Rep roductive performance of Soviet Chinchilla and Grey Giant rabbits reared under hot humid conditions of West Bengal

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ABSTRACT

Reproductive performance of Soviet Chinchilla and Grey Giant rabbits was studied under hot humid conditions of West Bengal. Puberty and age at 1st mating were apparently earlier in Soviet Chinchilla (169.39 and 215.30 days, respectively) as compared to Grey Giant (185.60 and 228.94 days, respectively) but the differences were statistically non-significant. The female rabbits of both the breeds were significantly (P<0.05) heavier at puberty and 1st mating than their male counterparts because the males attained these stages earlier than females of both the breeds. The average values of some reproductive traits such as gestation period (days), litter size at birth (no.), litter weight at birth (g), litter size at weaning (no.), litter weight at weaning (g), individual weight (g) at birth and weaning were 31.58, 5.89, 336.69, 4.26, 2788.61, 58.85 and 654.00 in Soviet Chinchilla, and 30.73, 6.71, 362.63, 5.36, 3241.02, 54.77 and 621.96 in Grey Giant, respectively. Breed had a significant effect (P<0.05) on all these traits except individual weight at birth and weaning.

INTRODUCTION

Rearing rabbits for meat is an established industry in many countries of the world but study of broiler rabbits under different agro-climatic zones of India is very scanty. This article reports the reproductive performance of two breeds of broiler rabbits, viz., Soviet Chinchilla and Grey Giant under hot humid environmental conditions of West Bengal.

MATERIAL AND METHODS

Reproductive profiles of Soviet Chinchilla and Grey Giant rabbits were studied at the Departmental Rabbit Unit, located at 22°56’N latitude and 88°32’E longitude and altitude 9.75m above MSL. The investigation was carried out during July, 1996 to February, 2000 having an average ambient temperature range from 19.12°C (minimum) to 31.12°C (maximum), relative humidity of 66.90 (minimum) to 96.29 (maximum) per cent, and the mean annual precipitation of 1837.35mm. Adult rabbits of both sexes comprising the two genetic groups were randomly selected, and kept in individual cages under standard management practices and maintained on green roughages, soaked gram, concentrate feed mixtures and fresh drinking water. Stud mating was employed at the cooler part of the day and bucks were allowed 3-4 times a week for 2 minutes for each mating. The does were mated immediately after weaning (42 days). The generated data were compiled and analysed statistically (Snedecor and Cochran, 1967).

RESULTS AND DISCUSSION

Soviet Chinchilla attained puberty and age at 1st mating (169.39 and 215.30 days, respectively) earlier as compared to Grey Giant (185.60 and 228.94 days, respectively) but the differences were statistically non-significant. The female rabbits of both the breeds were significantly (P<0.05) heavier at puberty and 1st mating than their male counterparts because the males attained these stages earlier than females of both the genetic
Table 1. Reproductive performance of broiler rabbits in hot humid conditions

<table>
<thead>
<tr>
<th>Traits</th>
<th>Soviet Chinchilla</th>
<th>Grey Giant</th>
<th>t-value</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at puberty (days)</td>
<td>163.39 ±9.19</td>
<td>185.60 ±7.38</td>
<td>1.072</td>
<td>NS</td>
</tr>
<tr>
<td>Age at 1st mating (days)</td>
<td>215.30 ±12.05</td>
<td>228.94 ±6.50</td>
<td>1.998</td>
<td>NS</td>
</tr>
<tr>
<td>Gestation period (days)</td>
<td>31.58 ±0.32</td>
<td>30.73 ±0.14</td>
<td>3.026</td>
<td>*</td>
</tr>
<tr>
<td>Litter size at birth (LSB)</td>
<td>5.89 ±0.17</td>
<td>6.71 ±0.16</td>
<td>3.514</td>
<td>*</td>
</tr>
<tr>
<td>Litter weight at birth (LWB) (g)</td>
<td>336.69 ±7.42</td>
<td>362.83 ±8.09</td>
<td>2.349</td>
<td>*</td>
</tr>
<tr>
<td>Litter size at weaning (LSW)</td>
<td>4.26 ±0.17</td>
<td>5.36 ±0.13</td>
<td>5.140</td>
<td>*</td>
</tr>
<tr>
<td>Litter weight at weaning (LWW) (g)</td>
<td>2788.61 ±124.34</td>
<td>3241.02 ±47.44</td>
<td>11.24</td>
<td>*</td>
</tr>
<tr>
<td>Individual weight at birth (g)</td>
<td>58.45 ±1.76</td>
<td>64.77 ±1.10</td>
<td>14.16</td>
<td>NS</td>
</tr>
<tr>
<td>Individual weight at weaning (g)</td>
<td>654.00 ±9.98</td>
<td>621.96 ±13.52</td>
<td>16.70</td>
<td>NS</td>
</tr>
</tbody>
</table>

* Significant at 5% level (P < 0.05);
NS - Non significant at 5 % level;
Figures in the parenthesis indicate number of observations.

The average values of some important female reproductive trails of the two breeds of rabbits are presented in Table 1. The test of equality of two means revealed that breed variation for gestation length was significant (P<0.05). Shorter gestation length in Grey Giant (30.73 days) than Soviet Chinchilla (31.58 days) may be due to larger litter size in the former breed (Singh, 1997). On pooled basis the gestation length was 30 to 33 days in 86.92% cases of kindling with individual variation ranging from 27 to 36 days. This finding is in close conformity with some earlier reports (Cheek et al., 1982; Das and Nayak, 1992, and Rohilla and Bujarbaruh, 1999). The litter size at birth (LSB) in Grey Giant (6.71 nos.) was significantly (P<0.05) higher than Soviet Chinchilla (5.89 nos.). The significant breed difference for LSB as observed in this study was supported by Gupta et al. (1986). The litter weight at birth (LWB) in Grey Giant (362.63g) was higher (P<0.05) than Soviet Chinchilla (336.69g), which might be due to larger LSB in the former breed which corroborated the findings of Rohilla and Bujarbaruh (1999). The litter size at weaning (LWW) was significantly more in Grey Giant than Soviet Chinchilla because the LSB was also significantly more in Grey Giant than Soviet Chinchilla. The mortality from birth to weaning was more in Soviet Chinchilla than Grey Giant that contributes to the difference in the LWW. The significant breed variation for LWW was also observed by Das et al. (1997), and Rohilla and Bujarbaruh (1999). The litter weight at weaning (LWW) in Grey Giant (3241.02g) was higher (P<0.05) than Soviet Chinchilla (2788.61g), which might be due to the larger LSW in the former breed. The significant variation due to genetic groups of rabbits for this trait was supported by Das et al. (1997). The variation between the breeds for individual weight at birth was non-significant. The higher average individual weight at birth in Soviet Chinchilla (58.85g) than that of Grey Giant (54.77g) may be due to smaller litter size at birth in the former breed, which allow the kits more space and nutrition in the mother’s womb. The individual weight at weaning was also more in Soviet Chinchilla (654.00g) than Grey Giant (621.96g), but this variation was
also statistically non-significant. Marginally lower or higher values for these traits were supported by earlier workers (Parillo and Vasenina, 1981 and Singh et al., 1988).

So, it can be inferred that Grey Giant performed better than Soviet Chinchilla in respect of important economic reproductive traits viz., litter size and litter weight at birth and weaning under hot humid environmental conditions of West Bengal.

REFERENCES