

.....ISING
PROFITABILITY
IN THE
NZ SHEEP
INDUSTRY

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Introduction

This assignment is written from the perspective of a sheep breeder and traces the history and the present day activities of the NZ Sheep Industry through a practical point of view. Maximising the profitability of the NZ Sheep Industry starts down on the farm and flows through the efficient processing and marketing channels to supply the customer with a healthy and attractive product. There seems to be a reasonable gap between the theory and the logistical practicability of certain ideas. But the boundaries do have to be pushed to make progress (but not at the expense of animal welfare) and it is the challenge of the modern day operator to take the latest technological information and market signals and apply them to the business of farming.

History of NZ Sheep Industry

In the late 1940's and early 1950's farming was run reasonably extensively and for such areas like western Hawkes Bay, farms suffered from poor seasons, poor prices, rabbit infestations, and wartime shortages. Consequently sheep production was affected by poor nutrition. Wool was hunger fine and lambing percentages were barely high enough to breed replacements.

The ideal sheep was small and blocky to meet the needs of the UK lamb market. Lambs averaged 12 - 14kg. Wool was a large part of the income so sheep were bred with as much wool from nose to toes.

In the 1960's farming practices improved significantly with the application of super phosphate and the replacement of the old native pastures with ryegrass and white clover mixes. Animal production lifted considerably through the 1960's and 1970's mainly through better animal nutrition and better animal health practices.

In the breeding scene the old traditional Romney with the woolly head and legs and heavy shoulders was the predominant breed. Production was poor and it wasn't uncommon for farmers to be assisting over half their ewe flocks at lambing time. Other breeds were investigated with Professor Peren from Massey University crossing Cheviot with the Romney to find a more thrifty and free moving animal for the NZ Hill Country. Professor Coop developed the Coopworth for lowland conditions in the South Island.

The sheep breeding scene was dominated by the showring and Breed Societies so the emphasis was placed on what an animal should look like rather than the actual production from that animal. When certain breeders wanted to go away from traditional methods and not be confined by the rules of breed societies they were heavily criticised and at one stage a petition was taken to the Govt to outlaw these breeders.

Selection within a breed to improve performance was considered by the geneticists to be too slow. However some breeders started screening for better animals. They identified the twinning two toothed to improve fertility and started weighing fleeces. Performance was the objective. Lambing had to be unassisted, growth rates were measured and it wasn't long before the resulting progeny were outperforming traditional stud flocks.

As performance was lifted there were more animals to select from. Consequently progress sped up. Not only were the animals getting higher performing but a more active sheep was developed which was clearer in the head and legs. Faults such as black fibre and bad feet could be reduced to a less significant level.

As a result from only selecting from animals that had trouble free lambing the survivability also rose. The lambs were smaller at birth but were soon up and feeding mainly because of a less traumatic birth. This philosophy was against traditional ideas which believed you needed higher birth weights to achieve greater survivability. (Amazing how this old concept of having higher birth weights for greater survivability has been reinvented in the year 2000.)

Performance recording began in earnest in 1966 with Prof Al Rae from Massey University. The National Flock Recording Scheme was developed and the basic four criteria were measured i.e. number of lambs born, weaning weight, autumn live weight and fleece weight.

Sheeplan was then designed in 1976. A monetary value was attributed to each trait and then an overall index was calculated. Breeding values could also be estimated with the accuracy of these increasing as more background information on animals were collected over time.

Sheeplan then changed to Animalplan in 1988 and in 1991 the Animal Breeding Trust was formed.

There have been several other sheep recording schemes e.g. Flocklink, Studfax used but it was decided in 1998 that there should be one national standardised sheep recording system. So with the help of substantial funding from the Meat and Wool Board a new system was designed. This new system was called Sheep Improvement Limited (SIL). It has a lot of similarities with Animalplan but has the ability to handle larger numbers of animals and give a genetic trend for fertility.

Animalplan and SIL also have the ability to produce genetic trends for weaning weight, autumn live weight and fleece weight. These trends can be incorporated into a selection index (BLUP analysis) to give you a breeding value on an animal based on a base year i.e. 1990.

Where are we at now?.

New Zealand's Official Stock Numbers

North Island

Sheep	1999	2001
Ewes Mated	13,411,000	13,475,000
Total Sheep	20,577,000	19,875,000
Lambs Tailed	14,511,000	14,771,000 Projected
Lambing %	108.2%	109.6%
Beef Cattle	3,400,000	3,532,000
Dairy Cattle	3,454,000	3,481,000

South Island

Sheep	1999	2001
Ewes Mated	16,953,000	16,835,000
Total Sheep	25,103,000	24,112,000
Lambs Tailed	20,351,000	19,774,000 Projected
Lambing %	120.0%	117.5%
Beef Cattle	1,244,000	1,248,000
Dairy Cattle	863,000	1,013,000

Sheep Numbers have trended downwards while Beef Cattle and Dairy numbers have trended upwards.

Lambing Percentage in the South Island was affected by the drought but is still nearly 10% ahead of the North Island.

On farm production varies considerably between farms. Below is some results from a survey conducted by Agfirst Hawkes Bay for the year ending 1999/2000

Financial Analysis

	Bottom 30%	Average	Top 30%
Gross Farm Inc/ha	\$449	\$595	\$787
Economic Farm Surplus/ha	\$82	\$210	\$359
Return on Equity	0.6%	5.2%	8.9%

Production Analysis

Lambing Percentage	115%	123%	127%
Lamb Price/hd	\$49.17	\$49.10	\$49.61
Phosphate use kg/ha	13.3	17.2	20.1
Percentage of Maintenance	104%	122%	131%
Av Paddock size ha	12.5	7.6	6.9
Stock units per labour unit	2897	3179	3259

The conclusions that can be drawn from these results are mainly that the top 30% of farmers are more efficient and do the basics well. They apply more than adequate fertiliser, have more subdivision, achieve better lambing percentages while achieving the same prices and use their labour more efficiently.

I personally conducted another survey. This looked at farmers in our own district and their age and the general standard of improvements i.e. standard of subdivision, water supply, pastures, and access were assessed.

The more detailed results are included in the appendix.

The average age was found to be approx 50yrs (range 28 - 84) and the general standard of improvements was 6.2 out 10. (range 2 - 9)

The relationship between age and improvements was noticeable with the middle age group generally having a good standard and as they got older they let things slip. For those who had a young son come along then maintenance improved again. Those farms with a wide range of age groups they had a slightly below maintenance probably because of too many chiefs and not enough Indians.

The most important point to come out of this survey though was the fact that the average farm could increase production by 30% through better farming improvements.

On the Genetics side.

It is very interesting to note that in the year 2000 it was estimated that out of the 2200 studs operating in New Zealand selling rams to commercial farmers only 600 studs were performance recording.

So there are a lot of rams being used that do not have any sound statistical information to inform a buyer on how that ram will breed. Even limited data can be misleading because even though a particular animal may have good individual performance it may not necessarily pass those good traits on. Unless background information that has been accurately collected can be analysed, the breeding potential of that animal will not be known.

It is also estimated that out of the 132,000 rams sold in the industry they are only achieving an average genetic gain of .05%. So 50% of breeders are doing less than this and some are probably going backwards.

FARMER SURVEY.

Farmer	Age	General Standard of Improvements
1	48	8
2	45	8
3	50	7
4	55	4
5	48	3
6	47	6
7	48	9
8	48	5
9	28	7
10	55	6
11	36/62/60	7
12	60/38/33	2
13	62/48	5
14	58	2
15	45	7
16	52	5
17	62	8
18	57	8
19	38	9
20	82/52	2
21	40	9
22	58/36	9
23	42	5
24	46	5
25	57	3
26	40	8
27	58	2
28	58	6
29	37	7
30	58	6
Average	50	6.2

Where are we going?

With the present day commodity prices a lot of the necessary farm improvements are now taking place especially in terms of fertiliser use. Unlike Dairying where improved fertiliser and pasture renewal can be seen in volume of milk in the vat almost immediately, a sheep and beef farmer has a longer payback period and because of the previous low return on investment, these essential ingredients were neglected.

There is a lot more information now available to farmers where before most of the research done was not adequately communicated.

There is also more consultants being used however a few of them perhaps need to actually run a farm for a year or two to appreciate the logistical implications of some of their recommendations.

On the Farm the production base is always changing especially with the introduction of European Breeds. These new breeds have certainly become fashionable and are challenging the existing established breeds of New Zealand. It is early days for them and their particular good traits are always being highlighted but as time goes on their undesirable traits are starting to be built into the equation.

With the Development of Sheep Improvement Limited and the supposed use of across flock analysis to identify the particular sires and studs that have superior animals it appears in theory that the New Zealand sheep can start progressing as a whole. It was also planned that a goal of 4% production improvement a year be targeted i.e. 2% from genetic gain and 2% from better farming practices.

While the figure of 2% improvement from better farming practices is easily achievable the 2% from genetic gain is not, especially on a national scale.

There are several factors inhibiting this progress

1. SIL has still not got the required accuracy and is taking significantly longer to get operational.
2. It hasn't got the confidence of all the breeders.
3. The across flock analysis option cannot be properly audited to give a true indication of which sires are leaving the best progeny.
4. The project has been bogged down with bureaucracy
5. SIL will need as many breeders on as possible to become commercially viable so will be encouraging even the under performing studs to continue.
6. Studs that have just joined SIL are using it as a major marketing tool even though they may have only performance recorded for 3yrs as compared to some studs that have been recording for 30yrs.
5. There will still be too many studs supplying inferior rams to the industry.

Aside from the performance recording aspect consultants have been pushing commercial farmers into buying in replacements for their ewe flocks. These replacements have been diminishing in quality because breeders have sent their best surplus ewe hoggets to the works because of the better prices offered and the tail end gets sent to the saleyards.

Where do we need to go?

To maximise profitability in the NZ Sheep Industry then the basic foundations of the farming business have to be in place. With regard to the production pyramid these areas are covered.

1. The platform includes

1. Soil Fertility - Achieving Biological optimum for soil.
2. Water Supply - Good fresh water
3. Pasture Quality - Maintaining good quality
4. Subdivision and Access

2. Stock Policy

Breeding v's Trading.
Ratio Of Sheep to Cattle.

3. Breed and Quality of Breed

Using performance recorded sheep with a commercial background.

4. Stock Mangt and Pasture Mangt

Using the best farming techniques.

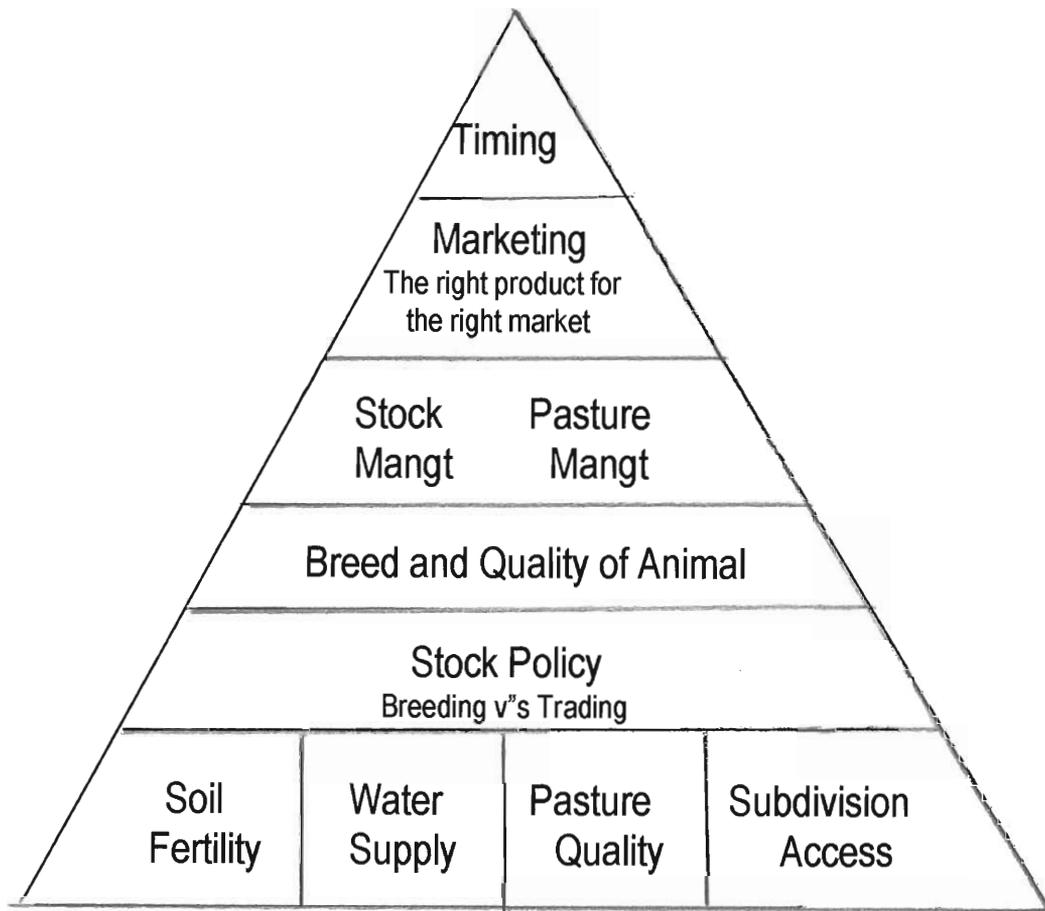
5. Marketing

Having the right product for the right market.

6. Timing

Crucial factor in achieving optimal efficiency

Production Pyramid



Advances that need to take place in the Industry

Nutritional Advances

- Development of new grass species
 - Later flowering
 - Higher digestibility
 - Good persistence
 - Better management techniques

Animal Health Advances

- Better Monitoring e.g. Faecal Egg count
- Better nutrition
- Reducing Larval challenges
 - Regrassing
 - Summer Crops
 - Pasture grazed by cattle

Genetic Advances

- Marker assisted selection
- Blup Analysis
- Embryo and sperm selection
- DNA testing - Parentage
 - Traceability of product - Origin
 - Food Safety
 - Quality Assurance

Better supply of proven Genetics

- Breeding Studs need to have:
 - Proven Genetic Base
 - Genetic Balance
 - Showing continuous improvement
 - Guarantee of Quality
 - Purchaser Protection
 - Consumer Influence

Product Advances

Better efficiencies in processing sector

E.g. Less time between farm gate and slaughter

Guaranteed flavour and tenderness of product

Product diversity and promotion

As - Functional food for health

Sports energy food

Nutritional supplements

High value Pharmaceuticals

By Products

Customer Advances

Food Safety

Convenience

Variety

Environment

Animal Welfare

Knowledge without Action is Useless

Action without Knowledge is Dangerous.

Sources of Information

DW Hildreth - History Of the Sheep Industry

Agfirst Hawkes Bay - Financial Statistics

Claire Callow Animal Breeding Trust - Animal Performance Recording

Meat & Wool Economic Service - National Statistics

World Sheep Congress 2001