A COMMENTARY ON THE GOAT INDUSTRY

I.R. Barron
November, 1986

A COMMENTARY ON THE GOAT INDUSTRY

ALTERNATIVES

The traditional forms of agriculture in New Zealand have been providing an ever diminishing return for its primary participants - the meat, wool and dairy farmer.
Diversification has been the popular call to farmers. There are two very basic flaws in this "idea" which fundamentally preclude our farmers from major worthwhile changes in direction:

(a) Diversification takes time - years to achieve. (Apart from which much farmland is not suitable to much else but pastoral farming).

(b) Financial constraints - if he could afford to spend the money major diversification needs, the farmer wouldn't need to diversify!

The net effect of this is that the institutions, organisations and individuals involved with farming have busied themselves with piecemeal and short-term "band-aid" solutions. This, rather than trying to devise a much broader approach to re-aligning the economy at large. There has been a general failure to approach agriculture as a vital and integral part of our total society/economy.
With greater access to funds the city businessman has been best placed to take advantage of a situtions requiring large cash inputs, tax write downs and at the end of it all, a return on his capital. As a consequence, the lead in the diversification stakes has often been taken by the so called "Queen Street farmer" - e.g. kiwifruit and deer.
This in turn has meant that subdivision of his land has usually been the farmers "best" means of diversification.
The goat industry - fibre based as opposed to dairy - is the latest such industry to attract the big city dollars.

BACKGROUND

The Angora goat takes its name from that part of the world - in Turkey - where a famous breed of goat is found. Its long silky white hair being much prized as a fibre for cloth manufacture. Mohair is the English word taken from the Arabic "Mukhayyar" - hair cloth.

It is apparent that the angora goat is at home in dry arid climates. Cashmere is again a name of the region where the goats have traditionally predominated. Although they are nowadays much more widely spread. The fibre begins its strongest growth in late summer and begins to shed after mid-winter.

This bonanza particularly in the angora industry, is something of a come back in New Zealand.

Angoras were first imported back in the 1860's. The industry grew quite steadily, but peaked at some 8,500 goats before it faded into obscurity, after about 1929. Apparently most of the goats were just "let go". This was a basis for what was, until quite recently the large numbers of feral goats found in various parts of the country.

As it was in the last century, Australia is again the source of the large numbers of angora goats now being imported.

The goat fibres - mohair and cashmere are regarded as being among the elite and relatively rare, natural fibres available to us.

The total world production of cashmere and mohair - approximately 2,200 tonnes - is less than 1% of the global wool production which is approaching 3 million tonnes. Of that 2,200 tonnes of goat fibre, New Zealand currently produces less than half of one percent. Obviously there exists a vast potential for our fledging industry.

Cashgora on the other hand is a new fibre which has as yet a limited market and is currently unique in Australasia.

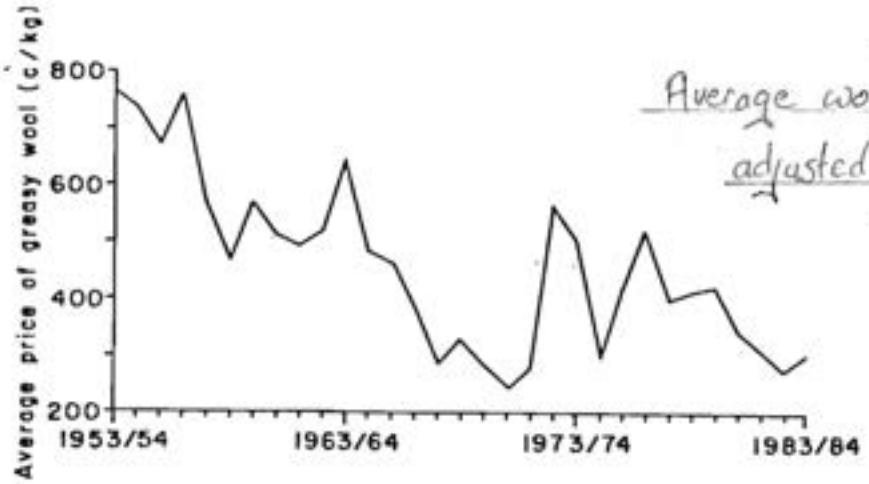
As its name suggests, it is the product of crossing the two types of fibre producing goats.

BACKGROUND (continued)

Cashmere 1983/84 season		Mohair 1983/84 season		Wool 1983/84 season ('000 tonnes)	
China	2500	- South Africa	8200	Australia	722
Mongolia	1000	Turkey	3000	USSR	476
Afghanistan	700	United States	4300	New Zealand	363
Iran		Argentina	1000	China	194
Australia	11	- Lesotho	600	Argentina	155
New Zealand	9	Australia	350	South Africa	114
		New Zealand	46	Uruguay	82
		Others	50	Other African	75
				Turkey -	64
				Pakistan	53
				United Kingdom	52
				United States	46
				Other	524
Total (tonnes)	4220		17546		2920

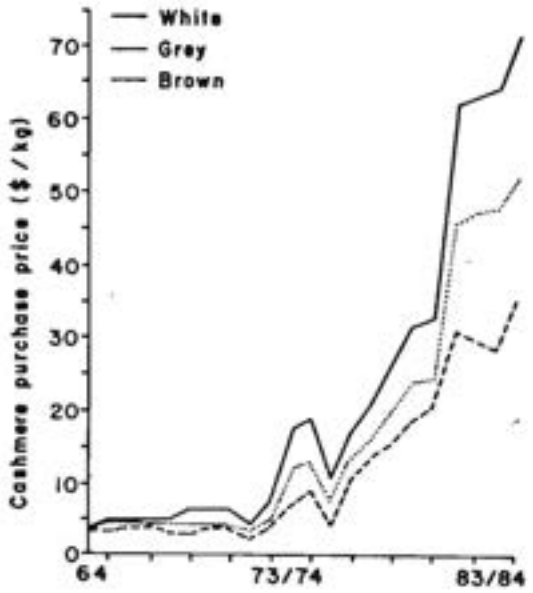
In the case of cashmere, the prospects are further increased by the fact that China and Mongolia - who produce 70% of the world's cashmere are processing and consuming a much greater proportion of their domestic production.

Both fibres have the further attraction of being "inflation proof" by virtue of their elite status. This is demonstrated in the following charts showing cashmere and wool prices prevailing in recent times.



Average wool prices - adjusted to $NZ 1985

BACKGROUND (continued)



Price paid for Cashmere - adjusted to $NZ 1985

New Zealand and Australia have a further advantage in their cashmere industries in that the fibre is harvested by shearing. China and Mongolia produce the majority of their fibre by combing it from the animal or by picking the "shed out" tufts from the bushes where the goats have lost it. Thus, a lot of vegetable contamination and matted fibre result in a poorer fibre than a clean shear does.

TABLE ii

CURRENT CASHMERE / MOHAIR PRICES $NZ

MOHAIR	$ / KG
A Kid	29
B Kid	23
Young Goat	27
A Doe	26
A Buck	18

CASHMERE			
	WHITE	OFF WHITE	COLOURED
	$ NZ	$ NZ	$ NZ
Micron Dia. up to 15.9	169	126	92
16 - 16.9	161	112	89
17 - 17.9	146	92	61
18 - 18.9	92	54	35

BACKGROUND (continued)

The majority of feral goats in New Zealand have some cashmere on them. Upgrading of the cashmere production per animal is achieved 2 ways:

(a) By careful selection of the best cashmere bearing ferals and use of them for breeding.

(b) By the use of a G.4. (first cross angora x feral) buck over feral does (or vice versa).

Because of the shortage of pure bred angora stock in New Zealand, many people are using ferals as a base from which to launch an upgrading programme as follows:

Angora Buck X Feral Doe = G.4.
Angora Buck X G.4. = G.3.
Angora Buck X G.3. = G.2.
Angora Buck X G.2. = G.1.
Angora Buck X G.1. = Purebred Angora

This programme takes about 8 - 10 years using natural kidding - see table iii using a 100 doe flock to upgrade.

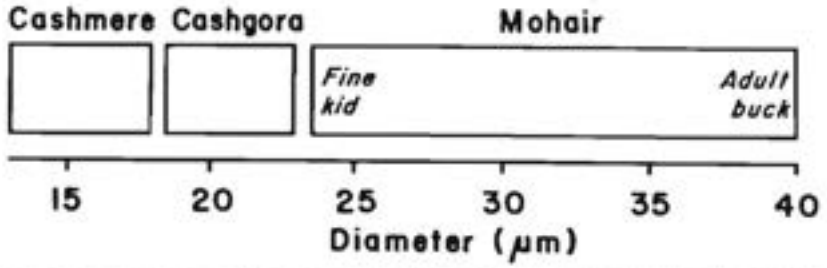
Table iii: Grading up from Feral to Angora Does

Year	Culling %		Does Feral	Does 1st x	Does 2nd x	Does 3rd x	Female goatlings reared 1st x	Female goatlings reared 2nd x	Female goatlings reared 3rd x	Female goatlings reared 4th x
1		Opening No.	100							
	25	Sales	25							
		Deaths	5							
2		Opening No.	70				52			
	25	Sales	17				0			
		Deaths	3				2			
3		Opening No.	50	50			38			
	25	Sales	20	5			7			
		Deaths	2	2			2			
4		Opening No.	28	72			27	35		
	25	Sales	20	5			26	3		
		Deaths	1	4			1	2		
5		Opening No.	7	63	30		15	50		
	30	Sales	7	20	3		9	17		
		Deaths	0	3	2		1	3		
6		Opening No.	0	45	55		4	44	21	
	30	Sales	0	20	10		4	22	5	
		Deaths	0	2	3		0	2	1	
7		Opening No.	0	23	62	15	0	31	38	
	30	Sales	0	22	7	1	0	19	11	
		Deaths	0	1	3	1	0	2	2	
8		Opening No.	0	0	62	38	0	16	43	8
	30	Sales	0	0	20	10	0	15	13	1
		Deaths	0	0	3	2	0	1	2	0

Assumptions: 110% weaning from feral does
140% from 1st and 2nd cross does
5% losses in mature stock

BACKGROUND (continued)

In grading up, the first cross (G.4.) is in fact the source of the cashgora fibre. This fibre displays the characteristics of both cashmere and mohair.
Cashgora is defined by its fibre diameter in microns



This "new" fibre has as yet, an untapped market - by the same measure that market is also unresearched. Currently the market values are:-

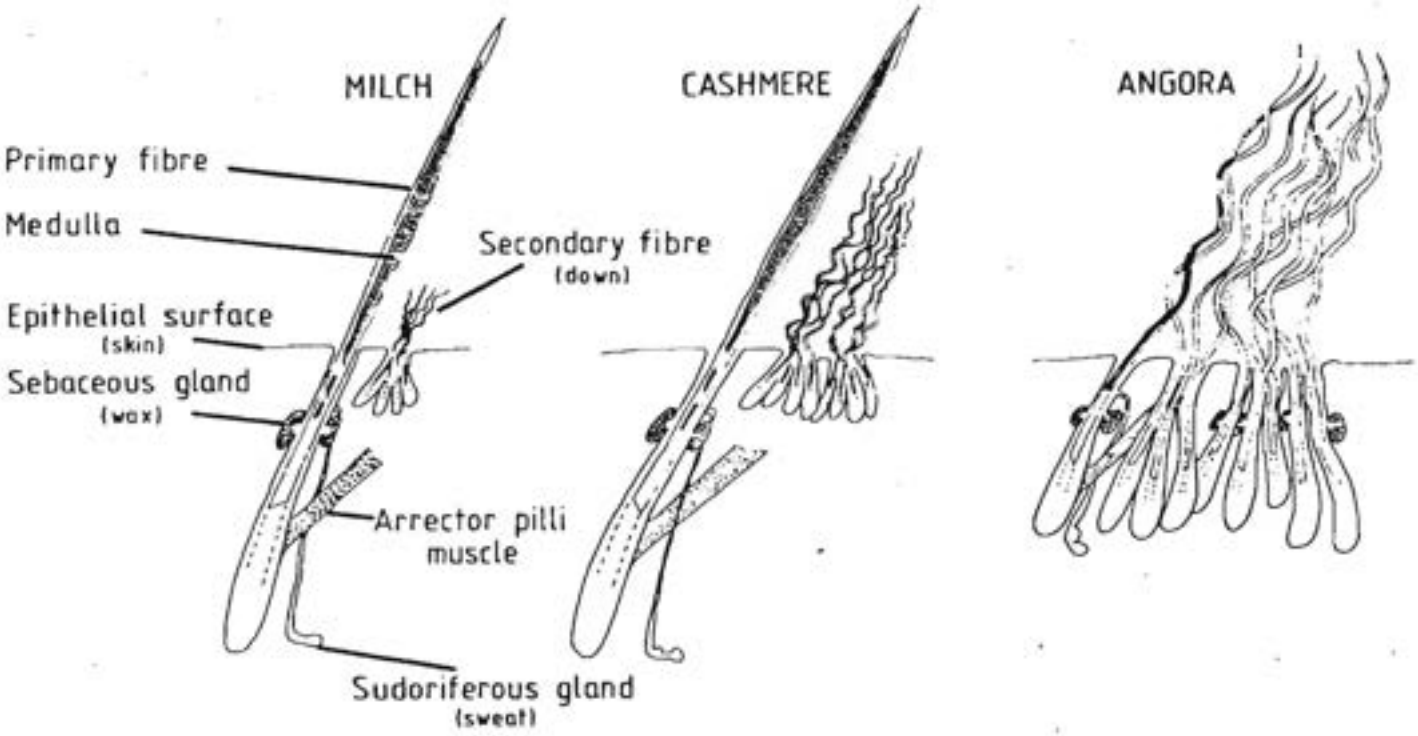
Cashgora A	$ 87 per kg.
Cashgora B	$ 20 per kg.
Cashgora C	$ 45 per kg.
Cashgora D	$ 20 per kg.
Cashgora E	$ 5 per kg.

Fibre production per animal is the primary reason for the popularity of the angora goat being much greater than the cashmere. The mean fleece weight for mohair in New Zealand flocks is around 3.0 kg per adult per annum. That equates to approximately $70 income on average per adult pure bred doe. That compares with about $35-50 for the very best cashmere animals.
As previously mentioned the cashgora, principally from G.4.'s on the way to grading up produces a "sideline" income of around $30-40 per animal. It becomes apparent that 3-4 cashmere ferals are required to produce the same income as one angora.
The actual skin follicle of the cashmere and angora goats are similar in structure but have developed different characteristics which set the fibres apart.

BACKGROUND (continued)

The principle variation being in the significance of the primary or medullated fibre. The diagram also shows that the dairy type animal has a much less developed secondary fibre. This is the reason for the unpopularity in many quarters in using the saanen doe as the base doe in an upgrading programme.

DIAGRAMATIC COMPARISON OF SKIN FOLLICLE ARRANGEMENTS IN GOATS



	MILCH	CASHMERE	ANGORA
S/P Ratio:	3 — 5	5 — 8	6 — 10
Follicles / mm^2:	10 — 3	19 — 22	10 — 15
Mean $\bar{d}$ (μm):	13 — 14 — (down only) —	14 — 18	30 — 40

THE ANGORA IN 1985

Certainly the angora appears to be the better farming prospect. It has indeed become a veritable goldmine for those fortunate enough to have been farming angoras prior to 1984 and for those able to spend relatively large amounts of money to "buy in" since about that time. Consequently, the costs of getting established preclude most farmers.

THE ANGORA IN 1985 (continued)

The animal itself is not really suited to New Zealand pastoral style of farming for a number of reasons:

(a) It is a browsing animal. It likes to be able to range over a wide area and not be restricted to specific areas where it is forced to graze.

(b) The goat has a marked preference for a "high fibre" diet. It would not naturally thrive on a "pasture grass only" diet such as we have "fined tuned" for our sheep and cattle.

(c) When concentrated into high stocking rates, it is put under stress and is even more prone to internal (and external) parasites. Such as are common to both sheep and goats, which leads to problems of "cross infection".

(d) The goat hoof is softer and faster growing than a sheeps hoof particularly when it is confined to the lush high moisture level, pasture land. The constant exposure to moisture leads to cracking and chaffing in the cloves of the hoof - an open invitation to bacteria and so to scald.

(e) Goats are relatively intelligent and very agile and as a consequence require a much higher standard of fencing electric or conventional - than is often suitable for sheep and cattle.

(f) Finally, a goats skin is relatively thin and there is virtually no subcutaneous layer of fat to provide insulation. It is thus much more prone to death from exposure after shearing than is a sheep in the same conditions.

All this would seem to make the angora goat a very labour intensive form of diversification. It is however these "disadvantages" which

THE ANGORA IN 1985 (continued)

are directly responsible for the immense popularity of the angora goat in New Zealand.

The first two points - diet and browsing are the two main factors which maintain the interest of the traditional farmers in diversifying into goats.

Firstly, they do not like clover and generally avoid it and secondly, they find roughage in the weeds that farmers would otherwise spend thousands of dollars to control. Thistles, gorse and blackberry to name a few (and in the South Island high country briar is the goats "flavour of the month")

The four remaining factors contribute most to the popularity of angora goats with the small land holders. Weed control does also become a consideration for many of them. The husbandry needed means that the angora has to be handled frequently and its intelligence enables it to be quickly tamed. It "responds" very readily to the hand that feeds and cares for it.

Another factor in the popularity stakes is that the angora is not a big animal - like a cattle beast - and does not require special skills or equipment to handle and transport it.

All these aspects of the angora - its intelligence, husbandry needs, fibre production, manageability - have combined to make one thing paramount - the jolly creature is worth thousands of dollars! This makes it even more popular!

A purebred angora doe, who might rear a dozen kids in a lifetime and clip $80 a year of mohair, is likely to cost as much as $20,000 - even if she is already 6 years old!

Current values of the various grades are, on an average, as follows:

Mixed colour feral Doe	$ 120 - 180
Black or white Doe	$ 280 - 300
C.4. Doe	$ 500
C.3. Doe	$ 1,300
C.2. Doe	$ 2,500

THE ANGORA IN 1985 (continued)

G.1. Doe	$ 3,000 - 8,000
Purebred Angora	$ 8,000 upwards
G. 1. Bucks	$ 3,000 - 10,000
Purebred Bucks	$ 7,000 - 30,000

Obviously these values can vary depending on a lot of factors. Unfortunately however, the higher the grade of the animal the more reliance there is placed on the piece of paper which delineates the animals heritage. That is its pedigree record - this can have a marked effect on price - often it is the major effect.
The pedigree of an animal has assumed an abnormal importance largely because of:

(a) A fashion for certain bloodlines and

(b) It is one objective feature of an animal that - while important - can be confidently highlighted by somebody who is otherwise inexperienced in judging the conformation of an animal.

There are many people breeding angoras who have never before had anything to do with livestock.
The value of purebred and/or imported stock is high and bloodlines provide a means of evaluation or justification if inexperience prevents an accurate assessment of the animal itself.

THE VALUE OF GOATS TO OTHERS

With the explosive development of the angora industry there have been many satellite industries and activities expanding and developing alongside. While new businesses themselves have been established much of their work is an extension of existing goods and services.
Not the least of those to gain have been the farmer and shepherds who, 4 years ago might have shot a goat merely for the sake of shooting it, can command anything from $50 to $130 for the ferals they can capture.

THE VALUE OF GOATS TO OTHERS (continued)

Builders and fencing contractors and especially the latter, have much to do in developing facilities for the "new farmer".
The transport operators are not left out either as large numbers of goats are transported about the country, particularly by those equipped for deer. The Stock and Station Industry has much to be grateful to the humble goat for, - it is the source of much of their current turnover. They have also played quite a significant part in promoting and developing the goat industry. In some cases it is going to be quite a major factor in their trading activities both for livestock and feed and ancillary supplies - over the next several years.
The professional sector of solicitors and accountants have also received a slice of the "cake".
There have been many syndicates established and many tax problems to solve. Let us not forget the insurance premiums that have been paid also.
There is probably one sector however that has had the greatest financial spin-off and one that will continue to increase - that is the veterinary industry.
There has been an increased work load in general veterinary services for two reasons:-

Firstly - and most importantly with the animals having such a high value it is worthwhile to have a "veterinary consultation" when health problems occur. The other reason is again the inexperience one. While goats were first farmed by man thousands of years ago, farming them in 1985 is a new experience for many of us.
The area in which the veterinary surgeon has the greatest role to play is one which is also likely to have the greatest impact on the future values of the angora goat - ovum transplants. The great "shortage" of angoras has heightened the search for even quicker ways of achieving a flock of purebred stock.
This can presently be done one of two ways:
Firstly, super-ovulation.
This achieves 3 kiddings in two years. By the stimulation of drugs

THE VALUE OF GOATS TO OTHERS (continued)

the doe is brought into season and mated. The drug programme is designed to increase the incidence of multiple births. At the end of the normal gestation period, hopefully, she will produce at least twins, preferrably triplets. These will be removed from the mother after 1-3 days and hand reared. The doe then goes back into an artifically stimulated season and mated again. This programme apart from being very labour intensive does not have a particularly high success rate and produces very little more than "normal" mating programmes.

Secondly, Ovum transplant. This again requires a programme to produce super ovulation in a pure bred angora doe which is then mated to a purebred angora buck. In conjunction with this, a number of "recipient" does also undergo a programme of drugs which will bring them "into season" in time with the angora doe. The mated angora doe is operated on approximately 48 hrs after mating. The operation is to flush out the fallopian tubes which may contain up to 18 fertilised eggs (8-12 is the average). These eggs are then surgically implanted into the recipient does who will gestate the eggs and produce purebred kids. The angora doe is put back to mate naturally with the buck.

It can be seen then that it is theoretically possible to produce as many as 20 kids from one pair of angoras in one season. In practice however the success rate is considered good at 60% of this.

Because the genetic makeup of the transplanted ovum is that of the purebred angoras, the recipient animals can be any kind of goat. By far the most popular are Saanen does. It is believed that by virtue of their greater size they will produce a bigger kid and once born the kid will receive an ample supply of milk to maintain that size advantage.

At this stage artificial insemination is not a viable alternative as only "fresh" semen can be used. Freezing goat semen causes the sperm to be rendered sterile.

THE FUTURE

One thing is certain - the angora is likely to remain an important part of our economy.

The numbers of "angora type" animals farmed in New Zealand have

THE FUTURE (continued)

increased four fold to some 240,000 at the beginning of this year. With the rapid increases made possible by transplant programmes these numbers will continue to grow (there is at least one property starting out to transplant 2,000 recipients, beginning in January, 1986).

The rapid increase in numbers is expected to bring about a reduction in market values within the next 2-5 years. Just how much and how soon is the million dollar question.

There will be several things to be gained from a reduction in prices some of which cannot be achieved soon enough.

The first and foremost of these is the general appreciation of the fact that the value of the animal is in the quality of its fibre. This is one of the most important and basic aspects of the whole industry which at present is shrouded by the inflated value of the animal.

The high values are also preventing another judgement from being made, one that partly has its being in inexperience, it might be noted. That is the evaluation of the individual conformation of each animal. For example, virtually nobody is prepared to grade a C.2. doe back to a C.3. because of a fault in structure or fibre type. To do so would halve the value of the animal and in the race to the top for the quickest dollar, such a move would not be financially expedient. Yet in the best interests of the industry, such an animal should be "down graded". For similar reasons no significant account is taken of other factors such as foot quality and evenness, growth rate, even mothering ability. As for hardiness and survivalabilty - <u>every</u> animal is "forced" to survive because of their actual or potential value. Such practices are not in the best long term interests of the New Zealand Angora industry. When it is generally breeding and developing to a programme and not purely for a price it will be a stable commercial operation.

At this juncture, it will be a practical and attractive alternative for the traditional pastoral farmers, one that is not going to be financially beyond his resources as it is in its present form. In the meantime, it is an attractive form of insulation from "Rogernomics" and an important component, even mainstay, of a varied section of the New Zealand economy.