Columbia 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 established to evaluate 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. Columbia rams that meet the criteria outlined by the Columbia Sheep Breeders Association (CSBA) are eligible for designation as Certified Columbia Rams.

Summary

Columbia sheep producers throughout the northern Great Plains are utilizing the Dakota Ram Test as a means to generate important performance data for ram selection. This centralized performance test quantifies several economically important and/or heritable traits that producers can evaluate when selecting rams or genetic lineages to retain within their flocks. Sixteen Columbia rams were consigned to the 2024-2025 Dakota ram test. Of these, 19% met the CSBA criteria for Certified Columbia Ram designation.

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 CSBA certifies rams that excel in growth performance, carcass quality, and wool quality through a program initiated in 2017 to promote overall breed improvement.

Procedures

Sixteen spring-born registered Columbia rams were consigned by eight producers and received by the HREC on or before September 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 carcass metrics, including ribeye area and fat cover between the 12th and 13th ribs. Ribeye area was adjusted to account for differences in ram body weight; thus, it is reported as inches per 100 pounds. The Dakota Ram Test Committee also evaluated rams at the end of the testing period, and scores for face wool covering and belly wool expansion were collected before shearing. Scores were assigned on a four-unit basis (1-4), with higher scores representing a greater degree of wool covering/expansion. 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, then 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 365-day clean fleece weight (Adj. CL FL) production. The criteria and requirements for CSBA certification as Certified Columbia Rams can be found in Table 1.

Results and Discussion

Sixteen Columbia rams completed the 2024-2025 Dakota Ram Test. Rams averaged 0.91 pounds of gain per day over the 140-day test period and gained an average of 128

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pounds. Columbia ram carcass and feed efficiency data are presented in Table 3. Fifteen of the 16 rams adapted to the smart-feed intake monitoring system and completed the 21-day feed efficiency trial. Ram feed-to-gain ratios averaged 5.39 pounds of feed per pound of body weight gain, with individual feed efficiency reports ranging from 2.54 to 8.04 pounds of feed per pound of body weight gain. Average daily feed intake during the 21-day feed efficiency trial ranged from 2.24 to 5.46 pounds per day, with an average of 5.39 pounds per day. Average ribeye area was 3.13 square inches, and the average back fat thickness over the 12th and 13th ribs was 0.35 inches. 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. Columbia ram fleeces averaged 9.20 pounds of 365-day adjusted clean wool, a 25.44-micron fiber diameter and a 4.6-inch 365-day adjusted staple length. Three rams met all of the requirements to qualify for CSBA Certified Columbia Ram designation (Table 2). Of the remaining 13 rams, three rams did not meet the fiber diameter requirement, five rams did not meet the ADG requirement, six rams did not meet the adjusted ribeye area requirement, seven rams did not meet the staple length requirement and three rams did not meet the belly wool score requirement. Despite a moderate reduction in the certification rate (down 2% from 2023-2024), the growth performance, wool quality and carcass quality

Table 1. CBSA criteria for certified ram designation

Criteria	Requirement
Fiber Diameter	Within 22.05 & 27.84 microns
Adj. Staple Length	≥ 4.3 inches if fiber diameter is within 22.05 & 24.94 microns ≥ 4.8 inches if fiber diameter is within 24.95 & 27.84 microns
Average Daily Gain	≥ 0.80 pounds per day
Adj. Ribeye Area	≥ 1.3 inches per 100 pounds of body weight
Face Wool Score	≤ 3
Belly Wool Score	1
Scrapie Resistance Genotype	RR or QR at Codon 171

Table 2. Ram performance and certification summary

Ear Tag	Reg. #	Fiber Diameter (micron)	Adj. STL (in)	140-d ADG (lb/d)	Adj. REA (in/100lb)	Belly Score (pt)	Face Score (pt)	Codon 171 Genotype	Certified?
W-1	Y21576	24.70	4.4	0.99	1.19*	1.00	2.00	QR	N
W-2	Y21575	26.20	4.1*	0.83	1.23*	1.00	1.50	RR	N
W-3	Y21574	23.60	4.1*	1.19	1.58	1.00	1.25	RR	N
W-4	Y21548	22.20	4.6	1.03	1.40	1.00	2.75	RR	Y
W-5	Y21544	24.00	4.5	0.94	1.70	1.00	1.25	RR	Y
W-6	Y21546	26.20	4.8	1.08	1.56	1.00	1.00	RR	Y
W-7	Y21547	23.20	4.8	0.97	1.38	3.00*	1.75	RR	N
W-8	Y20954	30.00*	4.4*	0.71*	1.47	1.00	1.00	RR	N
W-9	Y20947	26.30	4.6*	0.68*	1.14*	2.00*	3.00	RR	N
W-10	Y21487	23.10	4.7	0.98	1.27*	1.00	1.00	QR	N
W-12	Y21541	28.30*	4.5*	0.89	1.35	1.00	1.00	RR	N
W-13	Y21540	25.40	4.4*	0.74*	1.49	3.00*	1.00	QR	N
W-14	Y21550	25.40	4.9	0.79*	1.67	1.00	1.00	QR	N
W-15	Y21551	23.60	5.0	0.79*	1.39	1.00	1.75	QR	N
W-16	Y21589	29.80*	4.7*	1.04	1.20*	1.00	1.25	RR	N
W-17	Y21590	25.10	5.3	0.97	1.21*	1.00	1.75	QR	N

* = Does not meet the certification requirement
ADG, average daily gain; Adj. STL, adjusted staple length, Adj. REA, adjusted ribeye area, F:G, feed-to-gain

of Columbia rams produced in the northern Great Plains have steadily improved since breed improvement standards for ram certification were outlined by the CSBA in 2017. The addition of feed efficiency testing in the 2024-2025 Dakota Ram Test expands potential selection criteria for producers interested in optimizing growth efficiency in their production systems.

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Table 3. Ram carcass and feed efficiency

Ear Tag	Reg. #	REA (sq. in.)	Fat Depth (in.)	REA (sq. in./ 100 lb BW)	21-Day Avg. DMI (lb/day)	21-Day DMI Total (lb)	21-Day BW Gain (lb)	21-Day F:G (lbs feed/lb gain)
W1	Y21576	2.64	0.35	1.19	4.52	92.04	13	7.08
W2	Y21575	2.76	0.31	1.23	3.34	66.92	15	4.46
W3	Y21574	3.95	0.35	1.58	6.15	125.84	29	4.34
W4	Y21548	2.98	0.41	1.40	5.44	111.07	23	4.83
W5	Y21544	2.81	0.27	1.70	.	.	.	.
W6	Y21546	3.24	0.31	1.56	4.06	83.36	20	4.17
W7	Y21547	2.84	0.31	1.38	4.68	92.27	25	3.69
W8	Y20954	4.03	0.45	1.47	5.26	103.78	17	6.10
W9	Y20947	3.30	0.43	1.14	5.46	112.61	14	8.04
W10	Y21487	3.08	0.39	1.27	3.76	78.77	15	5.25
W12	Y21541	2.81	0.31	1.35	2.24	48.27	19	2.54
W13	Y21540	3.18	0.33	1.49	5.36	106.4	17	6.26
W14	Y21550	3.44	0.39	1.67	5.46	111.63	17	6.57
W15	Y21551	2.71	0.31	1.39	4.77	97.42	15	6.49
W16	Y21589	3.43	0.37	1.20	4.77	97.46	22	4.43
W17	Y21590	2.98	0.35	1.21	4.58	91.68	14	6.55

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