NOTE ON BREED AND SEX BIAS EFFECT ON PIG CARCASS GRADING IN CUBA

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SUMMARY: Homogeneity of slopes was demonstrated in within-cross and within-sex regresssions showing that the pooled equation is sufficient to predict lean and fat yield in the carcass using sacral fat as the predictor variable. In Cuba, pig carcasses can be graded based on one measurement of backfat thickness and hot carcass weight irrespective of the five different crossbreeds used in commercial pig production and irrespective of sex.

INTRODUCTION: It has been reported (Busk, 1989; Pedersen, 1988) that it is not possible to use the same lean prediction equation for genetically very different carcasses and that equations must be developed per breed. On the other side, the Canadian grading system (Anon., 1986) is based on a unique grading grid applied to a multibreed population. In Cuba, it has been demonstrated that a breed bias exists in the estimation of percentage lean. The objective of this paper is to determine whether it is possible or not to use a unique grid for the whole nation.

MATERIALS AND METHODS: Within-cross and within-sex regressions were computed in order to test homogeneity of slopes. A standardized sample of 470 pig carcasses in which were included the five crossbreeds used in commercial pig production in Cuba and two sexes was used. The model used included the effect of crossbreed or sex, the independent variable (sacral backfat, SP, mm) and their interaction. A mixed model least-squares and maximum likelihood computer program (Harvey, 1987) was used.

RESULTS AND DISCUSSION: The analysis of variance for percentage lean demonstrated that the interaction cross by sacral fat was non-significant (P=.2291) showing that slopes were homogeneous (Figure 1). Within-cross equations for fat prediction also showed homogeneity of slopes with a non-significant (P=.0897) interaction. Although it has been reported (Wood and Robinson, 1989) that the use of a pooled prediction equation could cause an underestimation of lean yield, this is true for the very blocky breeds like the Pietrain. Within-sex prediction equations were also homogeneous both for lean and fat (Figure 2). There is less information available on this matter, but it is obvious from literature that this has not been a matter of great concern.

In Cuba, the crossbreeds used in pig production cannot be considered extremely different from the genetical point of view although there is evidence that a cross effect in lean and fat prediction (P=.0000) exists. On the other side, the grading

system to be introduced in Cuban industrial slaughterhouses is based on a grid and the prediction equations serve only to confirm the use of SP (sacral fat) as a reliable predictor. The use of separate grids per breed would surely interfere with progress and from a practical point of view, it is most necessary for our country to improve pig production fast not only in quantity but also in quality.

CONCLUSION: Although breed effect is significant in lean and fat prediction, within-cross and within-sex equations showed homogeneous slopes. For practical reasons, it is suggested that in Cuba, a unique grid is used to grade commercial pig carcasses.

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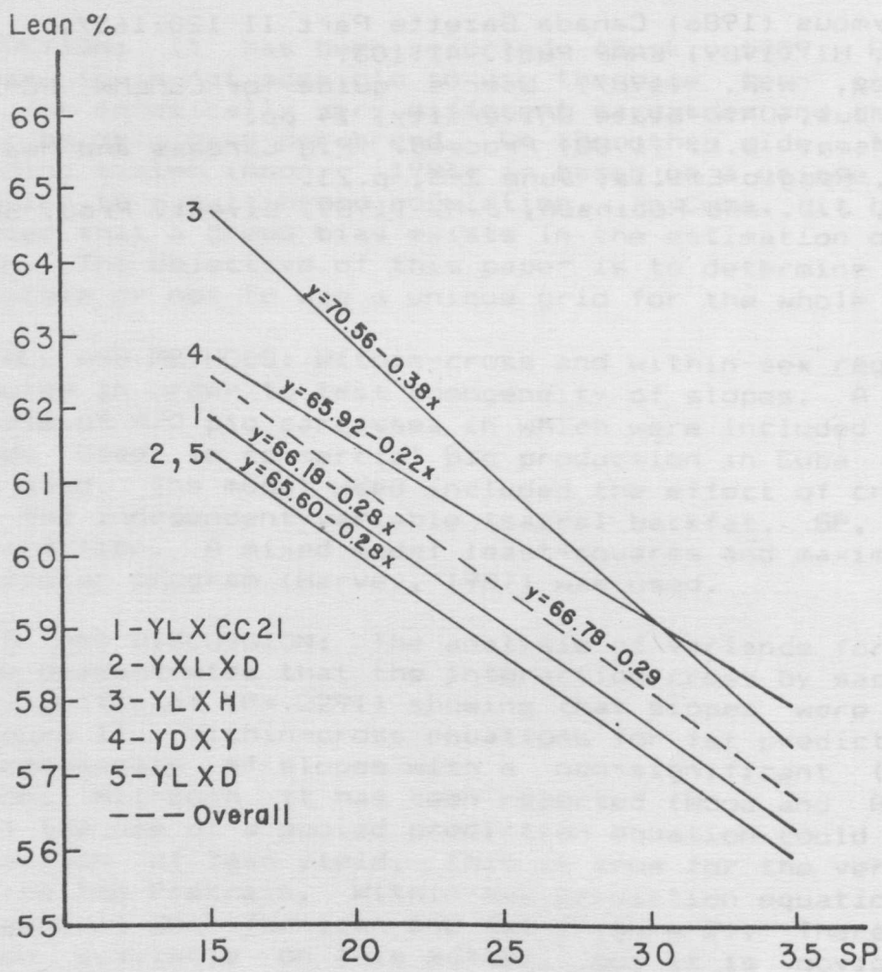

Figure 1. Within-cross lean prediction equations.

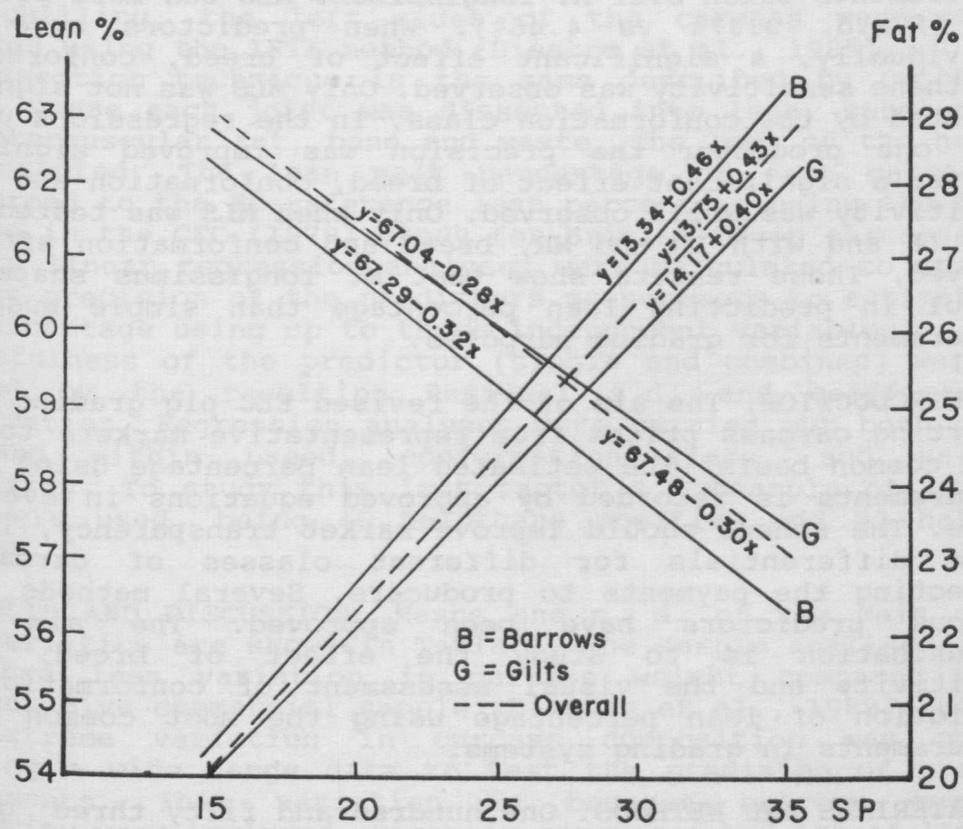

Figure 2. Within-sex lean and fat prediction equations.