RESISTANCE TO FLEECE-ROT AND BODY STRIKE IN THE SELECTION OBJECTIVE FOR AUSTRALIAN MERINO SHEEP

R.W. Ponsoni

Department of Agriculture, Box 1671, G.P.O., Adelaide, S.A. 5001

There are several traits of economic importance in Australian Merino sheep. The degree of resistance to fleece-rot and fly strike is one of them, but before such a trait can be included in a formal definition of the selection objective, a number of issues need resolution. These are:

1. Resistance to fleece-rot and body strike as a trait has to be defined precisely. This will imply making a decision about the environmental challenge the sheep are expected to withstand. More effort could be directed towards improving the methods used when artificially inducing fleece-rot and body strike so that they resemble the natural situation as much as possible. When perfected, the techniques of artificial induction could be adopted at the stud level.

2. More information is needed about the heritability of resistance to fleece-rot and body strike in different Merino strains, and on the phenotypic and genetic correlations with other economically important traits.

3. Because not all classes of sheep within a flock are affected to the same extent, when estimating the relative economic value of resistance to fleece-rot and body strike in relation to other traits, consideration of the fraction of sheep likely to be affected within the flock is essential.

4. More knowledge is necessary about the costs associated with the occurrence of fleece-rot and body strike. This point relates not only to treatment costs, but also to losses in terms of wool production, growth rate and reproduction rate.

5. Under some circumstances the small changes resulting from selection for resistance to fleece-rot and body strike will have negligible effects on the costs to the farmer. The type of treatment anticipated for the affected sheep should also be defined before the value of genetic gains can be adequately assessed.

6. There would be advantages in treating fleece-rot and body strike as two different traits. If losses are due only to body strike, then body strike should be the trait included in the selection objective. If there are no costs directly associated with fleece-rot, then fleece-rot would become simply an indicator trait, i.e. a trait which provides information about the breeding value for resistance to body strike. However, if there are costs which can be specifically attributed to fleece-rot, then it too should be included in the selection objective.

Once these matters are resolved, it will be possible to calculate the fraction or percentage of genetic gain in economic units which can be accounted for by genetic gain in resistance to fleece-rot and to body...
strike. At the present time the inclusion of these traits in the selection objective of Merino sheep poses a number of problems. The difficulties are not exclusive to those concerned with genetic improvement of Merino sheep. Even in species in which probably more use of modern animal breeding theory has been made, the incorporation of selection for disease resistance in programs of genetic improvement has been fraught with difficulties (Dickinson 1979, Pearson and Miller, 1981). In the meantime, when the improvement of resistance to fleece-rot and body strike is considered a desirable goal, rejection of affected individuals or of susceptible ones as suggested by indicator traits could precede the application of other selection procedures.

REFERENCES
