institution. The following table gives the average annual yields for the twelve-year period and the amount of fertilizing constituents obtained through the sources previously indicated:

Varieties.		Yield per Acre.		Nitrogen N.		Phosphoric Acid P205.		Potash K20.	
		Bushels and tons.	Pounds.	Per Cent.	Total in Crop (Lbs.)	Per Cent.	Total in Crop (Lbs.)	Per Cent.	Total in Crop (Lbs.)
Common Flax	Seed	18·3	1024	3·62	37·1	1·50	15·4	·95	9·7
	Straw	2·45	4900	·72	35·3	·31	15·2	1·02	50·00
Dawson's G. C. Winter Wheat	Seed	43·2	2590	1·87	48·4	·85	22·0	·52	13·5
	Straw	2·22	4440	·50	22·2	·13	5·8	·74	32·9
Banner oats	Seed	75·0	2550	1·98	50·5	·81	20·7	·56	14·3
	Straw	2·07	4140	·58	24·0	·21	8·7	1·50	62·1
Mandscheuri barley	Seed	63·4	3043	1·84	56·0	·85	25·9	·74	22·5
	Straw	1·98	3780	·56	21·2	·18	6·8	1·20	45·4

The yields of all four crops are considerably larger than the average yields of the province. It should be clearly understood, however, that the experiments have been conducted under uniform conditions. The crops were grown during the twelve years immediately previous to 1917. The land received a four years' rotation during which three crops were removed from the soil. Farmyard manure was applied every four years at the rate of twenty tons (about twelve good sized loads) per acre. No commercial fertilizers were used with any of these crops throughout the period. If the yields here given were divided by two they would more closely correspond with the average yields of the Province.

The following summary gives in a more concise form the average amounts per acre of fertilizing constituents taken annually by the four crops and in accordance with the yields and the compositions given in the previous table:

Varieties.	Pounds per Acre.		
	Nitrogen N.	Phosphoric Acid P205.	Potash K20.
Common flax	72·4	30·6	59·7
Dawson's Golden Chaff winter wheat	70·6	27·8	46·4
Banner oats	74·5	29·4	76·4
Mandscheuri barley	77·2	32·7	67·9

Of our four individual crops, winter wheat took a less amount of each of the fertilizing constituents from the soil than of the others. Barley required the largest amount of nitrogen and phosphric acid and oats the largest amount of potash. The comparative exhaustion of these crops on the soil is largely a matter of the disposal of the crop after it is grown. Both the grain and straw of oats and barley are principally consumed on the farm and much of the fertility is returned to manure. In the case of wheat, the grain is sold and the straw is largely retained. In the growing of flax, however, both the seed and the straw are frequently sold outright. The market value of these crops per acre, however, are usually the lowest for oats and barley and decidedly the highest for flax. It is interesting to note that the number of acres of flax in Ontario was approximately 4,000 in 1915, 5,200 in 1916, and 8,000 in 1917; and that the value of fibre per ton and of seed per bushel for the same period was as follows: 1915, $400, $1.60; 1916, $600, $3.00; and 1917, $1,100. $5.50. As there is a strong demand for both the fibre and the seed the probabilities are that the acreage of flax for 1918 will be still greater than that of the past year.

The quotation I have read shows that the opinion that flax reduces the fertility of the soil is not justified. I have here the Farmer's Bulletin of the Department of Agriculture, Washington dated May 25, 1915, and edited by Frank C. Miles, Scientific Assistant, Fibre-plant Investigations. He says:

It has been found upon investigation that an average crop of flax removes less plant food from the soil than does a crop of corn or oats. Flax plants have delicate root systems which occupy only the upper few inches of the soil, while the plants of oats and corn have more vigorous root systems which may penetrate the sub-soil. Hence, oats and corn may obtain from the sub-soil a portion of the food materials essential for plant development, but flax plants necessarily must obtain practically their entire nourishment from the upper few inches of surface soil which the roots occupy. Undoubtedly then, more of the available plant food in the upper 5 or 6 inches of soil is removed by flax than by the deeper rooted crops. Therefore, in preparing flax stubble for the succeeding crop care should be taken to plow deep enough to bring up some of the sub-soil in order to replenish the surface soil with available plant food.

Professor Saunders, who made investigations at the Experimental Farm in 1896, says: