

Effect of grazing intensity on feed intake and productivity of sheep in the Inner Mongolian steppe

MSc Thomas Glindemann

Dr.-Vater: Prof. Dr. A. Susenbeth

The steppe of Inner Mongolia, autonomous region of China has severe ecological problems mainly caused by overgrazing, which leads to desertification accompanied by heavy dust and sand storms. The objective of this dissertation was to determine optimal grazing intensity of sheep, which realizes high animal productivity in a sustainable steppe ecosystem. Therefore, a grazing experiment with six different grazing intensities in a continuous grazing system was conducted in the growing season of 2005 in the Xilin River Basin. Since direct measurement of feed intake of grazing ruminants is not practical, feed intake was determined indirectly by fecal output and digestibility of herbage ingested. The inert marker titanium dioxide was evaluated for the estimation of fecal output. Although a diurnal variation in excretion of titanium dioxide in feces was found, fecal recovery was close to 100%, and therefore titanium dioxide can be used to reliably estimate fecal output of grazing sheep. In the grazing experiment, feed intake per sheep tended to decrease and live weight gain per sheep decreased significantly with increasing grazing intensity. However, feed intake per ha increased with grazing intensity and live weight gain per ha was not lower in the high grazing intensities. Although in the present study effects of grazing intensity on feed intake and productivity of sheep were found, an optimal grazing intensity could not be derived based on this one-year experiment. Therefore, this grazing experiment should be continued to include long term effects of grazing intensity on feed intake and productivity of sheep in the Inner Mongolian steppe.