

SHEEP INVESTIGATIONS - 1947-48

The Effect of Bicarbonate of Soda In Reducing Digestive Disorders and Death Losses In Feeder Lambs

Rufus F. Cox

Among a number of means tested in an effort to minimize digestive disorders and death losses in lambs caused by "over-eating disease" baking soda appeared to be effective to some extent. At the Garden City Branch Agricultural Experiment Station, two lots of lambs recently were put on feed to check this. This experiment was completed in March and a detailed report of the results appears in Table III of the Sheep Investigations section of this bulletin.

In order further to confirm these results two lots of lambs were placed on experiment at the Manhattan station. These two lots are receiving corn in the amount of approximately two pounds per head daily at the present time, which is considered a very heavy feed of concentrates. Alfalfa is also being fed to both lots. The rations of the two are identical except that the lambs in one lot receive approximately 8 grams of sodium bicarbonate per head daily.

As soon as the results of this test become apparent, they will be announced. Many feeders already are watching the outcome of this test. If former results are confirmed, the findings should be quite useful to feeders who find it necessary to feed rather concentrated rations in an effort to get rapid gains and shorten the feeding period.

GARDEN CITY BRANCH AGRICULTURAL EXPERIMENT STATION

Garden City, Kansas

Table I - Grain and Other Concentrate Comparisons For Fattening Lambs

Rufus F. Cox and L. M. Sloan

December 2, 1947 to March 15, 1948 - 105 Days

1-Lot number	1	2	5	6	7	8	10
2-Ration fed	Westland milo	Axtell grain	Westland milo	Westland milo $\frac{1}{2}$ Beet pulp $\frac{1}{2}$	Westland milo $\frac{1}{2}$ Beet pulp $\frac{1}{2}$	Beet pulp Axtell stover C.S. Cake	Westland milo Beet molasses * Axtell stover C.S. Cake
	Axtell stover C.S. Cake Gr. Limestone	Axtell stover C.S. Cake Gr. Limestone	Axtell stover Dehyd. alfalfa Gr. Limestone	Axtell stover C.S. Cake Gr. Limestone	Axtell stover C.S. Cake Gr. Limestone	Axtell stover C.S. Cake Gr. Limestone	Axtell stover C.S. Cake Gr. Limestone
3-Number lambs per lot	51	52	52	52	52	52	50
4-Number of days	105	105	105	105	105	105	105
5-Initial weight	75.75	75.75	75.81	75.71	75.56	75.75	75.78
6-Final weight	100.47	99.46	103.19	101.10	100.90	101.60	99.72
7-Total gain	24.72	23.71	27.38	25.39	25.34	25.85	23.94
8-Daily gain	.24	.23	.26	.24	.24	.25	.23
9-Feed per lamb daily:							
Grain	1.07	1.07	1.07	.53	.27	1.05	1.06
Pulp or molasses				.53	.79		.10 *
Protein supplement	.25	.25	.57	.25	.25	.25	.25
Roughage	2.55	2.38	2.43	2.39	2.38	2.24	2.43
Mineral	oz. .25	oz. .25	oz. .25	oz. .25	oz. .25	oz. .25	oz. .25
10-Feed per cwt. gain:							
Grain	447.21	472.29	408.98	220.52	113.69	426.96	467.00
Pulp or molasses				220.52	327.07		44.70
Protein supplement	106.47	110.21	216.95	102.91	103.12	101.08	109.23
Roughage	1084.26	1053.61	932.10	987.98	985.00	908.94	1063.49
Mineral	6.58	6.83	5.92	6.38	6.39	6.27	6.77
11-Gain per 100 lbs. DIGESTIBLE NUTRIENTS	11.71	11.50	12.94	12.37	12.43	12.38	11.06
12-Feed cost per cwt. gain	\$25.84	\$26.59	\$27.01	\$24.66	\$24.53	\$23.84	\$27.34
13-Final cost per cwt.	\$21.09	\$21.22	\$21.52	\$20.84	\$20.83	\$20.64	\$21.41

* Fed last 60 days only.

NOTE: These lambs were sold April 13, 1948 on the Wichita market to a New York shipper for \$23.25 per cwt., the extreme market top for that day.

GARDEN CITY BRANCH AGRICULTURAL EXPERIMENT STATION

Garden City, Kansas

Table II, - Roughage Comparisons For Fattening Lambs

Rufus F. Cox and L. M. Sloan

December 2, 1947 to March 15, 1948 — 105 Days *

1-Lot Number	1	3	4	9
	Westland milo Axtell stover C.S. Cake Gr. Lime- stone	Westland milo Sumac stover C.S. Cake Gr. Lime- stone	Westland milo Dehydr. sumac** C.S. Cake Gr. Lime- stone	Westland milo Alfalfa C.S. Cake Gr. Lime- stone
2-Ration fed				
3-Number lambs per lot	51	52	51	51
4-Number of days	105	105	49	105
5-Initial weight	75.75	75.46	75.54	75.53
6-Final weight	100.47	100.56	83.92	110.41
7-Total gain	24.72	25.10	8.38	34.88
8-Daily gain	.24	.24	.17	.33
9-Feed daily:				
Grain	1.07	1.07	.83	1.07
Protein supplement	.25	.25	.23	.25
Roughage	2.55	2.55	** 1.87	2.32
Mineral	oz. .25	oz. .25	oz. .25	oz. .25
10-Feed per cwt. gain:				
Grain	447.21	446.14	487.47	321.22
Protein supplement	106.47	104.10	134.96	74.97
Roughage	1084.26	1064.74	1092.84	696.90
Mineral	6.58	6.45	9.31	4.73
11-Gain per 100 lbs. digestible nutrients..	11.71	11.71	9.34	16.84
12-Feed cost per cwt. gain	\$25.84	\$25.47		\$20.75
13-Final cost per cwt.	\$21.09	\$21.09		\$19.96

NOTE: These lambs were sold April 13, 1948 on the Wichita market to a New York shipper for \$23.25 per cwt., the extreme market top for that day.

* Lot 4 fed 49 days only.

** The roughage fed Lot 4 included some Sumac stover also. It became necessary to feed some additional roughage after the lambs refused to eat dehydrated Sorgo.

GARDEN CITY BRANCH AGRICULTURAL EXPERIMENT STATION

Garden City, Kansas

Table III - Sodium Bicarbonate For The Control
of
Digestive Disorders and Death Loss
In Fattening Lambs

Rufus F. Cox and L. M. Sloan

January 19, 1948 to March 15, 1948 — 56 Days

1-Lot Number	4-A	44
2-Ration fed	Westland milo Cottonseed cake Alfalfa hay Axtell stover	Westland milo Cottonseed cake Alfalfa hay Axtell stover Bicarbonate of Soda
3-Number of lambs starting experiment	25	26
4-Number of lambs finishing experiment	20	26
5-Death loss (percent)	20%	0
6-Feed per lamb daily		
Concentrates	1.7 lbs.	1.7 lbs.
Roughage	1.2	1.2
Bicarbonate of Soda	—	.012
7-Lot weight at beginning of experiment	2094 lbs.	2186 lbs.
8-Lot weight at end of experiment	2105	2682
9-Lot value of lambs at beginning of experiment (@ \$.20 per pound)	\$418.80	\$437.20
10-Feed cost per lot	89.60	104.83
11-Total final cost per lot	508.40	542.03
12-Lot value of lambs at end of experiment (@ \$.22 per pound)	463.10	590.04
13-Margin per lamb	- 2.27 (Loss)	1.85

NOTE: These lambs were sold April 13, 1948 on the Wichita market to a New York shipper for \$23.25 per cwt., the extreme market top for that day.

GARDEN CITY BRANCH AGRICULTURAL EXPERIMENT STATION

Garden City, Kansas

Summary - 1947-48 Lamb Feeding Experiments

Rufus F. Cox and L. M. Sloan

Table I

1. Westland milo grain proved to be slightly better than Axtell grain from the standpoint of both rate and economy of gains. Compare Lots 1 and 2.
2. Dried beet pulp used to replace one-half, three-fourths, and all of the Westland milo grain in the ration respectively proved equal to, or slightly superior to the grain it replaced in these tests. Compare Lots 1, 6, 7, and 8.
3. When the price per pound is comparable to that of grain, some saving will result by using beet pulp to replace a part of the grain. Previous tests indicate that replacing all of the grain usually results in a decrease in the rate of gain.
4. Dehydrated alfalfa fed as a protein supplement produced larger but more expensive gains than cottonseed cake. This is not in agreement with results of a similar test last year. Compare Lots 1 and 5.
5. Adding beet molasses to a ration of Westland milo, Axtell stover and cottonseed cake during the last 60 days of feeding did not increase the rate of gain and increased materially the cost of gain. Compare Lots 1 and 10.

Table II

6. Sumac stover gave slightly better results than Axtell stover. Compare Lots 1 and 3.
7. Sumac and Axtell stover produced only about seventy-three percent as much gain as alfalfa. Compare Lots 1, 3, and 9.
8. Lambs refused to eat dehydrated sumac roughage, and produced poor and expensive gains on it. Compare Lots 1 and 4.

Table III

9. Baking soda fed at the rate of less than one-fifth ounce per lamb daily (1.2 pounds per 100 lambs daily) appeared to prevent death losses due to Enterotoxemia (over-eating) and no symptoms of any digestive disorder appeared in the lot fed soda. Compare Lots 4-A and 44.
10. Lambs full fed on grain without soda (Lot 4-A) vomited grain frequently, scoured freely, and during these digestive upsets had a dull and listless appearance. Twenty percent of them died.
11. The lambs in Lot 44 fed soda, but otherwise receiving the same ration as those in Lot 4-A, never showed any diarrhea, and never threw up any grain. Furthermore, their droppings were always dry and well formed, in sharp contrast to those in Lot 4-A.
12. While this is a small scale test of bicarbonate of soda, these results are being checked in commercial feedlots and preliminary observations confirm these findings.