

Table 50
Average Endocrine Gland Weights and Teat Length Measurements
(Ten Wether Lambs per Lot).

Lot number	1 ¹	2 ¹	3 ¹	4 ¹
1955				
Both adrenals, g.	2.6	2.9	3.1	2.8
Both thyroids, g.	2.6	2.9	3.2	3.1
Pituitary, g.	0.68	0.66	0.90	0.74
Teat length, mm.	15.2	20.4	24.6	35.4
1956				
Both adrenals, g.	2.5	3.0	3.8	2.7
Both thyroids, g.	2.2	2.9	2.7	2.9
Pituitary, g.	0.48	0.75	0.68	0.65
Teat length, mm.	20.5	23.0	27.2	27.2

1. Lot 1—Controls. Lot 2—6 mg. implants of stilbestrol. Lot 3—Implants of 3.5 mg. estradiol and 200 mg. progesterone (Synovex).

Observations

The control lambs usually shrank less in transit than the lambs that were given hormone implants or hormone in their feed, but differences were not consistent between the different hormone groups.

The control lambs consistently yielded more than the hormone-treated lambs. The lambs receiving the 6 mg. stilbestrol implants ranked next to the control lambs in yield, while the Synovex-pellet-treated lambs and those receiving stilbestrol in their feed alternated between the lowest and next to the lowest yield.

The lambs receiving the 6 mg. pellets of stilbestrol ranked nearly as high in carcass grade as the control or untreated lambs, while the lambs receiving the estradiol-progesterone implants consistently produced the poorest carcasses. All of the hormone treatments tended to mature the lambs and produced a larger number of yearling carcasses. The hormones caused the pelt to adhere more firmly to the carcass, causing some difficulty in the slaughtering operation.

The hormones caused an increase in the size of the urogenital system and organs of wether lambs. The greatest increase in size was produced the past two years by the Synovex implants and by stilbestrol. No death losses occurred that could be attributed to the hormone treatment in the 1955-56 trials, but the increase in prostate gland tissue tended to occlude the opening of the urethral passage in some of the lambs examined. While the hormones significantly increased the size of the bulbo-urethral glands, the swellings in the rectal region were not so evident as in past years.

The adrenals, thyroids, and pituitary glands were larger and the teats longer in the hormone-treated lambs than in control lambs.

The Effects of Implanting Stilbestrol in Feeder Lambs and Feeding a Stilbestrol Premix to Feeder Lambs upon the Quality and Palatability of the Carcass.

PROJECT 434

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Diethylstilbestrol when implanted in growing fattening lambs increases the rate of gain and feeding efficiency, but lowers the yield and the carcass grade. These observations are accepted as a result of work done by several researchers at different experiment stations. None of these investigations made a complete analysis of the carcass; therefore this project was designed to procure additional information regarding the influence of stilbestrol upon the quality and palatability of the carcass.

Ten lambs were selected from each of three lots of 50 head at the Garden City Branch Station and transported to Manhattan where they were slaughtered and carcass observations made. These observations included dressing percentage, cooler shrinkage, content of the alimentary canal, liver weight, kidney weight, total killing fat, pelt weight, carcass grade, mechanical separation of the hotel rack into fat, lean, and bone, area of the eye muscle, thickness of fat over the 12th rib, blood phosphorus, liver glycogen, liver fat, pressed fluid from the eye muscle, total nitrogen, and nonprotein nitrogen of the pressed fluid, palatability tests, and vitamin content of the muscle.

Laboratory observations are not yet complete and four more groups of lambs have been slaughtered recently. Statistical analyses of available data indicate that the rations fed during 1955 did not significantly affect the slaughter weight, dressing percentage, cooler shrinkage, total killing fat, area of the eye muscle, or the nonprotein nitrogen of the pressed fluid.

Liver weight was significantly increased by the addition of 2 milligrams of stilbestrol per day, but not from 6 milligrams implanted at the beginning of the test. The pelt weight was significantly increased in both stilbestrol lots. The carcass grade was significantly lowered in the lot receiving stilbestrol in a premix, while the grade of the implanted lambs was higher than that of the controls. The fat over the 12th rib was definitely thicker in the case of the implants and lower with the premix than in the controls.

Blood phosphorus was definitely lowered in the premix lot, while the liver glycogen in both lots receiving stilbestrol was lower than in the controls. Stilbestrol treatment also reduced the percentage of liver fat significantly. The percentage of moisture in the rib eye was higher in the premix lambs than in either the control or the implanted lambs.

The first year's work on vitamin content of lamb muscle is summarized below:

Vitamin Content of Lamb Muscle

Vitamin	Implants	Premix	Controls
Thiamine	11.6 ug./g.	14.1 ug./g.	10.5 ug./g.
Riboflavin	12.7 ug./g.	13.2 ug./g.	13.7 ug./g.
Pantothenic acid	19.8 ug./g.	22.7 ug./g.	30.3 ug./g.
Niacin	266.6 ug./g.	292.5 ug./g.	328.0 ug./g.

Data from cooking and palatability tests indicate little difference in the quality of the meat on legs of lamb from animals fed a control ration, a control ration plus diethylstilbestrol, and animals implanted with diethylstilbestrol. Legs of lamb from the three treatments lost about 25 percent of their weight during roasting. Meat from all roasts received a high flavor score through 24 weeks of frozen storage, but the flavor of both fat and lean meat deteriorated noticeably after 36 and 48 weeks of frozen storage.

Roasts from animals fed diethylstilbestrol rated slightly more tender, as measured by both judges' scores and shear force values, and yielded a little more press fluid than roasts from other animals. The palatability panel did not score these roasts juicier than the others.

The Relationship of Physical Balance in the Utilization of Pelleted and Nonpelleted Rations for Lambs.

PROJECT 236

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Lamb-fattening rations varying in proportions of roughages to concentrate have been studied in this project several years. In recent years much interest has been shown by commercial lamb feeders in completely pelleted rations, and for the past three years this project has

1. Grateful acknowledgment is given to Leonard Hays, graduate student in animal husbandry, for help with the feed-lot trials reported in this study.