

## **INFLUENCE OF NITROGEN ON OLD CRESTED WHEATGRASS STANDS**

The nitrogen fertilizer trial on old crested wheatgrass stands, begun in 1951, was continued for the third season. Spencer Ammonium nitrate (33.5% N) was applied at three different rates to a 12 year old stand of crested wheatgrass on April 21, 1953. Rates of application were the same as in the previous years: light - 150 pounds fertilizer per acre (50 pounds N); medium - 300 pounds fertilizer per acre (100 pounds N); and heavy - 450 pounds fertilizer per acre (150 pounds N). Plots were 7' x 150' replicated four times. The fertilizer was broadcast on the surface from the fertilizer attachment on the grain drill.

The results of the trial are summarized in Table 4. The 1951 and 1952 plots were harvested to determine possible residual effects, and the data from these plots are included in the summary table. Overall yields from these plots this year were quite high compared to the yields obtained in the previous two years.

All rates of application produced appreciable increases in yield over the check this year. The light rate of application produced 4,348 pounds of dry forage per acre, an increase of 57.9 per cent over the check. The medium rate produced 5,508 pounds of forage, 99.5 per cent more than the check. The heavy rate did not produce quite as much forage as the medium rate, averaging 5,354 pounds per acre, which was 93.7 per cent more than the check.

Substantial residual effects were shown from both the 1951 and 1952 applications. In fact the increased production this year from the 1951 and 1952 applications at the medium and heavy rates was greater than the total increase in production for the previous years.

Despite the fact that substantial increases in forage production can be obtained from nitrogen applications in favorable seasons, it remains somewhat doubtful whether such applications are economically profitable. The applications at the medium and heavy rates made in 1951 have in the three season period produced just about a ton more hay than the check plots. With the cost of the ammonium nitrate fertilizer figured at \$100 per ton, the cost of the

medium application was \$15 for fertilizer alone and of the heavy, \$22.50. The value of a ton of hay would normally be about \$12 to \$15. The operation therefore would not quite have paid its way.

The 1952 and 1953 applications are also on the margin of being profitable. The heavy applications for the most part, do not seem to produce much more than the medium (100# N) applications. The choice would therefore be between light and medium rates of application. If the beneficial effects of these applications carry over for several more seasons, the possibilities of economic advantage in the operation will be much improved.

Table 3 - Influence of Nitrogen Fertilizer Treatments on Forage Production from an old Crested Wheatgrass Field. Hay Yields in Pounds per Acre - Oven-dry.											
Time of Application	Year of Yield	Yields from Treatments				Percentage Increase in Forage Production			Total Additional Forage Production		
		No N Check	50# N Light	100# N Medium	150# N Heavy	Light	Medium	Heavy	Light	Medium	Heavy
Spring - 1951	1951	1627	1976	2233	2250	21.5	37.2	38.2	349	596	623
	1952	467	456	720	841	-2.5	54.2	80.1	-11	253	374
	1953	3330	3532	4481	4485	6.1	34.6	34.7	202	1151	1155
TOTAL									540	2000	2152
Spring - 1952	1952	366	619	636	716	69.1	73.8	95.6	253	270	350
	1953	2897	4507	4635	5592	55.8	60.0	93.1	1610	1738	2695
TOTAL									1863	2008	3045
Spring - 1953	1953	2761	4348	5508	5354	57.9	99.5	93.7	1587	2747	2773

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