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NEWS AND ITEMS OF INTEREST TO HALTON FARMERS

SOIL BUILDING WITH SOD CROPS

The following is an address given at the annual meeting of the Ontario Crop Improvement Ass'n. in Toronto, by Prof. G. N. Ruhnke, formerly head of the Dept. of Soils at the Ont. Agricultural College.

In our opinion it is sound, practical and worthy of careful study from all our readers. At the outset, let it be made clear as to what we mean by "soil building." It has been popular, recently, to write and talk about soil "conservation" rather than soil "improvement" or soil "building," because some think it more impressive to use a new term rather than to stick by the terms that are already well known through long usage. Now most any means that may be used effectively to increase interest in better farming methods may be justified, even to the extent of using new terms for old established practices. But if the new term doesn't add to the clarification and better understanding of the problems involved, perhaps we should forget about popularity, and for the sake of clarity, say what we mean in the most direct and simple way.

In this talk we are stressing an important principle — we are talking about soil "building" — making better soils and more productive soils out of those we now have. The term soil "conservation" on the other hand, literally means conserving, or saving, or just holding the soils, as they are now, but it doesn't suggest directly, what is equally important, the need for "improving" the soil, for "building up" its fertility, for increasing its capacity to produce more.

Our first point, then, is that we are dealing with soil building — not only holding to what we have, not only conserving our present soils — but as well improving them, building them up, and making them more productive for the future.

Now, we all know, of course, that we have farms, scattered throughout every community, where the soils are being well managed and kept fertile, and where there isn't really any problem of soil building at all. In those cases, the matter is just one of maintaining the existing high state of productivity by continuing the present practices of crop rotation, manuring, fertilizing and good cultivation. On the other hand, we have far more farms where, through long years of cultivation and cropping, the soils have been allowed to run down, production is at a low level and there is a real job of soil improvement to be done. You don't have to be told where such farms are to be found, you can call to mind numerous examples in your community. These are the farms which are urgently in need of a program of soil building such as we are about to describe.

What are the requirements for soil building?

If we are to do a satisfactory job of soil building, we need to be sure, first, what it is that needs rebuilding. Then, and only then, can we select and use the right materials to accomplish the job we have to do.

The primary needs of run-down, less productive soils are:

- (1) increase in soil organic matter or humus; (2) improved physical condition; (3) increase in fertility supply, and; (4) more active population of desirable soil microbes.

These four requirements are interdependent on one another in the

problems of their maintenance in their total effect in soil productivity. We shall now proceed to discuss each of these factors in turn.

Organic Matter, or Humus
The maintenance of organic matter may be gated as our number one soil management problem. In the wake of declining organic matter or humus, follow poor absorption of rainfall, increased surface run-off and floods, silted and gully erosion, poor tilth, inadequate supplies of available plant foods (especially of nitrogen and phosphorus), and poor crops.

Everything that is done to a soil affects the organic matter in the soil in one way or another, for better or for worse. The kinds of crops, the amount and frequency of cultivation, and the amount of frequency of manuring and fertilizing in the rotation, all help to determine whether the organic matter or humus content will be maintained, or gradually reduced to a critically low level in the soil.

We should keep in mind certain fundamental principles in our attempt to increase the humus content of the soil. Straw, corn stalks, tomato vines, stubble, and other crop residues, are sources of organic matter for the soil. Such materials, however, do not become soil organic matter, or humus until they have undergone decomposition in the soil, and have been converted into the dark brown to black jelly-like material which is usually present in abundance in our more fertile soils.

One point to be emphasized about the organic matter problem is this: actually very little of the organic materials which are plowed under remain as soil organic matter. Most of the material decays rapidly, leaving only a small amount of the more permanent form of soil organic matter — humus.

Carefully controlled experiments at the Michigan Experimental Station show the rate at which organic matter is lost when plowed under. From this work it was found that less than 32 percent of the added organic matter remained at the end of two years, even when 40 tons of dry organic matter material per acre were used. In several instances nearly 60 percent of the added carbon disappeared within the four years. Where did it all go? Mostly into the air.

Organic matter in soils is a source of food and nourishment for millions of bacteria and fungi which flourish in its presence and are essential for fertile soil. Just as the food we eat is "burned" (oxidized) in our bodies to provide us with materials for replacement of tissue and energy for our work so organic matter in the soil is "burned" (oxidized) in the soil to provide replacement of humus and release readily available nitrogen and minerals for the use of the soil microbes and crop plants.

While the experiments referred to above were carried out in the greenhouse, where it was warm the year round and decay was more rapid than under field conditions, the results nevertheless, emphasize the fact that oxidation of organic materials in the soils goes on very readily under favourable conditions. From this it is evident that the problem is not to be solved by plowing under large amounts of humus forming materials and then ignoring the problem for the next ten or twenty years.

The more you cultivate and stir any soil, the more air and oxygen enters the pore spaces, and speeds up the oxidation or "burning-up" of the organic matter by the soil microbes. Cultivation and stirring of the soil are like opening the drafts and stirring the fire in a coal or wood burning furnace. The fire burns faster, and if you want to keep in from going out you have to (a) keep adding more and more fuel as fast as it burns, or (b) close the drafts and add only a little fuel occasionally to keep the fire alive.

When we grow too large a proportion of clean, cultivated row crops, like corn, potatoes, sugar beets, tobacco, etc. in a rotation, we keep the drafts on our soils wide open, and the organic matter is being burned up continually, and at a very rapid rate as compared with the rotation in which the clean, cultivated row crop occurs only once in a four or five period. Further, when these clean, cultivated row crops predominate in the rotation, there is likely to be less livestock kept on the farm, and hence less manure is available for the land.

A second point worthy of emphasis in connection with this problem is that the organic matter and nitrogen content of the soil are directly related, the former being about twenty times the latter. The loss of organic matter from the soil involves the loss of nitrogen as well. Thus, in order to build up soil organic matter or humus, it is necessary to provide for the building up of the nitrogen at the same time. This fixed relationship between nitrogen and soil organic

Lloyd D. Dingle New Crown Attorney for Halton

Lloyd D. Dingle, Burlington lawyer, has succeeded W. I. Dick, K.C., as crown attorney for Halton County. Mr. Dingle took the oath of office before Magistrate Kenneth M. Langdon last week at a ceremony at Milton Court House. The retiring crown attorney read the oath of office to the new man.

Mr. Langdon expressed the thanks of the county for the service rendered to Mr. Dick during his 45 years in office, and said that he was a fine example of an attorney, who placed the facts before court, and never "won" a case or "lost" one.

The new crown attorney is a native of Burlington and a graduate of McMaster University. He has practiced law in Burlington since 1924, and is an ex-mayor, and has held high positions on various fraternal and service organizations.

HAVE YOUR RENEWED YOUR SUBSCRIPTION YET?

matter gives the legume crops, (alfalfa, clovers), an especially important place in the rotation. (continued next week)

BALLINAFAD

Mr. and Mrs. Alex MacDougall of Hillsburgh visited Sunday with Mr. and Mrs. Dan McKeon.

Mr. and Mrs. W. Early of Eden Mills, and Mrs. M. Near of Georgetown were Sunday visitors with Mr. and Mrs. Cam McEnery.

Mr. and Mrs. Russel Taylor and daughter Valerie of Toronto spent the week-end with Mr. and Mrs. J. Allan.

Mr. Ray McEnery has sold his farm to Mr. Thos. Gibson of Rockville, who will take possession soon.

Mothers' Day service was observed in our church Sunday morning with an exceptionally large congregation present. A service of benediction also took place with seven infants being accepted into the church. The first on the list was James Murray, young son of Mr. and Mrs. Willard Sanderson, then Carolyn June, daughter of Mr. and Mrs. Ernie McEnery, Albert Murray, son of Mr. and Mrs. Leo Jamieson, Sheila May, daughter of Mr. and Mrs. Stan Sinclair, Kenneth Lloyd, son of Mr. and Mrs. Lloyd McLean, Gordon Richard, son of Mr. and Mrs. Fred Gray and Diana Sheila, daughter of Mr. and Mrs. Elwood Snow.

CONGRATULATIONS TO MR. AND MRS. VIC SWINDLEBURST AND MR. AND MRS. KENNETH RIDLER ON THE BIRTH OF THEIR BABY DAUGHTER, MAY 1ST AND MAY 3RD RESPECTIVELY.

The flowers on the Communion Table Sunday morning were placed there by Mrs. Jas. Kirkwood in memory of her parents, the late Mr. and Mrs. George McMenemy.

NASSAGAWEYA WILL SPRAY WEEDS THIS YEAR

Nassagaweya Township will purchase a weed spraying outfit and spray weeds on township roads this season. It was decided at the May meeting of the township council. Tenders will be called for the supplying of this equipment, as well as for the crushing and delivering of 6,000 cubic yards of gravel for roads.

The township assessor was appointed a delegate to the Assessors Convention in Ottawa this month. The tax collector was authorized to write all those in arrears of taxes that if arrears are not paid by August 1st, he would go forward with seizures to cover these.

Earlier in the day, the town councillors and road superintendent had made a tour of inspection of the roads and plans were made at the meeting for repairing portions of the roads. The engineer was asked to prepare an estimate of the cost of straightening the road and building a bridge opposite Lot 29, between concessions 4 and 5.



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