EFFECT OF CALCIUM PRESENTATION AND FEEDING METHOD ON LOSS OF CROP CONTENTS FROM LAYING HENS

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Spoilage of feed and difficulties in measurements of feed remnants due to oral fluid losses by laying hens were encountered in a series of nutrition experiments. Cumming (1984) and Taylor (1996) reported problems of "fluid dribbling" from hens, especially those allowed to choice-feed.

One hundred and forty four commercial layers, half an imported strain (Strain 1) and half an Australian strain (Strain 2), were introduced to two feeding methods from eight weeks of age. Both feeding methods were based on the same wheat-based feed formulation with method one provided as a complete pelleted feed (C) and method two as whole wheat with the meals/premix in mash form (W). Within each feeding method calcium was provided by the following alternatives: (1) ground limestone included in the ration, (2) limestone grit 4.0-4.76 mm diameter available daily in a separate feed trough, and (3) the limestone grit available every second day in a separate feed trough.

From 30 weeks of age, a score was applied twice weekly to the condition of the feed for all 144 experimental birds. Scores were graded from 1, dry feed, through to 5, a wet, amorphous mass. At 39 weeks of age all birds were suspended by the legs four times a day for two days in order to collect fluid lost orally.

The statistical evaluation of the data was performed by Repeated Measures Analysis. Significant Least Squares Means (LSMEANS) were separated using paired-sample t-tests. Regression analysis was performed on wet feed score versus excreta moisture content, an excreta moisture score, total feed intake and limestone grit intake.

Strain 1 birds produced a higher wet feed score than Strain 2 birds (1.7 vs 1.5, P<0.05). Wet feed scores were affected (P<0.05) by feeding treatments. Results are shown below.

<table>
<thead>
<tr>
<th>Feed/Calcium</th>
<th>C 2</th>
<th>C 3</th>
<th>W 1</th>
<th>C 1</th>
<th>W 3</th>
<th>W 2</th>
</tr>
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<tbody>
<tr>
<td>Feed Score</td>
<td>1.28&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.41&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>1.57&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>1.60&lt;sup&gt;abc&lt;/sup&gt;</td>
<td>1.74&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>1.92&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>abc</sup> Values without a similar superscript are significantly different at P<0.05.

No relationship (P>0.05) between wet feed score and excreta moisture content, excreta moistre score, total feed intake or grit consumption was found by regression analysis. Wet feed score was consistent over time (P>0.05) for each individual bird. No fluid was collected by suspending the birds and subsequent videotape observation indicates that the loss of fluid is not a passive process.


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