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## RYE AND BLUE GRASS PASTURES, WITH AND WITHOUT GRAIN, FOR EWES SUCKLING LAMBS

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The feeding of the ewes is a factor which materially affects the profits derived from the production of spring lambs. The feeding problem is logically divided into two general phases: the feeding of pregnant ewes, and the feeding of ewes suckling lambs.



Lots I and II on rye pasture showing the condition of the rye forage and the type of the ewes and lambs used in this experiment.

Missouri Agricultural Experiment Station, Bulletin 120, Rations for Breeding Ewes, reports an investigation in feeding pregnant ewes. The purpose of this circular is to supplement the information in Bulletin 120 with a report of the work done at this station in feeding ewes suckling lambs.

**Object of the Experiment.** These trials were conducted for the purposes of, first, determining the economy of feeding grain on rye and blue grass pastures to ewes suckling lambs and, second, comparing the efficiency of blue grass and rye pasture for ewes suckling lambs.

**Lots and Ration of Each.** The sheep were divided into four lots and fed as follows:

- Lot I—Rye pasture and grain.
- Lot II—Rye pasture.
- Lot III—Blue grass pasture and grain.
- Lot IV—Blue grass pasture.

### PLAN OF THE EXPERIMENT

**Description of the Sheep.** The ewes in this experiment were classed as Idaho (western) ewes on the Kansas City market. Their average weight was 110 pounds at the beginning of the breeding season. The fleeces from these ewes averaged 7.3 pounds. They were typical western ewes with Merino blood predominating. All were mature ewes, with "good mouths."

The sire of the lambs in this experiment was a pure bred yearling Shropshire ram of the bold, rugged type, weighing 240 lbs. in medium breeding condition.

An effort was made to keep the lambs as uniform as to age, weight, condition, sex and the number of twin lambs per lot, as was possible. The weight of the ewes was not so uniform as is desirable. However, the difference in the weight of the ewes was not enough to be of practical consequence. It was thought advisable to keep the lambs uniform rather than the ewes.

There were 8 ewes and 10 lambs in Lot I. At the beginning of these trials eight ewes and 9 lambs were placed in Lot II, but one ewe with twin lambs became so weak that she was removed from the experiment. Lots III and IV were started in the experiment with 8 ewes and 9 lambs each. During the experiment one ewe in Lot III died, which made it necessary to exclude her lamb and the data concerning both from the experiment.

**Method of Taking Weights.** All weights were taken in the morning before the sheep were turned on pasture. The water was cut off from

all lots the evening before weighing days. All ewes were shorn prior to the beginning of this experiment.

Weights of ewes and lambs were taken every 14 days. The initial and final weights represent the average of three successive weights.

**Time.** The duration of this experiment was 56 days, beginning March 13, 1911 and ending June 7, 1911, inclusive.

**General Management and Feed.** Previous disastrous experience with dogs made it advisable to confine the sheep at night in dog-proof pens 14x60 feet adjoining the sheep barn. The pens were connected with the barn so each lot had an abundance of room within the barn in case of bad weather.

All lots of lambs were fed grain in "creeps" in these pens. They were given fresh grain in the evening and morning. Each lot of lambs received all they would eat. The ewes in Lots I and III, which received grain, were fed their grain after being shut in the pens at night.

An abundance of clean, fresh, deep-well water from the University water system was kept before the ewes and lambs while in the lots. No other water was provided.

Clean barrel salt was kept before all lots thruout the experiment.

The sheep were put into the dog-proof pens at 6:30 o'clock in the evening and put out on their respective pastures in the morning at 6 o'clock.

The ewes and lambs were all fed on the same ration and in the same lot, thruout the winter and early spring, up to the time this experiment was started. During the experiment the grain ration for both ewes and lambs consisted of equal parts cracked corn, oats and bran by weight. The corn was good No. 2 corn. The oats were good heavy white oats. The bran was purchased at the local mill and was made from soft wheat.

During the first three days, until the ewes became accustomed to their green feed, it was necessary to feed a small quantity of alfalfa hay. All lots received an equal amount. A total of only 35 pounds was fed to each lot.

The rye was sown in the early fall and used by the college flock thruout the fall and early spring for pasture. On April 13 the rye was about six inches high and thickly covered the ground.

The blue grass pasture was a good permanent, well-shaded pasture. At the beginning of this experiment the grass had made a good growth. It was about three inches high and covered the ground well,



Lots III and IV on Blue grass pasture. Showing the condition of the grass and the type of the ewes and lambs used in this experiment.

The report of the weights and gains are presented in Table I.

Table I. Weights of Ewes at Beginning and End of Experiment

Time	Lot I	Lot II	Lot III	Lot IV
April 13 to June 7, 1911 (inclusive), 56 days	Grain and rye pasture 8 ewes	Rye pasture 7 ewes	Grain and blue grass pasture 7 ewes	Blue grass pasture 8 ewes
Average initial weight	95.12 lbs.	84.61 lbs.	90.33 lbs.	91.70 lbs.
Average final weight	93.16 lbs.	74.42 lbs.	88.07 lbs.	80.06 lbs.
Average loss	1.96 lbs.	10.19 lbs.	2.26 lbs.	11.64 lbs.

This table shows that feeding grain on pasture both with blue grass and rye had the decided advantage of maintaining the weights of the ewes. The ewes in Lots I and III, so far as could be determined, maintained about the same condition of flesh thruout the experiment.

Lots II and IV lost in weight and condition, as seen from the table. Each of the latter lots lost an average per ewe of 10.19 lbs. and 11.64 lbs. respectively. However, the ewes in these two lots were thrifty and in good healthy condition.

The advisability of grain feeding depends upon the condition of the ewes and the nature of the pasture; whether the ewes are to be sold with the lambs in the early summer or not. If they are not sold in the early summer with the lambs, the feeding of grain to the ewes is not often advisable. It is the common practice among sheep men of this state to allow the ewes to become thin while suckling lambs. If the ewes are to be sold, they are fattened on good pasture after weaning their lambs. The condition of the ewes at the time the lambs are weaned is not so important for breeders who plan to keep the ewes from one season to the next. In fact breeders do not object to ewes that become thin while suckling lambs because they usually suckle lambs better than ewes that maintain a high condition of flesh. It is preferred to have the breeding flock in a medium condition of flesh throughout the summer so that the weight and condition of the breeding flock can be gradually increased from the beginning of the breeding season up to lambing time.

The more important consideration when feeding grain to ewes is the effect it has on the lambs. The weights and gains of the lambs in this trial are reported in Table II.

Table II Weights and Gains of Lambs

Time	Lot I	Lot II	Lot III	Lot IV
April 13 to June 7, 1911 (inclusive), 56 days	Grain and rye pasture 10 lambs	Rye pasture 7 lambs	Grain and blue grass pasture 8 lambs	Blue grass pasture 9 lambs
Average birth weight	8.92 lbs.	10.04 lbs.	9.22 lbs.	9.83 lbs.
Average initial age	20.70 days	22.71 days	21.50 days	22.55 days
Average initial weight	20.70 lbs.	24.19 lbs.	21.25 lbs.	20.66 lbs.
Average final weight	46.89 lbs.	49.38 lbs.	54.69 lbs.	45.88 lbs.
Average total gain	26.19 lbs.	25.19 lbs.	33.44 lbs.	25.22 lbs.
Average daily gain	.468 lbs.	.449 lbs.	.597 lbs.	.450 lbs.

These data show that there is very little difference in the gains made by the four lots of lambs excepting Lot III, (grain and blue grass pasture). These lambs were decidedly the best lot at the end of the experiment. They were fatter and in much better market condition than any of the other lots. The condition and gains made by the lambs in the other three lots were all so nearly equal that the differences between them would be of no practical consequence.

In Table III the amount of grain consumed in this trial is presented. No record of the amount of pasture consumed was kept, all lots having an abundance of forage. The rye pasture grew so rapidly that it was necessary to turn in the college flock for a day at several different times during the experiment in order to keep the rye from heading too early. During the last two weeks of this experiment the rye pasture was of rather poor quality because the rye stems grew very rapidly and there was a very small percentage of leaves. The sheep did not like these coarse woody stems.

Table III. Grain Consumed by Ewes and Lambs

Time	Lot I	Lot II	Lot III	Lot IV
April 13 to June 7, 1911 (inclusive), 56 days	Grain and rye pasture 8 ewes 10 lambs	Rye pasture 7 ewes 7 lambs	Grain and blue grass pasture 7 ewes 8 lambs	Blue grass pasture 8 ewes 9 lambs
Average daily grain ration per lamb.....	.19	.17	.24	.25
Grain consumed by lambs per 100 lbs. gain.....	42.55	39.33	41.57	49.33
Average total grain consumed per ewe.....	99.78	.....	110.93	.....
Average daily ration per ewe.....	1.77	.....	1.98	.....

This table shows that the lambs on rye pasture did not consume as much grain as those on blue grass pasture. The difference is due primarily to the fact that the lambs on rye pasture did not start to eat grain as quickly as those on blue grass pasture. The grain consumed by the lambs per 100 pounds gain in live weight, was practically the same for all lots, except lot IV. This lot consumed from one-fifth to one-fourth more grain per 100 pounds gain than did the other three lots.

If the grain consumed by the ewes in Lot I is charged to the lambs, in addition to the grain which the lambs ate, it required 384.21 lbs. of grain to make 100 pounds of gain, while it required only 39.33 lbs. of grain per 100 pounds gain on lambs in Lot II, in which lot the ewes did not receive any grain. It took practically nine times more grain per 100 pounds gain for the lambs of Lot I when figured on the above basis. Charging this grain at 11-5 c. per pound (corn @ 60 c. per bushel, oats @ 40 c. per bushel, and bran @ \$1.25 per 100 pounds), the gain on the lambs in Lot I cost \$4.61 per 100 pounds as compared with 47 c. per 100 pounds in Lot II. Assuming that both

lots ate the same amount of rye and referring to Table II it is seen that the lambs were of practically equal weight. Hence it may be concluded, as far as the lambs were concerned, that the additional expense of grain for the ewes was not profitable. The ewes in Lot I consumed an average of 99.28 lbs. of grain per head during this experiment. At the rate of 1 1-5 c. per pound the value of the grain was \$1.19 per ewe. The condition of the ewes at the end of the experiment made the feeding of grain profitable had they been sold on the open market at the time the lambs were weaned.

A comparison of the two lots on blue grass pasture shows much the same condition, excepting that the lambs in Lot III (in which lot the ewes received grain), made a greater gain than those in Lot IV. They were fatter and in better market condition at the end of this experiment. The lambs in Lot IV required 7.76 lbs. more grain per 100 pounds gain than did those in Lot III. Charging the grain the ewes and lambs consumed to the lambs, the gains made by the lambs in Lot III required 331.82 lbs. grain per 100 pounds gain, as compared with 49.33 lbs. grain per 100 pounds gain on the lambs in Lot IV, or more than six times as much. Using the same estimate for the cost of the grain per pound, 1 1-5 c., the cost of 100 pounds gain on the lambs in Lot III was \$3.98 as compared to 59 c. for 100 pounds gain on lambs in Lot IV. Although the condition of the lambs in Lot III was superior to that of the lambs in Lot IV the difference was not enough to make profitable the feeding of grain to the ewes in Lot III (grain and blue grass pasture), when only the condition of the lambs is considered. However, if the ewes were sold on the market at the time the lambs were weaned the feeding of the grain to the ewes would have been profitable. The ewes in Lot III consumed per head an average of 110.88 lbs. grain during the 56 days of the experiment. Valuing the grain as before, it was worth \$1.33. The difference in the value of the ewes had they been marketed would have been much more than \$1.33 per head.

If ewes in a poor condition at the time they are turned on pasture or in case of a high percentage of lambs, or of a poor pasture, grain feeding will become necessary in order to maintain the milk flow of the ewes. It is important that the ewes suckle their lambs well, because the market demands fat lambs.

A comparison of rye and blue grass as pastures for ewes suckling lambs shows that in case of Lots II (rye) and Lot IV (blue grass) where the ewes received no additional feed, the rye proved slightly the superior forage. The lambs in Lot II required 10 lbs. or 20 per cent less grain per 100 pounds gain than those in Lot IV. The per-

centage difference is high but the small amount of grain required per 100 pounds gain makes the difference of no practical consequence.

The condition and the total gains of the lambs were practically the same. The ewes on blue grass pasture lost an average of 1.45 lbs. per head more than those on rye pasture.

A comparison of Lot I (rye pasture and grain) and Lot III (blue grass pasture and grain) shows blue grass to have been superior. The lambs of Lot III were fatter, in better condition and made an average gain of 7.25 lbs. more per head than those of Lot I and required .98 lb. less grain per 100 pounds gain. There was no practical difference in the weight and condition of the ewes.

### SUMMARY

The results of this particular experiment show that unless the ewes are to be sold with the lambs at weaning time it is not profitable to feed grain to the ewes suckling lambs on good rye or blue grass pastures.

There proved to be little difference in the efficiency of rye and blue grass as a pasture for ewes suckling lambs. When grain was fed to the ewes the blue grass was somewhat superior, while on the other hand, when neither lot received grain the rye proved slightly more efficient. Rye has the advantage of coming earlier than blue grass, while blue grass has the advantage of affording a good pasture longer.