

Field Observations on Associations Between Coat Type and Performance in Cattle

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Yeates (1955) has critically demonstrated the effect of length of coat upon heat tolerance. The coat differences to which he gave most attention were seasonal (induced by light regime) or experimental (created by clipping). We are studying natural variation in coat type within populations of cattle, and its association with variation in performance, at Rockhampton, Queensland.

Observations on coat types reported here are in terms of a subjective scoring system ranging from 1 (very sleek) to 7 (very woolly). Such scores account for about half the variation in body temperatures under heat stress, among young British-breed cattle. They are also highly heritable.

The following examples of associations between coat score and performance are illustrative of more extensive and more critical analyses. They refer to Hereford and Shorthorn cattle and, in the first example, also crosses between them. Breed effects have been eliminated; the correlations are even more significant if breed differences are included.

(1) In a crop of 138 calves, the 10% with lowest coat scores one month after weaning gained 52 lb more in the 7 months after weaning than the 10% with highest scores. Mean gain was 171 lb.

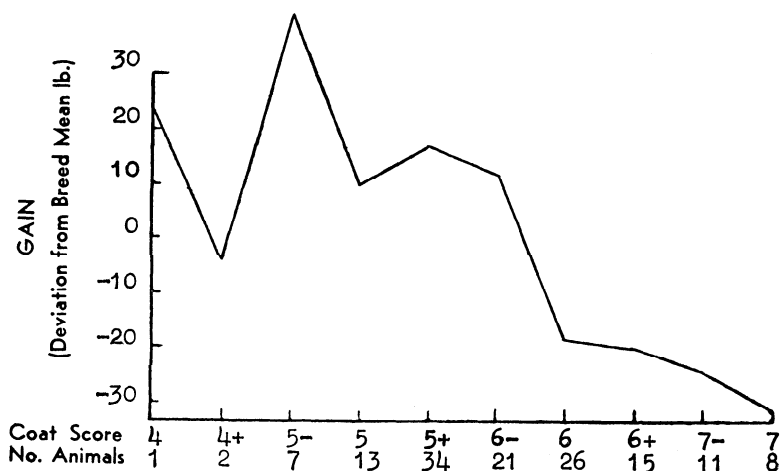


Fig. 1.—Coat Score at Weaning and Post-weaning Gain (1955 Drop).

(2) Among a group of 154 wet cows, the 50 cows with coat scores at mating time of 3— or more had a calving rate 21 percent' age units less than that of the remaining 104 cows with shorter coats.

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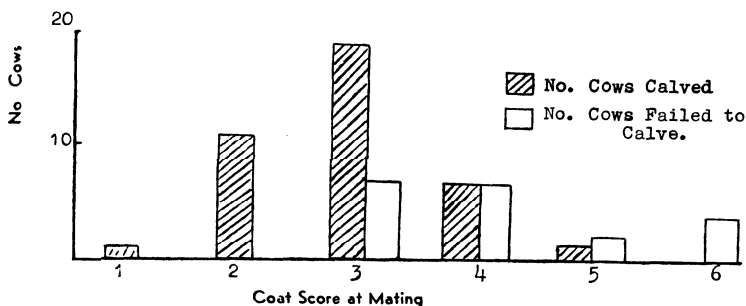


Fig. 2.—Calving Performance and Coat Score at Mating (Wet Shorthorns 1955).

(3) In a herd in which 206 cows calved, that half of the herd which had had the higher coat scores at mating time, dropped calves averaging 4 lb lighter at birth than those from cows with shorter coats.

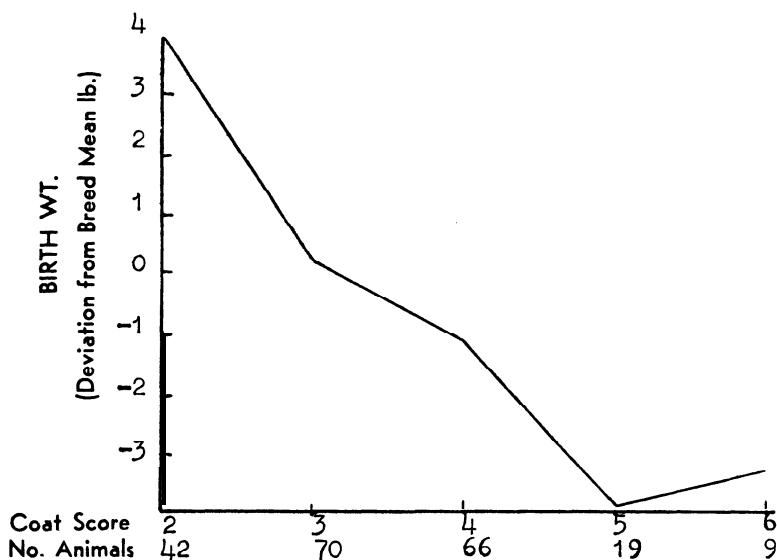


Fig. 3.—Birth Wt. of Calf and Coat Score of Dam at Mating (1955).

In these relationships, it cannot be taken for granted that differences in thrift are caused by differences in coat. Coat type may be the result, rather than the cause, of relative thrift. Environmental effects (nutritional, pathological) are known to affect coat characters. Likewise thrift, whether of environmental or genetic origin, affects coat. These two extreme hypotheses, and the more probable truth, viz., a combination of the two, are illus-

trated below. Tick resistance could parallel heat tolerance in linking coat and thrift.

(1) Coat $\rightarrow$ Heat Tolerance $\rightarrow$ Thrift.

(2) Thrift $\rightarrow$ Coat $\rightarrow$ Heat Tolerance.

(3)

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      Thrift
     /    \
  Coat  $\rightarrow$  Heat Tolerance
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An experiment designed to discriminate between these has been undertaken. Such discrimination should incidentally throw light upon an unresolved problem, *viz.*, whether differences in heat tolerance are of major or minor importance in influencing performance. The second hypothesis, for instance, ascribes no role to heat tolerance. If it represented the whole truth, the associations observed would be equally expressed in a cool climate.

Whatever the direction of cause and effect, provided the correlations between coat type and performance have an appreciable genetic component, then coat should be a useful indicator of merit.

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REFERENCE

Yeates, N. T. M. (1955)—*Aust. J. agric Res.*, 6 : 891.