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EFFECT of TWO DIFFERENT GRAZING SYSTEMS ON THE PERFORMANCE of BEEF CATTLE GRAZING ON HILLY RANGELAND CONDITIONS

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INTRODUCTION

The grasslands account for 28% of all area of Turkey. This is equivalent of 21 million ha. In general, the animal husbandry is carried out under extensive conditions and based on grasslands in the Eastern part of Turkey where Kars Province is located and 41% of the whole grassland area of the country is present.

Kars province has a unique place in the region in terms of both the number of cattle and sheep and the larger area of grassland available.

Total Area of KARS Province

944 207 Ha

Agriculture

36.3 %

342 997 Ha

Urban

25.7 %

243 060 Ha

Forestry

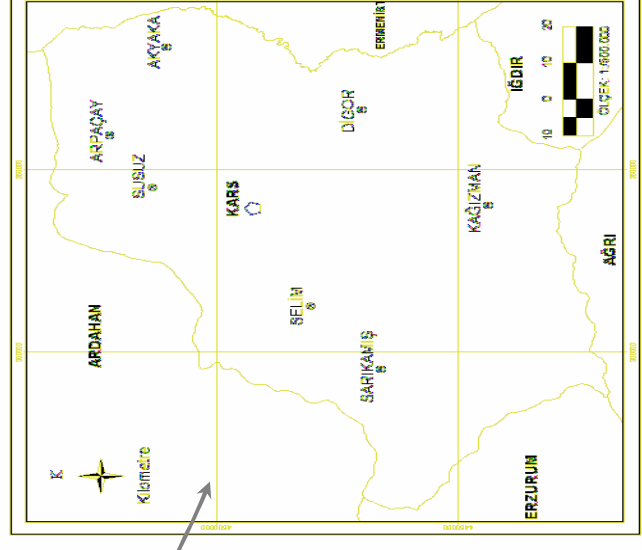
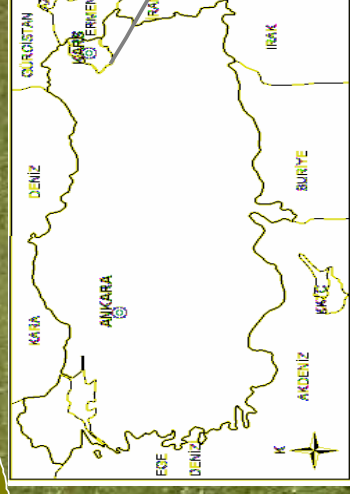
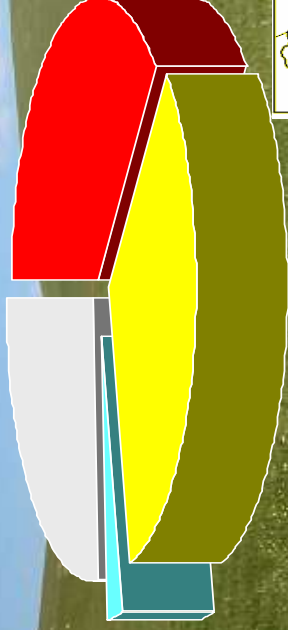
3.3 %

30 300 Ha

Grassland

34.7 %

327 850 Ha



INTRODUCTION...

There are many arguments for and against the different grazing systems for improving performance of grazing animals. However, there is no one system that “best” for all situations.

Producers that utilize grazing livestock are continually faced with the need to develop, implement, monitor and evaluate their grazing systems. Effective and efficient grazing systems are the backbone of profitable cattle and sheep operations.

INTRODUCTION...

Set Stocking (Continuous) grazing allows animals to graze selectively, individual animal performance is usually maximal. However, due to the selective grazing nature of animals, some forages are overgrazed while less desirable plants are undergrazed, which damages or wastes grassland.

Rotational grazing system requires much more fencing than the other systems do. It is more labor intensive and often more expensive than traditional continuous grazing; however, the introduction of electric-powered fences that are easy and quick to build has made subdividing pastures easier and more economical.

OBJECTIVE

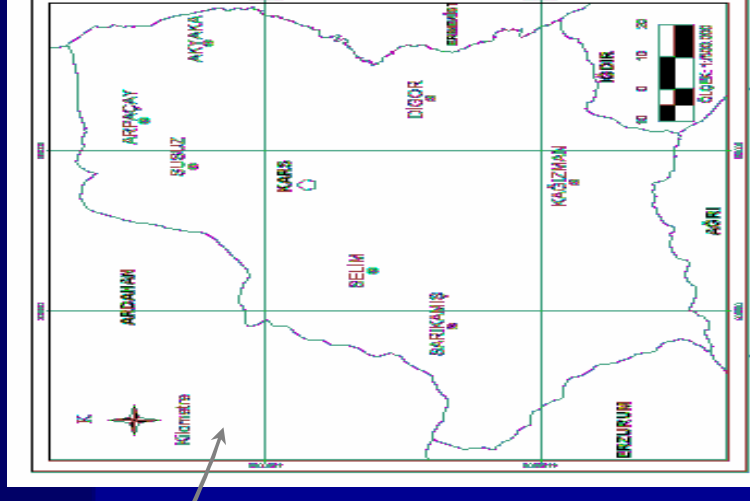
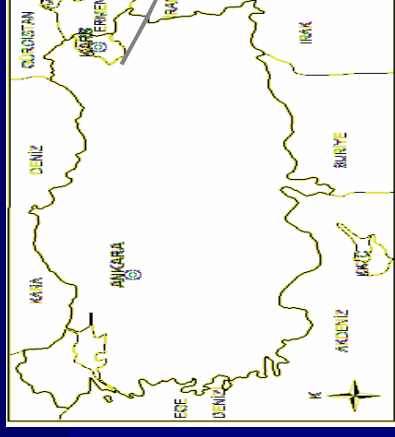
Therefore, it was aimed to evaluate two different grazing systems (set stocking vs rotational) for the performance of grazing beef cattle on hilly rangeland conditions.

MATERIALS and METHODS

Experimental location and climate

The experiment was conducted in a village community owned pastures in Kars Province in the Eastern part of Turkey.

Experimental area is located between 40°-33' North and 43°-21' East with 2090m latitude.



Climate in the area is very harsh and rainfall occurs in spring; winter temperatures are much lower than the rest of the country, particularly in the highlands of this region nearly the whole area is under snow from November to March or April.

MATERIALS and METHODS...

Experimental design and sample collection

- The experiment lasted from mid- May to mid-August in 2007 for 90 days.
- Two grassland areas were chosen next to each other and treatments were defined as:
 - **SG**- Set stocking Grazing
 - **RG**- Rotational Grazing (10 ha fenced with 5 paddocks)
- Total of 60 animals (Simmental, 6 months)
- Data were analysed by GLM procedure, taken initial weight as covariate.

An area of 10 ha was fenced with wires in 5 paddocks.



To monitor chemical composition of grass 3 sub-plots (16 m²) were fenced within both areas to collect the grass samples from SG and RG areas every two weeks in order for monitoring vegetation cover.



Another view from a typical plot



Herbage biomass was measured by hand clipping herbage at ground level within quadrats (1m $\times$ 1m).



Sward height was measured as the height of the top surface of the leaf canopy using wooden sward stick calibrated at 1 cm intervals.



MATERIALS and METHODS...



MATERIALS and METHODS...



RESULTS AND DISCUSSION

There were no significant ($P > 0.05$) variation in botanical composition, biomass and sward height between both areas since they were at the same location. However, the Gramineae was the most predominant plant type in SG while Leguminosae was the most predominant in RG.

RESULTS and DISCUSSION...

Animal performance comparisons

Grazing Type	N	IW (kg)	s.e.	FW (kg)	s.e.	TWG (kg)	s.e.	DLWG (kg)	s.e.
Rotational	30	195 ^a	4.2	291 ^a	5.5	96 ^a	4.9	1.100 ^a	0.02
Set Stocking	30	181 ^b	8.9	263 ^b	9.6	82 ^b	9.1	0.940 ^b	0.03

IW= Initial weight

FW=Final Weight

TWG=Total Weight Gain

DLWG= Daily Live Weight Gain

There were statistically significant differences ($P<0.05$) in DLWG between RG and SG group animals. Rotational grazing resulted in greater weight gains than set stocking to achieve maximum cattle performance.

RESULTS and DISCUSSION...

Although there are similar and contradictory results found in the literature to the findings of this study. Rotational grazing has shown superiority over set-stocking grazing on high mountain ranges in many studies.

CONCLUSION

Therefore, it was concluded that rotational grazing using electrical fencing system can substantially improve grazing performance of beef cattle in the highlands of the eastern part of Turkey.

THANK YOU FOR YOUR PATIENCE