Effects of Fertilizer and Plant Density on the Fresh Biomass of Sudan Grass

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Introduction *Sorghum sudanense* Stapf . cv . Neinong No .1 was a hybrid of Sorghum and Sudan grass bred by our group . The objective of this study was to evaluate the effects of planting density and fertilizing level on fresh matter (FM) yield of Neinong No .1 . The optimum cultivation condition was obtained .

Material and methods Sudan grass No .1 was seeded with four randomized replications for 11 treatment plots and one control plot in a greenhouse in 2006 . The area of each plot was $14m^2$. The experimental field located in Huhhot . Data were analyzed with SAS 9 .0 software .

Results and analysis

Regression analysis of FM yield of Sudan grass The relation between FM yield and other factors were analyzed with the regression simulation method at different harvest time . One regression equation was obtained with stepwise regression :

y^2 (FM weight (kg) /2 m^2)＝—3 .35695＋0 .03885x_1＋3 .87533x_2＋0 .06993x_3 —0 .36936x_4

It is clear that the grass height (x_2) plays a major role in Sudan grass production . However , germination rate (x_1) had a minor influence on the FM yield .

Single-factor analysis For two harvest times : July 19 and September 2 , the differences of FM yield between 11 treatment plots and one control plot were not significant ($p > 0 .05$) . If analyzed with single-factor analysis of variance , however , the FM yield of Sudan grass in No .9 treatment plot was highest ($p < 0 .15$) , which was 14613. 97kg/667m^2 .

Conclusion In current study , the results showed that cultivating measurement combination of No .9 plot , in which planting density was 45022 plants/ha and 20kg additional urea was applied to the plot during the growth , was optimum for the maximum yield of FM of tested Sudan grass , which was harvested for four times .