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HIGHER CROP YIELDS FROM IMPROVED VARIETIES

corn

soybeans

wheat

oats

legumes

grasses

Purdue University
Agricultural Extension Service
Lafayette, Indiana

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A COMPARISON OF TALL FESCUE AND ORCHARDGRASS IN COMBINATION WITH ALFALFA UNDER GRAZING

G.O.Mott, R.C.Peterson, M.E.Heath and W.M.Beeson

This report gives the results of a grazing trial conducted on the Southern Indiana Forage Farm during the 1957 grazing season. The comparison was between a mixture of alfalfa-tall fescue and alfalfa-orchard grass each at three levels of nitrogen.

PURPOSE OF THE EXPERIMENT

As a result of many suggestions from county agents, farmers, Soil Conservation agronomists and others this experiment was designed to give information on the following questions.

1. Should orchardgrass or tall fescue be used in combination with alfalfa for maximum production of beef?
2. Which grass - orchardgrass or tall fescue - gives the firmer footing during wet periods in the spring and fall?
3. What is the effect of interplanting cereals in the sod crop with a "grassland drill" upon a) seasonal yield of the pasture - extending the grazing season into the late fall and early spring? b) the production of the permanent sod crop of alfalfa - tall fescue and alfalfa - orchardgrass?
4. How much yield increase can be expected from nitrogen applications on the interplanted cereal and on the permanent sod crop?

THE EXPERIMENTAL PASTURES

The experiment consists of twenty four (24) pastures each approximately 2 acres in size. Twelve are seeded to a mixture of alfalfa (10 lbs.) and orchardgrass (12 lbs.) and the remaining twelve to a mixture of alfalfa (10 lbs.) and tall fescue (19 lbs.) In the fall of 1956 the grassland drill would have destroyed much of the young stand of the grass-legume mixtures had an attempt been made to sod seed a winter cereal. Consequently no sod seedings were made.

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The nitrogen was applied according to plan on March 20-23 at the rates of 0, 75 lbs. N, and 150 lbs. N, per acre. The plan of the experiment as conducted in 1957 was as follows:

Legume-grass mixture	Nitrogen level	Number of pastures	Number of Tester animals	
			Steers	Heifers
Alfalfa - Tall fescue	0	4	4	4
" " "	75	4	4	4
" " "	150	4	4	4
Alfalfa - Orchardgrass	0	4	4	4
" " "	75	4	4	4
" " "	150	4	4	4

THE EXPERIMENTAL ANIMALS

Twenty four steers and an equal number of heifers were selected from the herd that had been wintered on similar rations. The animals averaged fifteen months old when they were turned on pasture on May 1. The steers had an average weight of 605 pounds and the heifers weighed 579 pounds. One steer and one heifer was allotted to each of the twenty four pastures as tester animals and these animals were used to measure the average daily gains of steers and heifers on each of the six treatments. Additional animals of about the same age and size were added to the pastures during flush growth periods and then removed when there was only enough forage for the tester animals. The additional animal days carried by certain treatments are included in the figures for animal days in Table 1.

Table 1. Production per animal and per acre of two alfalfa-grass mixtures at three levels of nitrogen. Southern Indiana Forage Farm, May 1, to Sept. 19, 1957. Average of four replications.

Mixture	Alfalfa - orchardgrass				Alfalfa - Tall Fescue				
	Nitrogen	0	75	150	Avg.	0	75	150	Avg.
Daily gain per animal									
Heifers		.92	.78	.92	.87	1.06	.89	.96	.97
Steers		1.02	.97	1.04	1.01	1.12	.93	1.05	1.03
Avg. (H & S)		.97	.87	.98	.94	1.09	.91	1.00	1.00
Animal days per acre		193	217	217	209	200	218	240	219
Beef Per acre									
Heifers		177	168	201	182	208	194	230	211
Steers		197	209	225	210	220	202	250	224
Avg. (H & S)		187	188	212	196	214	198	240	217

From table 1 we may draw the following conclusions for the 1957 season:

1. Alfalfa-tall fescue gave higher average daily gains for both heifers and steers than did alfalfa - orchardgrass.
2. The carrying capacity was consistently higher for tall fescue than for orchardgrass at all levels of nitrogen but the differences were small.
3. The alfalfa - tall fescue gave about 10 percent greater yield of beef per acre than alfalfa - orchardgrass for all levels of nitrogen.
4. The increase in production due to nitrogen was not consistent and was disappointingly small.