

RELATIONSHIP BETWEEN BODY FAT RESERVES AND BODY CONDITION SCORE IN SHEEP AT DIFFERENT PHYSIOLOGICAL STAGES

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Body condition score has been shown to be highly correlated to the degree of body fatness in slaughtering experiments involving a pre-established range of body condition score in sheep at the same physiological stage, but there is a lack of evidence in animals at different physiological conditions. The aim of the present work was to evaluate the usefulness of subjectively assessed body condition score to predict the proportion of chemical fat in the body of Romanov x Rasa ewes at different stages of their reproductive cycle. An adaptation of Russel et al. (1969) condition scoring system was used in which animals were scored on a 0 to 5 scale to the nearest 0.25 condition unit.

The experiment was carried out with 60 mature ewes. Fourteen of them were slaughtered at 90 days of pregnancy (S1), 12 at 3-5 days of lactation (S2), 24 at thirty five days of lactation (S3) and 10 three months after weaning (S4). Average values of live weight (LW), body condition score (BCS) and proportion of chemical fat in the fleece-free empty body (EBF) are given in the table.

| | S1 | S2 | S3 | S4 | RSD |
|-------------|-------------------|--------------------|--------------------|--------------------|------|
| LW (Kg) | 51.3 ^a | 47.8 ^{ab} | 44.3 ^{bc} | 42.2 ^a | 6.08 |
| EBF (p.100) | 22.6 ^a | 19.6 ^{ab} | 13.3 ^c | 16.8 ^{bc} | 6.24 |
| BCS | 3.2 ^a | 2.9 ^b | 2.9 ^b | 3.0 ^b | 0.20 |

a,b,c.Means on a line with different superscripts are significantly different

A decrease of 40 p.100 in EBF between S1 and S3 was reflected by only 0.3 points in BCS and the variability within stages was higher for EBF (cv=36 p.100) than for BCS (cv=7 p.100). EBF was better related to LW (EBF = -17.3 + 0.75 LW, r=0.71, RSD= 5.11) than to BCS (EBF = -41.2 + 19.6 BCS, r=0.64, RSD=5.55). When the effect of physiological stage was accounted for the regression coefficients relating EBF to BCS did not differ significantly, but for a same BCS value the EBF was higher in early lactation than 30 days latter (P<0.01):

$$(1) \text{ EBF} = A + 16.89 \text{ BCS} \quad (r=0.67, \text{ RSD}=5.29)$$

$$A = -31.26 \text{ (S1)}, -29.92 \text{ (S2)}, -35.28 \text{ (S3)}, -33.57 \text{ (S4)}$$

These results suggest that BCS is not an adequate index to predict the evolution of body fat reserves through the reproductive cycle. Moreover the equation (1) is quite different from those established with Scottish Blackface or Merino sheeps, which could reflect between-breed differences in fat distribution or the difficulties associated with the normalisation of this subjectif method.

Russel, A.J.F., Doney, J.M. and Gunn, R.G. 1969. J.agric.Sci., Camb. 72, 451-454.

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