

Weeds on Canadian Farms

A Serious Menace—Their Habits and Characteristics

The weed is often defined as a plant out of place. The term is, perhaps, most commonly applied to those plants which are useless and objectionable. Some cultivated plants may become pests when they grow where they are not wanted. There are a great many objections to weeds, the chief of which are the following:—

(1) They take up space which should be devoted to useful plants among which they grow, and tend to deprive the latter of light and air. A few weeds such as bindweed, wind rowed or climb up the stems of cereals, or other crops, often pulling them to the ground.

(2) They absorb large amounts of water and fertilizing constituents which are needed for the nourishment of the cultivated crop.

(3) They are a source of loss in that they necessitate more labour being spent in cleaning operations.

(4) The presence of weed seeds in samples of grains and in clover and grass seeds reduces the market value of these.

(5) Some weeds are parasite upon useful plants. An example of this is the dodder which lives upon the juice of the clover plants to which they attach themselves.

(6) Some weeds are poisonous to stock; others give an objectionable odor to milk when they are consumed by dairy cows.

(7) Many weeds are objectionable in that they harbour parasitic fungi and insect pests which often find their way to cultivated crops.

Habits and Characteristics of Weeds

A study of the life history of weeds in respect to their habits of growth, time of seeding and duration, is necessary if we are to apply effective remedies for their destruction or their control.

Weed Classification

Annual weeds, such as wild mustard, chick weed or groundsel, germinate readily and grow very rapidly, often smothering crops by sheer numbers. They are very productive, single plants producing many hundreds of seeds in one season. Usually they germinate in spring and die in autumn.

Biennials take two seasons to complete their life cycle. Their seeds germinate and grow into leafy plants during the first season; in the second season the buds of the plant develop into long stems which bear the flowers and seeds. After the seeds are produced and ripened the plant dies.

The perennial weeds are capable of growing for many seasons during which time they can produce many crops of seeds. Most of this group have underground root stocks which extend to great depths in the soil and are hard to kill, examples are: bindweed, couch grass and perennial sow thistle. The perennials are extensively spread by these underground stocks on which

buds are present. Small pieces of the root stock may be carried to some distance and grow into individuals as strong as the parents from which they have been derived.

The Pioneer Society

The Pontiac Crop and Rural Improvement Association was organized at Shawville, Quebec, on the 9th of May. This is the first farmer's association to be organized in connection with the Illustration Farm work being done by the Land's Committee of the Commission of Conservation.

Soil Mining Being Practised

Canadians Impairing Soil Fertility—How England Solved the Problem—Crop Rotation, Seed Selection and Use of Fertilizers Needed

Soil mining is not a new industry. It is, however, peculiar to new countries. The countries of Europe learned centuries ago, that soil mining is one of the most blighting and disastrous practices of which farmers could be guilty. In Europe, necessity compelled farmers to at length adopt effective crop rotations; to take steps to check the growth of weeds, and to use fertilizers for maintaining the productivity of the soil. As a result, in England for example, the average wheat yield per acre is more than four times as great as it was 200 years ago. That is, instead of the average annual yield of eight bushels to the acre, for the land under wheat, the present average yield is from thirty-two to thirty-four bushels to the acre. This, on soil that has been cropped practically continuously for 400 years.

Canadian Conditions

How does this compare with conditions in Canada? The average yield per acre in Canada, for 1911 was 22.2 bushels for fall wheat, and 20.7 bushels for spring wheat. These figures take into consideration the almost virgin wheat areas of Western Canada. The figures for Eastern Canada for the same year are: fall wheat 20.9 bushels, and spring wheat 17.9 bushels to the acre. What does this indicate? It shows that thousands of farmers in Canada are mining the soil, and that unless improved methods of farming are adopted many farms will, in time, become incapable of producing crops at all. As a matter of fact, that is what has already happened in some sections of the country, and even in the Prairie Provinces some 500 square miles have been so ruined.

Dr. J. W. Robertson, the chairman of the Committee on Lands for the Commission of Conservation, has said repeatedly that by better farming the farmers of Canada could double the production of the area now under cultivation

within ten years. If this is true—and Dr. Robertson usually knows whereof he speaks—then the question of bettering agricultural methods is one of national importance. In other industries, competition generally forces men to adopt the most scientific methods in production. As far as agriculture is concerned the pressure of competition is felt much less, and hap-hazard, discredited systems—or lack of systems—may be followed for years.

Some Defects

What, then, are some of the weaknesses of Canadian methods? In the first place, there is, especially in the newer portions of the country, a general lack of intelligent rotation of crops. Crop rotation does not simply mean any order of sequence for one crop to follow another. It implies that each year while the crop is growing, the best preparation is being made for the succeeding crop; for the preservation of the fertility of the soil and its freedom from weeds. In this connection, it should be noted that the growing of clovers and other nitrogen gathering crops should become far more general than it is.

In the second place, there is room for vast improvement in seed selection, and in soil cultivation for the checking of weeds. It is safe to say that but a small percentage of Canadian farmers ever use hand selected seed, and thousands of farmers do not even use the fanning mill for cleaning their seed grain. Weeds are rapidly becoming general throughout the country. In every province there are sections where weeds are reported to be getting worse, and in some places, the farmers themselves admit that they are beyond control.

In the third place, fertilizers, such as barnyard manures and nitrogen-gathering crops, do not receive the attention that they deserve. This is perhaps the chief cause for soil mining. It is absolutely impossible to prevent the destruction of soil fertility without the application of manures or other fertilizers. It should be considered little short of a criminal offence for a farmer to burn the straw or the manure produced on his farm; and yet in the West this is done by many farmers.

This question of fertilizers leads up to that of mixed farming. Why should the farmer be content to sell his poorer grades of grain for the lowest return, when by feeding it, he can procure the highest return? Why should he be content to "keep all his eggs in one basket," when he can protect himself from the loss of a partial crop failure by engaging in general farming? Is it not almost a national disgrace that Canada is compelled to import butter, eggs, vegetables and even milk? It is precisely the production of these and kindred products in ever increasing quantities that will check the waste of soil fertility that is now going on, and preserve for the future an unimpaired soil.

Alfalfa in Quebec

One feature of the work of the Lands Committee last year was the beginning of an investigation into the conditions under which alfalfa can be successfully grown in the province of Quebec.

Three farms in each of the counties of L'Assomption, Brome and Huntingdon, and two farms in Chicoutimi were used for this illustration work. Professor Klinek of Macdonald College had charge of the work. The following is taken from his report of the work conducted last year:

"The farmers in these districts appreciate very much the opportunity that is being afforded them for co-operating with the Commission of Conservation. Without exception, every man with whom the Commission is co-operating in these counties, has done his utmost to ensure the success of the undertaking. The communities, as a whole, have shown unusual interest in the work and seem to appreciate the fact that, if this high yielding, nutritious plant can be grown successfully, it will not only be a boon to the farmers themselves, but a blessing to the entire community."

Quebec Forest Revenues

The total income of the Province of Quebec during the fiscal year 1911 from woods and forests was \$1,126,907.70, or nearly \$5,000 more than during the preceding year. The Minister of Lands and Forests, in his annual report, recently issued, estimates that the revenue from this source during the current fiscal year will approximate \$1,500,000. The system of patrol for the prevention of forest fires has proved very efficient, and the cost has been much more than justified as a form of insurance of existing property interests as well as a guarantee of the perpetuation of the forest upon non-agricultural lands, thus insuring the permanence of the wood-using industries upon which the province so largely depends. The prevention of forest fires is the first essential to the permanence of lumbering and other woods industries, and money spent for this purpose is one of the best investments that any owner of timber lands can make.

Agricultural Itinerary

During the latter half of May and the first half of June, the Agriculturists of the Commission will visit the Maritime Provinces for the purpose of selecting Illustration Farms and of assisting in forming in connection with them *Neighborhood Improvement Associations*. Later on, Ontario, Quebec and the Western Provinces will be visited in turn for the same purpose. The Agricultural Survey work is being continued again this year and the alfalfa investigation work conducted last year in Quebec is being extended this year to a number of the other Provinces.