

Soils and Crops

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

Green Manuring.

Plowing under green crops, more commonly known as green manuring, is a practice that has been in use over a long period of time, being advocated and used by the Romans in their farming operations. And in all probability they obtained their knowledge from preceding generations. The practice has been handed down from generation to generation, each one adding to the store of knowledge concerning it until at the present time it has a recognized value in our systems of soil fertility. It alone is not the secret of permanently productive soil, but when utilized in the right way, and in combination with other recognized practices, it is of great value. Crop rotation, liming, good tillage, etc., have much to do with the successful use of a green manure. The greatest benefit to be derived from green manuring is in the amount of organic matter that is added to the soil. However, in the case of a legume, and a green manure crop should be a legume wherever possible, there is also a valuable amount of nitrogen added to the soil.

A green manure crop may be included in the rotation, or may be used separately as a cover crop or turned under. There are a number of crops that may be utilized as green manures, but in general the one selected should have the following characteristics: It should have a deep root system, the seed should be cheap, it should be a legume wherever possible, it should be hardy, it should be quick growing, and in case it is sown broadcast, it should be capable of making a good growth. Of the various crops that may be utilized as green manures the following are well known: Soy beans, vetch, field peas, the various clovers, alfalfa, rye, oats, timothy, rape, etc., all but the latter four being legumes. The effects of a green manure crop on the soil may be considered under three heads, being the physical, the chemical and the bacteriological effects. Physically, green manuring will influence the temperature, moisture condition, the aeration of a soil, tending to make the soil warmer, capable of retaining more moisture in the case of a light soil, and allow the air to penetrate better.

Its action on a light sandy soil is of a binding nature, making it more compact and capable of holding moisture, while with a heavy clay soil its action is opposite, making it lighter and more open, thus insuring better drainage and aeration. Chemically a green manure will conserve plant food by absorbing it, and will furnish many of the plant food compounds in solution, in which form they must be in order to be utilized by the plant. The root systems of the deep rooted plants especially, tend to bring together the various plant foods, and when the plant is plowed under this plant food is brought to the surface where it may be utilized by the more shallow rooted plants. When a green manure is turned under many different bacteria begin to act on the carbohydrates and protein, breaking them down into various necessary plant food elements. If the crop is a legume and has been inoculated, nitrogen will be added to the soil through a symbiotic relation between the plant and certain bacteria. Bacteria require moisture for their action, and a variation in the water content of a soil, as well as a variation in the

temperature and aeration will have a marked effect on their action.

And, as stated above, plowing under a green manure has a noticeable effect on the water content of a soil. The amount of air in the soil will determine the class of bacteria that will function the most, being either the aerobic (those requiring air), or the anaerobic (those not requiring air), the plant food produced will depend somewhat on the type of bacteria active. The addition of a green manure will increase the activity of the bacteria largely through the organic matter added. The best time to plow under a green manure is when the crop contains the most moisture, as this encourages a rapid and more complete decay. When turning under the crop it is not a good practice to throw the furrow over flat as this forms a layer which may hinder capillary action until the crop has more or less decayed. As a result of decreased capillary action the succeeding crop may suffer from lack of moisture. Also, by turning the furrow slice only partly over, aeration and drainage are greatly helped. During the process of decay of a green manure crop various organic acids are produced, tending to make a sour soil. As a result it is necessary to apply lime during some part of the rotation, or it may be added when the crop is seeded and may be turned under with it.

How to Feed Straws.

All the straws contain large quantities of nutrients, but on account of their unpalatability and low digestibility, only a comparatively small proportion of the nutrients is of use to the animal. Many suggestions have been made for increasing the palatability of straws and making them more digestible. The former object is sometimes achieved by chaffing the straw and mixing it with pulped or cut roots in the proportion of one part by weight of chaff to nine parts by weight of roots. The mixture should be allowed to stand for at least twelve hours before it is fed to stock. The straw absorbs water from the roots and the fermentation which results warms the mixture and softens the straw. No doubt that treatment makes the straw more palatable, but so far as it has been possible to ascertain, there is no evidence that its digestibility is increased. As the season advances the straw and the roots get dried the chaff may be moistened with treacle (molasses) mixed with warm water and sprayed on with a watering can.

For horses getting all their bulky food in the form of straw is a good practice to add seven pounds of linseed cake per horse per week. This is mashed in a tub of water. When the cake is thoroughly softened it is stirred up, and the liquid used to moisten the chaff. The mixture is ready to eat, and gives good results. Another method is to sprinkle the chaff with salt at the rate of one bushel per ton, and to sandwich thin layers of cut green stuff amongst the chaff when it is put in the chaff house. Late cuttings of seeds, or almost any green stuff, or pulped roots, at the rate of one hundred pounds per ton of chaff will answer the purpose. The mixture should be wet trodden down, and a slow fermentation will result. After standing some weeks or months the mixture develops a pleasant smell, and is readily eaten by any kind of stock.

Poultry

To throw light upon the question as to whether hens or pullets are the more profitable I placed sixty-two hens and one hundred and thirty-eight pullets in two separate coops on November 1st last year. Each lot had equally good quarters and were fed alike. By March 1st the hens were down to me sixty-four cents each, and the pullets had a credit of thirty-six cents each, just eggs against feed. This placed them an even dollar apart, so if I had placed sixty-two pullets in the place of the hens I would have stood at a gain of sixty-two dollars on that coop. In March the hens jumped ahead of the pullets and held there each month until September, when I sold the hens to make ready for the new lot in that coop. On September 1st the pullets had a gain of \$1.79 each and the hens a gain of \$1.61 each, or a difference of only eighteen cents, and I am sure if I could have kept the hens until November 1st they would have been in the lead.

This test convinces me that it is the pullets that give us the winter eggs and the older birds lead in the summer, so to have an even supply the year through it is well to keep both. The birds were all white Leghorns, and the hens were about equal in numbers of one, two and three years old. They all would have made a better showing had I not left out the meat from the feed from about December 30 to January 1st. Snap gone; more drop in gain of pullets in January. While the hens did not drop off in January as did the pullets, they did not gain as they no doubt would have done had I continued the meat ration. To me it is plain the reason the hens did not pay out before March is, they

had not recovered from the moult. The chicks were hatched April 4 and May 1, 1919.

The Pump Handle.

Did you ever try to pump out a well when the water was so low that it did not reach the bottom of the pump? You worked the handle with all your might; you got red in the face; you said things it was not lawful to utter, and all you got was a spray, and maybe not even that, and not a drop in the bucket. Pretty unsatisfactory business but thousands are working at it all over the country.

There is the man who is working along with poor cows. He is working the pump-handle for dear life. Only the mist of success rewards his efforts. In the end he will have to give it up as a bad job. That well is too dry.

Not every farmer has as yet joined the "No-Scrub-Bull" movement. These men spray their clothes from head to foot in their desperate efforts to fool themselves and their neighbors into thinking they are making a great go of it. It is a dry well and every man who is making a success of his business has found it so. Why not quit wasting time and strength with this empty well? Drill deeper. Stop only when the fountain of purebred stock is reached. Then working life's pump-handle will bring something worth while.

But the driest of all is found on the premises of the no-snap farmer. Not even a well? Snap gone; more vitium needed. Let's believe in what we are doing, heart, mind and soul, and never hem and haw and apologize for being farmers. It is the biggest business in all the world. When we really believe this we will work our pump-handles to some purpose.

Hogs and Bacon Will Be Scarcer.

Some farmers have been quick to grasp the lesson for 1921 in the sharp decline lately in the number of breeding sows. A canvass of hog breeders in Ontario in the last two weeks shows that the trade in young stock to replenish the supplies on farms has not for many years been more active than this fall. One well-known breeder in Ontario states he is almost sold out. He attributes this to the fact that farmers have come to understand that there is "saw money" for the man who can breed for litters next spring.

Yet the awakening has to go further. In some sections of the Prairie Provinces the drop was as much as 60 to 75 per cent. compared with two years ago. In the Eastern and Maritime Provinces also marked reductions have been recorded. Not until every farmer understands that it is best to keep or secure and to breed at once his normal number of sows will conditions begin to be steadied.

The importance of a quick recovery cannot be over-emphasized. The great harvest of feed grains now available will largely be livestock at a loss if not fed to livestock. Prices for hogs to-day compare more favorably with the price of grain than for some time and the demand exceeds the marketings. Canadian overseas markets demand steady support if they are not to be lost.

In no line of livestock is the supply so cut down. It is already certain that hog prices and consequently bacon prices will remain comparatively high next year. Whatever is done to restore supplies must be done quickly. The breeding season for pigs begins in the first week in November and continues only until about the middle of December. If the opportunity is allowed to slip the recovery in numbers will be so retarded that the present cheap feeds will be still more cheapened, leading to loss.

Protect Your Machinery.

One of the factors entering into the cost of farm production is the outlay for machinery. The present high prices of equipment are a serious cause of complaint from the farming interests, and yet many farmers are content to leave their machinery and implements exposed to the weather, often in the field where last used.

In a manufacturing plant, where all machines are under cover and well taken care of, 10 per cent depreciation is written off annually. What, then, must unprotected machinery suffer?

High prices for farm produce have been to a certain extent conducive to carelessness in the costs of farming. The lowering of prices will compel a closer scrutiny of farm expenses, and one of the important items will be cost of machinery and repairs.

Protection of the equipment from weather will largely reduce repair bills. At the end of the season, all wearing parts of the machines should be well greased, accumulations of dirt removed, and they should be placed under cover. An implement shed will quickly pay for itself in saving in outlay for repairs, apart from the fact that it facilitates cleaning, repainting or repairing machinery during spare time.

Seasons and weather will not wait for farm machinery that is unready, and a heavy loss may often be the result. To the increasing number of farmers who are keeping accounts of their farming operations, this item of upkeep of plants will appear as a most deplorable of all, it is the result of his own ill-treatment.

Let us illustrate these types of severity. First, the child who is denied some harmless pleasure, for example.

"Mary, don't get water in that teapot! I can't have you dripping water all over the house. What? Well, pretend there's water in it—it's just as good." But it isn't, as any little girl with a teapot can tell you.

Contrast this severity which is caused by lack of imagination and sympathy on the part of the parent with the severity of the second variety, that which is selfish in its origin.

"Ellen, stop running, and behave yourself like a lady!" But Ellen is ten and should not be asked to be a lady. In fact no one would be more distressed than her mother, should the child suddenly arrive at that stage of maturity. It is simply that her mother is disturbed by her activity.

And lastly, consider the exhibition of infuriated parenthood, from which we turn our eyes as from unappealing shame.

"Come here this instant or I'll give you such a whipping you'll never forget it! Stop that yelling, do you hear? Stop that yelling!" and the

Buy Thrift Stamps.

Save the Country Storekeeper

How many of you would stop to think what it would mean to you in dollars and cents if your country storekeeper went out of business?

I am not a storekeeper. I am a music-teacher, and for the last ten or twelve summers have had a class of pupils in a little country village. While there I make my headquarters in the home of the storekeeper. I stay in the village two days a week, so I have become almost one of the family.

One evening Mr. Smith came home about nine-thirty, having closed up the store after a long hard day. He is a man of about fifty years or more, and the grind of his work is beginning to show, although there is never a word of complaint.

I said to him: "You look pretty tired tonight, have you had a hard day?"

"Well," he said, "I'm ready for some good sleep, all right."

"Mr. Smith," I said, "why don't you quit this business and take life easy the rest of your days? You've been at it a good many years and surely can afford to take a rest."

After a moment he put down his pipe and said: "I'll tell you. Above all things I have a tie up in my store, and unless I could sell out for cash I couldn't afford to get out of it."

"These are the days when the farms are paying, and with all the conveniences for farmers' wives and the improved tools for farm work, farming doesn't mean the drudgery that it did fifteen years ago. The folks who are willing to live in the country are going to farm it."

"Thirty years ago I came here; my business has paid for itself and much more money has gone back into it. Besides, we have educated our four children. However, pretty much of that was done in the days before autos came and folks had to buy their stuff near home. Those were the times, too, when farmers didn't have any money until they sold their crops in the fall, and then if it wasn't a good year they couldn't pay until the next year; and we had to carry them over, sometimes, for two or three years."

"By the way, Bess," he said, turning to his wife, "Tom Brown was in tonight and paid that note."

I noted a surprised look on her face, and before she could get to her feet I explained to me: "That man has given his note every fall for nine years; for a grocery bill of \$75 each year; when fall came he had just enough to pay up for that year, and he put off the other for another year. It was like a windfall to have that come in tonight."

The next day I had a couple of hours free so I went over to the store where Mr. Smith was out delivering. Just as I stepped in I heard Mrs. Smith answering the telephone: "Y.,

Mrs. Brown, I'll try to stop him when he comes by."

She turned to me and said: "I wish you'd watch down the road for Mr. Jones. Mrs. Brown says he is on his way up here to the station and she wants me to be sure to send down a sack of flour. They have a lot of extra help and she has to get some pie making for dinner."

In a few minutes I saw Mr. Jones coming in his car, at the rate of about forty miles an hour. I said: "You never can catch him."

But she grabbed the sack from the counter and rushed out; after calling several times, she succeeded in stopping him about four or five houses up the street. Up there she ran with the twenty-five pounds of flour on her shoulder and—Mrs. Brown had her pies for dinner.

"That was a good job," I said.

"Yes," she replied, "but the worst of it is that is about all Mrs. Brown buys here since they got their car. Once in a while when she finds that she is out of something she needs right away, she calls up here in a hurry and asks us to send it down. Then on Friday when they get their pay, and she says they go to the city and come home with their week's supply of groceries from the 'cash' store; meanwhile, the 'hurry orders' lie peacefully at rest on our charge account until fall, when settling-up time comes."

"Why don't you ask them for the money?" I asked.

"Oh, you can't do that in the country," she answered. "The folks here are like one big family, and if you offend one you have offended them all; so we just let it go and do the best we can."

After that I was just a little more observing and found that that was one case among a hundred just like it. Everybody seemed to like the storekeeper and his wife and always spoke well of them, but it never seemed to occur to them that they were imposed on their very kindness. Since then I have taken special notice of their places, and find that conditions are often much the same.

We can't get along without the country storekeepers. Let's patronize them and treat them right. Tell them what you need and they will buy from them, and they will be glad to keep it in stock for you. Help your country storekeeper to develop and you'll find him a big convenience and asset to the community. A good real store is an absolute necessity to every community that wants to get ahead—it is the harbinger of better farming, better profits and better living. It is a treasure without price, to be obtained through individual thoughtfulness and cooperation. Build up your local store and you build up the value of your own farm.—J. W.

The Welfare of the Home

Qualities for Parenthood.

By MARGARET STEELE HARD

Not long ago I was startled to hear a small neighbor remark to my equally small daughter, "I don't think Father and Mother are very good parents. Father's too severe and Mother's too easy."

The whole matter of discipline seems to have been put in a nut shell by this youthful judge; for as one observes parents, he discovers that they are generally of one of these types.

The severe parent is perhaps less prevalent. His severity is born either of fundamental misconceptions regarding children and their needs, or of selfish desire to restrain and curb, so that his own freedom may suffer no annoyance or inconvenience; or most deplorable of all, it is the result of his own ill-temper.

Let us illustrate these types of severity. First, the child who is denied some harmless pleasure, for example.

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admonishing voice or the irritable parent reaches a scream as he slaps and jerks about the frightened child. The opposite extreme of the deplorably uncontrolled parent is the "easy parent" who is generally the mother. She suffers from shortsightedness. She seems to forget that in a very short time her boy or girl must live in a world that will not so readily excuse and cajole as she; that Sarah's whims and Richard's petulance will not be looked upon by the general public as odd, little outshoots of human nature; but as weeds, pure and simple, or does she seem to realize that faults in a little child, steadily nurtured, instead of being outgrown become greater?

"Sarah, what can Mother get for you—don't you like your dinner, dear?" and Mother, weary after preparing the family meal, snatches a bite here and there between trips to and from the pantry as she brings such food as Sarah's whims demand; while Sarah watches with sly eye, fully aware of her power.

What conclusion does one gain from observing parents with their children? That the indispensable qualities for parenthood are understanding sympathy coupled with firmness. Not uncontrolled demands for obedience, not sudden spasms of discipline, but steadfast reasonableness which creates confidence and love when it goes hand in hand with an eager desire to live understandingly in the child's world.

For, after all, discipline is very much like a salad. Its perfection depends upon the proper combination of ingredients, given in right proportion. There must be sufficient oil to assist in soothing too severe a tang of vinegar, but not enough to neutralize, just a dash of pepper and mustard; and finally the hand which mixes it with the tender green—that is the touch of personality which perfects it!

manurial requirements. The chemist, it is true, can determine what the soil contains, but no ordinary analysis determines with exactness what proportion of the several elements present is in available form for the crop. Indeed, there is no such thing as a constant ratio of availability. While one crop finds in a given soil all the plant-food it requires, another may find a shortage of one or more elements. Further, on the very same field one crop may find an insufficient amount of potash; another may find enough potash for normal growth, but insufficient phosphoric acid; while a third may suffer only from the insufficient phosphoric acid, while a third may suffer only from the insufficient supply of nitrogen.

The manurial and fertilizer requirements are determined more largely in most soils by the crop than by peculiarities in the chemical conditions of the soil.

Fixtures in the Pigeon Loft.

Self-feeding hoppers are seldom found nowadays in the lofts of veteran breeders. Their argument is that they have not found it profitable to have several days' supply of grain within reach so the birds may help themselves at will. There are two reasons for this: First, inferior squabs are raised in the lofts where feed is constantly before the birds, as there is no regularity among the breeding pigeons in feeding their young; second, this continual picking at the grain eventually leads to poor appetites, resulting in the squabs suffering.

Another disadvantage in having feed lying around is that it attracts mice and even rats, and when once these enemies get in a loft there is great loss of young birds.

The most popular method for feeding is to have stated hours for placing the grain in the troughs. These troughs are placed in the center of the floor, so that there will be plenty of room for all the birds to gather around it. Galvanized iron drinking vessels are preferred to stone fountains, especially for winter use.

There are three pen boxes in each loft, measuring twelve inches in length, three inches in width, and three inches in depth, and these boxes contain oyster-shell, grit and charcoal.

A bathtub is placed in the aviary of each pen. These are made of galvanized iron and of convenient size for holding. During the winter the birds are given a bath about once a week, but only on bright clear days. In summer it may be given twice a week. These pens are filled about eleven o'clock in the morning and allowed to remain for about two hours, when they are emptied and turned upside down. If the water is not emptied shortly after the birds are through bathing, they may drink of it and become sick.

Increasing your net returns per acre by \$5 means the adding of \$100 an acre to your land, looking at it as an investment. It's entirely possible to this. The how is a matter largely of local conditions. Talk it over with your county agricultural agent.

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Crop Feeding Instead of Soil Feeding.

The results of a chemical analysis of a soil do not, as a rule, afford a satisfactory basis for determining

Buy Thrift Stamps.

They are Convinced

Farms in Three Counties of Ontario Prove Value of Fertilizers

Tests of 1920 carried out under scientific supervision convince farmers of Ontario of the value of fertilizers in hastening maturity and obtaining larger yields and bigger ears.

The demonstrators report:

1. "The greatest difference of all between the plots was in the maturity of the corn and the yield of ears."
2. "These two plots of corn (1st-fertilized, 2nd-fertilized and manured) were eight to ten days earlier in ripening."
3. "The differences in maturity of the ears for silage purposes were distinctly in favor of the fertilized plot."

Improve the Quality and Increase Yields in 1921 by Fertilizing. ORDER EARLY

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THE SOIL AND CROP IMPROVEMENT BUREAU

of the Canadian Fertilizer Association

Henry C. Bell, B.S.A., Director 1111 Temple Building, Toronto

FITTING BOYS TO DO THINGS

The farmer who at times has not felt a desire to study the other man's methods of keeping his boys interested in the everyday affairs of the farm must be a peculiarly constituted individual. A wide-awake man who has the interests of his boys at heart will constantly be asking himself if he has adopted the best procedure. When our farmers appraise the value of their boys by the same standard as they do their colts, calves and pigs and study the kind of treatment that is best suited for their development we will have a new generation of farmers with a higher degree of efficiency and a much greater earning power.

It is time right now to begin to study the boy and find out what sort of training is needed to develop his good qualities. You expect the colts, calves and pigs from your best sires to develop into profitable animals if you give them proper treatment. As much depends on your boy's sire and line of treatment accorded as is the case with the young animals on the farm. His value on the farm depends largely on fitting him for doing things. All young animals are restless and the success of developing them along useful lines depends on keeping them contented. Many of our successful live stock breeders have found it possible to continue their work in spite of the present labor shortage because they have appraised their boys at something like their true value, and gave them sufficient interest in the herds and flocks to keep them interested in the affairs of the farm. Other men have been forced to hold dispersion sales because the boys found more congenial surroundings and greater income in big cities.

Boys are especially eager to do or try to do the things that good farmers do. The spirit to excel is present in every normal country boy. That is one of the ambitions that fathers must encourage if they hold the boy's interest in farming. The ownership of purebred animals afford them abundant opportunities to try and do things better than the other fellow, and impress upon them a larger responsibility than the handling of scrubs.

Boys have an imaginative instead of a factitious estimate of the difference between a \$40 and a \$100 brood sow for example. In the majority of instances grade or scrub animals are not valued so highly as pure-breds that sell for higher prices. For this reason they become interested in blood lines and consequently give the animals more thoughtful care. At a critical time in the boy's period of development no father can afford to break down their morale by denying them an interest in the business of the farm, and nothing will do more toward making impressive, enthusiastic workers of them than getting them started with pure-bred stock.

Stable Wash.

Give the interior of the cow stables a coat of whitewash. Whitewash makes the stable light, gives it a clean appearance, and above all it cleans the walls and ceilings, which so often become grimy and dusty, and make it more difficult to produce clean milk.

Here is a good formula for a whitewash that will stick well. Slake half a bushel of unslaked lime with boiling water. Cover during the process to keep in the steam. Strain the liquid through a fine sieve and add a peck of salt, previously dissolved in warm water. The add three pounds ground lime, boiled to a thin paste and stirred in while hot. Next add one pound clear glue, dissolved in cold water hung over a fire. A half pound of whitening will give it a lustre. To the above mixture add five gallons of water and leave standing for a few days, covered to keep out dirt. Applied hot, a pint of this wash will cover a square yard.

Tractors for Hauling Grain.

Members of the Western Canada Grain Growers' Association have found the tractor of great aid in solving their labor cost, and in delivering from the farm to market, which would mean an endless task in hauling grain, or a high investment in teams and wagons.

One tractor pulls seven wagon-loads of wheat to the elevator. Thus, the tractor performs the work of twelve horses and six men in ten hours. In sections where the snow is not deep, these machines are run the year round.

Ofttimes a day will make the difference between a big or a small profit in wheat, so that delivery when the time arrives is important.

Write down your garden plans for next summer now before you forget what you learned this year.

There is no best silo, for any silo rightly made is good. The most expensive silo, poorly constructed, is worse than none.

Says a progressive farmer: "It's reached a point where it requires less effort to buy a registered dairy calf and sow alfalfa, than to explain why I don't—so I've done both!"

"Oil, you say? There is but one kind of dabbling in oil which is safe for the farmer, and that is the kind that keeps the farm implements safe against the assaults of the weather."