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HAY YIELDS FROM GRASS PLOTS AND GRASS-ALFALFA MIXTURE PLOTS

1. GRASS PLOTS

Ten species and strains of grass were cut for hay from the small grass plot trials seeded in the spring of 1951. The data presented in Table 1 are the average yield of samples clipped from three 1/80th acre plots of each strain or species. All yield samples were taken with the hand shears, with two meter-square samples being cut from each of the three plots.

Yields from these plots were also taken last year, although the stands were not fully established at that time. The stands in this trial can all be rated as excellent now, and a numerical rating of 100 per cent has been assigned to the stands of each of the plots that were clipped this year in this trial.

The character of the growing season, with abundant and timely rains in the early part of the season, was very favorable to the growth and development of all cool season grasses. The average production of all species and strains was 1,955 pounds per acre, ovendry weight, this season in contrast to a production of 1,089 pounds per acre last year. A considerable proportion of the production of most species and strains last year was made up of weeds and volunteer sweetclover, as shown by the data of Table 1.

Standard crested wheatgrass was the top yielder this year a production of 2,727 pounds per acre. S-571 crested wheatgrass was second with a production of 2,618 pounds. Green stipagrass and Fairway crested wheatgrass both averaged better than 2,000 pounds per acre. Intermediate wheatgrass and pubescent wheatgrass averaged about 1,900 pounds per acre, while Lincoln bromegrass and common northern bromegrass averaged slightly less. Russian wildrye was the lowest producer, as it was last year.

2. MIXTURE PLOTS

Some of the plots in the grass and alfalfa mixture plot trial were harvested as hay for the second season this year.

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Although this trial contains 15 different grass and grass-alfalfa combinations, in three replications, with a total of 45 plots in the trial, some of the plots are not fully developed as stands. Consequently only eight combinations are available for harvesting on a comparable basis.

The yields for 1952 and 1953 from the eight combinations that were clipped in these two seasons are give in Table 2. The percentage composition of the yields are also given in the table. The forage yields this season range from a high of 3,783 pounds per acre (ovendry) for the combination of intermediate wheatgrass and alfalfa to a low of 1,730 pounds per acre for the combination of Mandan wildrye and green stipagrass. With one exception all combinations containing alfalfa yielded substantially higher than the grasses or or grass mixtures alone. The exception to this statement was the crested wheatgrass-alfalfa combination. The yield of this combination was 2,813 pounds per acre, only 104 pounds per acre more than the yield of crested wheatgrass alone. The composition figures for both seasons show that this combination is considerably lower in percentage of alfalfa than are the other grass-alfalfa combinations.

Table 1 - Hay Yields From Grass Plots Seeded in 1951 at the Dickinson Experiment Station.[1]

Species or Strains	1952		1953		Two Year Average
	Yield - Lbs./Ac.	% Weeds	Yield - Lbs./Ac.	% Weeds	
Standard Crested Wheatgrass	1178	20	2727	1	1953
S-571 Crested Wheatgrass	983	5	2618	1	1801
Green Stipagrass	1663	77	2094	4	1879
Fairway Crested Wheatgrass	1169	22	2034	1	1602
Intermediate Wheatgrass	1196	19	1921	2	1559
Pubescent Wheatgrass	1187	12	1846	2	1517
Lincoln Bromegrass	794	T[2]	1836	1	1315

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Northern Bromegrass	914	13	1795	1	1354
Tall Wheatgrass	1046	29	1596	3	1321
Russian Wildrye	759	40	1082	2	921
Average	1089		1955		

[1]Arranged in order of 1953 yields.
[2] Trace.

The combination of intermediate wheatgrass and alfalfa was outstanding in production this year. This combination produced 3,783 pounds per acre of dry forage, while intermediate wheatgrass alone produced only 2,006 pounds per acre. Alfalfa alone produced just slightly less than the combination of intermediate wheatgrass and alfalfa.

All of the fully established plots showed excellent weed control this season, with the exception of the Mandan wildrye-green stipagrass plots. Plots which have not become fully established include Mandan wildrye-Russian wildrye, bromegrass, bromegrass-alfalfa, tall wheatgrass, tall wheatgrass-alfalfa, and Mandan wildrye-Russian wildrye-green stipagrass. Most of these will probably be in full production in the 1954 season.

Table 2 - Hay Yields from Mixture Plot Trials Seeded in 1951 at Dickinson Experiment Station.[1]

Species and Mixtures	1952				1953				2 Year Av. Yield - Lbs./Ac.
	Yield - Lbs./Ac.	% Composition of Yield			Yield - Lbs./Ac.	% Composition of Yield			
		Grass	Alfalfa	Weeds		Grass	Alfalfa	Weeds	
Intermediate Wheatgrass and Alfalfa	1268	44	33	23	3783	48	51	1	2526
Alfalfa[2]	728	0	84	16	3388	0	99	1	2058

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Mandan, Wildrye-Russian Wildrye Green Stipagrass-Alfalfa	873	15	38	47	3312	37	61	2	2093
Mandan Wildrye-Russian Wildrye Alfalfa	917	16	47	37	2980	48	51	1	1949
Crested Wheatgrass-Alfalfa	979	52	16	32	2813	81	18	1	1896
Crested Wheatgrass	961	59	0	41	2709	96	0	4	1835
Intermediate Wheatgrass	992	76	0	24	2006	96	0	4	1499
Mandan Wildrye-Green Stipagrass	935	60	0	40	1730	87	0	13	1333
Average - Plots with grass only	963				2148				1555
Average - Plots with grass and alfalfa	1009				3222				2115

[1]Arranged in order of 1953 yields.
[2]One cutting only in both 1952 and 1953.

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