Rambouillet ram performance testing and certification: 2024-2025 Dakota Ram Test

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The Dakota Ram Test is a multistate ram performance testing program that evaluates ram wool and growth performance under centralized management. Data generated from this test is a valuable selection tool that helps producers identify rams with superior wool and/or growth performance. Rams are ranked by a productive index, and the top 30% are eligible for designation as Certified Rams as part of the American Rambouillet Sheep Breeders Association (ARSBA) Register of Merit (ROM) program.

Summary

Sheep producers throughout the northern Great Plains utilize the Dakota Ram Test to generate performance data on Rambouillet rams. This centralized performance test measures several economically important and/or heritable traits that producers can evaluate when selecting rams or genetic lineages to retain within their flocks. Fifty-one Rambouillet rams completed the performance test at the Hettinger Research Extension Center (HREC) from Sept. 26, 2024, to Feb. 13, 2025. Sixteen rams had index scores within the top 30% of the performance test, and 13 met the additional requirements for merit of certification through the American Rambouillet Sheep Breeder's Association (ARSBA).

Introduction

The Dakota Ram Test is a 140-day ram performance test that was primarily established to evaluate differences in ram wool and postweaning growth performance under the same management conditions, nutritional plane, and climate. The ARSBA recognizes high-performing Rambouillet rams participating in the Dakota Ram Test with the merit of certification, which can serve as a value-added marketing strategy.

Procedures

Fifty-one spring-born registered Rambouillet rams were consigned by 13 producers and received by the HREC on or before Sept. 22, 2024. To determine average daily gain (ADG), initial body weight was recorded when the testing period began (Sept. 26, 2024), every 28 days and at the end of the growth testing period (Feb. 13, 2025). To monitor feed intake, rams were equipped with radio frequency identification (RFID) tags and adapted to a smart-feed intake monitoring system (SmartFeedPro, C-Lock Inc., Rapid City, South Dakota). Rams were adapted to the smart-feed intake monitoring system for seven days and removed from the feed efficiency trial if they failed to acclimate and/or utilize the smart-system feed bunk. Feed efficiency was determined using total individual ram feed intake and ram body weight gain over a 21-day period to estimate feed-to-gain ratio or pounds of feed needed to gain one pound of body weight. At the end of the growth testing period, a real-time carcass ultrasound was performed to estimate ram ribeye area and fat cover between the 12th and 13th ribs. Rams were also evaluated for adherence to breed standards by the Dakota Ram Test Committee, and scores for face wool, belly wool and wrinkle/skin fold (postshearing) were collected. Scores were assigned on a four-unit basis (1-4), with higher scores representing a greater degree of wool covering or skin folding. Rams were then shorn, staple length was measured and wool samples were collected on Feb. 14, 2025. Staple length was determined by averaging the length of wool at the shoulder, side and britch, and then was adjusted to estimate 365-day staple length (Adj. STL). Wool samples were sent to Texas A&M University for clean fleece weight and fiber diameter (micron) analysis. Clean fleece weight was determined from laboratory-scoured clean yield estimates and adjusted to estimate

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365-day clean fleece weight (Adj. CL FL) production. Ram performance was estimated utilizing the approved index formula for the ARSBA's ROM program. This index includes adjustments for fiber diameter and fiber diameter variability, with positive scores indicating fleeces with a finer fiber diameter and reduced fiber diameter variability. Rams were ranked by index score, and the top 30% were eligible for certification. Additional requirements for certification include the following: ADG ≥ 0.55lb/d, Adj. CL FL ≥ 9lb, Adj. STL ≥ 4", side fiber diameter ≤ 24.9 microns, britch fiber diameter ≤ 27.84 microns, face wool score ≤ 2.7pt, wrinkle/skin fold score ≤ 2.5pt, and QR or RR Codon 171 genotype for scrapie resistance.

Index Score: 60*(ADG) + 4*(Adj. STL up to 5.5") + 4*(Adj. CL FL) +/- Fiber Diameter

Results and Discussion

Forty-five rams completed the 2024-2025 Dakota Ram Test following the removal of six rams by the Dakota Ram Test Committee due to skeletal abnormalities inconsistent with breed standards. Ram index scores ranged from 88.24 to 137.95 points, averaging 110.77 points (Table 1). Index scores of rams within the top 30% ranged from 115.46 to 137.95 points. Of the rams scoring in the top 30%, 13 of 16 met the additional requirements to be ARSBA Certified Rams (Table 2). Three of the 16 index-eligible rams were deemed ineligible for certification due to the clean fleece requirement (1 ram) and core micron requirement (2 rams). Growth performance was consistent with rams consigned to previous performance tests at the HREC. Rams averaged 103 pounds at the start of the performance test period and gained, on average, 0.91 pounds per day over 140 days, averaging 232 pounds at the end of the test period.

Table 1. Ram performance index score summary

Ear Tag	Reg. #	140-d ADG (lb/d)	Adj-STL (in)	CL FL (lb)	Adjustments		Index Score (pt)	Index Ratio
					Dia. (pt)	Var. (pt)		
Y-25	1001263	1.07	4.9	14.56	-1.80	-2.50	137.95	125%
Y-21	1001235	1.09	5.1	12.59	-3.60	-1.50	130.93	118%
Y-24	1001260	1.03	5.2	12.08	0.30	-4.25	126.92	115%
Y-22	1001231	0.94	4.9	12.89	0.30	-1.00	126.82	114%
Y-12	1001279	1.07	5.4	11.45	-1.50	-5.00	125.23	113%
Y-28	1001265	1.05	4.9	11.42	1.80	-4.75	125.15	113%
Y-47	1001212	1.10	4.7	9.43	2.70	-0.50	124.67	113%
Y-23	1001234	0.99	5.0	10.79	0.30	1.00	123.63	112%
Y-27	1001259	0.96	5.2	12.90	-6.00	-2.25	122.03	110%
Y-9	1001273	0.94	4.7	9.36	9.00	-1.25	120.53	109%
Y-51	1001185	1.11	4.6	11.54	-6.00	-5.00	120.48	109%
Y-44	1001299	0.94	4.8	12.75	-6.00	-0.75	119.46	108%
Y-11	1001275	0.91	4.5	10.25	4.80	-0.50	117.96	106%
Y-30	1001281	1.07	4.4	8.81	-3.00	2.00	116.17	105%
Y-6	1001244	1.00	4.4	9.82	-1.50	0.50	115.78	105%
Y-46	1001301	0.71	4.8	14.06	2.70	-5.00	115.46	104%
Y-1	1001256	0.86	4.9	9.34	7.80	-1.50	114.93	104%
Y-10	1001274	1.05	3.2	8.79	2.40	0.75	114.19	103%
Y-3	1001245	0.98	5.1	9.20	3.00	-4.75	114.12	103%
Y-18	1001236	0.95	5.0	11.05	-4.50	-3.50	113.39	102%
Y-33	1001283	1.08	4.0	9.39	-0.60	-5.00	112.72	102%
Y-50	1001184	0.99	4.8	10.94	-4.80	-5.00	112.20	101%
Y-16	1001272	0.86	5.8	8.46	9.00	-4.75	111.94	101%
Y-48	1001216	0.91	4.6	10.59	-2.40	-1.75	111.37	101%
Y-34	1001284	0.99	4.7	10.48	-6.00	-3.00	110.97	100%
Y-32	1001282	0.76	4.8	12.49	-4.50	-0.50	110.06	99%
Y-36	1001194	0.96	4.3	7.06	7.50	-1.00	109.61	99%
Y-41	1001199	0.84	5.4	10.60	-2.40	-2.75	109.45	99%
Y-4	1001250	0.74	5.3	11.20	0.60	-3.50	107.78	97%
Y-37	1001192	0.96	4.7	9.49	-2.10	-5.00	107.50	97%
Y-38	1001193	1.04	4.5	8.90	-6.00	-4.25	105.89	96%
Y-35	1001191	0.96	4.4	9.51	-3.90	-3.75	105.76	95%
Y-43	1001197	0.89	6.0	10.36	-6.00	-5.00	105.59	95%
Y-53	1001297	1.02	4.3	7.04	2.40	-3.75	105.11	95%
Y-26	1001144	0.87	4.5	10.75	-6.00	-3.50	103.61	94%
Y-29	1001190	0.69	4.8	9.61	9.00	-5.00	103.27	93%
Y-49	1001218	0.92	4.0	9.38	-4.80	-1.75	102.31	92%
Y-17	1001278	0.87	4.6	8.70	0.30	-4.25	101.41	92%
Y-13	1001276	0.86	5.2	8.90	-6.00	-4.00	97.69	88%
Y-19	1001232	0.71	5.4	10.14	-6.00	-3.25	95.62	86%
Y-45	1001300	0.79	3.9	10.01	-6.00	-3.00	94.35	85%
Y-40	1001198	0.72	4.9	10.44	-6.00	-5.00	93.44	84%
Y-7	1001248	0.84	4.3	7.84	-3.60	-4.50	90.85	82%
Y-42	1001196	0.81	4.4	8.60	-6.00	-5.00	89.91	81%
Y-39	1001195	0.72	4.1	7.98	-3.60	0.25	88.24	80%

Double Line = Top 30% Cut Off
ADG, average daily gain; Adj. STL, adjusted staple length, Adj. CL FL, adjusted clean fleece

Carcass and feed efficiency data presented in Table 3 are not included as part of the productive index but provide producers with insight into ram efficiency, growth and maturity patterns. Rams with lower feed-to-gain ratios indicate better feed efficiency and a more productive use of available feed resources. Rams with larger ribeye areas indicate greater muscling and increased growth patterns, while rams with greater fat cover may indicate a faster maturity pattern. Forty-two of 51 rams adapted to the smart-feed intake monitoring system and completed the 21-day feed efficiency trial. Ram feed-to-gain ratios averaged 5.33 pounds of feed per pound of body weight gain, with individual feed-to-gain ratios ranging from 1.89 to 8.10 pounds of feed per pound of body weight gain. The average daily feed intake during the 21-day feed efficiency trial ranged from 2.17 to 7.29 pounds per day, with an average of 4.92 pounds per day. The average ribeye area size was 3.34 square inches, and the average back-fat thickness was 0.30 inches.

Table 2. Eligibility for certified ram designation

Ear Tag	Reg. #	Codon 171 Genotype	Index Score (pt)	140-d ADG (lb/d)	Adj. STL (in)	Adj. CL-FL (lb)	Belly Score (pt)	Face Score (pt)	Skin Score (pt)	Side Micron	Certified?
Y-25	1001263	RR	137.95	1.07	4.9	14.56	1.00	1.50	1.00	22.60	Y
Y-21	1001235	RR	130.93	1.09	5.1	12.59	1.00	2.50	1.25	23.20	Y
Y-24	1001260	RR	126.92	1.03	5.2	12.08	1.00	1.50	1.00	21.90	Y
Y-22	1001231	RR	126.82	0.94	4.9	12.89	1.00	2.50	1.00	21.90	Y
Y-12	1001279	RR	125.23	1.07	5.4	11.45	1.00	1.00	1.00	22.50	Y
Y-28	1001265	RR	125.15	1.05	4.9	11.42	1.00	1.00	1.00	21.40	Y
Y-47	1001212	RR	124.67	1.10	4.7	9.43	1.25	2.50	1.75	21.10	Y
Y-23	1001234	RR	123.63	0.99	5.0	10.79	1.00	1.50	1.00	21.90	Y
Y-27	1001259	RR	122.03	0.96	5.2	12.90	1.00	1.00	1.50	24.10	Y
Y-9	1001273	RR	120.53	0.94	4.7	9.36	1.00	1.00	1.00	18.50	Y
Y-51	1001185	RR	120.48	1.11	4.6	11.54	1.00	2.00	1.00	25.40*	N
Y-44	1001299	RR	119.46	0.94	4.8	12.75	1.00	2.00	1.00	27.80*	N
Y-11	1001275	RR	117.96	0.91	4.5	10.25	2.00	1.00	1.00	20.40	Y
Y-30	1001281	RR	116.17	1.07	4.4	8.81*	1.00	1.75	1.50	23.00	N
Y-6	1001244	RR	115.78	1.00	4.4	9.82	1.00	1.25	1.00	22.50	Y
Y-46	1001301	RR	115.46	0.71	4.8	14.06	1.00	1.25	1.00	21.10	Y

* = Does not meet certification requirement
ADG, average daily gain; Adj. STL, adjusted staple length, Adj. CL FL, adjusted clean fleece

Table 3. Ram carcass and feed efficiency

Ear Tag	Reg. #	REA (sq. in.)	Fat Depth (in.)	21-Day Avg. DMI (lb/day)	21-Day DMI Total (lb)	21-Day BW Gain (lb)	21-Day F:G (lbs feed/lb gain)
Y-1	1001256	3.47	0.29	5.43	103.13	22	4.69
Y-3	1001245	3.10	0.25	5.38	107.60	19	5.66
Y-4	1001250	2.82	0.27	5.32	110.13	15	7.34
Y-6	1001244	2.95	0.33	5.99	114.12	23	4.96
Y-7	1001248	3.02	0.23	4.40	90.20	21	4.30
Y-9	1001273	3.12	0.35	5.64	113.39	19	5.97
Y-10	1001274	3.61	0.21	5.42	110.93	24	4.62
Y-11	1001275	3.44	0.35	4.38	88.52	14	6.32
Y-12	1001279	3.91	0.33	5.30	109.49	18	6.08
Y-13	1001276	4.53	0.27	5.05	101.06	13	7.77
Y-16	1001272	3.27	0.27	.	.	.	.
Y-17	1001278	3.55	0.31	4.67	93.38	24	3.89
Y-18	1001236	3.36	0.29	5.59	111.75	24	4.66
Y-19	1001232	2.91	0.25	5.12	105.15	18	5.84
Y-21	1001235	3.07	0.31	3.81	76.35	22	3.47
Y-22	1001231	3.24	0.27	.	.	.	.
Y-23	1001234	3.29	0.27	.	.	.	.
Y-24	1001260	3.13	0.37	.	.	.	.
Y-25	1001263	3.16	0.27	7.29	145.83	18	8.10
Y-26	1001144	3.57	0.37	3.64	74.29	19	3.91
Y-27	1001259	2.88	0.28	5.08	100.84	17	5.93
Y-28	1001265	3.63	0.27	5.45	114.13	21	5.43
Y-29	1001190	4.25	0.33	3.92	79.73	17	4.69
Y-30	1001281	3.32	0.31	4.18	79.48	20	3.97
Y-32	1001282	3.29	0.31	4.27	88.00	14	6.29
Y-33	1001283	3.77	0.31	5.35	110.33	22	5.02
Y-34	1001284	2.87	0.25	5.70	116.11	21	5.53
Y-35	1001191	3.36	0.33	6.59	135.41	28	4.84
Y-36	1001194	2.67	0.27	3.48	70.17	14	5.01
Y-37	1001192	2.82	0.31	2.17	43.58	23	1.89
Y-38	1001193	2.73	0.33	5.21	104.95	23	4.56
Y-39	1001195	3.38	0.31	4.16	82.22	12	6.85
Y-40	1001198	3.08	0.31	5.01	100.55	17	5.91
Y-41	1001199	3.35	0.31	5.67	114.08	21	5.43
Y-42	1001196	3.50	0.33	.	.	.	.
Y-43	1001197	3.52	0.37	5.85	120.18	18	6.68
Y-44	1001299	3.29	0.39	5.47	113.01	18	6.28
Y-45	1001300	3.58	0.29	.	.	.	.
Y-46	1001301	3.33	0.33	.	.	.	.
Y-47	1001212	3.21	0.37	2.58	59.47	12	4.96
Y-48	1001216	3.69	0.37	4.12	84.77	18	4.71
Y-49	1001218	4.34	0.33	.	.	.	.
Y-50	1001184	2.62	0.29	4.20	87.28	20	4.36
Y-51	1001185	3.02	0.35	6.77	135.75	27	5.03
Y-53	1001297	3.13	0.27	.	.	.	.

REA, ribeye area; BW, body weight; F:G, feed-to-gain; DMI, dry matter intake