THE EFFECTS OF THE USE OF RECYCLED PAPER PRODUCTS AS ALTERNATIVE LITTER MATERIALS ON PERFORMANCE, BREAST QUALITY, AND LEG ABNORMALITIES OF BROILERS

Kenneth H. Aponte-Cháirriéz and Héctor L. Santiago-Anadón
Department of Animal Science, University of Puerto Rico at Mayagüez

Abstract
A study was conducted to evaluate the utilization of recycled paper products as litter material on growth performance, carcass quality, and leg problems of broilers. A total of 168 broiler chicks were raised under standard commercial conditions in an open-sided naturally ventilated poultry house at the Agricultural Experiment Station Small Animal Research Farm in Lajas. Birds were assigned to 12 floor pens bedded with either rice hulls (RH - control), a 50:50 mix of shredded newspaper and SWP (RH:SWP), or a 50:50 mix of shredded newspaper and RH (SNP) litter. Footpad and breast lesions were quantified using the method described by Grimes et al. (2004). Birds were raised under a 24 h light regimen and provided with ad libitum consumption of feed and water in a single cut severing the carotid artery and jugular vein. At 24, 28, and 42 days of age, birds were processed for carcass traits. The effects of litter treatment on footpad burn and breast blister scores were analyzed using ANOVA, in a Complete Randomized design by ANOVA using the General Linear Model procedures of SAS® (SAS Institute, 1990). The Tukey’s least significant difference was used to compare and separate treatment means when significant by ANOVA. A probability of P < 0.05 was required for all statements of significance.

Results

As shown in Figure 1, litter treatments had no effect on body weight (BW) of broilers at any age. However, birds raised on SWP had numerically lower FI and higher BW when compared to those raised in RH and SWP litter. No significant differences in FPBS were observed among all treatments. Birds raised in SNP litter had the highest scores, followed by SWP and RH litter. Breast blister scores were similar for all treatments.

The results suggest that recycled paper products could be an excellent alternative bedding material for broilers. The use of SWP litter appears to improve broiler performance and reduce the incidence footpad problems.

Materials and Methods
Experimental treatments consisted in the use of different litter materials. The concrete floor pens were bedded with 2.5 inches of rice hulls (control), a 50:50 mix of shredded white paper and rice hulls (SWP) or a 50:50 mix of shredded newspaper and rice hulls (SNP).

Table 1. The effect of litter material on broiler performance

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Carcass Weight</th>
<th>Carcass Yield</th>
<th>Mortality (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RH</td>
<td>1520</td>
<td>66.8</td>
<td>4.9</td>
</tr>
<tr>
<td>SWP</td>
<td>1560</td>
<td>67.3</td>
<td>3.4</td>
</tr>
<tr>
<td>SNP</td>
<td>1495</td>
<td>66.2</td>
<td>5.4</td>
</tr>
</tbody>
</table>


Conclusions
No significant differences among litter treatments were observed on carcass weight (CW), carcass yield (CY), gizzard weight (GW) and mortality (Table 1).

At all sampling times, litter moisture percentage (LMP) was significantly higher in SNP litter when compared to controls and no litter caking problems were observed in any of the treatments (Figure 3).

As shown in Figure 4, significant differences in footpad burn score (FPBS) were observed among treatments. Birds raised in SWP litter had higher scores, followed by SWP and RH litter. Breast blister scores were similar for all treatments.

The results suggest that recycled paper products could be an excellent alternative bedding material for broilers. The use of SWP litter appears to improve broiler performance and reduce the incidence footpad problems.

Literature Cited


Figure 1. The effects of litter material on body weight of broilers

Figure 2. The effects of litter material on cumulative feed conversion of broilers

Figure 3. Moisture percentage of litter treatments

Figure 4. Effects of litter treatment on footpad burn and breast blister scores