**ABSTRACT**

Cull onions, by-products of the onion industry, are currently fed to dairy cattle and swine on major producing areas. The objective of this study was to determine if cull onions could be used as an alternative feed source for sheep. Feeding cull onions was examined in two studies: (1) a lamb study consisting of 20 lambs, and (2) a ewe study consisting of 20 pregnant ewes. The results of these studies showed that cull onions could be a viable alternative feed source for sheep. However, further research is needed to determine the optimal feeding protocol and to evaluate the long-term effects of feeding cull onions to sheep.

**RESULTS AND DISCUSSION**

In the lamb study, lambs were fed a diet consisting of 20% cull onions for 60 days. The results showed that feeding cull onions decreased feed intake, animal growth, and carcass yield. The ewe study consisted of 20 pregnant ewes fed a diet consisting of 100% cull onions for 102 days. The results showed that feeding cull onions decreased feed intake, animal growth, and blood parameters such as packed cell volume (PCV), hemoglobin, and hematocrit.

**MATERIALS & METHODS**

**Lamb Study**

Twenty lambs were randomly assigned to one of four dietary groups: (1) control, (2) 50% onions, (3) 75% onions, and (4) 100% onions. The lambs were fed a diet consisting of 20% cull onions for 60 days. The results showed that feeding cull onions decreased feed intake, animal growth, and carcass yield.

**Ewe Study**

Twenty pregnant ewes were randomly assigned to one of three dietary groups: (1) control, (2) 50% onions, and (3) 100% onions. The ewes were fed a diet consisting of 100% cull onions for 102 days. The results showed that feeding cull onions decreased feed intake, animal growth, and blood parameters such as packed cell volume (PCV), hemoglobin, and hematocrit.

**Table: Cull Onion Feed Analysis**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Moisture</th>
<th>Crude Protein</th>
<th>TDN%</th>
<th>Calcium</th>
<th>Phosphorus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>7.4-12.9</td>
<td>3.0-4.0</td>
<td>53-80</td>
<td>0.31-0.54</td>
<td>0.34-0.52</td>
</tr>
<tr>
<td>25% Onions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% Onions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% Onions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 1: Ewe Mean PCV (Packed Cell Volume)**

The figure shows the change in packed cell volume (PCV) over time in ewes fed cull onions. The PCV values were significantly lower in the ewes fed cull onions compared to the control group. The ewes fed 100% cull onions had the lowest PCV values. The ewes fed 50% cull onions had intermediate PCV values. The control group had the highest PCV values.

**Figure 2: Lamb Average Rate of Gain**

The figure shows the average rate of gain (AROG) of lambs fed cull onions. The AROG values were significantly lower in the lambs fed cull onions compared to the control group. The lambs fed 100% cull onions had the lowest AROG values. The lambs fed 50% cull onions had intermediate AROG values. The control group had the highest AROG values.

**Figure 3: Tenderness, Juiciness, Flavor Intensity, Overall Palatability, Desirability**

The figure shows the results of an evaluation of the tenderness, juiciness, flavor intensity, overall palatability, and desirability of meat from lambs fed cull onions. The lamb-fed groups had the highest tenderness, juiciness, flavor intensity, overall palatability, and desirability values. The control group had the lowest tenderness, juiciness, flavor intensity, overall palatability, and desirability values.

**Figure 4: Blood parameters, body condition scores, fleece weights, pregnancy rates, and lambing percentage**

The figure shows the results of blood parameters, body condition scores, fleece weights, pregnancy rates, and lambing percentage for ewes fed cull onions. The ewes fed 100% cull onions had the lowest blood parameters, body condition scores, fleece weights, pregnancy rates, and lambing percentage values. The ewes fed 50% cull onions had intermediate blood parameters, body condition scores, fleece weights, pregnancy rates, and lambing percentage values. The control group had the highest blood parameters, body condition scores, fleece weights, pregnancy rates, and lambing percentage values.

**Figure 5: Feed Costs and Net Returns**

The figure shows the feed costs and net returns for lambs fed cull onions. The feed costs were lower for the control group compared to the lambs fed cull onions. The net returns were also lower for the control group compared to the lambs fed cull onions. The 50% onions group had the lowest feed costs and net returns.

**Conclusion**

Feeding cull onions to sheep is a viable alternative feed source. However, further research is needed to determine the optimal feeding protocol and to evaluate the long-term effects of feeding cull onions to sheep. Additionally, the effects of feeding cull onions to sheep on the environment and the economics of the industry need to be evaluated.