the silage and pellets in both the wintering and fattening phase. Results indicate that one should not expect to produce cattle grading higher than good with this type ration.

<table>
<thead>
<tr>
<th>Table 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dehydrated grain sorghum pellets vs. grain sorghum silage in steer rations.</td>
</tr>
<tr>
<td>Wintering phase, December 2, 1958, to March 12, 1959—100 days.</td>
</tr>
<tr>
<td>Lot number ..........</td>
</tr>
<tr>
<td>Number steers per lot ..........</td>
</tr>
<tr>
<td>Av. initial wt., lbs. ..........</td>
</tr>
<tr>
<td>Av. final wt., lbs. ..........</td>
</tr>
<tr>
<td>Av. daily gain per steer, lbs. ..........</td>
</tr>
<tr>
<td>Av. daily ration, lbs.: ..........</td>
</tr>
<tr>
<td>Alfalfa hay ..........</td>
</tr>
<tr>
<td>Dehydrated grain sorghum pellets ..........</td>
</tr>
<tr>
<td>Grain sorghum silage ..........</td>
</tr>
<tr>
<td>Soybean oil meal ..........</td>
</tr>
<tr>
<td>Salt ..........</td>
</tr>
<tr>
<td>Bone meal-salt mixture ..........</td>
</tr>
<tr>
<td>Av. feed per cwt. gain, lbs.: ..........</td>
</tr>
<tr>
<td>Alfalfa hay ..........</td>
</tr>
<tr>
<td>Dehydrated grain sorghum pellets ..........</td>
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<tr>
<td>Bone meal-salt mixture ..........</td>
</tr>
<tr>
<td>Feed cost per cwt. gain ..........</td>
</tr>
</tbody>
</table>

Fattening phase, March 13 to June 4, 1959—84 days. |
| Av. initial wt., lbs. .......... | 550.5 | 552.0 |
| Av. final wt., lbs. .......... | 719.0 | 716.5 |
| Av. daily gain per steer, lbs. .......... | 2.0 | 1.96 |
| Av. daily ration, lbs.: .......... |
| Dehydrated grain sorghum pellets .......... | 17.5 | 37.7 |
| Grain sorghum silage .......... | 1.0 | 1.0 |
| Soybean oil meal .......... | 1.0 | 1.0 |
| Dehydrated alfalfa pellets .......... | .07 | .07 |
| Salt .......... | .07 | .07 |
| Feed per cwt. gain, lbs.: .......... |
| Dehydrated grain sorghum pellets .......... | $73.6 | 1924.0 |
| Grain sorghum silage .......... | 49.9 | 51.1 |
| Soybean oil meal .......... | 3.4 | 3.8 |
| Dehydrated alfalfa pellets .......... | 49.9 | 51.1 |
| Salt .......... | 3.4 | 3.3 |
| Bone meal-salt mixture .......... | 3.4 | 3.8 |
| Feed cost per cwt. gain .......... | $25.22 | $13.99 |

Adapting Roughages Varying in Quality and Curing Processes to the Nutrition of Beef Cattle, 1959-60. Project 970.

Rolled Alfalfa Hay and Dehydrated Pelleted Green Forage-type Sorghum in the Winter Ration of Heifer Calves

F. W. Boren, E. F. Smith, R. A. Koch, D. Richardson, and R. F. Cox

This is the second year of an experiment designed to compare the feeding value of alfalfa fed as long hay or coarsely-ground hay pellets, and forage-type sorghum fed as silage or dehydrated green forage sorghum pellets. The hay and forage sorghum used were similar to that used in 1958-59 and described in Circular 371, page 41.

Fifty head of choice-quality heifer calves from the Jeff Ranch, Fort Davis, Texas, were used in this experiment. They were allotted, 10 head per lot, on the basis of live weight, and fed a winter ration as follows:

- Lot 1. Five pounds alfalfa hay plus forage sorghum silage, free choice.
- Lot 2. Five pounds alfalfa hay pellets plus forage sorghum silage, free choice.
- Lot 3. Five pounds alfalfa hay plus dehydrated green forage sorghum pellets, free choice.
- Lot 4. Five pounds alfalfa hay pellets plus dehydrated green forage sorghum pellets, free choice.
- Lot 5. Five pounds dehydrated alfalfa pellets plus dehydrated green forage sorghum pellets, free choice.

**Results and Observations**

The results of this experiment are reported in Table 28. This table reveals the following:

1. Using lot 1, which received alfalfa hay and silage, as a control, the increase in average daily gain made by the heifers in lots 3, 4, and 5 was highly significant.
2. The percentage increase in average daily gain made by the heifers in lots 2, 3, 4, and 5 over lot 1 was 23, 32, 38, and 45, respectively.
3. Under the system of feeding alfalfa hay pellets to 5 pounds per head per day and feeding dehydrated pellets green forage sorghum free choice, pelleted alfalfa hay affected the variability of gains between lots 24 percent, whereas the pelleted forage sorghum effect was 58 percent.

Therefore, it was more advantageous to pellet the forage sorghum than the alfalfa hay under this feeding regime.