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principal problem is not that the market tells lies, but that it has a high potential to mislead unless there is a thorough appreciation of every market trend and of unusual factors bearing on the market at one point in time. However, it is probable that there will be computer programs and software available before long which could be used to develop sheep-selection strategies.

If there are abundant supplies of good-colour wool at a time when major markets are dyeing dull shades it would not be surprising to see very modest penalties for yellowness in sale lot prices. Market shifts in popularity of Shetland types or rapid changes in the political financial climate affecting, for example, Iranian or Chinese or other purchasing rates feed back swiftly into price relativities because some geographic markets are selective for certain wool types.

There does, however, appear to be an important underlying trend which is reinforced by the general position of IWS and New Zealand as its grower partner. This is at the very heart of the existence of an OM strategy in the first place. It is basically to shift as much of the New Zealand clip as possible into a premium price area which cannot be matched by countries where indigenous supplies are bought by guesswork.

This scenario of a more competitive deal when buying New Zealand wools is most comfortably

assured if we have a lower incidence of serious faults. Tenderness and associated faults such as coting and discolouration are not only a price-discount factor but a real problem for adequate description by OM methods, and they are counterproductive to image building of a product to be sold with a good degree of pride.

Concluding Remarks

The critical uncertainty in completing OM of both greasy and scoured wools is that of length measurement. In common with the other important fibre variables it is vital to first understand the full scope of process and product sensitivity to the measurement in question and if necessary educate the buyer so that he can apply these principles to his own purchasing strategy. Possibly the most exciting hidden benefit of OM to New Zealand wools is the much greater depth of understanding acquired by wool technologists of these key links between fibre and performance, which are already generating lateral developments likely to strengthen the market position of our wools. While one should be wary of possibly short-term premiums or discounts disclosed by market analyses of OM, the general principles of fleece improvement fit well into the long-term objective of marketing our wool as a premium product.

Benefits and incentives available from objective measurement

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INTRODUCTION

Objective measurement in the raw wool industry is not new. The first measurements were probably used to weigh a bale of wool.

Today's standard laboratory techniques for measuring diameter and yield were developed in the 1940s for commercial trading and customs purposes. In 1941 the U.S. Department of Agriculture began yield testing for duty purposes because of significant differences in the visual estimates given by different appraisers. (It is ironic that despite this, wool is still traded by some people in the U.S. on a tel cal basis).

Yield and regain testing began in New Zealand in the 1950s by the then Department of Agriculture because of complaints from manufacturers particularly about the variation of moisture content (weight) of deliveries.

In 1967 the Wool Marketing Study Group recommended the development and application of objective measurement but it was not until the 1970s that pre-

sale measurement was begun on any scale.

Objective measurement has come a long way in the last 10 years, with all auction wools now pre-sale measured for diameter, yield and vegetable matter. Most export deliveries are also traded with yield and diameter measurements.

This progress would not have been as rapid except for:

- The widespread adoption of sale by sample, by auction brokers primarily for cost saving reasons;
- The need to handle increasing quantities of wool more quickly through the auction system;
- Demand from processors for diameter and yield information on deliveries;
- The growers' interest in greater equity.

The changes brought about by sale by sample and objective measurement have paved the way for a number of other associated developments. This has resulted in the most innovative period in the history of the New Zealand wool industry.

A number of important events in the 1970s forced the changes in the way that wool was displayed, specified and traded.

Some of these events included:

- The rapid increase in production combined with farmers wanting more frequent sales meant that the old labour-intensive open bale sale displays could not continue without more space and much higher selling costs.
- A shift from our traditional markets in the West to new ones in the East required trading with people who had a poor understanding of traditional and subjective wool terms. For example the Chinese market was largely responsible for the widespread pre-sale measurement of fibre diameter when they wrote micron limits into their contracts.
- The rapid growth in man-made fibre usage stimulated processors into seeking greater specification in their raw wool deliveries.
- Woolgrower enthusiasm for pre-sale measurement because of concern for equity and in gaining a greater knowledge of his product.

Although all these factors had an overriding economic motive, the widespread use of objective measurement has led to a number of secondary developments that could even be of greater value in the long term.

ON-FARM BENEFITS

Subjective appraisal of wool can be remarkably accurate particularly when averaged over a large number of lots. This averaging resulted in a limited range of values being used for any one characteristic often at the expense of an individual grower's lots. The widespread use of pre-sale measurement for diameter and yield has seen a much greater range of values for individual lots. In extreme cases some clips have yielded up to 10% higher than expected while other clips have been up to 3 microns finer than visually appraised. Of course some have also gone in the other direction. Nevertheless growers have generally benefited and achieved greater equity.

Because of greater accuracy in assessment, market signals have become clearer to producers. This can be well demonstrated by the diameter/price relationship over the last 3 years (Fig. 1).

Although there can be major variations in the value of diameter both within and between years there are usually significant differentials between micron steps especially in fine wools. This type of information allows growers to make decisions in both breed and sheep selection as well as in classing the farm clip.

There are already a number of sheep breeders who have been selecting for fibre diameter for many years. More recently some growers have screened large populations for measured fibre diameter to establish ram breeding flocks. This same information is being

used for allocating sheep into different lines for fineness at shearing.

However, diameter is the only wool characteristic of which we have a good understanding of its economic value.

As additional measurements such as colour and length/strength become available judgements will be able to be made as to their likely importance in on-farm practices. Although colour measurement is in its infancy there are already indications that it could be a real benefit in making decisions on clip preparation practices, especially skirting. Over recent years the need for skirting has been increasingly challenged by growers because of the confused market signals and apparent lack of reward.

Although objective measurement is primarily a marketing tool it has already been of considerable benefit to the production, servicing and trading sectors. Wool producers have benefited through greater equity and clearer market signals.

Clean Smoothed Price vs Diameter

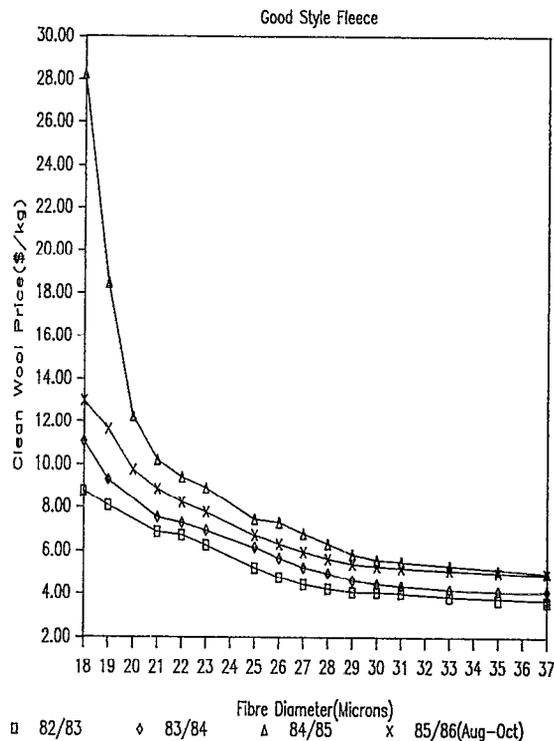


FIG. 1 Relationships between clean wool price and fibre diameter in 4 selling seasons.

Grab sampling and associated measurement have allowed major efficiencies in warehousing and wool handling systems and have allowed the auction system

to handle greatly increased quantities of wool along with more frequent sales.

Objective measurement is now an integral part of virtually all raw wool trading. Most commercial contracts are now made on the basis of tested yield or regain, micron and vegetable matter. This has led to fewer disputes and claims and provides an element of protection and gives confidence to both trading parties. In future the new measurements—colour, length/strength, bulk and medullation—will form part of the specification.

Before this is a reality we need the technology to do the tests accurately and economically. We also need to gain international acceptance and understanding of the new measurements.

Wool's future will be more assured when all mill deliveries carry a complete specification.

Over the last 4 seasons the Wool Board has conducted 20 skirting trials involving whole farm clips. The farm clips were split into 2 well-prepared lines, similar in all respects except 1 line was skirted and the other left unskirted. The 2 lines were sold at auction side by side under separate brands. Diameter, yield, vegetable matter, colour, bulk and staple length were measured on both lines.

Preliminary results show no important effects due to skirting for any of the characteristics except for colour and then only in some clips. Economic analysis shows that only in a few clips did the skirted line and associated 1st pieces bring more than the unskirted line.

This tends to bear out farmer opinion and is not surprising when you consider that in most clips skirting did not affect any important textile characteristics. However, widespread use of colour measurement could change the future colour/price relationship by identifying lots of superior processing colour. This may encourage growers to modify their production through shearing time and interval, and clip preparation practices. Likewise, length and strength measurement is likely to improve price signals and encourage growers to modify on-farm production especially at the time of shearing.

As these additional measurements become available growers will want to know what opportunities they have to manipulate their production practices in order to maximise returns. Other than for fibre diameter we have an inadequate knowledge of the biological factors controlling other important characteristics, especially colour and length/strength and associated coting.

THE SELLING SYSTEM

The wool broking auction system could not have coped with the rapid increases in production without sale by sample or very large increases in capital and labour costs.

Sale by sample has led to major savings in wool

store operations as a result of reduced bale handling and show floor space, has increased lot size, and has allowed more frequent sales.

Objective measurement has also led to an increase in lot size both on-farm and in the broker's store. It was found that although lines of classed wool may have looked different, when measured some were similar. This has resulted in less fragmentation of the farm clip. Likewise, brokers found that they could group small lines of wool together in order to make a lot of sufficient size to cover sampling and testing costs. Some brokers are testing small lots, grouping on the basis of the test result, providing a combined certificate for the buyer and paying the grower on the basis of the individual test on a pro rata basis.

The net effect has been to increase the average lot size by about 40% from 10 to 14 bales. This has also helped in coping with the increased volume on sale day.

A more recent innovation allowed by sampling has been sale by separation where the bulk may be sampled and held in 1 centre with the sample valued and sold at another. This has now resulted in a reduced number of selling centres with auction sales now held in only 4 centres; Dunedin, Christchurch, Wellington and Napier. This has reduced travelling costs of buyers and allowed the grower a greater frequency of selling opportunities. These developments can obviously be carried further and could result in even fewer selling centres holding more frequent sales. When all the important wool characteristics can be measured and sale by description becomes a possibility then any selling system is possible.

The auction buyer has had to learn to cope with some very major changes in the way wool was displayed, described and traded, all due to objective measurement. It has certainly helped the buyer to value more accurately and put mill deliveries together with greater precision but has also allowed the purchaser to specify the delivery more precisely in his contract.

THE MILL DELIVERY

It is important to remember that the major aim of objective measurement is to provide our customer with the raw material that matches his specification and has predictable processing performance.

It is increasingly likely that textile mill management will not have a wool background and understand little of the traditional wool descriptions. The mill manager is likely to be an engineer and the wool buyer is often a purchasing officer responsible for purchasing a range of different products such as nylon, latex and lubricants, as well as wool. He is usually enthusiastic about these new scientific measurements and quickly writes them into his contracts.

Recent developments such as computer blending have demonstrated that a mill delivery can be constructed to precise specifications and give highly predictable processing results. However, this technology