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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-orchardgrass 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 follow- 
ing 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 "grass- 
land drill" upon a) seasonal yield of the pasture - extending the grazing sea-
son 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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State of Indiana, Purdue University  
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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:

<table>
<thead>
<tr>
<th>Legume-grass mixture</th>
<th>Nitrogen level</th>
<th>Number of pastures</th>
<th>Number of Steers</th>
<th>Number of Heifers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa - Tall fescue</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;</td>
<td>75</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;</td>
<td>150</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Alfalfa - Orchardgrass</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;</td>
<td>75</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;</td>
<td>150</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

**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.

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

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.