

NEW FERTILIZER TRIAL

Hay Yields From New Fertilizer Trial:

This trial was seeded in the spring of 1965 and originally consisted of plots of nordan crested wheatgrass, Lincoln Brome, Intermediate wheatgrass, and Russian wildrye. The brome and Intermediate wheatgrass plots suffered severe stand losses in 1958 and 1959, and consequently have not been harvested as part of the trial since 1960. Yield data for these latter two grasses have not been included in the summary tables. Lincoln brome has shown appreciable stand improvement since 1960, and a trial clipping was made in 1965. The plots of nordan crested and Russian wildrye include the following treatments: (1) Each grass in pure stand; (2) the grass in mixture with Ladak Alfalfa; (3) fertilized with 33 pounds N per acre ; (4) fertilized with 67 pounds N per acre; and (5) fertilized with 100 pounds N per acre. Fertilizer applications were made to the plots in the fall of 1957 and 1958, but all other applications have been made in the spring of each of the years.

Hay yields for nordan crested and Russian wildrye are given in table 10 for the period of 1958-1965. The 1965 yields, while not the highest hay yields that have been obtained on the plots, still represent excellent yields, being nearly equal to the 1963 yields, which are the highest yields yet obtained in the trial. The crested wheatgrass hay yields in the 1965 season were substantially better than the Russian wildrye yields, except for the 100 pounds N plots, where the wildrye yield of 4477 pounds per acre approached the crested wheatgrass yield of 4781 pounds per acre for the same treatment. The 8-year average yields show that under hay clipping the crested wheatgrass check plots and the grass-alfalfa plots have produced about 53 percent greater yield than the Russian wildrye plots. On the 33 pound N plots nordan crested has produced about 48 percent more than the Russian wildrye plots. At 67 and 100 pounds of nitrogen crested wheatgrass hay yields have been 38 percent and 25 percent greater than the wildrye yields.

The mixture plots with alfalfa, in the case of both nordan crested and Russian wildrye, showed fairly good increases over check yields in the 1965 season. The crested-alfalfa plots produced 35 percent more than the crested check

plots, while the wildrye-alfalfa plots produced 31 percent more than the wildrye check plots. However, the average yields for the 8-year period with both grasses show that the alfalfa-grass mixtures have produced only about 13 percent more than the check plots. The alfalfa largely disappeared from the stands after the second year of the trial, and as a result the mixtures have not produced as well as might be expected.

On the basis of average yields over the period of the trial all levels of fertilizer applications on both grasses have produced profitable increases in yield, although the first 33 pound increment of nitrogen has produced the greatest return per unit of nitrogen.

Table 10. Hay Yield of Two Grasses in Pure Stands, in Mixture with Alfalfa, and in Pure Stands Fertilized at Three Different Rates.						
Grass	Year	Dry-Weight Yield - Pounds/Acre				
		Grass Alone	With Alfalfa	33 Lbs. N	67 Lbs. N	100 Lbs. N
Nordan Crested	1958	1809	1647	1832	2491	2724
	1958	1416	1827	2120	1737	2011
	1960	2134	2485	2910	2713	2714
	1961	1036	1012	1187	1120	1108
	1962	1859	2136	3171	3242	3573
	1963	3075	3268	4438	6030	6881
	1964	905	1044	1016	1401	1458
	1965	1786	2412	3140	4281	4781
Average		1753	1979	2477	2877	3156
Russian Wildrye	1958	941	1111	1224	1613	1984

	1959	778	841	975	971	1086
	1960	1287	1312	1710	1823	1997
	1961	643	616	821	761	777
	1962	1338	1395	2041	2077	2746
	1963	1661	2230	2345	3806	4388
	1964	1425	1446	2132	2055	2694
	1965	1083	1415	2147	3618	4477
Average		1145	1296	1674	2091	2519

Pasture Yields from New Fertilizer Trial:

Pasture clipping yields have been taken on the nordan crested wheatgrass and the Russian wildrye plots for the 5-year period, 1961-1965. The clippings were made twice in the 1961 and 1963 seasons and three times in 1962, 1964, and 1965 seasons. Table 11 gives the pasture-clipping yields for each of the seasons of the trial and the average for the period for each treatment.

The pasture-clipping yields from both grasses were good in the 1965 season, but they were not the equal of the 1962 and 1963 yields obtained under pasture clipping. The yields from the Russian wildrye plots under all treatments with pasture clipping continued to be appreciably better than the crested wheatgrass yields under the same conditions. The Russian wildrye-alfalfa plots yielded about 6 percent more than the crested-alfalfa plots in the 1965 season. The 33-pounds-N Russian wildrye plots produced 26 percent more, the 67-pounds-N plots produced 34 percent more, and the 100-pound-N plots produced 43 percent more than the comparable crested wheatgrass plots. The 5 year average yields, however, do not indicate a significant difference in pasture-clipping yields between the two grasses.

The alfalfa mixtures with both grasses have not yielded much more than the check plots on the basis of the 5-year average production. The alfalfa largely disappeared from the plots from the plots two years after they were seeded,

and as a result the yield increases resulting from the addition of alfalfa have been disappointingly small. Nonetheless it is apparent from the 1965 yields that the effect of the alfalfa has continued to stimulate production under favorable conditions.

On the basis of the 5-year averages of the pasture-clipping trials all rates of fertilization on both grasses have produced increases in yield above the breakeven point on a pounds-of-nitrogen, pounds-of-grass value comparison. The returns from the 67-pounds-N rate on both grasses appears to be the most economical so far. The additional increase at the 100 pounds level is not great enough to justify the use of this heavier rate of fertilization.

Table 11. Pasture Clipping Yields of Two grasses in Pure Stands, in Mixture With Alfalfa, and in Pure Stands Fertilized at Three Different Rates.						
Grass	Year	Dry - Weight Yield - Lbs./Acre				
		Grass Alone	With Alfalfa	33 Lbs. N	67 Lbs. N	100 Lbs. N
Nordan Crested	1961	938	982	1001	1171	1134
	1962	2097	2284	2506	3098	3964
	1963	1875	2223	2459	3738	4388
	1964	1102	1100	1287	1338	1453
	1965	1093	1483	1581	2091	2127
Average		1421	1614	1767	2287	2613
Russian Wildrye	1961	656	679	793	836	912
	1962	2105	2221	2577	3134	3354
	1963	1372	1597	2126	3086	3506
	1964	980	1115	1592	2093	1859

	1965	1209	1574	1965	2812	3052
Average		1264	1437	1811	2392	2537

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