

Sheep Grazing Preference and Nutrient Cycling Implications Among Cover Crop Species

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Highlights

- Sheep removed >90% of oat and wheat biomass, indicating strong grazing preference for these species
- Buckaroo barley produced the greatest biomass but was among the least preferred
- Among legumes, sheep removed 71% of Woolly Pod Vetch biomass

Introduction

The vast and interspersed livestock and crop industries of Texas lend opportunity for livestock integration to benefit regional agricultural systems. Texas leads sheep production in the U.S. and small ruminant integration in crop systems has become an appealing opportunity in recent years due to strong meat markets and generally poor commodity crop markets. Many winter cover crops are likely suitable forages, and challenges of nutrient immobilization could be (at least partially) mitigated by ruminant digestion and excretion. Information is limited, however, regarding grazing preference and nutrient implications of different species.

Methods

- Randomized complete block design, 5 x 20 ft plots, 4 replications
- Sheep stocking rates and “grazing events” simulated high intensity grazing
- Forage was sampled pre- and post-grazing along with overhead canopy imagery of individual plots

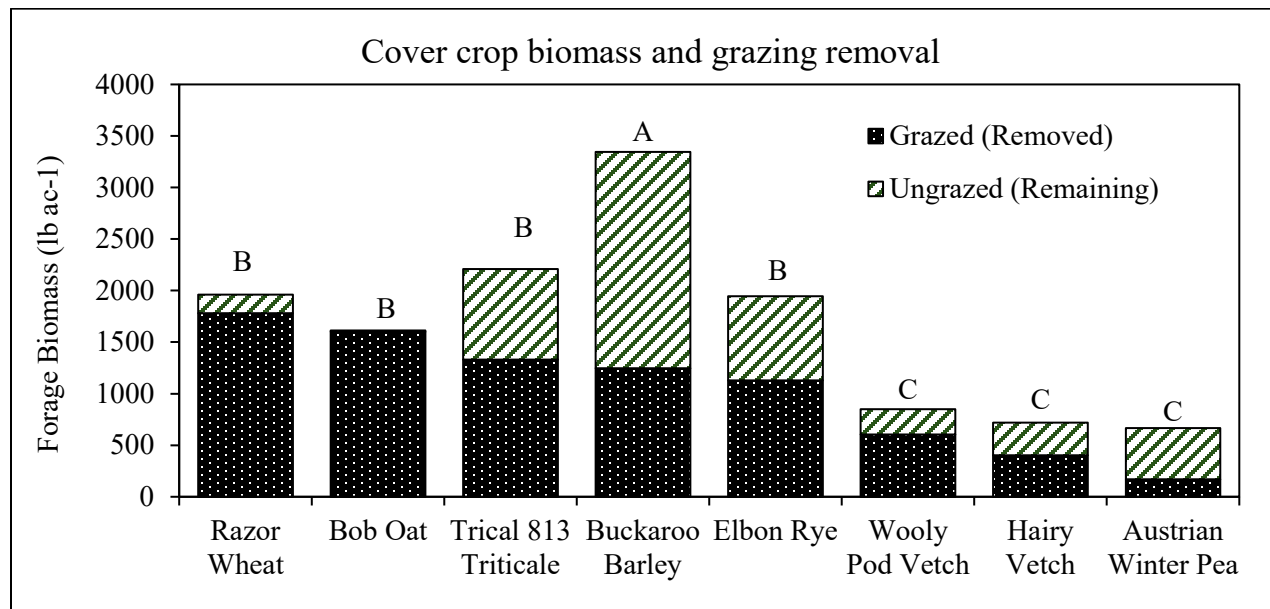


Figure 1. Total cover crop biomass and biomass removal by sheep.

- Canopy imagery analyses align with relative percentages of forage removal

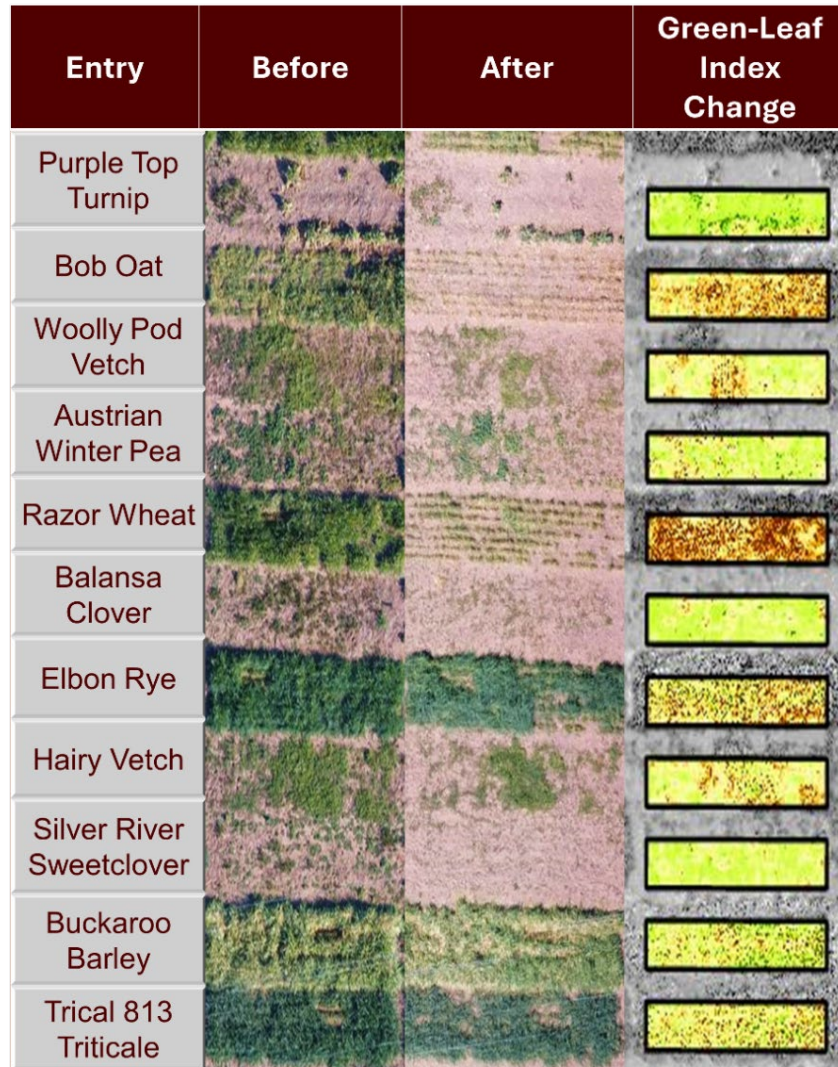


Figure 2. Green-Leaf Index changes before and after grazing event.

Summary

This research demonstrates that more productive species aren't always preferred by sheep and that sheep display strong preferences for certain forage species. It is important to note that prior exposure to certain forages probably does have an influence on selectivity. On an individual farm or flock basis, species composition of grass and legumes could potentially be modified to maximize productivity of yield, animal gain, and soil nutrient benefits.

Future Research

- Assess nutrient value for animal gain projections and possible alignment with grazing preference
- Assess implications of livestock integration on nutrient cycling in cropping systems
- Utilize sheep grazing preferences to determine efficient cover crop seed mixes/rates for optimal yield and soil nutrient benefits