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USE OF PLANT REGULATORS ON GRASS PASTURES

Project No. 3731

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Mefluidide on Crested Wheatgrass

Summary

Crude protein content of unfertilized crested wheatgrass drops below 10% in late June and it drops below 8% in early July (Whitman et al. 1951). These times correlate with the anthesis and seed development phenophases respectively. Nyren et al.(1983) has shown that fertilization increases the crude protein content in May, June, and July but it drops below 11% in early July and below 8% in mid July. Animal weight gains decrease for steers if grazed on crested wheatgrass after 1 July (Whitman et al. 1976).

If flower stalk development could be inhibited or delayed on a high percentage of the plants, the season of use of the pastures could possibly be extended and good animal weight gains continued later into the growing season.

Procedure

Two 20 acre pastures of crested wheatgrass were fertilized with 50 lbs. N/acre. One pasture was treated with a plant growth regulator (Mefluidide). Seven yearling Hereford steers grazed each pasture.

The data that was collected from these pastures were above ground herbage production and percentage difference between grazed and ungrazed plots, flower stalk density, leaf height measurements and flower stalk phenological phases, plant species composition by ten pin point-frame method and animal performance by weight change.

Results and Discussion

The 1985 grazing season was the first year of this study. The grazing period was from 16 May to 17 September (124 days). The steer weight gains (table 1 and 2) were good for most of the grazing season except for late July and early August. The mean total gain for the steers on the control pasture was 284 pounds with an average daily gain of 2.3 pounds. The mean total gain for steers on the mefluidide treated pasture was 243 pounds with an average daily gain of 2.0 pounds. The mean herbage production (table 3) was very similar between treatments except for the last clipping period when the control pasture had an increase in herbage production and the mefluidide treated pasture had a decrease in herbage production.

The mean number of leaves per plant increased during the growing season (table 4). The fourth leaf stage was reached in mid April. The plant growth regulator was broadcast applied on 2 May at the fourth leaf stage. It may be more desirable to apply the chemical at an early leaf stage. In July and August the ungrazed plants on the treated pasture had about 0.50 leaves per plant more than the control pasture. The number of leaves per plant on the grazed plants were also greater on the treated pasture than the control pasture. There was more than 1.0 leaf greater per plant in July but in August this was reduced to 0.30 leaves per plant greater on the plants on the treated pasture compared to the control pasture.

The number of flower stalks per foot squared was reduced on the treated pasture for all periods of data collection (table 5). The mean percent reduction from the growing season was about 43% but varied from 26% to 64%.

The herbage samples will be analyzed for nutrient content.

Definitive conclusions can not be made from one year of data. The effects of the chemical on the treated pasture did reduce the number flower stalks, the number of leaves per plant were slightly increased, the total herbage production was slightly reduced, and the total pounds of steer weight gain was slightly reduced.

Table 1. Mean Steer Weights

Treatment	16 May	14 Jun	12 Jul	26 Aug	17 Sep

	Pounds				
Control	675	799	873	904	959
Mefluidide	675	772	863	883	918

Table 2. Mean Steer Gain/Day/Head

Treatment	16 May- 14 Jun	14 Jun- 12 Jul	12 Jul- 26 Aug	26 Aug- 17 Sep
	lbs/acre			
Control	4.3	2.6	0.7	2.5
Mefluidide	3.3	3.3	0.4	1.6

Table 3. Mean Above Ground Herbage Production

Treatment	16 May	14 Jun	12 Jul	9 Aug	17 Sep
	lbs/acre				
Control					
Ungrazed	1780	1331	3270	3116	3534
Grazed		1371	1984	1172	1779
Mefluidide					
Ungrazed	1832	1283	3108	3094	1888

Grazed		1304	2008	1603	1315

Table 4. Mean Number of Leaves/Plant

Treatment	22 Apr	1 May	Jun	12 Jul	9 Aug
Control					
Ungrazed	4.2	4.0	---	5.6	7.0
Grazed			---	4.3	5.1
Mefluidide					
Ungrazed	4.0	3.7	---	6.1	7.4
Grazed			---	5.4	5.4

Table 5. Mean Flower Stalk Density

Treatment	3 Jun	21 Jun	12 Jul	25 Jul	9 Aug	17 Sep
Control						
Ungrazed	35	67	46	45	35	43
Grazed	31	48	16	7	7	10
Mefluidide						

Ungrazed	24	24	34	25	22	19
Grazed	17	16	9	7	5	1

Literature Cited

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