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Single Cropping a Failure—Results of Experiments in Minnesota— Value of Humus to the Soil

Humus is a very important ele-ment of soil fertility. It is the partially decomposed animal and vegetable substances (organic matter) found in the soil or supplied in the form of barnyard manure or by plowing under clover and other erops which add fibre to the soil.

If crops are not rotated, those fields that are constantly in grain crops will have their humus supply exhausted, and the evil results that follow such exhaustion will be brought on. For the first few years after new soil is broken there is likely to be an abundant supply, but sooner or later, with the single cropping system, the supply of humus in the soil be-comes deficient. That the single cropping system depletes the supply of humus and that the systematic rotation of crops maintains or increases the supply can be proven with mathematical precision. Investigations by the Minnesota Experiment Station have been carried on for a number of years to compare the influence of continuous grain cropping and rotation of crops on the humus content and fertility of soils. On one plat each, wheat, corn, oats and barley were grown continuously for four years. On another plat the following rotation was practised: wheat, clover, wheat and oats. On still another plat oats followed by clover, barley, and corn (with manure) were grown,

The gain or loss of humus during

four years in the soil of the different plats is shown in the following

GAIN OR LOSS OF HUMUS IN SOILS UNDER

DIFFERENT SYSTEM	B OF CH	OPPING	
System of Cropping	Humus at the beginning of the experimen*.	Humus at the end of 4 years.	Gain (4) or loss (-).
	Per Cent.	Per Cent.	Per Cent.
Plat 1, wheat continuously Plat 2, rotation (wheat,	3.30	3.00	-0.30
clover, wheat and oats) Plat 3, rotation (oats.	3.30	3.80	+ .50
clover, barley, and com)	3.30	3.50	+ .20
Plat 4, corncontinuously	3.30	3.10	20
Plat 5, oats continuously Plat 6, barley continuously	3.30	3.08	22
rast o, bariey continuously	3.30	3.10	20

Since humus is one of the principal sources of nitrogen in the soil, the variation of the humus content will affect to a marked extent the nitrogen supply. In every plat in the above experiments where grain was grown con-tinuously, there was a distinct loss of nitrogen. In both plats where rotations were practised there was a distinct gain of nitrogen.

Humus also has an influence upon the avaliable potash and phosphoric acid in the soil. Humus forming materials, such as green manures and barnyard manures,

compose in the soil, of combining with the potash and phosphoric acid of the soil and thus converting thera into forms which are easily made use of by the plants.

Humus increases the water-holding capacity of soils. In order to produce a ton of dry hay on an acre of land, it is necessary that the growing grass crop pump up from that acre approximately 500 tons of water. In order to supply this enormous quantity of water, the soil must not only be in a condition to absorb and hold water well, but it must be porous enough to permit water to flow from soil grain to soil grain. One ton of humus will absorb 2 tons of water and give it up readily to growing crops. Not only that, but the shrinkage of the decaying particles of organic matter and the consequent loosening of soil grains keeps the soil open and porous.

Humus helps to control blowing soils. The more organic matter a soil contains the greater will be its cohesion, not only because of the direct action of the organic bodies themselves, as manure well mixed with the soil, or the root fibre from a sod plowed under, but also because the soil will be more moist as

above mentioned. Experiments have shown too. that soils well stocked with humus are able to give much better returns for fertilizers applied than soils deficient in this substance.

Resolutions Passed by Fisheries Committee

After hearing papers by experts and others interested in fishery problems the Fisheries Committee of the Conservation Commission, which held its meetings in Ottawa on June 4th and 5th., adopted the following resolutions:

Whitefish Depletion

Whereas the whitefish is recognized as one of the most valuable of Canada's food fishes; and

Whereas the average annual catch of this fish for the past five years in Lake Huron and Georgian Bay is approximately one-third the average catch twenty years ago (1886–1890), and in Lake Superior, one-half what it was twenty years ago; an !

Whereas no whitefish fry has been planted in Lake Superior and a yearly average of only about 700 per square mile of whitefish area in Lake Huron and Georgain Bay for the past five years, while in Lake Erie and its tributary waters a yearly average of about 30,000 fry per square mile of whitefish area has been planted during the past five years and the average whitefish production of that lake for the same period has increased to double what it was twenty years ago;

Therefore be it resolved that this committee, while recognizing and appreciating the value of what has

Government the necessity of planting at the earliest practicable time in Lake Huron and Georgian Bay in sufficiently large quantities to prevent the depletion of those waters

Ovster Culture

Resolved that the Dominion Department of Marine and Fisheries be urged to carry on demonstration and research work looking toward improved methods of ovster culture especially with reference to the proper time of putting out cultch in order to procure the necessary supply of spat, and also to work in connection with the formation of oyster beds in grounds not now productive of oysters and to assist in the introduction of improved methods in live oyster beds.

Fisheries Statistics

Resolved that the Committee exress its approval of the action of the Department of Marine and Fisheries in endeavoring to secure more accurate fisheries statistics:

Be it Resolved that the Department be requested to publish each year in its annual report a statement, in readily available tabular form, of the number of fry of various kinds of fish deposited by it in each stream and body of water where such are planted in Canada.

Resolved that the Committee approves the action taken to prepare a Bulletin on Fur-farming in Canada.

Agriculturist's Itinerary

Arrangements are being rapidly completed for the demonstration farm work that is being carried on by the Commission of Conservation. During May, and the early part of June, Messrs. F. C. Nunnick and John Fixter visited points in the Maritime provinces and in Quebec. Ten demonstration farms were selected in the former, and six in the latter. In addition, the alfalfa experiments carried on in Quebec during 1911 will be extended. The farmers are in general appreciative, and will give what assistance they can to make the work a success.

At the present time Messrs.

Nunnick and Fixter are selecting
demonstration farms in Ontario,
where nine farms will be selected. Their itinerary is given below: June 21 Lanark, Perth

	24	Essex,Essex	
#	28	Norfolk, Simeoe	
July	2-5	Waterloo,Galt	
		and Elmira	
	8-10	Ontario, Brook-	
		lyn and Cannington	

" 11-12 Dundas, Morrisburg

Burned to Death Three hundred and seventeen people were burned to death in Canada last year. For the first four months of 1912, seventy-seven forming materials, such as green manures and barnyard manures, have the power, when they dehave the power, when they deeries, urge upon the Dominion people lost their lives in this way.

The Fishery Act as Applied in Alberta

The statement which appeared in Saturday's Herald that the fishery act is being broken in the province is, as everyone knows who is interested in angling, very near the

In a measure the postponement of the opening of the season this year, from February 12 to July 15, has been responsible for this state of things. The change of dates was not made sufficiently public by the authorities concerned, and a good deal of confusion has existed in the minds of local fishermen on the subject. A reference to the queries sent in to The Herald's query column reveals the fact that one question in every three has referred to fishing regulations in some form or other upon which, in most cases, a misunderstanding was apparent.

With respect to the license many ardent fishermen are waiting to see if the act of this year is to be enforced before they obtain one The fee is a small one, but small as it is, all those who delight in the art immortalized by Izaac Walton, would like to think they are getting value for their money To a man they would like to feel that the act will be enforced, and are of the opinion that it is very absurd that no one is on the spot authorized to enforce it.

For this omission the Depart-For this omission the Department of Marine and Fisheries is certainly to blame. In southern Alberta there is not a single inspector of any sort, and to force a citizen of Calgary to send all the way to Fort Qu'Appelle, Saskatchewan, to get a license to fish in the Bow at Calgary is another

absurdity.

It is astonishing that the world gets no wiser as it gets older. We in Canada have either seen or heard, of the waters of other countries, through poaching in all its forms, being robbed of their wealth of life. We have heard the same story with respect to big game; game that when once extinct is not made over again, and yet we pay no attention to these invaluable objects lessons. -Calgary Herald.

Medical Inspection of Schools

In referring to the medical in-spection of school children in an article in the May number of the Fortnightly Review, Mrs. Tweedie

"General medical inspection of the school children (Great Britain) the school children (Great Britain) is being tentatively introduced. A sad lesson is being taught from this medical inspection of our industrial population, where among six million school children 40 per cent. suffer from bad teeth, 10 per cent. from defective sight, 40 per cent. from uncleanliness, and a large percentage from malnutrition."