

Computer-aided management of sheep flocks in Western Victoria

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Farming systems can be very complex. Sheep producers have to make decisions on flock, feed and financial management against considerable uncertainty as to seasonal conditions and market prices. Reliable management aids have therefore been sought to objectively estimate changes in animal production and profit in response to different management strategies and technological inputs.

A simulation model of a sheep production system has been developed in Victoria to investigate the biological and economic consequences of changes in flock management (1). After rigorous testing (2)(3), more specific models were developed for western Victoria to evaluate responses to changing reproduction rate, feeding and drenching strategies and the economics of identifying twin-bearing ewes in mid-pregnancy.

SHEEPO, an interactive computer package for comparing flock management strategies (4), is currently being tested and used in district offices of the Victorian Department of Agriculture and Rural Affairs. This package allows changes in pasture availability, sheep liveweights, flock production and economic returns to be predicted in response to season and management. Emphasis has been placed on ease of operation and interpretation of output.

Training and guidance of extension workers in the use of SHEEPO is being achieved through workshops and by the appointment of one of us (I.P.C) as a part-time 'SHEEPO Liaison Officer'. In addition to the descriptive "User's Manual" (4), we are now preparing a "Case Studies" manual, documenting the procedures and outcomes of a variety of applications to which the model has been put. SHEEPO is also being used in a number of agricultural colleges and universities to educate students in flock management.

The future development of SHEEPO covers three main areas. These are (i) improving the predictive reliability of key components of the model, (ii) modifying the herbage quality functions as it is tested using different climates and pasture types, particularly in other States and (iii) preparing for the eventual release of SHEEPO to farmers and consultants.

1. White, D.H., Bowman, P.J., Morley, F.H.W., McManus, W.R. and Filan, S.J. (1983). *Agric. Systems* 10: 149-89.

2. White, D.H. and Bowman, P.J. (1984). *Victorian Dept. Agric., Agricultural Note Series No. 136*, 103-13.

3. White, D.H. and Bowman, P.J. (1986). *Proc. Aust. Soc. Anim. Prod.* 16: 58-60.

4. Whelan, M.B., Bowman, P.J. and White, D.H. (1986). *Victorian Dept. Agric. & Rural Affairs Tech. Report Series No. 124*.