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The Importance of Federal Grazing to Sheep Ranching in the Western U.S.

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INTRODUCTION

In the western United States, sheep ranching is a key part of the economy (Table 1). The 2022 Census of Agriculture classifies 11,883 agricultural operations in the 11 western states as sheep ranches¹ (USDA 2024). These ranches operate on 4.2 million acres of land and generated \$339.4 million of agricultural production in 2022. They also accounted for the majority of the 1.3 million head of breeding ewes in the region in 2022 (NASS 2024). Sheep ranching in the region is also important to national sheep production, representing 30 percent of the sheep ranches, 58 percent of the ranch land, 56

percent of the market value of agricultural production, and 45 percent of the breeding ewes in the U.S.

Federal grazing is an important part of the grazing systems for many sheep ranches in the western U.S., often providing the majority of the forage during certain times of the year. As shown in Table 1, land managed by the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) provides 1.0 million Animal Unit Months² (AUMs) of sheep grazing annually (USDI 2023 and USDA 2020). Almost all of the USFS and BLM grazing is located in the 11 western

1 NAIC code 11241

2 An Animal Unit Month is the amount of forage required for five mature sheep for one month.

Table 1. Sheep Ranching in the 11 Western States

State	Sheep Ranches (1)	Ranch Land (Acres) (1)	Value of Agriculture Production (000\$) (1)	Ewe Sheep Inventory (2)	USFS Authorized Sheep AUMs (3)	BLM Authorized Sheep AUMs	Total Authorized Federal Sheep AUMs
AZ	4,203	337,619	\$7,748	56,000	23,473	261	23,734
CA	1,328	468,209	\$63,764	270,000	26,175	8,375	34,550
CO	643	426,022	\$98,420	155,000	95,892	36,325	132,217
ID	606	251,539	\$40,876	115,000	106,210	55,895	162,105
MT	436	404,397	\$24,575	122,000	7,951	22,751	30,702
NV	135	103,150	\$6,736	49,000	33,637	67,091	100,728
NM	1,494	817,321	\$7,471	54,000	2,066	50,565	52,631
OR	1,235	118,792	\$16,006	84,000	18,961	4,339	23,300
UT	799	395,066	\$34,986	196,000	139,404	120,826	260,230
WA	730	20,706	\$3,033	28,000	3,073	0	3,073
WY	274	859,341	\$35,788	215,000	41,737	146,131	187,868
Total	11,883	4,202,162	\$339,403	1,344,000	498,579	512,559	1,011,138
U.S.	39,814	7,259,144	\$607,952	2,962,000	500,593	512,559	1,013,152
	29.8%	57.9%	55.8%	45.4%	99.6%	100.0%	99.8%

Source:

- (1) 2022 Census of Agriculture, NAICS Code 11241
- (2) NASS Ewe Sheep Inventory, Jan 1, 2022
- (3) USFS Grazing Statistical Summary FY2020
- (4) BLM Public Land Statistics 2022

states (99.8%). A total of 21,567 federal cattle and sheep grazing permittees in the 11 western states use these federal AUMs (USDI 2023 and USDA 2020).

The purpose of this analysis is to quantify the importance of federal grazing to the sheep ranching industry in the 11 western states by estimating the percentage of the region's total breeding ewe inventory located on sheep ranches using federal grazing. This estimate provides an indication of the relative importance of federal grazing to the sheep ranching industry in the region.

METHODOLOGY

Since the number of breeding ewes on ranches using federal grazing permits is not reported by the management agencies, it must be estimated. Previous research used ranch budgets to estimate this number. Mosley, Smith, and Ogden (1990), using federal grazing dependency estimates from a 1984 ranch budget analysis by Gee (1984), concluded that there is at least a 40 percent dependency rate on federal grazing for stock sheep in the 11 western states. In the 1984 budget analysis, Gee used 73 ranch budgets from the 11

western states to estimate federal grazing dependency for sheep ranches in the region. Unfortunately, the number of ranch budgets available for sheep ranches using federal grazing is much more limited today. In addition, budgets are not available for all states, and those that are available are not standardized or updated regularly.

As a result, an alternative methodology was used for this analysis. In 2000, Gentner and Tanaka (2002) conducted a nationwide survey of federal lands grazing permittees. Based on the survey results, the authors reported the federal grazing dependency by season of use for sheep ranches using federal grazing. Their estimates were used in this study to estimate the average number of federal AUMs per breeding ewe. The total number of federal sheep AUMs (USDI 2023 and USDA 2020) was divided by this ratio to estimate the number of breeding ewes on sheep ranches using federal grazing; this number was then compared to the total breeding ewe number (NASS 2024). The results from this methodology were compared with estimates from the few comparable ranch budgets available.

RESULTS

Table 2 summarizes the federal grazing dependency for sheep ranches using federal grazing by season of use from Gentner and Tanaka. Due to limitations on season of use for much of the federal grazing, federal grazing dependency varies by season, ranging from a peak in the summer when the dependency is more than 50 percent to a low of 29 percent in the spring. The annual average dependency for the four seasons is 37 percent.

Table 3 summarizes the estimation of the number of breeding ewes on sheep ranches using federal grazing. If 3.8 AUMs are required per ewe (Moline et al, 1994), a 37 percent dependency implies 1.4 federal AUMs per ewe. This estimate is comparable to the 1.3 federal AUMs per ewe average from ranch budgets for Idaho sheep ranches with federal grazing (University of Idaho 2021) and the 1.5 federal AUMs per ewe estimate from sheep ranch budgets for the Wyoming Region (American Sheep Industry Association, 2019).

Dividing the total number of federal AUMs of sheep grazing (1,011,138) by 1.4 AUMs per ewe results in an estimate of 715,966 head of breeding ewes on sheep ranches with federal grazing. This represents 53 percent of the total breeding ewes in the 11 western states (1.3 million head).

SUMMARY

The results from this analysis indicate that federal grazing is important to sheep ranching in the western U.S., supporting 53 percent of the breeding ewes in the 11 western states (Figure 1). This represents 715,966 head of breeding ewes, which generated \$180.9 million in agricultural production in 2022.

Table 2. Dependency on Federal Grazing for Sheep Ranches

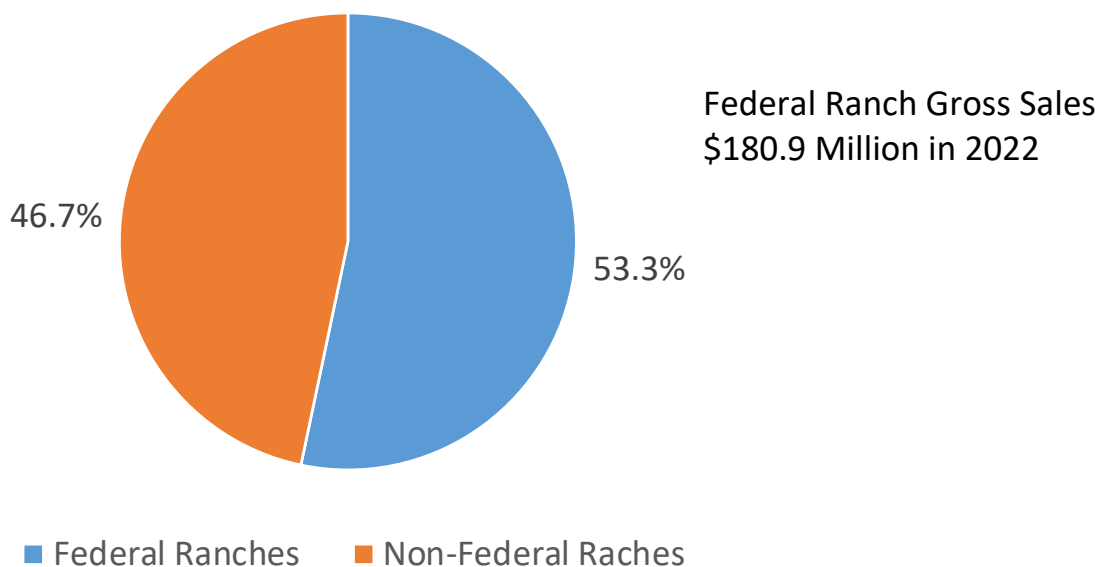
	Spring	Summer	Fall	Winter	Annual
Dependency	29.0%	51.2%	35.6%	32.8%	37.2%

Source: Gentner and Tanaka (2002)

Table 3. Breeding Ewes on Sheep Ranches Using Federal Grazing

		Source
Total AUMs Per Breeding Ewe	3.8	Moline et al, 1994
Annual Federal Dependency	37.2%	Gentner & Tanaka, 2002
Federal AUMs Per Ewe	1.4	
Total Federal AUMs - 11 Western States	1,011,138	USDA, 2020 & USDI, 2022
Federal AUMs Per Ewe	1.4	
Ewes on Federal Grazing Ranches	715,966	
Ewes on Federal Grazing Ranches	715,966	
Total Breeding Ewes - 11 Western States	1,344,000	NASS, 2022
Percent Ewes - Federal Grazing	53.3%	

Figure 1. Breeding Ewes on Sheep Ranches Using Federal Grazing in the Western United States





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