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.
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.
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×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...
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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 Graminea was the most predominant plant type in SG while Leguminosea was the most predominant in RG.
## RESULTS and DISCUSSION...

### Animal performance comparisons

<table>
<thead>
<tr>
<th>Grazing Type</th>
<th>N</th>
<th>IW (kg)</th>
<th>s.e.</th>
<th>FW (kg)</th>
<th>s.e.</th>
<th>TWG (kg)</th>
<th>s.e.</th>
<th>DLWG (kg)</th>
<th>s.e.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotational</td>
<td>30</td>
<td>195&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.2</td>
<td>291&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.5</td>
<td>96&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.9</td>
<td>1.100&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.02</td>
</tr>
<tr>
<td>Set Stocking</td>
<td>30</td>
<td>181&lt;sup&gt;b&lt;/sup&gt;</td>
<td>8.9</td>
<td>263&lt;sup&gt;b&lt;/sup&gt;</td>
<td>9.6</td>
<td>82&lt;sup&gt;b&lt;/sup&gt;</td>
<td>9.1</td>
<td>0.940&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.03</td>
</tr>
</tbody>
</table>

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.
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.
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