

Soils and Crops

By Agronomist.

This Department is for the use of our farm readers who want the advice of an expert on any question regarding soil, seed, crops, etc. If your question is of sufficient general interest, it will be answered through this column. If stamped and addressed envelope is enclosed with your letter, a complete answer will be mailed to you. Address Agronomist, care of Wilson Publishing Co., Ltd., 73 Adelaide St. W., Toronto.

The Manorial Value of Clover.

The amount of semi-decomposed vegetable matter or humus present in our cultivated soils, sandy and clay loams, bears an intimate relation to their productive capacity.

Humus not only fulfills the mechanical function of rendering soils porous and more retentive of moisture, but furnishes also the essential medium for the activities of the bacteria which liberates plant food in the soil. Furthermore, humus constitutes the chief natural source of the soil's nitrogen supply.

Applications of barnyard manure may be considered the chief means employed in the maintenance of humus in the soil. Supplementary means are the growing and ploughing in of a green cover-crop such as rye, buckwheat, rape, vetches or clover. Of these, clover—where conditions are conducive to its satisfactory growth—is to be generally preferred. By means of its deeply ramifying roots, clover disintegrates and aerates the lower soil layers and brings up therefrom plant food supplies unattainable by other more shallow rooted crops.

An additional advantage which clover, in common with all members of the legume family, possesses is that of its ability to assimilate the free nitrogen of the soil atmosphere by means of minute bacterial organisms living and operating in small nodules on its roots. Thus clover gathers the greater part of its nitrogen from the air, and its phosphoric acid, potash and lime largely from soil depths beyond the reach of the roots of ordinary crops, consequently enriching the surface soil with these constituents for the benefit of succeeding crops.

How does clover compare with manure as a fertilizer? Barnyard manure of good average quality contains approximately 10 pounds nitrogen, 5 pounds phosphoric acid and 10 pounds potash per ton. Therefore 10 tons of barnyard manure would furnish about 100 pounds nitrogen, 50 pounds phosphoric acid and 100 pounds potash.

Experiments conducted at the Central Experimental Farm, Ottawa,

have shown that a vigorous crop of clover will contain, at a moderate estimate, in its foliage and roots, from 100 to 150 pounds nitrogen, 30 to 45 pounds phosphoric acid and 85 to 115 pounds potash per acre.

A good crop of clover from one acre if it were turned under may, therefore, be deemed equal, in fertilizing value, to an application of ten tons of barnyard manure.

In the experiments referred to, 10 pounds per acre of common red clover was seeded down with various grain crops, while adjoining plots were seeded with grain alone. In no instance did the growth of clover depress the yield of grain with which it was seeded.

In the following year, fodder corn (Leaming) produced 8 tons, 480 pounds more after wheat with clover than after wheat without clover. After barley and oats, increases of 11 tons, 1280 pounds and 5 tons, 1440 pounds respectively, of corn, per acre, were obtained on the clover plots.

With potatoes the results were equally striking. After wheat, barley and oats with clover the increases were, respectively, 43 bushels, 20 pounds; 29 bushels 40 pounds and 24 bushels of potatoes, per acre, as compared with the yields from adjoining plots without clover.

The full benefits from clover will as a rule be noticeably persistent for several years.

On soils which are deficient in lime, a satisfactory growth of clover will be encouraged by an application of, say, two tons of ground limestone per acre. As a phosphatic fertilizer, designed to benefit both the grain and the clover 300 pounds of superphosphate or 500 pounds of basic slag, per acre, may be recommended.

Unleached wood ashes contain, on an average, from 4 to 6 per cent. of potash, about 2 per cent. of phosphoric acid and from 20 to 30 per cent. of lime. They are eminently suitable as a fertilizer for clover and, when procurable at a reasonable price, should be applied at the rate of from 25 to 40 bushels (1000 to 1600 pounds) per acre.

Spraying.

Unless many kinds of both useful and ornamental plants are protected from injurious insects and fungous diseases by spraying, the loss in fruit and vegetable crops may be very great, and, in the case of ornamental plants which would otherwise have attractive foliage and bloom, they may be rendered very unsightly.

The spraying of fruit trees should be begun just after the buds have broken in the spring and repeated at the times recommended in the spray calendars and pamphlets which are issued by both Federal and Provincial Governments and in which is given information in regard to the treatment of the different kinds of insects and diseases most likely to cause damage.

The apple scab causes, perhaps, more loss than any other plant disease in Canada, yet this can be controlled and clean fruit obtained, by thorough spraying with either Bordeaux mixture or lime sulphur. Other diseases and insects can be kept well under control also by the spray which has been found best for each.

Spraying is a rather expensive operation and it should be done in an intelligent manner, otherwise it may be wasted money. For instance, if the spray to kill the codling moth, which affects the apple, is not applied within a very few days after the flowers fall, the sepals or lobes of the calyx will have closed over the opening or "calyx cup" in the end of the apple into which it is important to spray the poison. As it is in the "calyx cup" where most of the insects begin work, they are not likely to be poisoned if spraying is delayed and the apples will be wormy. A spray mixture or solution which will control one insect or disease may be of little or no use in controlling another. Arsenical poisons are the best for biting insects, while soap or tobacco sprays are best for those which suck their food and which have to be killed by contact, and certain sprays intended to kill insects will not control fungous diseases.

Get the spray pamphlets and study them carefully before spraying, but spray and spray thoroughly!

Killing Potato Beetles.

Spraying potato vines for the purpose of killing Colorado beetles should be done as soon as the work of the insect is noticed. This destructive insect is not hard to control. One part of Paris green mixed with 20 to 30 parts of air-slaked lime or flour, and used as a dust spray, affords the best results on young plants. It should be used when the dew is on, by means of powder guns or dust-spray machines.

The Paris green spray, prepared by mixing one pound of Paris green with 75 to 125 gallons of water and adding one pound of quicklime to the mixture, makes an effective spray. This spray will burn vines if the quicklime is omitted.

For the proper mixing and application of this spray a bucket pump or knapsack sprayer of good quality is sufficient for use in small gardens, but on a large scale a potato sprayer drawn by horses through the rows of plants is necessary.

Arsenate of lead serves the same purpose as Paris green, one pound combined with 15 to 20 gallons of water being more adhesive. It sticks more firmly to the leafage, and is much less likely to produce scorching than the Paris green spray.

Cleaning up the vines and plowing potato land in the fall after the crop has been harvested will aid in reducing the number of hibernating beetles.

If there were a dehydrating (evaporating) plant in every community, thousands of bushels of potatoes, etc., might be saved that may otherwise go to waste this spring.

As far as possible, the interior fixtures of a poultry house, such as roosts, nests, dust boxes, drinking fountains, feed troughs and grit boxes, should be so constructed as to permit them to be readily removed and cleaned.

It seems to have become the fashion to display this lavish contribution of money to the temple.

42. There came a poor widow—in her loneliness and poverty, lost in the thronging crowds, but not lost to the eye of the Master. Two mites, which make a farthing—It would take about a dozen of these mites to make one English penny. It was the smallest Jewish coin. No one was allowed to contribute towards alms so small a sum as a single mite, but this was not forbidden for other purposes.

43. Called unto him his disciples—He here teaches them the great lesson in benevolent use of money. Cast in more—in this case the poor giver was the princely giver. The giver not the gift, the measure of self-sacrifice, not the amount of the contribution, is the standard of the Master.

Why Orchards Must Be Sprayed
"What's all this new-fangled talk about spraying?" says the oldest inhabitant. "When I was a boy—" That is the difference. Grandfather did not have to contend with the swarms of pestiferous insects, that make orcharding so difficult for his grandson. Spraying was not necessary in those days because apple orchards were more widely scattered and as a result insects were not so numerous. With the increase of orchards, insects became more numerous, not only from multiplication but by importation from infested territory and from foreign lands. For many years insects were permitted to multiply unhindered and as a result they made orcharding unprofitable.



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GOOD HEALTH QUESTION BOX

By Andrew F. Currier, M.D.

Dr. Currier will answer all signed letters pertaining to health. If your question is of general interest it will be answered through these columns; if not, it will be answered personally if stamped, addressed envelope is enclosed. Dr. Currier will not prescribe for individual cases or make diagnosis. Address Dr. Andrew F. Currier, care of Wilson Publishing Co., 73 Adelaide St. West, Toronto.

Pre-Natal Instruction of Mothers.

We have only begun to consider the question of disease as the result of the terrible war in which all the world is now engaged.

We see how it has not only slaughtered millions of men, but has depopulated country after country.

We can as yet scarcely realize the ghastly effect it has had upon communities where the civil population is worn and weakened with woe and anxiety, and where there is, and will continue to be, hunger, thirst and nakedness.

Is there any power in medicine or sanitation which will stay it? Will there be doctors and grave diggers enough to go around?

The mind reels at the prospect. The men who are being killed and invalid-

ated are the virile, the active, the reproducers.

But suppose there was a chance for reproduction; the women are filled to the brim with hatred, bitterness, with suffering of every description—what is the chance for their unborn offspring?

What will be their inevitable inheritance, physically and mentally? Only recently has the importance of instructing expectant mothers in the hygiene of pregnancy been recognized as part of the duty of the Health Department.

What duty could more positively be paramount? No observant farmer needs to be told that his stock will bear better offspring if they are well cared for when pregnant, than if they are neglected or abused.

Why should there be a different result when the pregnant female is a woman?

From the moment a woman enters the pregnant state, she enters a new condition of being, physiological, it is true, but as liable to mishaps and derangement as the performance of any other function—digestion or assimilation, for instance.

The mother shares her blood current with her unborn child, and whatever it contains is contributed to the child's life.

An unhealthy mother in body, mind, or morals, cannot help impressing upon her child more or less of her peculiarities.

Wherefore, disease or emotional shock, or strain, of any kind, is quickly communicated to her child, often with a fatal result.

A pregnant woman should realize not only that she is carrying a child which is going to belong to her, but also to the state and to the world.

If she has this feeling, she will try very hard to take proper care of herself.

At her daily task she will spare herself as much as possible for the sake of her child; she will eat food that can be readily digested so that her child will have its proper share; she will try to get plenty of sleep; she will try to avoid worry, and exposure to wet and cold; she will not give way to anger, fear and hatred; and she will often consider that she is the only protector her child can have while she is carrying him within her body.

If women would realize this sacred trust, how much more they would get from this most beautiful of all physiological conditions, and they would bring into the world children who would not be handicapped by an inheritance which would cripple them more or less for life.

Pitiable, indeed, is the lot of the war baby, with all that is included in the thought; and how thankful Canadian women, who are pregnant, should be that they have been spared many of the ills which their less fortunate sisters, abroad, have had to bear!

QUESTIONS AND ANSWERS

J. B.—If you will send stamped and addressed envelope full particulars regarding eczema will be mailed to you.

A Farmer's Son.—I. The noise which you hear is produced by the combined action of fluid and air in the stomach. It often comes in connection with indigestion, and is not of very much significance, although it is annoying. 2. If, when the trouble occurs, you would add one teaspoonful of peppermint water to half a glass of hot water, and drink this slowly, it would dispel the gas.

T. B.—It is generally supposed styes are the result of infection. If the bowels are kept freely open, and the eyelids are frequently moistened with a solution of boric acid, it will relieve the trouble.

X. R.—Is it possible to cure a fibroid tumor of the abdomen by means of X-rays?

Answer—I think I may say quite positively that it is not. The only successful way of treating them, as I have found in a long surgical experience, is by removing them.

Mrs. C. E. D.—Is rheumatism sometimes referred to as "growing pains?"

Answer—It is possible; but if that is the case, it is incorrect. I doubt if there is any such thing as "growing pains."

Make Money by Boarding Pets.

A country boy or girl, if he or she loves to care for animals, may combine profit and pleasure by keeping some city child's pets during the family's summer vacation or while away on a trip.

City people will pay well for good care given to prized pets during their absence. A Shetland pony, a canary, Angora cat or a fine blooded dog will prove a pleasant companion for the boy or girl on the farm, and requires little outlay for food.

If the animals are in first-class condition when the owner comes to claim them, he will recommend the keeper to his city friends, and in this way a good paying business can soon be worked up.



INTERNATIONAL LESSON
MAY 26.

Lesson VIII.—Jesus Silences His Adversaries—Mark 12, 1-44.
Golden Text, Mark 12, 17

Verse 28. Questioning together—The picture is that of the teacher surrounded by a crowd, in the temple precincts, the utmost freedom of question and answer being observed, and the whole colloquy giving scope to an interplay of wit, as now one now another member of the audience puts a word of inquiry and the teacher, approving the question or exposing the fallacy, presses home the truth to the discomfort of the caviller. Knowing that he had answered them well—This scribe appears to have been an onlooker, who, noting the sincerity and correctness of Jesus' replies, now puts forth a question, not in the spirit of criticism, but wishing for a response to a vital query in Jewish minds.

29. Jesus answered, The first is, Hear, O Israel; The Lord our God, the Lord is one—Jesus responds at once with what every Jew repeated daily, the sentences used at the beginning of morning and evening prayer in the temple, called by the Jews, the "Shema," from the first Hebrew word in the sentence. The oneness of God as over against polytheism.

30. Thou shalt love the Lord thy God—This is the first duty of man toward God and here is at the same time a revelation of the nature of God, for it is only one who loves who demands love; since love in him is supreme he demands love as the supreme duty. Heathen deities were not gods to love. With all thy heart—strength

—There can be no divided allegiance. Here is shown in a strong way that all our powers are to go forth in love to God.

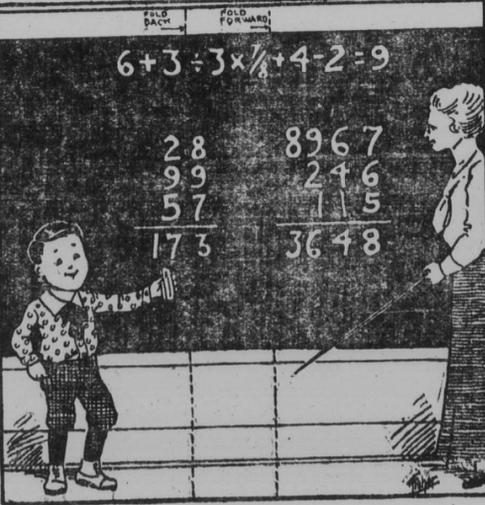
31. The second—Thou shalt love thy neighbor as thyself—This second stands with the first as completing the idea of righteousness. None other greater than these—For the reason that it exhausts the relationship of man. Religious duty, therefore, looks two ways, Godward and manward. Neighbor, in the Jewish sense, included only his fellow Jew.

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"Your work's disgraceful," teacher said,
"You really can't be bright."
But Willie folded up the board
And showed that he was right.