

Influence of protein supplementation on one-seed juniper preference by sheep and goats

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Introduction

Prescribed grazing with sheep and goats could be used to suppress the re-invasion of one-seed juniper into cleared areas in New Mexico. Mono- and sesqui-terpenoids in this juniper, however, could serve as defense against herbivory and could cause animal toxicosis. Protein supplementation of domestic livestock has been successfully used to improve terpene detoxification and boost intake of other juniper species. However, information specific to one-seed juniper is lacking. There is a need to develop proper supplementation strategies to use sheep and goats as a tool to control one-seed juniper saplings.



Objective

Test the effect of two kinds of protein supplements on juniper consumption by sheep and goats in different seasons of the year.

Methods



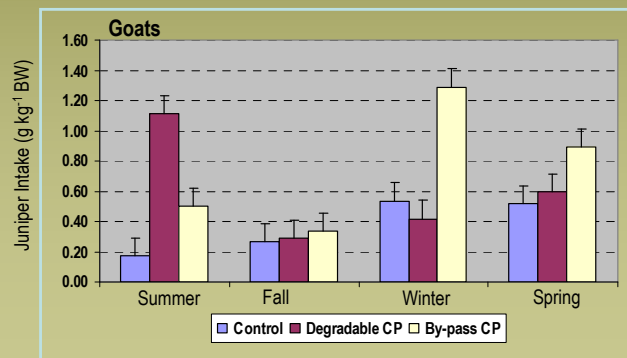
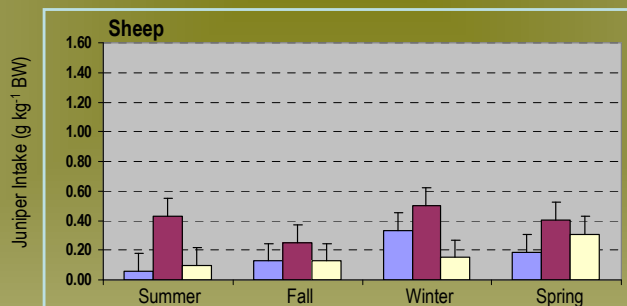
One seed juniper intake by 12 Rambouillet ewes and 12 Spanish-Boer nannies was studied in relation to 3 isoenergetic diets varying in the amount and quality of crude protein (Table 1), using 30-minute pen feeding trials during 10 days in summer, fall, and winter. Diets were offered at a level of 1.6% of body weight (BW). A 10 day adaptation period to diets was used before conducting trials in each season

Table 1. Experimental diets used in the study

	Treatments		
	Control	DCP	BPCP
	-----%-----		
Sudangrass	71.2	71.4	70.7
Ground Corn	23.3	1.0	11.7
Soybean Meal 47	0.0	23.1	0.0
Fish Meal 60	0.0	0.0	14.7
Minerals/Vitamins	5.5	4.5	2.9
Total	100.0	100.0	100.0
ME (Mcal KgDM ⁻¹)	2.0	2.0	2.0
CP (%)	5.0	12.5	12.5

Values are shown on a dry matter basis.
DCP: Degradable Crude Protein; BPCP: By-pass Crude Protein.

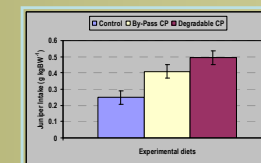
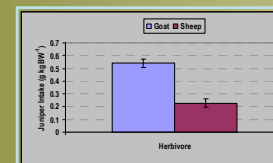
Results



Spanish-Boer nanny and Rambouillet ewe during a juniper feeding trial.



Nannies consumed significantly more juniper than ewes and protein supplements more than doubled juniper intake by both sheep and goats.



Goats aggressively defoliated juniper branches (Right). Sheep consumed leaves in a more selective manner (Left).

Conclusions

1. Sheep and goats could be used to suppress juniper sapling encroachment.
2. Goats, however, consumed more juniper; protein supplements had a stronger influence on juniper intake of nannies.
3. Choice of appropriate protein supplement may depend on season and/or previous levels of juniper ingestion.

Acknowledgments

This study was funded by the Joe Skeen Institute for Rangeland Restoration, the Corona Range and Livestock Research Center, the New Mexico Agricultural Experiment Station, and the USDA-ARS Jornada Experimental Range. Authors wish to thank Stephanie Lopez, Godfrey Khumalo, Kyle Jackson, Adam Lujan, Josh Miller, and Carolina Fabbri for their assistance in juniper collection and conduction of feeding trials.