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Sheep production on high desert rangelands and irrigated pasture

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Key words : rangeland, sheep, grazing, lamb, wool

Introduction Rafter 7 Ranch, located near Yerington (38°59'7" N and 119°9'55" W), Nevada, USA, manages a flock of 1500 breeding ewes and 35 stud rams. The ranch includes approximately 3,400 acres of private land and grazing permits on 85,000 acres of Bureau of Land Management and 4,500 acres of USDA Forest Service lands. The University of Nevada, and the E.L. Wiegand Trust have had a cooperative sheep breeding program at the ranch since 1990 (Wuliji et al., 2007).

Materials and Methods The flock is scheduled for spring and fall lambing, and once a year spring pre-lambing shearing. Fall breeding is in November for spring lambs born in April, while spring breeding is in June for fall lambs born in November. The current breeding program includes about 1100 ewes for spring and 400 ewes for fall lambing. Breeding management includes single sire mating on irrigated pastures for 2 estrus cycles (35-40 days). The wool clip is classed on pre-shearing mid-side wool sample tests (OFDA 2000 system) and fleeces are baled and marketed in five micron categories. The spring lambing flock winters on desert rangelands, is grazed on irrigated pasture from shearing through lambing and weaning. Rafter 7 Ranch, however, has only desert shrub-grass public rangeland grazing permits permitted after grass seed-set in July until spring grass growth begins. Fall lambing ewes remain on irrigated pasture until their lambs are weaned. Desert rangeland shrubs include black greasewood (*Sarcobatus vermiculatus*), Basin big sagebrush (*Artemisia tridentata* sub sp. *tridentata*), black sagebrush (*A. nova*), bud-sage (*A. spinescens*), white sage (*Ceretoides lanata*) and Ephedra (*Ephedra* spp.). Grass species include Indian ricegrass (*Oryzopsis hymenoides*), bottlebrush (*Elymus elymoides*), and cheatgrass (*Bromus tectorum*). The established pastures were primarily tall fescue (*Festuca arundinaceae*), over-seeded with Ladino clover (*Trifolium repens*). Improved irrigated pastures include a mix of tetraploid perennial ryegrass (*Lolium perenne*), fescue cultivar a grazing variety of alfalfa (*Medicago sativa*) and Ladino clover. An additional 120 acres of irrigated land is used for alfalfa hay production and aftermath grazing. Irrigated pastures, 35 pastures at 1-15 acres, are set stocked during breeding and lambing in an intensive rotation system.

Results and Discussion Lamb sales, breeding stock and surplus animal sales have increased. Weaning weight was lighter for ewes than rams and also lighter for multiple birth and reared lambs than single reared lambs, whereas, two year old dams had lighter weaned lambs compared mixed age dams (Rauw et al., 2007) for 7 consecutive years, wool sales from Rafter 7 Ranch have been the highest price wool clip in the USA. Number of sheep producing fine micron category wool has been increased over last two years due to selection (Table 1). Genetic merits of Rafter 7 Ranch rams have been transmitted to many flocks in the USA, Canada and Mexico.

Table 1 Pre-shearing wool fiber diameter (FD) test results of 2006 and 2007 clips.

Wool class	Diameter Range (μm)	2006 Shear			2007 Shear			Staple Length (cm) 2006/07
		Number of fleece	FD (μm)	FD CV%	Number of fleece	FD (μm)	FD CV%	
Superfine	13.9-18.0	583	16.8	18.2	355	17.2	19.3	6.8/8.9
Fine	18.1-20.2	558	19.2	17.6	728	19.2	19.2	7.8/9.1
Medium (A/B)	20.3-22.5	615	21.2	16.9	733	21.3	18.7	8.5/9.6
Strong	22.6-36.8	207	23.4	19.1	202	23.7	18.9	9.5/10.2
Total		1963			2018			

Conclusion Sheep breeding and Education Program at Rafter 7 Ranch showed a great potential for genetic improvement of sheep flocks and dissemination of efficient ranching information among western US rangeland sheep ranchers.

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