

Determining lamb carcass benchmarks and value attributes for producers in the Northern Plains region

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The objective of this study was to evaluate individual lamb carcass measurements from producers in the region to determine if improvements in benchmarks surpassed outdated carcass baselines which could lead to the development of regional standards to provide a more uniform American Lamb product. We present the Northern Plains benchmarks of 12th rib backfat (0.27 in); body wall thickness (1.02 in); ribeye area (2.58 in²); hot carcass weight (69.73 lbs.); and percent boneless closely trimmed retail cuts (45.57%).

Summary

In attempt to promote a more uniform American Lamb product, the assessment of carcass benchmarks will be instrumental in promoting a higher quality product with less variability. Currently, the large variation in sheep flocks and production systems have accentuated concerns of variability within the American Lamb end product. To encourage unity on all fronts, the promotion of regional benchmarks can help ensure the quality of the product being raised. For the time being, sheep producers are missing out on the opportunity to make production and carcass improvements because of the inability to assess how their sheep grade. For the producers in the Northern Plains region, a set of regional benchmarks may help guide production decisions and ultimately advance carcass quality. These newly defined regional benchmarks are 12th rib backfat (0.27 in); body wall thickness (1.02 in); rib-

eye area (2.58 in²); hot carcass weight (69.73 lbs.); and percent boneless closely trimmed retail cuts (45.57%).

Introduction

In relation to other proteins, lamb is comparatively more expensive, only further validating the need for continuous improvement (Hoffman, 2015). Presently, it is a challenge to make improvements without benchmarking data for producers to use when making breeding, management, and feeding decisions.

The American lamb and sheep industry is very diverse with numerous breeds and production styles that have generated inconsistencies in product uniformity that resulting in U.S. lamb quality being inconsistent. Variation of diets, harvest endpoint (age, weight, body composition), and breed composition influence product consistency and can impact eating experience. These differences in production systems, breeds and finishing diets can impact the degree of fatness, tenderness and flavor of lamb. The use of carcass benchmarks gives producers a targeted goal to strive

toward in producing lean, muscular lamb carcasses of desired weights. These targets may help producers create a more consistent, uniform product. Understanding carcass benchmarks may help improve nationwide carcass uniformity and end product.

Lamb producers should strive to place a strategic emphasis on quality attributes identified in this research to ensure lamb quality by limiting variability. In pursuing quality and uniformity, opportunities are now obtainable in reaching a broader consumer range due to promoting positive eating satisfaction and uniform lamb flavor. With the help of you, the producer, we can strive to produce lamb with product authenticity attributes requested by retail and foodservice sectors, and inevitably American lamb consumers stamped with consistent quality. The objectives were to define carcass benchmarks for lamb in the Northern plains region.

Procedures

The development of Northern Plains 2018/2019 carcass benchmarks builds on prior carcass baselines performed in 2016/2017 by Dr. Held and Dave Olilla in South Dakota. Carcass measurements assessed were 12th rib backfat, body wall thickness, ribeye area, hot carcass weight (HCW) and percent boneless closely trimmed retail cuts (%BCTRC). A total of 1,180 lambs were shipped to Superior Farms, Denver, Colorado from 58 producers located in the Northern Plains region (Minnesota, Iowa, South Dakota and Nebraska). Car-

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cass measurements were recorded by trained NDSU personnel. Aggregated data was used to outline benchmarks using the MEANS procedures of SAS (SAS Institute, Inc., Cary, NC).

Results and Discussion

The benchmark averages gathered from the aggregated years in this study are shown in Table 1. The numerical difference between prior baselines set in 2016/2017 can be located in Table 2 along with each individual year and aggregated data. From the prior study (2016) performed on 365 lambs from 19 producers from South Dakota, Dr. Held and Dave Ollila found that lambs had an average HCW of 69.84 lbs., 12th rib backfat of 0.32" and a ribeye area of 2.36 in², which factored into a %BCTRC of 45.33%. When compared to new updated carcass benchmarks, lambs in the Northern Plains region were heavier muscled but were trimmer, and had a similar HCW. Differences were 0.05" decrease in 12th rib backfat (½ of a USDA Yield Grade) and an increase of ribeye area by 0.17 square inches greater than previous regional standards. Granted, there was an increase in body wall thickness which we hypothesize is due to sampling variability between personnel. It is also important to recognize that while lambs were from the same region, producer repeatability was not the target of this research from the two studies. This reiterates that comparisons of carcass benchmarks utilizing different states provides informative understanding and not direct comparisons.

Producers in the Northern Plains region have been able to push the industry norms in a positive direction by understanding and utilizing past benchmarks from states in the northern Midwest. There is room for continued improvement as producers and the American Sheep Industry strive to raise a uniform product of lean, muscular lambs for the sup-

Table 1. 2018/2019 Northern plains region lamb carcass benchmarks.

	LSMeans	Standard Deviation	Minimum	Maximum
12th rib backfat* (in)	0.27	0.03	0.20	0.35
Body wall thickness (in)	1.02	0.14	0.76	1.60
Ribeye area (in ²)	2.58	0.16	2.27	2.88
Hot carcass weight (lbs)	69.73	3.74	61.14	79.38
% BCTRC	45.57	0.73	43.24	47.29

Least square means pulled from 1180 lambs harvested from 58 different producer lots.

*USDA YG 1 = BF 0.06 - 0.15; YG 2 = BF 0.16 - 0.25; YG 3 = BF 0.26 - 0.35; YG 4 = BF 0.36 - 0.45; YG 5 = BF 0.46 - 0.55

Table 2. Mean averages for 2016/2017, 2018 and 2019 followed by 2018/2019 lamb carcass benchmarks.

	2016/2017 ¹	2018 ²	2019 ³	2018/2019 ⁴
12 th rib backfat* (in)	0.32	0.27	0.26	0.27
Body wall thickness (in)	0.86	1.07	0.76	1.02
Ribeye area (in ²)	2.36	2.60	2.27	2.58
Hot carcass weight (lbs)	69.84	70.91	61.14	69.73
% BCTRC	45.33	45.35	45.76	45.57

¹Statistics display the mean carcass values recorded for 2016/17 data taken from (Held et al., 2016) for 365 lambs harvested from 19 South Dakota producers.

²Least square means from 558 lambs harvested from 27 different producer lots.

³Least square means from 622 lambs harvested from 31 different producer lots.

⁴Least square means aggregated from 1180 lambs harvested from 58 different producer lots.

*USDA YG 1 = BF 0.06 - 0.15; YG 2 = BF 0.16 - 0.25; YG 3 = BF 0.26 - 0.35; YG 4 = BF 0.36 - 0.45; YG 5 = BF 0.46 - 0.55

ply chain. Reinforcement of carcass benchmarks may result in positive changes of trimmer and heavier muscled lambs. These changes along with opportunistic marketing approaches, should help the sheep industry succeed in the United States. Across large contemporary groups the indicated progression provides opportunities toward a future of carcass yield objectifiable characteristics, especially considering the industry push for value-based marketing.

As information continues to be gathered and released, the strive to provide accurate data and results from carcass traits will only solidify the progression of what the industry is currently doing correctly. Improvements in future flock production and marketing advancements should result in improve quality and consistency of American Lamb.

Literature Cited

- Held, J, D. Ollila, and T. Hoffman. 2016. 2016 Upper Midwest Gate to Rail Program. SD Post-Weaning Lamb Performance Program - Phase 2.
- Hoffman, T. W. 2015. Benchmark of lamb quality in U.S. retail and foodservice markets [Ph.D.]. Colorado State University, United States - Colorado. Available from: <https://www.proquest.com/docview/1755642109/abstract/18173115855347DEPQ/1>