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Response of arid grassland community standing crop to banning grazing and deferral grazing management

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Key word : gesert steppe ,community ,standing crop ,banning grazing ,deferral grazing ;

Introduction Spring deferral grazing is a grazing strategy that can avoid grassland damage from livestock grazing and trampling during the sensitive grasses-turning-green period . The strategy can effectively improve grassland ecological environment (Li et al .,2001 ;Zhao et al .,2003 ;Li,2005) . The study was conducted in two grazing systems of banning grazing and deferral grazing in *Stipabreviflora* desert steppe . Evaluations on the dynamics of forage yield were made for the two systems . The results may have important implication to the sustainable use of grassland and grassland ecosystem managements .

Materials and methods The study site is located in *Stipabreviflora* desert steppe in Sunit Right Banner of Inner Mongolian (42° 16'26"N ,112°47'17"E) . Annual-mean temperature is 6 .2°C and average precipitation is 209 mm . The experiment treatments were composed of a banning grazing plot (BG ,733 m²) ,deferral grazing plot one (DG1 ,1357 m²) ,deferral grazing plot two (DG2 ,1472 m²) ,deferral grazing plot three (DG3 ,2172 m²) a continuous grazing plot (CG ,2345 m²) . The grazing duration of DG1 ,DG2 and DG3 was 40 day ,50 day and 60 day ,staring from April 5 ,2005 ,April 15 ,2005 and April 25 ,2005 ,respectively . Continuous grazing plot was grazed from April 5 ,2005 . Stocking rate of the grazing plot was 149 sheep ha⁻¹ . Standing crops of the plant communities were measured .

Results and discussion The aboveground biomass of the standing crop in five treatments did not differ significantly in early grazing ($p > 0 .05$) . With continuation of grazing ,the aboveground biomass of the standing crop in the banning grazing plot was significantly higher than those of the other four plots . The biomasses in the three deferral grazing plots were also significantly higher than that of the continuous grazing plot($p < 0 .05$) . However ,the biomass yields in the three deferral grazing plots were not directly proportional to the deferral grazing time .

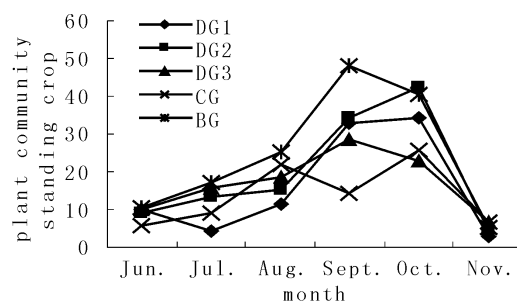


Figure 1 The dynamics of plant community standing crop .

Conclusion The banning grazing and deferral grazing could increase the aboveground biomass of the standing crop .

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