Proceedings of the New Zealand Grassland Association 55: 207-208 (1993)

Use of the Stockpol computer decision-support program in commercial consultancy

D.G. MCCALL' and P.M. TITHER[2]
[1]AgResearch, Whatawhata Research Centre, Private Bag 3089, Hamilton
[2]Agriculture New Zealand, Private Bag 9024, Hastings

Keywords: commercial consultancy, computer program, decision-support program, Stockpol

Introduction

Stockpol is a computer program designed for decision support on pastoral sheep and beef farms (Marshall *et al.* 1991). It was designed for use by consultants who give advice on stock policy decisions.

A team of 8 consultants were a vital component of the Stockpol development team. They acted as clients to ensure the model performed the way they required. Since release, user suggestions have contributed to Stockpol's evolution. However, for Stockpol to be of use, a consultant needs the skill to adapt problems for analysis using Stockpol. This brief communication reports a case study of a commercial use of Stockpol in consultancy work.

Case study

The case study farmers (husband and wife) live in the Hawkes Bay. They farm 3150 stock units on 280 ha. The existing stock policy was 21OORomney stock units selling ram lambs at 13.7 kg carcass weight and cull ewe lambs. An Angus cow herd was mated to a terminal sire with progeny being finished for slaughter. Fifty Friesian bull calves were finished at 18 months of age.

The farmers had heard of Stockpol through prior contact with the consultant. Two interrelated motives existed for the consultancy. The first was to meet a personal development goal of the farmers. Each year they aimed to invest a percentage of gross income on their personal development. In the previous year it was spent on a skiing expedition. In 1992 a strategic analysis of their farm using Stockpol became the priority for this investment. Secondly, they had been considering decreasing ewe numbers and keeping 500 wether lambs through until January as 2-tooths for the live sheep trade. A decision on whether to implement the idea provided the initial focus for the consultancy.

The objective of using Stockpol was to test the feasibility of the proposed change from both a physical and financial perspective. A simple gross margin analysis could have been used but this would not have provided the physical information required.

The process

The consultancy was tackled by first setting up Stockpol to mimic the property in a typical year. This provided a base from which to compare alternative options. These comparisons were the basis for determining opportunities to fine tune farm management.

Data on stock numbers and sale times were assembled by the farmers from their records. Data were entered by the consultant with the farmers present so checks could be made as they went. Default liveweight gains provided by Stockpol were adjusted using available liveweight data and lambing percent information. Further adjustments to lamb, bull and steer growth rates were made so that predicted carcass weights conformed to average weights commonly achieved. Pasture growth data were initially taken from the Stockpol database for a nearby site. The farmers suggested changes to the pattern of growth by reacting to relativities between months shown on the pasture growth graph in Stockpol. Final pasture growth rates were chosen by discussing with the farmers when the major constraining period for feed occurred. Stockpol was run and annual pasture production was adjusted so that the current system was just feasible (Marshall *et al.* 1991) during this period.

For the first analysis the bottom 500 male lambs were retained through the winter and spring. A substitution ratio of ewes for wethers was calculated by first assuming a target increase in body weight of 5 kg (+ 10% lambing) for the remaining ewes and then deriving a feasible solution on Stockpol for the wether option.

Information developed

The information developed from the modelling exercise included:

1. A substitution rate of wethers for ewes in order to keep winter feed demands equivalent to the present system.
2. Comparative seasonal feed demands for the two systems. This was used to help evaluate risks to climatic variations in other seasons.
3. Comparison of expected financial returns.
4. Sensitivity of product price fluctuations on the alternative systems.

5. Animal growth rates required to achieve target weights and sale dates.
6. Minimum pasture cover requirements to achieve target results.

Results

The major results presented to the client were:

1. Reducing 0.8 ewes for every wether maintained the winter feed demand and reduced summer and autumn feed demands thereby reducing exposure to droughts.
2. Wool production was expected to be virtually identical from the two systems. Therefore financial risk was compared simply on the basis of the expected value of export wethers versus prime lambs. For this particular farm the breakeven price for the export wether system was at a 65% premium over the prime lamb price.

Other issues

In the course of the interaction with Stockpol a number of other factors emerged which the farmers considered. First, the consultant challenged them with the option of changing to Hereford x Friesian cows. The implication of increased calf weaning weights predicted by Stockpol was modelled through a full physical and financial analysis of effects on prime cattle returns. The change is being contemplated. Secondly, the farmers tested the effects of improved lamb growth up to weaning on lamb returns. With the help of the consultant and Stockpol pasture cover predictions, they focused on pasture cover at lambing as a possible problem on their farm. Their response was to set a target pasture cover for lambing and to back this by first increasing subdivision for their winter rotation and secondly monitoring winter pasture cover. Finally, the farmers became interested in the relative feed demand , in ewe equivalents, of each class of stock on their farm.

Conclusions

Four points are worth noting. First, Stockpol assisted the consultant in assessing strategic opportunities for the clients. Second, it provided a means of developing the farmers understanding of their system and it's profitability based on the "big picture". Thirdly, it provided the opportunity for the consultant to communicate the benefits of new ideas to the farmers and challenge their current system in a non threatening way. Finally, the skills of the consultant in understanding opportunities, in adapting problems to make them amenable to analysis and in presenting simple results to clients are critical elements to Stockpol's usefulness.

■