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ONTARIO AGRICULTURAL COLLEGE

EXPERIMENT STATION

BULLETIN LXXVII. FATTENING LAMBS.

BULLETIN LXXVIII.

FATTENING LAMBS FOR THE BRITISH MARKET.

BY THOMAS SHAW, PROFESSOR OF AGRICULTURF, AND C. A. ZAVITZ, B.S.A., EXPERIMENTALIST.

UBLISHED BY THE DEPARTMENT OF AGEICULTURE August 15th, 1892.

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Ontario Agricultural College and Experimental Farm, Guelph, under control of the Minister of Agriculture.



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BULLETIN LXXVII.

FATTENING LAMBS.

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.. President a Superintendent soor of Chemistry tory and Geology eterinary Science Dairy Husbandy hematical Master 1 and Gymnastic Experimentalis Assistant Chemis ...Burs

inty of Wellingto

A large acreage of rape has been grown at this station for two years past. It has been grown for the two-fold purpose of cleaning the land and of providing pasture for sheep and lambs in the autumn. The growth of the rape has necessitated the purchase of a large number of lambs during both seasons to feed it off. For this purpose 666 lambs were purchased in the autumn of 1891 and brought to the station. There was also the further object in view of continuing the fattening process in different ways during the winter months as might be thought best. In the Annual Report for 1891, p. 139, the number purchased is given as 676, but the reference there includes ten lambs bought of necessity and sold again without bringing them to the station, on the ground of unsuitability. They are in no way mixed up with the lot in this bulletin.

The particulars relating to the purchase of these lambs are summarized as below :

Date of purchase.		Where bought.		Cost whe laid down the statio		
Aug. Sept. Oct.	29, 14, 7, 20,	200 lambs in Eastern Ontario200 lambs in Prince Edward Island.162 lambs in Prince Edward Island104 lambs in Toronto	ę.	669 552 483 391	10 61 98 65	
	Т	otal		2.097	34	

The cost of the purchase and carriage of the 362 lambs from Prince Edward Island to Guelph averaged 95c per head, or $49\frac{1}{3}$ per cent. of the purchase price of the lambs, the distance being from 1,100 to 1,200 miles between the two places.

The chief of the reasons which led to the purchase of the lambs at so great a distance include the following :

1. To encourage in all parts of the Dominion the finishing of ambs in finer form than is usual. In nearly all parts of Canada, and more especially in the outlying portions, it is the practice to put ambs upon the market in the late summer or the early autumn months, with no other finish than that furnished them by pastures which are oftentimes ill-adapted to the purpose.

2. To demonstrate that such lambs as we have at present can be o handled that they will bring a price much in advance of that rdinarily obtained for them. When nearly all farmers who own ambs sell them in an unfinished condition, and at or near the same rigulture, Toron ine, the price received for them is in consequence discouragingly

••

But while we seek further improvement in the mode of low. handling such lambs as we have, we are convinced at the same time that every reasonable effort should be made to improve the breeding of our lambs, which manifestly is far from what it ought to be.

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3. To demonstrate the helpfulness of rape as an aid in fattening lambs, whether they are to be sold at the close of the pasturing sea. son or carried on into the winter months and sold in completer form and at higher prices. The growing of rape in Ontario is as yet understood by but a limited number of farmers, while in the other provinces of the Dominion it is known to scarcely any extent.

Character of the lambs. The lambs purchased in eastern Ontario were a fairly good lot though small in size, as will be seen by reference to the average weights given below. The lambs from Prince Edward Island were light and small. Some of them showed traces of the Down cross. Those purchased in the Toronto market were larger in body than the lambs bought in eastern Ontario, and leaner in flesh. They were much mixed in breeding and variable in character. In the lots from Prince Edward Island and Toronto These were all castrated soon after their arrival, were 164 rams. and but one died in consequence of the operation.

Management on arrival. The lambs bought in eastern Ontario which arrived at the station on August 29th, were weighed singly on September 2nd, and were ear-tagged at the same time. - On September 16th they were put upon the rape. The first lot from Prince Edward Island arrived September 14th, and were put upon the rape September 17th. On September 26th they were eartagged and weighed singly. Owing to the long transit to which they had been subjected, it was thought unfair to weigh them The second lot from Prince Edward Island arrived October sooner. 7th, and were ear-tagged and weighed and put upon the rape Octo imme ber 15th. Those bought in Toronto which arrived Uctober 21st 51 cer were weighed on their arrival and were at once put upon the rape once. with the exception of the newly castrated rams. The lambs of the the ag previously mentioned lots were fasted from 15 to 18 hours before food, they were weighed. there

The average weight of the lambs in each group when weighed the dates mentioned, and the average cost per pound of live weigh when laid down at the farm, are given in Table I.

Date of weighing.	Place where bought.	Average weight of each lamb.	Average cost of each lamb.	cost perlb of live weight.	50me whole
Sept. 2.	Eastern Ontario	lb. 67.54	\$ c. 3 35	с. 4.96	in add was c
Sept. 25 Oct. 15 Oct. 20	Prince Edward Island Prince Edward Island Toronto	53.18 59.70 77.74	2 76 2 99 3 76	5.08 4.83	consis water

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stern Ontario seen by refers from Prince showed trace o market were rio, and leaner d variable in and Toronto their arrival,

astern Ontario weighed singly me time. On o first lot from were put upon they were earansit to which o weigh them prrived October the rape Octol October 21st upon the rape, ne lambs of the 8 hours before

hen weighed at 1 of live weigh

verage ost of h lamb.	A verage cost perl of live weight		
\$ c.	c.		
3 35	4.96		
2 76	5.19		
2 99	5.08		
3 76	4.83		

The prices paid, therefore, including the cost of purchasing and of transit were relatively dear. The prices given for lambs when the first three lots were purchased were comparatively high, hence the serious losses to dealers who were bound to lift the lambs before the holiday season. The lambs were allowed to remain upon the rape until it was all eaten. They had access at will to an old pasture, a part of it being woodland, the thick underwood of which afforded some protection for the lambs in times of the early snows. As many as 500 fed in one field at one time and these are the lambs shown in the sketch published in the Annual Report for 1891, p. 103.

The rape crop included 40 acres grown in drills and 6 acres grown as a catch crop after winter wheat. A crop of rye cut for fodder and for the silo in June preceded the 40 acres of rape grown in drills. (See Annual Report for 1891, p. 53.)

Winter quarters. A lot of 100 lambs were shorn Oct. 13th to 16th and put into winter quarters at night and on stormy days. They were pastured on rape on fair days and had the same carted to them on stormy days. Another lot of 20 lambs were separated on Nov. 28th to be fed for experiment as shorn against unshorn. Full particulars will be given regarding these two lots in future bulletins.

The remainder were put into winter quarters on Dec. 10th. We found it necessary to provide additional shelter. For this purpose old fence lumber was used. Sheds were erected involving but little cost and labor. Each shed had a yard in front and there were more than 150 lambs in each shed. They were too much crowded or doubtless they would have done better.

The lambs were weighed on Dec. 10th. We were strongly advised to sell them at that time, but owing to a glut in the market we could not obtain an offer of more than $4\frac{3}{8}$ cents per pound for immediate shipment. On January 1st 1892 we refused an offer of $5\frac{1}{2}$ cents per pound live weight on the whole lot to be delivered at once. The difference between the first and second of these offers in the aggregate value of the lambs is \$575, not taking into the account food, manure and attendance for the 21 intervening days. The aim therefore should be when fattening lambs to have them ready for market at that season of the year when good prices are given. In future, this season is more likely to be the months coming after the opening of the year rather than those preceding it.

Food and Feeding. The food given to the lambs consisted of hay, some oats in the sheaf, roots and a grain ration of oats and peas fed whole. The lambs in the experiments already mentioned were given in addition a small proportion of bran and some ensilage. The hay was clovery and it was fed uncut. The roots were sliced and they consisted of turnips only. But two feeds were given per day and water was given in troughs daily. Salt was liberally supplied.

Estimated value of the Food. The fodder, the grain and the roots were estimated at the current market values in Guelph, less the cost of marketing from an Ontario farm under average conditions. (See Bulletin LXVIII, p. 5.) The home value, therefore, put upon the hay was \$9 per ton, the unthreshed oats \$6, the roots sliced 6 cents. per bushel, the oats 26 cents, and the peas 50 cents. The bran was valued at \$14 per ton and the silage at \$2.

Food consumed. The amount of food consumed by the lamba not including the rape, from the time they reached the farm until they were delivered for shipment, and the respective values of the same are as follows :

Food.		· Value.		
Hay, 54,396 lb	\$244	78		
Oats in sheaf, 4,040 lb	12	12		
Oats, 57,332 lb	438	42		
Peas, 11,458 lb	105	03		
Bran, 3,212 lb	22	48		
Roots, 128,774 lb	128	77		
Silage, 9,050 lb	. 9	05		
Total	\$960	65		

The lambs were delivered for shipment Disposal of the Lambs. as stated in Table II below :

Dates of sales.	Markets.	No. of lambs in each sale.	Weight of each group sold.	Price per lb.	Total value of each group.
January 8 March 8 April 12 May 9 April 26 April 12	Buffalo Ontario Halifax Halifax England Ontario Halifax Ontario Ontario Ontario Died on transit or strayed.	160 50 126 63 99 99 20 26 17 (skins) 6	lb. 13,573 3,340 11,450 5,900 13,103 8,660 2,738	C. 51265 555 565 6 7 6 7	\$ c. 746 51 187 87 644 06 354 00 917 21 519 60 191 66 68 50 12 75
Total					\$3,642 16

The lambs which are represented as having been sold at a lo price in the home market were ill-doers. From the 23 lambs which died on transit or afterwards, the only revenue was that obtained But y from the skins of 17 head, while they are all charged against the again experiment. It will also be observed that the price received in creases with the advance of the season. The figures in the rig

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\$244 19 433 10 2 12	4 78 2 12 8 42 5 03 2 48 8 77 9 05
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Price er lb.	Total value of each group.
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	\$3,642 16

n sold at a lo 23 lambs which is that obtains rged against the rice received in res in the rig hand column of Table 11, as also those previously given relating to the cost of the lambs have been compiled from the books of the bursar, from which source they can easily be verified. This is mentioned because of statements made more than once that feeding these lambs was a losing game. The only exceptions are found in the case of ten cull lambs not yet delivered and those sent to England. The price put upon the latter, as stated in the table is 7 cents per pound, since we refused an offer of that amount from Mr. L. O. Barber, Guelph, on April 12th for immediate shipment. At that date Mr. Barber, who bought all the different lots except the culls, paid us 7 cents per pound for a lot of 20 lambs very similar in quality. We refused the offer for the reason that the lambs had been fed for the British market.

Table III contains a financial summary covering the whole transaction :

Cost of the lambs when bought	\$2,097	34	
" shearing 120 lambs	5	40	
" food, including rape and pasture	1,316	25	
" attendance	125	00	
Total cost		-\$3,543	99
Value of lambs when sold	\$3,642	16	
" " wool	56	60	
" " manure	577	12	
Total value		-\$4,275	88
Gain		731	89
" per lamb		. 1	10

The net cash actually received for the 99 lambs shipped to England would reduce the above gain by \$132.10.

The 120 lambs included in the item cost of shearing were shorn for experimental purposes. All the food given to the lambs from first to last is charged against them. The estimate put upon the rape was the cost of the cultivation as given on page 6, Bulletin LX. This makes the cost of growing the rape \$8,46 instead of \$11.77 as stated in the aforementioned bulletin, owing to the difference in the amount of the manure applied. The cost of producing the six acres grown as a catch crop was estimated at \$1.20 per acre, as nearly all of it was sown broadcast and after the necessary autumn plowing of stubble land. It should be remembered that all the rape grown was a second crop taken from the land during 1891, and that the cultivation given to it left the land in a very clean condition. The whole time of one person was occupied in caring for the lambs, but more than one-half of it was taken up with those under experiment. But we have charged a little more than half the wages actually paid, against the lambs, to make sure no undue favor would be shown where the exact apportionment is an uncertain element.

The manure was valued at half a cent per day per lamb. This estimate is much lower than the value put upon the manure produced by sheep and lambs by experiment stations which have made this question the subject of careful investigation. But we desire to put these things moderately, as samples of the manure made by the lambs sent to England are now being analysed, we hope to speak more authoritatively in reference to this matter in the following bulletin. As in former bulletins, no account is taken of interest on money, rent of land, exhaustion of natural fertility, or of the increased value resulting from the cleaner tillage of the land.

We now give a concise summary statement of the whole transaction without considering the value of the rape eaten, the cost of attenuance or the value of the manure : FA

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Total cost of 666 lambs when laid down at Guelph Cost of shearing "food	\$2,097 5 960	34 40 65
Total cost	\$3,063	39
Total value of 666 lambs Net gain on 666 lambs " per lamb	3,698 635 0	76° 37 95

CONCLUSIONS.

1. That the average grade lamb of the Dominion is an animal much inferior to what it ought to be and to what it may be made.

2. That rape furnishes an excellent pasture for fattening lambs and an easy means of manuring the land.

3. That pasturing lambs on rape is an excellent preparation for winter fattening.

4. That it is easily possible to fatten a large number of lambs upon the food grown upon a limited area when the work is judiciously done.

5. That where the facilities are at hand one attendant can care for a large number of lambs fattened on the lines followed in this experiment.

6. That in fattening lawbs it is important to be able to carry them on past that autumnal season when the market is most liable to be glutted.

7. That in fattening lambs a substantial profit may be made even from such lambs as we have, when the work is done on the lines indicated in this bulletin. lamb. This manure prowhich have on. But we the manure sed, we hope natter in the is taken of ertility, or of the land.

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BULLETIN LXXVIII.

FATTENING LAMBS FOR THE BRITISH MARKET.

This experiment commenced with the arrival of the lambs at the farm in the months of September and October, 1891. The whole lot of lambs purchased are more fun; Jescribed in bulletin LXXVII which treats of "fattening lambs." It closed when the lambs were old in Liverpool shortly after the middle of May of the present year. They left the farm for the British market on May 11th. It was intended to be substantially a repetition of the experiment the particulars of which are given in Bulletin LXIX. The principal objects of the experiment were to ascertain, (1), whether lambs can be fattened at a profit in the autumn and winter for the English market, and (2), whether the average grade lambs of Ontario and Prince Edward Island are suitable for the purpose.

THE ANIMALS SELECTED. The lambs from which those. intended for shipment were selected were purchased by Mr. J. E. Storey, the farm foreman, in the eastern part of Ontario, and in There were purchased in all 666 grade-Prince Edward Island. ambs, of which 200 came from eastern Ontario, 362 from Prince Edward Island, and 104 from Toronto. The selections for this. xperiment were made from the eastern Ontario and Prince Edward sland lambs, 55 from the former lot and 45 from the latter. The ambs were a mixed lot and somewhat below the average of Canadian. rade lambs in quality, as will be apparent from the weights given. uther on. They evidently possessed but little improved blood, and ere considerably below what the standard lamb of Ontario should. e. In selecting, the preference was given to those having dark aces, although a considerable number were not of this class.

CONDITIONS GOVERNING THE EXPERIMENT. The mbs selected from the lot purchased in eastern Ontario were eighed on September 1st, two days after their arrival at the farm. hirty-seven of those selected from Prince Edward Island were eighed September 26th, twelve days after their arrival, and the maining from the same place on October 15th, eight days after heir arrival. The average weight of the Ontario lambs was 77.5 lb., ad of those from Prince Edward Island 67.9 lb. They were all h-tagged on their arrival at the farm, hence the behavior of each lamb could be traced without difficulty throughout the experiment. From October 13th to 16th they were shorn. They were then allowed to go together in a closed shed with yards attached until the latter part of December, although while the weather continued suitable they were pastured on rape during the day. The shed was then divided into four equal compartments, and 25 lambs put in each of these to be fed on different rations. These rations and all the particulars relating to this sub-experiment will be given in connection with the experiment on "feeding shorn and unshorn lambs." to be issued in bulletin form in the near future.

FOOD AND FEEDING. From the time of the first weighing until Oct. 13th the lambs were kept on rape all the time. They were then allowed access to the rape only on fine days, and were housed at other times as already mentioned. When inside they received hay, roots and grain until the latter part of December, at which time the experiment was commenced, to which reference has already been made. This sub experiment continued until April 30th. Dur ing its continuance the lambs in one group were fed a mixed grain ration, roots and hay, in a second a grain ration of whole oats with rcots and hay, in a third a mixed grain ration with ensilage and hay, and in the fourth a ration similar to that given to the lambs in the first mentioned group, except for a short time at the first. From the close of the sub-experiment until the lambs were shipped on May 11th they were all fed upon a mixed grain ration with roots and hav. The mixed grain throughout the experiment consisted of cats, peas and bran, fed in the proportion of 2, 2 and 1 parts. The oat and peas were all fed unground. The roots consisted of turning The hav was all fed uncut. It consisted of clove sliced. The grain ration was increased in quantity a and timothy. the season advanced. It will be noticed that the period of pasturing rape was considerably curtailed by the shearing of the lamb although some rape was carted to them in addition to what they go Total : when pasturing, and this is all accounted for in the computation The ensilage was fed to but one group of lambs and then only durin the continuance of the sub-experiment. The food consumed by the Averag 100 lambs throughout the experiment was as follows :

Oats	lb.
Peas 5,099	6.
Bran	"
Roots	
Hay	"
Ensilage	"
Rape, what grew upon 4.52 acres.	

The average daily consumption of food from October 16th

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first weighing e. They were l were housed they received ber. at which ce has already il 30th. Dura mixed grain hole oats with silage and hay, e lambs in the rst. From the hipped on May with roots and nsisted of oats, arts. The oats sted of turnips ted of clove in quantity a iod of pasturing of the lambs o what they go ie computation hen only during cnsumed by th

,344 lb. ,099 ·· ,594 ·· ,560 ·· ,587 ·· ,0050 ··

October 16th

May 11th, exclusive of a very limited quantity of rape given them for a limited period at the first, was :

Grain	1.68	lb.
Roots and ensilage	2.54	**
Нау	1.27	"
-		
Total	4.87	lb.

ESTIMATED VALUE OF THE FOOD. The food was estimated at the current market values in Guelph, less the cost of marketing from an Ontario farm under average conditions (see Bulletin LXVIII). The home value put upon the food by this mode of reckoning was: Oats 26 cts. per bushel; peas 50 cts.; bran \$14 per ton; roots, sliced, 6 cts. per bushel; ensilage \$2 per ton; and hay \$9 per ton. It will be observed that in all probability a profit has already been made on the marketable food used, providing it has been grown upon the farm, as in this experiment the food was charged at the full market values, less the cost of marketing from an average Ontario farm. This profit would be represented by the difference between the cost of growing the food and the market value put upon it.

WEIGHTS. Table I gives a summary and an analysis of weights:

				The lambs from East- ern Ontario.	The lambs from P. E. Island.	The whole lot of 100 lambs.
				lb.	lb.	lb.
Total an	aroate w	wight at	commencement			7 399
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average	individu	al weight	at commoncement .	77.50	67.90	73.20
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••	**	**	without fleece			7.40
66	66	66	with fleece			7 85

t will be observed that the lambs brought from Prince Edward sland increased more rapidly in weight than those from eastern Intario, although they were lighter at the outset. They were somewhat leaner in flesh when the experiment started, and this may furnish the explanation. In any case the gains were very satisfac. tory for the food consumed.

The lambs were put on board the cars TRANSPORTATION. at Guelph on May 11th, en route for Liverpool. They left in charge of the farm foreman, Mr. J. E. Storey, who accompanied them as far as Montreal, put them on board an ocean steamer along with the food necessary for the voyage, and secured a competent feeder to care for them on the way.

One of the lot had been sold before the date of shipment to a local butcher, as it was deemed unsuitable for the foreign market The price obtained was \$5. The whole number sent over there-They all stood the voyage well and arrived in Liverfore was 99. pool in good condition.

DISPOSAL OF THE LAMBS. On arriving in Liverpool the lambs were taken in charge by Mr. G. F. Frankland, ex-alderman d Toronto, who found a ready market for them. They brought the highest prices that were then being paid for choice lambs, although the beef market at that time was in a very depressed condition.

In regard to them Mr. Frankland reported : 1. That they sold well in competition with the best mutton of Wales and Scotland, 2. That while sheep brought alive from South America sold for but 6d. per pound, dressed weight, these lambs brought 81d. per pound 3. That they were sold to the highest bidder, a leading butcher of Man chester, for £2 7s. 6d. each. 4. That they were carefully examined by dealers who pronounced favorably upon their merits, and that they were much admired by people of various classes. In reference to this Mr. Frankland says, "You would have rejoiced to have see bem t the droves of good men from 30 to 80 years of age examining you lambs." ollowi

VALUES. Table II gives the financial results of the experiment

			V:
st of 100 Lambs when landed in Guelph shearing food	••••	••••	
Total cost	••••		1,
alue of 99 lambs in England	••••		I,
Total value Total gain	••••	••••	1,
Gain per lamb			

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shipment to a reign market t over there ived in Liver-

Liverpool the x-alderman of y brought the mbs, although condition. Chat they sold

and Scotland. ica sold for but 1d. per pound

the experiment

	Vilues.
	\$
	368
••••	380
	25
	357
	1,137
	1,141
	5
	237
	1,428
	291
	2

The value put upon the lambs at the commencement of the experiment was the actual cost per pound when laid down at the farm. The actual weights were taken as the basis of computation, and the price per pound charged was the average paid for the lambs from Ontario and Prince Edward Island respectively. The cost of shearing was put at 5 cents per animal.

All the food consumed from the time of the arrival of the lambs at the farm until they landed at the Liverpool docks was charged at market values, less the cost of marketing, as previously stated in detail. The cost of growing the rape was put at \$8.46 per acre. In Bulletin LX. the cost of growing an acre of rape is put at \$11.77. In that estimate however a liberal quantity of manure is supposed to have been used, while in the present instance no manure had been applied to the greater portion of the land for the past six years, and a portion of the tape grown was a catch crop. The basis of compu-The hay which was the tation in both instances is exactly the same. most expensive item of food, was charged at twice the price put upon it in the corresponding experiment of the previous year, owing to the advance in market values. The other food factors were not materially different in price.

The cost of attendance in the corresponding experiment of the mevious year was an estimate. In the present instance it is based upon actual experience in caring for the lambs. One man cared for ver 600 lambs so long as that number was here on the farm, and butcher of Man about half of his time while thus engaged was spent in work of a fully examined purely experimental character. We therefore feel safe in assuming erits, and that that one man will feed and care for 800 lambs when the food is all In reference repared. The cost of sending the lambs to England and of selling ed to have see them there was \$357.69 or \$3.61 per head, which was 56 cents per xamining you had less than in the corresponding experiment of 1891. The ollowing are the items:

Railroad freight charges to Montreal	\$61	10
Charges of stock yards	. 4	91
Wharfage	. 3	28
Loading on ship	. 2	25
Caretaker on ship	. 10	00
Food sent from Guelph	. 19	98
Hay purchased in Montreal	. 14	95
One hatchet and one fork	. 1	15
Expenses Mr. Storey, farm foreman	. 14	30
Ship's freight and charges including insurance.	. 170	10
Market charges	. 2	43
Keep and lairage, nights	. 7	05

Droving	3	03
Dock charges	7	29
Dues and entry	2	06
Gifts	ິ 1	21
Commission for selling, 9d. each	18	03
Cash to Mr. Frankland	14	57

Total. \$357 69 sea 80

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The selling of the lambs in England was purely a commercial transaction and was done on a strictly commercial basis, that is to say, they were sold in the open market and in the ordinary way to the highest bidder.

The autumn shorn wool averaged 3.41 lb. per fleece, unwashed, and sold for 13 cents per pound. The manure made by the 100 lambs was accurately weighed during the continuance of a subexperiment which lasted for four months. The quantity for the balance of the time was computed from the data thus furnished The amount made during the four months was 34.867 tons, which would give 69.516 tons as the amount made during the whole period. The average amount therefore made per day by each lamb was 5.81 lb. which on the basis of the valuation given below would be worth .993 winte. of a cent or practically one cent a day. This includes bedding which was not weighed separately. In the corresponding experiment last year the manure was valued at $\frac{3}{4}$ cts. per day per lamb.

Prof. A. E. Shuttleworth, the chemist of the station, made a careful Prince analysis of the manure and handed to us the following report in 300 m regard to the analysis, and also to the value of the manure then o Organic nitrogen, 12 lb. per ton, worth 17 cents per pound. Total phosphoric acid, 16.8 lb. per ton, worth 3 cents per pound. Muriate the at of potash, 19.4 lb. per ton, worth 41 cts. per pound. The commercia value of the manure therefore is \$3.42 per ton. By commercial value bout we mean the value based upon the market prices charged for the Ontar three ingredients mentioned when purchased in the form of artificia Since we have stated the amount of the manure made fertilisers. with] the reader is given the opportunity of attaching that value to i which may seem proper to him. And here we desire to emphasis the fact, that these lambs were sold in Liverpool at a cash profi be fat as stated below, without taking into account the value of the manure ation

The average individual value of the lambs at the commencement of the experiment was..... \$3 67 11 52 for mhigh them wild in Time

The average price for which they sold in Liverpool.	11	00
The average advance in value therefore was	7	86
The cash profit which they brought in England		
without accounting for the manure was	53	67
Or a cash profit per head of		54

14

3	03
7	29
2	06
ິ 1	21
18	03
14	57

\$357 69

a commercial sis, that is to dinary way to

cce, unwashed, le by the 100 ncce of a sublantity for the hus furnished. 57 tons, which e whole period. nb was 5.81 lb. be worth .993 bedding which comperiment last b.

made a careful wing report in the manure pound. Total Muriate bund. The commercia ommercial valu charged for the orm of artificia manure made that value to i e to emphasis at a cash profi e of the manure

ne		
	\$3	67
1	11	53
	7	86
hd		
	53	67
		54
••		

The variations in the prices offered for lambs during the past season will be clearly apparent from the following statement :

The price offered per pound live weight for our lambs in Guelph

On December 10th, 1891, was	43 cts.
On January 1st, 1892	51 cts.

The various lots disposed of brought the prices mentioned on the respective dates given, viz. :

Toward the close of January	$5\frac{1}{2}$	cts.
In February	$5\frac{3}{8}$	"
Early in April	6	"
At Easter	7	"
In England (May)	8.74	"
Equivalent to, in Canada	6	**

The above statement points to the importance of trying to so arange our plans that we will not of necessity have to sell on a market of slaughter prices. Such a market is manifestly more likely to occur before the holiday season than after it for some years to come, owing to the relatively small number of lambs held over for winter fattening.

CONCLUSIONS.

1. That grade lambs can be purchased in eastern Ontario and Prince Edward Island respectively, shipped westward more than 300 miles in the one case and 1,100 miles in the other, fattened and then disposed of in England at a substantial cash profit.

2. That the average grade lambs of Ontario are well adapted for the above purpose.

3. That lambs shipped to England should sell for an advance of bout 2 cents per pound live weight on the prices obtainable in Intario to secure an equal profit.

4. That lambs may be fattened in winter in considerable numbers. with but a small percentage of loss from disease or accident.

5. That grade lambs similar to those fed in this experiment can be fattened in good form in winter, when fed daily the following ation : Grain (oats and peas) and bran in the proportions of 2, 2 and 1-1.06 lb; roots 2.54 lb.; and hay 1.27 lb., or a total of 4.87 lb. ber day.

6. That the ration given in the above conclusion gave an average ally increase of $\frac{1}{2}$ lb. in live weight.

7. That a ration of rape pasture only, gave a larger increase perby in live weight than the winter ration used in this experiment.

