



Tropentag, September 15-17, 2021, hybrid conference

“Towards shifting paradigms in agriculture
for a healthy and sustainable future”

Influences on Livestock Weight Gain by Grazing Patterns and Herd-management Strategies in the Gobi, Mongolia

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Abstract

Pastoralism is a widely distributed livelihood strategy in semi-arid and arid regions, which are often high in environmental variability but low in overall biomass production. Globally, pastoralists adapt their herding strategies to external factors, and mobility has been the key for sustainable utilisation of pastureland for centuries. In Mongolia, nomadic pastoralism is still practised by around 1/3 of the human population, and pastoralists have to cope with harsh climatic conditions. To select high quality pasture resources, Mongolian pastoralists frequently travel between and around camp sites. Pastoralists of the Dzungarian Gobi actively tend their small livestock (sheep and goats) throughout the day while following them on horseback, motorbike or by foot. Livestock has to gain enough weight during the short vegetation period in summer to get through the hard winter months. To understand whether herd management strategies influence weight gain of sheep and goats, we equipped 19 livestock herds with GPS collars over a period of 20 months and combined movement patterns with weight gain measurements of 320 animals. Animals were weighed in two spring seasons, and once in autumn to determine weight gain during summer and weight loss during winter season and associate those factors to location. Furthermore, we assessed socio-economic drivers of 20 local pastoralists through individual interviews on their rangeland management. Our preliminary results suggest that more pro-active herd management strategies, mostly practised by younger herders, correlate with longer daily walking distances of livestock. The majority of herders (67%) followed their livestock on horseback, in line with traditional herding practices. Besides, our results indicate that a longer daily grazing time influences weight gain positively. We conclude that herding management practices are directly influencing animal weight gain which is important for the livestock wellbeing and, hence, herders' livelihoods.

Keywords: GPS collars, movement patterns, pastoralism