Columbia ram performance testing and certification: 2023-2024 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 serves as valuable selection tools to help 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 utilize the Dakota Ram Test to generate performance data that can be used 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 in their flocks. Fourteen Columbia rams were consigned to the 2023-2024 Dakota Ram Test. Of these, 21% met the CSBA criteria for Certified Columbia Ram designation.

Introduction

The Dakota Ram Test is a 140-day ram performance test that evaluates differences in ram wool and post-weaning 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 the program initiated in 2017 to promote overall breed improvement.

Procedures

Fourteen spring-born registered Columbia rams were consigned by eight producers and received by the HREC on or before September 17, 2023. Before the test period, rams were evaluated by the Dakota Ram Test committee, and scores for face wool covering and belly wool expansion were recorded. Scores were assigned on a four-unit basis (1-4), with higher scores representing a greater degree of wool covering or expansion. To determine average daily gain (ADG), initial bodyweight was recorded at the beginning of the testing period (Sept. 21, 2023), every 28 days and at the end of the testing period (Feb. 8, 2024). Rams were shorn, staple length was measured and wool samples were collected on February 9, 2024. 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) analyses. Clean-fleece weight was determined from laboratory-scoured clean yield estimates and adjusted to estimate 365-day clean-fleece weight (Adj. CL FL) production. A real-time carcass ultrasound at the end of the testing period estimated ribeye area and fat cover between the 12th and 13th ribs. Ribeye area was adjusted to account for differences in ram bodyweight and reported as inches per 100 pounds. The criteria for CSBA certification as Certified Columbia Rams are in Table 1.

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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 bodyweight
Face Wool Score	≤ 3
Belly Wool Score	1
Scrapie Resistance Genotype	RR or QR at Codon 171

Results and Discussion

Fourteen Columbia rams completed the 2023-2024 Dakota Ram Test. Rams averaged 0.84 pounds of gain per day over the 140-day test period and gained an average of 118 pounds. Columbia ram fleeces averaged 9.19 pounds of 365-day adjusted clean wool, a 25.95-micron fiber diameter and a 4.6-inch 365-day adjusted staple length. Average ribeye area was 2.81 square inches, and average fat depth was 0.38 inches. Three rams met all the requirements to qualify for CSBA Certified Columbia Ram designation (Table 2). Of the remaining 11 rams, two rams did not meet the fiber diameter requirement, one ram did not meet the scrapie genotype requirement (lack of test), four rams did not meet the ADG requirement, eight rams did not meet the adjusted ribeye area requirement, 10 rams did not meet the staple length requirement and one ram did not meet the belly wool score requirement. Despite this, Columbia rams produced in the northern Great Plains are improving, as evidenced by an increased certification rate (21%) in the 2023-2024 Dakota Ram Test. This is a 7% higher certification rate than in 2023, a 14% higher rate than in 2022 and only 1% lower than the highest percentage of certification at the Dakota Ram Test since guidelines were outlined by the CSBA in 2017.

Acknowledgments

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?
Y-4	Y20457	24.05	3.7*	0.99	1.05*	1.00	1.25	QR	N
Y-6	Y20443	24.23	5.0	0.86	1.50	1.00	1.75	RR	Y
Y-5	Y20442	24.35	5.1	1.06	1.30	1.00	1.00	QR	Y
Y-3	Y20456	24.73	4.23*	1.11	0.98*	1.00	1.00	QR	N
Y-9	Y18973	25.13	4.9	0.85	1.54	1.00	1.50	QR	Y
Y-12	Y20446	25.58	4.1*	0.86	1.03*	1.00	1.75	RR	N
Y-1	Y20471	25.63	4.7*	0.88	1.05*	1.00	1.50	QR	N
Y-14	Y19968	25.93	4.7*	0.65*	1.66	1.00	1.00	RR	N
Y-11	Y20445	26.13	5.3	0.64*	1.18*	1.00	2.50	QR	N
Y-10	Y19705	26.23	4.7*	0.76*	1.41	4.00*	1.25	RR	N
Y-13	Y19969	26.78	4.7*	0.72*	1.12*	1.00	1.25	NT*	N
Y-7	Y20441	27.13	4.4*	0.81	1.23*	1.00	1.00	QR	N
Y-2	Y20472	28.23*	4.6*	0.68	0.91*	1.00	1.50	RR	N
Y-8	Y20461	29.28*	4.5*	0.94	1.17*	1.00	1.25	QR	N

Double Line = Fiber diameter separation for staple length requirement
* = Does not meet the certification requirement
ADG, average daily gain; Adj. STL, adjusted staple length, Adj. REA, adjusted ribeye area