STUDIES ON BACK FAT THICKNESS OF INDIGENOUS PIGS AND THEIR LARGE WHITE YORKSHIRE CROSSES

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ABSTRACT

Records of back fat thickness of Indigenous pigs and their Large white Yorkshire crosses were collected for present studies. The overall least square means and heritability estimates for back fat thickness were recorded as 2.490+0.334 cms and 0.684+0.233 respectively. Significant effect of genetic groups, year and sire were recorded on back fat thickness. The genetic correlation of back fat thickness with other carcass traits were recorded as higher magnitude with low standard error while phenotypic correlation among all carcass traits were of medium magnitude.

The back fat thickness is one of the important economic trait to assess the quality of pork producer. Back fat thickness of exotic pigs have been studied intensively (Babu, 1984) but very little information is available on back fat thickness in indigenous pigs and their Large white Yorkshire crosses in India therefore the present study was undertaken.

The data on back fat thickness of 289 indigenous pigs and their Large White Yorkshire crosses were collected from All India Coordinated Research Project on pigs Jabalpur, covering a period of 10 years from 1983 to 1993. The four crosses of Large White Yorkshire maintained at the farm are 50 per cent, 50 per cent interse, 75 per cent, 75 per cent interse (Desi x Large White Yorkshire). All the animals were maintained under identical feeding and managerial conditions. Piglets were weaned at 56 days of age and the males which were not suitable for breeding were castrated at weaning. The animals were slaughtered almost at identical body weights. The back fat thickness of animal were calculated by taking three measurements at the level of first rib, last rib and last number vertebra and the average of the three values were taken as back fat thickness.

The data were analysed by least square technique as described by Harvey (1966) to observe the effect of various genetic and non genetic factors on back fat thickness. The significance of subclass difference was tested by Duncan’s Multiple Range test as modified by Kramer (1957).

The genetic group and sexwise least square means for back fat thickness are presented in Table 1. The overall back fat thickness was recorded as 2.490+0.334 cms. Duncan’s Multiple Range test revealed that 75 per cent interse did not differ significantly from 50 per cent interse while indigenous differed significantly from 50 per cent, 75 per cent and 50 per cent interse, 50 cent with 50 per cent interse and 75 per cent with 75 per cent interse. Similar findings were reported by Arora (1993).

The least square analysis of variance for the effect of various genetic and non-genetic factors on back fat thickness revealed that genetic group had significant effect (P<0.01) on back fat thickness. (Sukhdeo, 1977; Deo et al., 1980; Arora 1993). However Arora et al., (1994) and
Table 1. Genetic group and sex wise least square means along with standard error of back fat thickness.

<table>
<thead>
<tr>
<th>Genetic/sex Group</th>
<th>No. of animals</th>
<th>Mean with S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous</td>
<td>177</td>
<td>1.981 ± 0.322 a</td>
</tr>
<tr>
<td>50 per cent</td>
<td>39</td>
<td>2.710 ± 1.248 b</td>
</tr>
<tr>
<td>50 per cent interse</td>
<td>17</td>
<td>2.534 ± 0.249 c</td>
</tr>
<tr>
<td>75 per cent</td>
<td>45</td>
<td>3.148 ± 0.480 a</td>
</tr>
<tr>
<td>75 per cent interse</td>
<td>11</td>
<td>2.578 ± 0.149 c</td>
</tr>
<tr>
<td>Pooled male</td>
<td>218</td>
<td>2.352 ± 0.291</td>
</tr>
<tr>
<td>Pooled female</td>
<td>71</td>
<td>2.487 ± 0.384</td>
</tr>
<tr>
<td>Overall</td>
<td>289</td>
<td>2.490 ± 0.334</td>
</tr>
</tbody>
</table>

Superscript with same letter do not differ significantly.

Samanta et al., (1995) reported non significant effect of genetic group on back fat thickness as reported by Sukhdeo (1977). Mishra et al., (1989) and Jogi et al., (1993) This may be attributed to change in climatic conditions and number of observation among the year. The sire's significant effect (P<0.01) on back fat thickness found in the present study were also reported by Jogi et al. (1993) Significant effect of sire on back fat thickness is suggestive of the fact that character is governed by the genetic factor and special care has to be taken while selecting the sire to achieve the desired back fat thickness. The sex had non significant effect on back fat thickness. The heritability estimates of back fat thickness by half sib correlation was 0.684±0.233. Which suggested that trait is governed by additive genetic variance and can be improved through mass selection.

The genetic and phenotypic correlation of back fat thickness with other carcass traits i.e. Dressing percentage, carcass length and Loin eye area were 0.701 ± 0.194, 0.542 ± 0.069, 0.548 ± 0.338 and 0.009 ± 0.059, 0.209 ± 0.058, 0.050 ± 0.080 respectively. Genetic correlation of back fat thickness with other carcass traits was medium to higher in magnitude with smaller standard error indicating there by that as the back fat thickness increases other carcass traits also increases. However phenotypic correlation of back fat thickness with other carcass traits are of low in magnitude.

REFERENCES