Air cell height a measurement of egg quality?

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Abstract

Air cell height measurements are done by the official food control for measuring the freshness of the egg. Eggs with an air cell height of more than 6 mm are not acceptable. In which way the air cell height is influenced by the age of the egg, of the age of the hen and the genetic origin of the hen was tested in the research. Additionally it was tested; whether the air-cell height is correlated with the traits of internal egg quality like albumen height and haugh units.

The traits have been measured at 350 eggs. The eggs have been stored at 15°C and distributed in the following way.

<table>
<thead>
<tr>
<th>age of egg in days</th>
<th>LT-5 months</th>
<th>LT-2 months</th>
<th>LT-5 months</th>
<th>LSLclassic-1 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>21</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

Results

The means and standard deviations of the following traits are: air cell height 3.03 +/- 8.29, albumen height 4.80 +/- 1.00, haugh units 65.42 +/- 11.52.

The distribution of the air cell eight of the eggs showed no egg with more 6 mm air cell height, the critical for the freshness of the egg.

The influence of the age of the egg and the genetic origin and age of the hen was significant including the interaction.

There was no effect of the age of the egg on the egg weight, but a highly significant effect by the age and the genetic origin of the hen.
The age of the egg and the age of the hen and even the interaction between both have been highly significant of the albumen height. The eggs of the younger LSL classic hens showed the lowest difference in albumen height between the days 14 and 21 in comparison to the older LT hens.

The following correlations have been estimated: air cell height : egg weight = 0.11, air cell height : albumen height = -0.2, air cell height : haugh units = 0.2 and egg weight : albumen height = -0.18.

The air cell height is very low correlated with albumen height, so it is not good enough to measure internal egg quality like albumen height indirectly by air cell height.