. Prince Edward Island 111. Alberta 45, and Manitoba 25. The general quality of the birds entered was good, due to the fact that a higher percentage of the breeders were found to be doing pedigree breeding. This fact is reflected in the increase in the number of birds qualifying, and the decrease in the number withdrawn. Last year 30 per cent. of the birds entered qualified for certificates, compared with 17.2 per cent. the previous year. The birds withdrawn in 1920-21 were 43 per cent. of those banded, compared with 54.1 per cent. the previous year.

During the past year 26.1 per cent. laid from 150 to 224 eggs, and 3.9 per cent. laid 225 eggs or over in the year; 18.5 per cent. finished their year but failed to qualify, and 8.5 per cent. died during the year.

In the matter of percentage qualified by provinces British Columbia led with 1,148 birds qualifying, or 46.1 per cent. of the birds banded; Manitoba second with 40 per cent., Saskatchewan third with 30.2 per cent., Ontario fourth 23.9 per cent., New Brunswick 22.2 per cent., Prince Edward Island 17.2 per cent., and Quebec 16.8 per cent. Mortality was lowest in Ontario, the province with the largest entry.

The standing of the breeds is always interesting, and the report shows that of a total of 1,017 Wyandottes banded 36 per cent. received certificates. In Leghorns 30.9 per cent. of 3,425 birds qualified. Plymouth Rocks 27.6 per cent. of 2,152 birds, Rhode Island Reds 22.3 per cent. of 774 birds, and other breeds 2.9 per cent. of 35 birds.

Outstanding individual efforts were: British Columbia White Wyandottes 293 and 284, White Leghorn 297, Barred Rock 281, Ontario White Leghorns 293 and 282, and Barred Rock 277.

The entries for the present laying year 1921-22 number 11,579, compared with 7,511 for 1920-21, and 4,436 for 1919-20.

The report will make interesting reading for poultry breeders in all parts of the Dominion, containing as it does a tabulated record of all breeders and the birds on their plants laying 150 eggs or over in 52 weeks. Copies of the report and full particulars regarding this work may be had on application to the Dominion Live Stock Commissioner, Ottawa.

'Tis the evening schedule in the farm home even more than the day's labor, that holds the young people to, or drives them from the parental roof.