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Hay Yields From New Fertilizer Trial

In this trial, four grasses, Nordan crested wheatgrass, Lincoln Brome, Intermediate wheatgrass, and Russian Wildrye are grown alone, mixed with Ladak Alfalfa, and in plots fertilized with 33 pounds of nitrogen per acre, 67 pounds of nitrogen, and 100 pounds of nitrogen per acre. Fertilizer applications were made in the fall of 1957 and 1958, and in the spring of 1960. The 1961 application will be made in the spring. The trial was seeded in 1956.

The hay yields for each of the treatments for the years 1958, 1959, and 1960 are given in Table 13 and the 3-year average yields for the treatments are given in Table 14. In the 1960 season increased hay yields were obtained with alfalfa mixtures over the straight grass seedings , although the increased yield for Russian wildrye was relatively small as compared to the others. In the case of Nordan crested, Lincoln brome, and Russian wildrye yields increases with fertilizer were greater than the increases obtained with alfalfa.

The largest proportionate increases in yield were obtained with the first 33 pounds of nitrogen, and the applications over 33 pounds per acre would be uneconomical on the basis of increased returns. In the 1960 season, the 33 pound rate would have been profitable with all the grasses. Intermediate wheatgrass has shown some deterioration of stands and somewhat erratic results were obtained with this variety.

Table 13. Hay yields from grasses in pure stands, in mixture with alfalfa, and in pure stands fertilized at three different rates, 1958-1960.

Dry weight yield-Lbs./Acre						
Grass Variety	Year	Grass Alone	With Alfalfa	33# N	67# N	100# N
Nordan Crested	1958	1809	1647	1832	2491	2724

Intermediate Whtgr.	1958	1729	1706	1992	2466	2714
Lincoln Brome	1958	1461	1818	2205	2459	2342
Russian Wildrye	1958	941	1111	1224	1613	1984
Nordan Crested	1959	1416	1827	2120	1737	2011
Intermediate Whtgr.	1959	1033	1372	1244	1468	1325
Lincoln Brome	1959	936	1465	1630	1421	1279
Russian Wildrye	1959	778	841	975	971	1086
Nordan Crested	1960	2134	2485	2910	2713	2714
Intermediate Whtgr.	1960	1395	1980	1877	2259	1998
Lincoln Brome	1960	1265	1610	2151	2283	2203
Russian Wildrye	1960	1287	1312	1710	1823	1997

Table 14. Three-year (1958-60) average hay yields from grasses in pure stands, in mixture with alfalfa, and in pure stands fertilized with nitrogen at three different rates.

Dry weight yield-Lbs./Acre					
Grass Variety	Grass Alone	With Alfalfa	33# N	67# N	100# N

Nordan Crested	1786	1986	2287	2314	2483
Intermediate Wheatgrass	1386	1686	1704	2064	2012
Lincoln Brome	1221	1631	1995	2054	1941
Russian Wildrye	1002	1088	1303	1469	1689

The data of Table 14, giving the 3-year average yields, shows that appreciable increases in yield have been obtained with alfalfa in the mixture except in the case of Russian wildrye. Substantially better increases have been obtained with the use of 33 pounds of nitrogen per acre. The use of 67 pounds or 100 pounds rates of nitrogen per acre has not given enough additional increase to justify the use of these rates of application.

It is interesting to note that Russian wildrye has given a significant increase in yield with each increment of nitrogen, but taken as the average for the years of the trial, the increase in yield would not have been economical at any of the three rates of application.

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