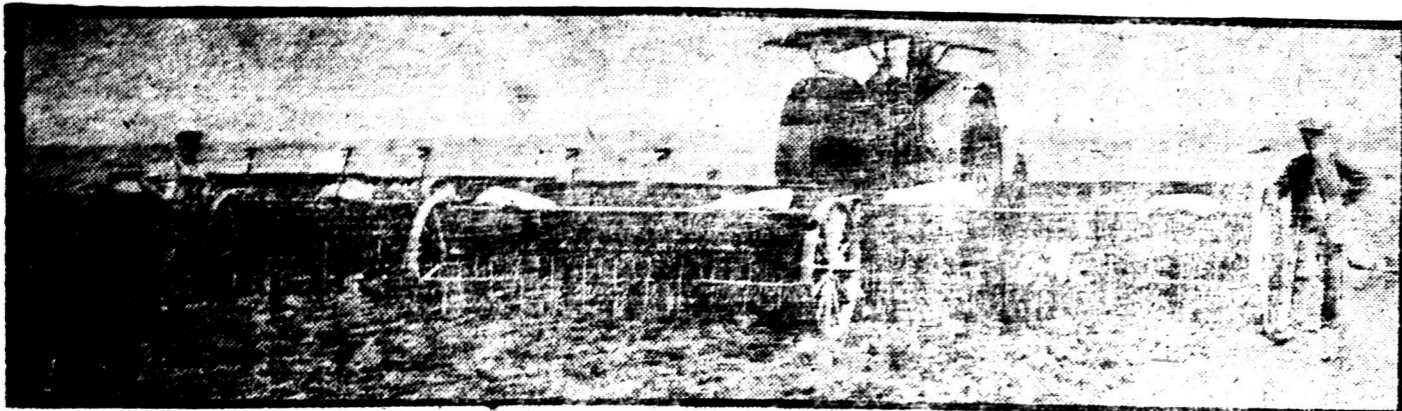


Dry Farming And Irrigation



(1) Planting Wheat to feed the Allies.
(2) Alberta Crop on an Irrigated Farm.
(3) An Irrigation Canal in Alberta.

There is an opinion in the public mind that dry farming and irrigation are two methods of cultivation, directly opposed to each other. Nothing could be farther from the truth. The fact is, dry farming and irrigation are methods of agriculture very closely allied to each other. Both are practiced in countries where precipitation is less than the growing crop requires; both are designed to overcome low precipitation by providing moisture where it is required and when it is required, by means at the command of the farmer and of the civil engineer.

It is only natural that of these two methods dry farming should be better known and more widely adopted in a country such as Western Canada. This country has been settled for the most part by farmers who have had some experience in irrigation farming, but were more or less familiar with the principles of dry farming. There is no doubt that the fact that dry farming may be practiced anywhere, but irrigation is dependent upon a supply of water being available and certain engineering works being carried out without which it is impossible. These works involve a large investment of capital and it is, therefore, natural that irrigated areas should be comparatively small in proportion to areas devoted to dry farming.

It is not the purpose of this article to discuss in detail the advantages of one method of farming as compared with the other. Much has its advantage, but its advantages are local conditions which may vary with local conditions. For example, as has been stated, dry farming is not dependent upon engineering work, water supply, or topographical conditions. Its principles can readily be acquired and practiced by any one familiar with the general business of agriculture. It does not involve the capital outlay necessary in connection with irrigation systems. On the other hand, dry farming necessitates the purchase and cultivation of large areas of land, amounting as high as fifty per cent. in the dryer districts, must be left fallow each year in order to store up the necessary moisture to produce the next year's crop. Dry farming, too, is only a partial remedy for low precipitation; if the precipitation is too low even the methods of the most advanced farmer can induce the soil to bring forth a crop.

In order to practice irrigation farming it is necessary that engineering works, frequently of a very expensive nature, should be installed, and this is possible only where the topography of the country lends itself to such an enterprise. It is also



necessary that nature should provide an ample supply of water available for use through these engineering works. Where the foregoing conditions exist certain very great advantages are found in favor of irrigation farming, and it may be said that probably nowhere are they found under more favorable circumstances than in Southern Alberta. The irrigation farmer requires less land than his neighbor who follows dry farming, because he is not obliged to allow any of it to remain fallow; and while he may pay more per acre for his farm his total investment may be less. He has the advantage of absolute insurance against drought. He could raise much heavier crops of grasses, vegetables and feeders than is possible under any method of dry farming, and he can raise some crops which are not practicable without irrigation. Such a crop for example is alfalfa. Although alfalfa is grown to some extent on dry land its natural home is in the irrigation districts. It is the greatest of all irrigation crops produced in the United States, and is rapidly becoming one of the most important of Alberta's crops. The following table shows the alfalfa acreage and production in the various provinces of Canada:

| Province | Acreage | Production |
|----------------------|----------|------------|
| Prince Edward Island | None | None |
| Nova Scotia | 30 acres | 196 tons |
| New Brunswick | None | None |
| Quebec | 3,815 | 8,600 |
| Ontario | 52,000 | 142,500 |
| Manitoba | 4,400 | 9,100 |
| Saskatchewan | 9,500 | 15,300 |
| Alberta | 31,396 | 64,400 |
| B. Columbia | 5,681 | 22,400 |

The pre-eminent position occupied by Alberta among the Western Provinces in this respect is due entirely to the irrigation enterprises which have been carried out in that province. It should be stated also that the alfalfa production of Saskatchewan and British Columbia is also due mainly to the irrigation enterprises in these provinces. Alfalfa may be said to be the most valuable crop that can be produced on a farm; it has a feed value equal to its own weight and straw it has been demonstrated that an acre of alfalfa will produce 591 pounds of pork as compared with 365 pounds from an acre of corn. It has also been demonstrated that with milk at \$2.00 per hundred pounds the value of an acre of alfalfa for milk production is \$91.88 compared with \$16.72 for an acre of timothy. In addition to its great feeding value alfalfa has the advantage that instead of impoverishing the land it makes the land richer; it cuts for comparatively little labor, being sown only once in several years; it requires no binder, twine or threshing, and the farmer can either export it or consume the entire crop on the premises by feeding it to livestock.

There is little doubt that the large area in Southern Alberta, which has been brought under irrigation by the Canadian Pacific Railway will become one of the greatest livestock centers in Canada as a result of the feeder crops rendered possible through irrigation. At the same time the non-irrigated areas will continue to be worked on the dry farming principle and instead of dry farming and irrigation being in opposition to each other they will be found— as they now are found—practiced by the same farmer on the same farm, the irrigation farming below the ditch, and the dry farming on the higher land which cannot be reached by irrigation.—R. J. C. S.

Canadian Ladies Helping The Allies



Ladies of McGill University Women's Union making surgical dressings of Sphagnum Moss.
(Reading from Left to Right)—Mrs. E. Fairman, Mrs. A. Sheverson, Mrs. C. MacFarlane, Miss McLaughlin, Mrs. R. Starke, Mrs. E. Brown, Miss Neilson, Mrs. Willey, Miss Gardner, Mrs. A. McGoun, Mrs. Nicholson, Miss Lamb, Mrs. Thornton.



(Reading from Right to Left)—Mrs. Arthur Willey, Mrs. C. E. Moyce, Mrs. A. McGoun, Mrs. J. E. Porter, Mrs. J. W. Ross, Mrs. E. Brown.

Sphagnum Moss, to which attention has been drawn by the fatal accident to Mr. Harry James Smith, the American Sphagnum Moss expert, is one of Canada's natural resources, one great value of which has been brought to light by the war. The use of mosses in surgical dressings dates at least as far back as the Napoleonic wars, but the demand for and extensive use of Sphagnum Moss did not materialize until 1915, and even in the Spring of 1916 its use was in the experimental stage. So great has become the demand that Great Britain is no longer able to fill it, and Canada and the United States are now being actively exploited for this highly absorbent dressing.

The first effective work on this side of the Atlantic was initiated by Prof. Porter of McGill University, who secured samples of various qualities of moss from the British authorities early in 1916 and then explored the bogs of Eastern Nova Scotia until he was able to locate supplies of material which the authorities accepted as "perfect." The first sphagnum dressings sent overseas were made up from this moss in the autumn of 1916 by the Junior Red Cross of Guysboro, Nova Scotia.

Since then the industry has developed steadily. The McGill University Women's Union established a sphagnum department in a large laboratory very generously placed at their disposal by the University Medical School in the autumn of 1916, and from that day until this has been producing moss and shipping dressings. Another important function of this organization has been to make up experimental sphagnum dressings of many sorts to try out the different grades of Canadian material under varying conditions.

During the winter of 1917 another work room was started at Dalhousie University, Halifax, and the Canadian Red Cross definitely adopted sphagnum for hospital dressings and prepared to open working centres on a large scale. Unfortunately the change in the Atlantic shipping situation which resulted from unrestricted submarine warfare necessitated a temporary check on the work of exploration and development was consequent.

The late Mr. Harry James Smith of New York became interested in the possibilities of sphagnum last spring and after spending some time with

Dr. Porter to familiarize himself with the technology of the subject, established a sphagnum organization at his own expense at Arichat, Cape Breton, and collected and prepared a large amount of moss. Success in the use of this material led to the adoption of sphagnum by the American Red Cross and to the formation of a department which was placed under the control of Mr. Smith as organizer and Dr. J. A. Hartwell of New York as technical advisor.

During the last two or three months developments have been very rapid. The demand for dressings has increased to such an extent that the Canadian Red Cross has decided to start production on a large scale, and the Americans are organizing for an immense output for the use of their own and the French hospitals.

No moss can of course be procured in the east until the snow melts, and the bogs thaw out, but excellent sphagnum is also found on the Pacific coast. Mr. Smith, with the help of the Canadian Sphagnum Committee, procured a car of Vancouver Island moss (which Mr. Smith paid for out of his own pocket) proved so satisfactory that he went to Seattle early in March to organize the industry in the northwestern States, and incidentally to look into the situation in British Columbia for Professor Porter, who was unable to go west at the time.

As a matter of fact Mr. Smith met his death while searching for moss for the Canadian Red Cross, and thus set the seal to a life of exceptional generosity and nobility.

Sphagnum grows in moist and damp places, and can be found in almost all parts of the country, but the most useful moss grows exceptionally high up on the hills, and the snow which melts and the spring which otherwise the moss would be hard to reach.

A large quantity of moss has been found in the western part of the province, especially on the west coast of Vancouver Island, but this moss grows from the sea, although there are large areas of sphagnum bog in the interior both in Canada and the United States. The best qualities of moss are likely to be found close to the mountains of the bogs, and some of the most valuable moss of clean high grade material will what was once a

small pond. Before any attempt is made to collect moss in quantities all of the bogs in the district should be examined with a view to locating the largest supplies of good material, and this preliminary examination should be made by persons who have had previous experience in collecting Sphagnum.

Owing to the great variations in usefulness of different kinds of Sphagnum, and the fact that different species grow very much intermingled, the material has to be collected by people who have been trained to know good moss from bad, and even an experienced collector will often have difficulty in deciding just what to take and what to leave when he first visits a new locality.

The accompanying photographs show the work of the McGill Women's Union. No. 1 illustrates the preparation and drying of sphagnum and the manufacture of dressings. No. 2, the general soldiers' comforts work. The Union was organized during the first weeks of the war from among the families of the Governors and staff of the University. Its original purpose was to help provide "soldiers' comforts" for McGill graduates and students on active service, and as these now number over 2,200, the possibilities of its work may be imagined. During the three and a half years of its existence the Union has expended nearly \$8,000 on the purchase of high grade materials, which have been made up by its members into socks, caps, mufflers, pyjamas, shirts, etc., to a total of about 9,000 articles of clothing alone, to say nothing of an immense number of sphagnum dressings.

The organizer and first president of the Union was Mrs. H. Walter, since then the chair has been filled successively by Mrs. E. E. Howard, Mrs. J. B. Porter and Mrs. J. W. Ross, the present President. The Sphagnum Committee of the Union was organized in 1916 under the chairmanship of Mrs. Porter, and its present Chairwoman is Mrs. Porter. The Treasurer of the Union is Mrs. A. McGoun and the Secretary Mrs. A. Willey. Any correspondence regarding the work of the Union should be addressed to the latter, but questions relating to the technicalities of Sphagnum and Sphagnum dressings should be addressed to Miss A. MacFarlane, Hon. Sec. Committee of Sphagnum Dressing, Canadian Red Cross Society, care McGill University, Montreal.

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