EFFECT OF FEEDING POULTRY VISCERA MEAL ON WOOL TRAITS OF ANGORA RABBITS

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ABSTRACT

Poultry viscera meal (PVM) in place of fishmeal at 5 and 8 per cent level was used in feed pellets with an objective of its effect on wool traits in Angora rabbits. It was observed that wool yield per shear (g) and fiber length (cm.) in Group III (8 per cent fishmeal replacement) were significantly (p≤0.05) higher (97.57±0.69 and 6.71±0.14) than control Group I (91.28±0.53 and 6.06±0.12), respectively. Other quality traits like moisture percent, moisture regain per cent, ash content, fiber diameter (microns), fiber strength (g), specific gravity and pH were not significantly (ps0.05) different among control and treatments. The study indicated that PVM could be safely included in Angora rabbit diets by replacing fishmeal with better results for wool production.

The increase in poultry meat production in India from 1991 to 1999 was 66.97 per cent, which was much higher than the per cent increase in world poultry meat production (52.95 %) during the same period (FAO, 1991 and FAO, 2000). Since broiler industry in India is growing at an annual growth of 20 per cent, the country is speculating a broiler boom in near future (Panda, 1997). The by-products generated from poultry processing industry in terms of blood, feather, feet, head, neck and viscera is around 29.3% of the live weight processed (Crawley et al., 1980) and viscera alone constitute 8.1 per cent of live weight. It is likely that an enormous quantity of poultry viscera will be available for processing and recycling as animal feed.

The wool production scenario is not in a good shape in the country and requires rejuvenation. Angora wool is very fine (Rochambeau and Thebault, 1990) and the average yield of wool in rabbits is about 350 to 560 grams (Niehaus, 1953).

Improved feeding with protein rich diet can increase wool yield (Richter and Hundt, 1934) and specially by supplying a cystine rich diet (Bortoli, 1954). Supplementation of rabbit diet with protein rich PVM might prove useful in improving the nutritional level of rabbit feed pellets in place of meat and fish meal (Sahu and Prasad, 1990). An attempt was made to study the effect of feeding PVM on wool traits of Angora rabbits.

Three experimental rabbit pellet diets were prepared by replacing fish meal content (8%) control diet (T1) with 5 per cent PVM (T2) and 8 per cent PVM (T3). Pellets were prepared as per the standard procedure prescribed by Bennett (1969).

Adult Angora rabbits (6 to 8 months age), ten in number were randomly picked, sheared and allotted to each of the three groups and reared on the experimental diets up to 3 months period. At the end wool yield (g) per shear, fiber length (cm), fiber diameter (microns), fiber strength (g), moisture (%) moisture regain (%), specific gravity, pH and ash content were calculated as per the methods prescribed by Von-Bergeh (1963). The data were subjected to statistical analysis using randomized block design and the differences between treatment means were calculated by Duncan’s multiple range test (Steel and Torrie, 1981; Snedecor and Cochran, 1994). Results indicated in Table 1 show that rabbits fed with diets containing 5 and 8 per...
Table 1. Effect of viscera meal feeding on certain physical characteristics of Angora rabbit wool

<table>
<thead>
<tr>
<th>Character</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>C.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield/shear (g)</td>
<td>91.28±0.53</td>
<td>94.46±0.59</td>
<td>97.57±0.69</td>
<td>1.77</td>
</tr>
<tr>
<td>Fiber length (cm)</td>
<td>6.06±0.12</td>
<td>6.28±0.15</td>
<td>6.71±0.14</td>
<td>0.41</td>
</tr>
<tr>
<td>Fiber diameter (micron)</td>
<td>13.74±0.14</td>
<td>13.80±0.11</td>
<td>13.71±0.14</td>
<td>0.40</td>
</tr>
<tr>
<td>Ash (%)</td>
<td>0.94±0.08</td>
<td>0.98±0.11</td>
<td>0.97±0.12</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Table 2. Effect of viscera meal feeding on physical characteristics of Angora rabbit wool (Mean±SE)

<table>
<thead>
<tr>
<th>Character</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>C.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture (%)</td>
<td>14.40±0.09</td>
<td>14.52±0.08</td>
<td>14.70±0.13</td>
<td>0.31</td>
</tr>
<tr>
<td>Moisture regain (%)</td>
<td>16.82±0.08</td>
<td>16.98±0.06</td>
<td>17.04±0.09</td>
<td>0.25</td>
</tr>
<tr>
<td>Fiber strength (g)</td>
<td>4.61±0.12</td>
<td>4.71±0.16</td>
<td>4.67±0.13</td>
<td>0.41</td>
</tr>
<tr>
<td>PH</td>
<td>5.70±0.10</td>
<td>5.67±0.11</td>
<td>5.71±0.13</td>
<td>0.32</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.287±0.006</td>
<td>1.286±0.005</td>
<td>1.288±0.007</td>
<td>0.018</td>
</tr>
</tbody>
</table>

cent viscera meal (Group II and III) gave significantly (p<0.05) higher wool yield per shear at the end of 3 months, when compared to the control (Group I). Perhaps this was due to higher protein and fat content of pellets supplied to group II and III animals including body weight (Ahlawat et al., 1999) as Sehley and Schlaut (1988) have stated that wool production varied per unit live weight. Teleki et al. (1985) have also reported improvement in rabbit wool yield due to increase in protein content of the diet, which was in agreement with the present findings.

Fiber length was significantly (p<0.05) different between group III (6.71±0.14) and control (6.06±0.12) but not between group II (6.28±0.15) and control though it was slightly higher. Probably this was due to higher protein level with higher S-amino acid content of PVM when compared to the fishmeal. Caro et al. (1984) have also reported improved fiber length due to higher levels of protein in the rabbit diet and the results of the present study are in line with their observations.

Fiber diameter did not differ significantly (p<0.05) between control and the experimental groups, which was consistent with the findings of Teleki et al. (1985) who observed no difference in fiber thickness in Angora rabbits due to variation in protein levels in the diet. Ash content of the wool fiber was also observed to be non significant between the control and experimental groups of rabbits. Results indicated in Table 2 relating to moisture content, moisture regains, fiber strength, specific gravity and pH of wool show that no observable significant (p<0.05) difference could be noticed between the control and experimental groups. Further, the observations concerning specific gravity, moisture per cent and moisture regain per cent were well within range specified for Angora rabbit wool (Von-Bergen, 1963).

The results suggested that PVM could be safely included in Angora rabbit pelleted diets by replacing fish meal up to 8 per cent level to improve wool production without any adverse effects.

REFERENCES