lambs in lot 1 were fed potatoes, those in lot 2 mangels, and those in lot 3 sugar beets. The grain was fed whole and the hay uncut, and they were given of each what they would eat up clean and no more.

The food was estimated at average market values in the state. These were as follows :

Hay, per to	n				\$ 4	ου
Oil cake, per	r to	n			22	00
Corn, per bu	she	l of	56 lbs.		0	22
Barley, "	64	**	48 "		0	20
Potatoes,	**	**	60"		0	20
Mangels,	**	••	50 ''		0	05
Sugar beets,	**		50 11	• • • • • • • • • •	0	051/2

These valuations would make the potatoes 33c. per 100 lbs., the mangels 10c., and the sugar beets 11c

The time covered by the entire experiment was 117 days The preparatory period began Nov 15, 1897, and covered 7 days. The experiment proper covered 98 days The lambs were sold when fattened to P Van Hoven, to be retailed in the Twin City markets

The evenness in the amounts of the food consumed was very marked. Out of a total of 12,457 lbs. caten the extreme of difference was only 47 lbs, and this was chiefly from the more grain consumed by the lambs in lot 3. The average total of food consumed per day was 3.52 lbs. The average amount of roots consumed per day was practically the same by the lambs in each lot In all instances it was relatively small, not exceeding $1\frac{1}{4}$ lbs. per day, notwithstanding that the lambs were given all that they would eat up clean. Although the amounts consumed by the lambs were practically the same, the cost of the food consumed by the lambs in lot 1 was 3.51 more than that of the food fed to the lambs in lot 2, and 3.05 more than that of the food fed to the lambs in lot 3.

During the 98 days' feeding of the experiment proper the profit made on the lambs in lot 1 was \$8 50, on the lambs in lot 2 \$11.13, and on the lambs in lot 3 \$13.26. In figuring this profit the lambs were charged virtually at what they had cost when the experiment proper began. This was \$3.34 per 100 lbs., and they were estimated at the close of the same period at \$5 per 100 lbs., the price for which they were actually sold on March 12, 1898.

The total average profit made by one lamb in each lot during the experiment proper without any shrink in weight was as follows

Lot	I				•											•				•	•	•	•				•		\$o	86
Lot	2	•	•		•	• •			 		•	•	•			•		•	•		•	•	•	•••	•	•	•	•	I	05
Lot	3	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	• •			•	•	•	•	•	•	-	•	I	24

At the beginning of the experiment on Nov. 15th the average weight of each lamb in the respective lots was as given below. the varying influences of climate, solic, fertilizers, cultivaton, harvesting and curing, and there is scarcely another farm product the money value of which is enhanced to

Lot	I		lbs.
Lot	2	498	"
Lot	3	. 496	**

At the close of the experiment these weights had increased to the following:

Lot	I		•	•	•	•	•	•	•	•			 				•	•	•	•	•	82.5	lbs
Lot	2	•			•	•		•	•		•	•	•	•	•		•	•	•			80 4	"
Lot	3															•	•					84.2	"

The average gain, therefore, on the lambs for the 117 days' feeding was 32.9 lbs., 30.6 lbs., and 34.6 lbs., respectively The average gain made per month during the experiment proper was 9.2 lbs., and during the entire period of feeding 8.4 per cent. The average cost of making 100 lbs. of gain during the experiment proper was \$4.33, and during the whole feeding period \$4.51.

A noticeable feature of the experiment is the relatively high cost of the grain portion of the ration. While the grain fed during the experiment proper amounted to \$32.79, the cost of the hay was only \$5.73, or not much more than one-sixth as much. It is also to be noted that, while the mangels fed cost only \$1.46, and the sugar beets \$1.64, the potatoes cost \$4.95. During the experiment proper a profit of but 17c. was made on the increase in weight over the cost of food used in making it with the lambs in lot 1. V. th the lambs in lot 2 it was \$2.72, and with those in lot 3 it was \$4.30. Happy is the country that can furnish foods so cheaply as to make any profit possible on the increased weight made during the fattening period.

The cash returns for 35 lambs, for one died during the experiment, was \$137.06. The entire outlay for the lambs and for the food fed to them was \$111.45. Hence, there was a profit on the 36 lambs of \$25.61, or 71c. per lamb. The lamb that died was in the lot to which mangels were fed. It died but three days prior to the close of the experiment proper. The trouble was urinal in character, but whether it was in any way associated with the feeding of the mangels is not clear.

On better lambs of the same shipment a net profit of \$1 49 per lamb was made during an experiment that was simultaneously conducted. But the more favorable result is not to be attributed entirely to the superior development of the lambs. It is rather to be attributed to the use of cheaper foods. But it is true, nevertheless, that the lambs in the experiment referred to sold for 50c, more per hundred.

The average value of each lamb in Montana was \$1.62. The average selling price was \$3.89; hence, the average advance in value over the cost price was \$2.27.

The conclusion, therefore, is legitimate that the food factors fed in this experiment gave very satisfactory returns, even with lambs that were under rather than over the average. The further conclusion is also correct that potatoes are a much more costly food to use in fattening lambs than either mangels or sugar beets. They would seem, nowever, to be almost equally useful in producing gains.

3

Ontario as a Tobacco-Growing District

Contributed by Rural Sketcher

The cultivation of tobacco in Ontario as an article of commerce has, during the last two or three years, received considerable attention among the farmers in the southern part of this province. While its cultivation in those localities is not as general or extensive as that of food products, nor is it essential that it should be, yet it may form in certain sections a branch of agricultural industry deserving of such attention as its importance merits.

None of the other large agricultural crops require such careful and intelligent culture, none yield so readily to the varying influences of climate, solic, fertilizers, cultivation, harvesting and curing, and there is scarcely another farm product the money value of which is enhanced to such a degree by a practical and intelligent knowledge of the action of these agencies toward the tobacco plant.

The success or failure in growing a certain type of tobacco depends to a great extent upon the character of the soil. It may be said that tobacco will grow upon almost any soil where other agricultural crops will thrive, yet there is no other crop whose general appearance, quality and composition is so readily affected by the different conditions of soils, and by the nature and amount of fertilizing constituents in such soils. Whilst it will adapt itself to adverse conditions of soil and climate, each distinct type requires certain conditions to best develop those characteristic qualities in the leaf which are most highly prized.

It appears that the finer qualities are restricted to certain limits defined by characteristic geological peculiarities. It is generally understood that light-colored soils produce a light tobacco, and the dark soils produce a dark tobacco. The characteristic coloring is also influenced by the texture and humus content of the soil as well as by any particular color the soil may possess, and, while certain lands are adapted to certain types of tobacco, there are some characteristic features which are essential in developing the best qualities of any variety. Climate has much to do in pro-