AUTOMATIC RECORDING OF SHEEP PRODUCTION CHARACTERISTICS FOR USE IN A SELECTION PROGRAM

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INTRODUCTION

Objective measurement has not been widely adopted in the Australian sheep industry. The best method of promoting the use of objective measurement is to demonstrate superiority of commercial sheep bred on objective criteria over those bred by traditional methods (Jeffries 1976).

1. There are not many flocks using objective measurement because of scepticism regarding the benefit of such practices.
2. Some flocks using objective measurement started with low-producing flocks and hence have low current production.
3. Some flocks have 'pseudo-scientific' selection indices – for example, Fonthill Merinos and the Australian Merino Society.
4. Logistic problems fitting in objective recording with normal woolshed and sheep-yard operations.
5. Problems with maintenance and sorting of records.

METHODOLOGY

The system described in this paper (Figure 1) attempts to remove the last three problems listed above.

Fleeceweight recording methods currently developed to take advantage of microcomputer technology still rely on manual recognition and recording of ear-tag numbers and fleece-weights (Parker 1983).

An electronic system to collect data automatically for a sheep flock selection program based on bodyweight and fleeceweight is proposed. Other parameters – for example, fibre diameter and fertility – can also be used in the selection program if they are considered important and are recorded.

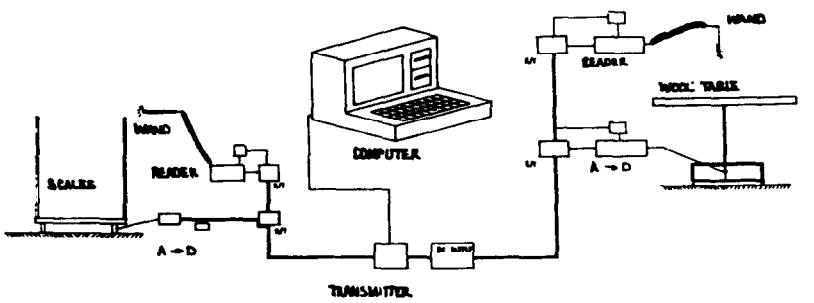

Figure 1: System layout

To be successful commercially such a system should:

- Be reasonable in initial cost.
- Be easily interfaced with microcomputer-based farm records.
- Require minimal additional labour.
- Not interfere with normal shearing shed routine.
- Eliminate time-consuming and error-prone manual record-keeping.
- Positively identify each fleece.

The hardware for the system consists of:

- Ear-tags with both numbers and the equivalent bar code.
- An electronic weighing platform in the sheep-yards.
- An electronic weighing wool table.
- Bar-coded 'butterfly clips' for attachment to the side of the sheep before shearing.
- A microcomputer accepting data from bar code readers and strain-gauge weighing devices.

The system may be refined if electronic ear-tags become much cheaper.

The system operates as follows:

(a) During penning operations, each sheep has its bar-coded ear-tag 'read' and a coded, independent clip 'read' and attached to its fleece. If convenient the animal will be body-weighed at this stage.

(b) Following shearing the fleece will be thrown on the wool table and the weight automatically registered. The fleece clip will be 'read' and if diameter is to be measured the clip will be pulled out with a midside sample and bagged.

The data file generated by the above operations is then used as input for a sheep selection index program (Ponzoni 1983). The approach taken in the system's computer program is to input the index coefficients and to allow for multiple records by an appropriate weighting factor on an individual record basis. Thus the program is a hybrid of the New Zealand Sheeplan approach and Walkley and Ponzoni's (1982) approach. The sheep can then be sorted and selected on any user-determined basis – for example, on their calculated selection index value.

The sheep are then put through a work race and their ear-tag number or bar code read. The sorted data file is then used to display to the operator whether the sheep is to be raddled and culled or left in the flock.

The system, if successful, has the potential to be used in other animal industries – for example, dairy and pigs.

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