NUFFIELD FARMING SCHOLARSHIPS TRUST

2005 SCHOLARSHIP REPORT

By

Arthur Fearnall

Belgrave Moat Farm,
Pulford,
Chester,
Cheshire,
CH4 9EQ.

E-mail: a.fearnall@farming.co.uk

Home/fax: 01244 570393
Mobile 07831 381925

ATTRACTING THE NEXT GENERATION INTO DAIRY FARMING

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INTRODUCTION

I am a 43-year-old Cheshire dairy farmer, having farmed since graduating from Reading University in 1989 with a degree in agriculture. My wife Ruth is a dairy farmer's daughter. We have four children Anna (12), Lucy (11), Kate (9) and Edward (6) and I am a ninth generation dairy farmer. I would love to see at least one of my children enter the dairy industry.

Almost three years ago, I was having a "bad day" on the farm. This particular "bad day" was not a one off by any means, but it was significant as it started a thought process. I began to realise three things:

- It would be a shame if the ninth generation of dairy farming didn't become the tenth. I still feel a little guilty that it might all end with me.
- My farming system with its long hours, complicated production methods, at times high stress and falling profitability has little to attract or offer the next generation.
- I am likely to be influential in my children's choice of career (although I will never push them), and although they are all still young I remember that I was influenced at a young age. I currently feel that I am not doing enough to encourage or influence them, mainly due to time pressure.

I have therefore set myself a mission. The mission is to change my system to one that will be more attractive to my children and one that may go some way to attracting them to become tenth generation farmers.

I also have another reason to change my system (see table 1). At 43 years of age, I have got just over 6,000 working days left (good health permitting) if I work 48 weeks each year on a 6 day week and retire at 65. Six thousand days does not seem very many and with the ever increasing speed each day goes by I want to make sure I enjoy every one of them.

Table 1 – Working days left to retirement based on a retirement age of 65 and working 48 weeks per year and 6 days per week

Age today	Working days to retirement at age 65
20	12,960
25	11,520
30	10,080
35	8,640
40	7,200
43	6336
45	5760
50	4320
55	2888
60	1440

What is wrong with my current system?

In my career, I have been fortunate in that my father gave me a free reign early on and a series of logical "next step" opportunities arose enabling me to improve and expand quite quickly. More recently, I was able to amalgamate with a vacant farm next door, and now currently farm over 500 acres and milk 340 cows with followers.

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Yields average 8,750 litres and, with good grass growing conditions, we try to maximize milk from forage.

So what is wrong? Why won't my existing system attract my children to the industry? Why am I having so many bad days?

I believe the answers fall into three categories:

1. Profitability

The profitability of the farm, like most UK dairy farms, depends almost entirely on milk price.

High milk prices mean good profits, conversely low milk prices low profits. At the time of writing my annual average milk price is 18.7 pence per litre, which is low, and therefore profitability is not as high as I would like it to be.

2. **The system**

Like many UK dairy farmers, in an effort to maintain and improve profitability, I sweat my assets. This means that every cow and young stock place is full, the slurry store only just copes, the silage pits are only just big enough. The milking parlour runs for 9 to 10 hours a day. There is rarely any spare time in the day, all days are busy, some days are a marathon, others a double marathon and I'm always short of sleep.

3. **The cows**

Our Holstein cows are pushed to maximise output. We are looking for high yields with as much milk from forage as possible. We need to keep replacement rates low.

We find that as yields have increased so have incidences of mastitis and lameness, and fertility reduces. This all puts pressure on staff and on time. It cannot be correct that, in the 21st century, herd health is deteriorating.

I know my concerns about attracting the next generation to the industry are shared with many other UK dairy farmers.

THE FUTURE

Is there a future in dairy farming?

This question is fundamental and needs to be considered before encouraging my children into the industry. Currently UK dairy farming is going through one of its worst trough periods for a generation. Little surprise therefore, that the industry has a negative label. A recent Lantra/ MDC report suggests that dairy farming is only attracting 150 to 200 qualified youngsters each year. The report quotes the following reasons for this:

*"*Bad publicity, low returns and a poor public perception has not only demoralised those working in the industry, but more importantly has discouraged young people to consider it as

an attractive career option. The mood of despondency throughout the industry is attributable almost entirely to the poor milk price, and many believe that until prices improve the industry will continue to struggle in attracting and retaining quality new entrants."

In a similar vein, at this years Oxford farming conference, Paul Temple (Vice President of the NFU) stated that the only way to attract the next generation was to have an industry that is stable, competitive, dynamic, profitable and one that has the backing of society and its workforce valued.

This is where the industry needs to be. I am convinced it will be for the following reasons:-

1. We are seeing, in the liquid milk sector and some cheese sectors, a shift in the position of the major retailers. There is growing concern by the retailers customers that the UK dairy farmers are being treated unfairly and we have recently seen campaigns by the NFU (Why Farming Matters), the WI, and the All Party Parliamentary Group On Dairy Farming, promoting the UK dairy farmers cause.

   Coupled with this, farmers have shown that costs of production are increasing. The response of the retailers is, in the first instance, to increase prices passed back to the farmers but also to form direct supply groups. We have seen this with Asda, Waitrose, M&S and more recently Sainsburys and Tesco. These groups are forging stronger links between farmers, retailers and their customers and in the main they pay their supplying farmers a premium. Most form specific standards making each group unique. I believe this trend will continue.

2. We are seeing the start of a trend that mirrors many other countries. This trend centres on UK farmers investing in the supply chain as a way of capturing the increasing value of food.

   The UK consumer is spending more and more on food. Through the 1990s the total spent on food in the UK rose by more than 50% to well over £100 billion by 2004. The main reason for this was an increase in the value of what people were eating rather than an increase in the volume. This increase in value is being driven in two ways:

   - more prepared foods are being consumed which are more expensive than buying basic ingredients and;

   - demand for higher quality foods is increasing along with the consumers willingness to pay a premium for those products.

   The consumer demands driving these changes show no sign of altering and are due to a combination of lifestyle, demographic and economic trends. When applied to the food market these trends reflect the demand for convenience, a desire to eat more healthily or purchase organic, local or regional products and the pursuit of new exotic tastes.

   Yet the growth in value of the food market has not been reflected in a rising value of farm outputs, which have hardly altered over the last ten years. Value growth is benefiting the food retailers and processors, in particular those who operate in 'added value' or prepared food categories, but there has been very little trickle down effect to farm level. Farmers, and in particular dairy farmers, are failing to capture any of the increases in the value of food. This must, and will, change as farmers are the weakest player in the supply chain and are being squeezed from both sides as they face low prices for their output whilst being unable to significantly cut input costs.

Farmers will increasingly be compelled to develop market and supply chain orientated strategies to increase their returns. Crucially this may provide a radical change in strategic policy away from farm investments and a shift to off farm investments and into the agricultural and food supply chains.

Such investment will not yield an immediate return, rather the aim must be long term and strategic to secure a market for British produce and to strengthen farming profitability in the future.

This investment is necessary in order to benefit future generations of farmers and to ensure their prosperity.

We have seen similar investment strategy with dairy farmers in other countries, in particular Sweden, Denmark and New Zealand through farmer collaboration in farmer controlled businesses.

In the UK there are signs that the farmer controlled business sector has restructured significantly and we have seen major investments in the UK dairy supply chain for example:

- Milk Link has purchased a 75% share in The Cheese Company.
- DFOB has purchased ACC.
- First Milk has invested in Wiseman shares and purchased significant cheese processing capacity from Dairy Crest.
- Arla Foods Milk Partnership investing in a stake in Arla UK

3. Global changes are predicted to have an enormous positive impact upon UK dairy farming. Cheap grain prices are likely to be history. In the short term this will add costs, however, over time this will improve the supply/demand balance in the EU dairy market strongly in favour of farmers. Higher grain prices will lead to less corn fed cows worldwide. This in turn will reduce milk production and consequently raise milk prices.

   Grain prices are rising because of demand. Demand has outstripped supply in the last six years, being satisfied by utilising stocks over that period. Stocks are now at their lowest level for a decade. Growing world economies are increasing demand, particularly in China, Vietnam and India.

   Increased demand for grain results from:

   - The need to increase bio-fuel production and crops grown for ethanol production. In the US, for example, in 2006 5.2 billion gallons of ethanol was produced from maize. This pushed up maize prices by 75%. The target is to produce 45 billion gallons within 6 years. If this were to happen it would require 136% of total US maize production.

   - As the Chinese economy continues to grow, its people become more affluent and tend to include more meat in their diet. It takes 9kg of grain to produce 1kg of beef and 4kg of grain to produce 1kg of chicken. Currently China consumes 19% of global grain production. This will increase to 40% by 2031 when Chinese income levels per head are expected to be similar to those in the US.

It is unlikely that grain supply will increase to keep pace with demand. In the USA there may be slight increases in production, but many countries such as Australia and China are highly

dependant on irrigation and little or no increase in supply is anticipated here, China is already short of water. Some extra production may come from South America, particularly Argentina.

The price of foods dependant on grain feeding will rise rapidly. Pork, poultry and grain fed beef is like to be much dearer. The 90% of world dairying which is 'confinement' i.e. where food is brought to the cow and heavy concentrate feeding is the norm, will be hit hard. Grass fed sheep, beef and milk producers will be strongly advantaged. High cost producers will be under pressure to reduce grain consumption thus reducing milk production. This is excellent news for U.K dairy farmers where grass and home grown forages form a large part of the diet.

I am extremely optimistic about the future of the UK dairy farming industry, this is a topic in its own right, but before reporting on my travels through my Nuffield scholarship I must first give an insight into what I have learnt about the next generation.

THE NEXT GENERATION- GENERATION Y

In order to attract the next generation I felt it prudent to investigate their needs. I found that little work had been undertaken on the wants and desires of this next generation. Lack of research in this area was surprising given that it is fundamental in a young person's choice of career. There seems little point in colleges and universities educating youngsters if their chosen careers do not match their aspirations or objectives.

It wasn't until I visited Australia that one of my host farmers suggested work by Peter Sheahan might provide the answers.

Peter Sheahan splits generations as follows:

Baby Boomers – born 1940 to 1960.
Generation X – born 1960 to 1980.
Generation Y – born 1980 to 2000.

The table below gives a frame of reference for comparing the characteristics of Generation Y with that of other generations.

Influence	Baby Boomer	Generation X	Generation Y
Role Models	Men of Character	Men & Women of Character	What is character?
Television	Ask The Family	Grange Hill	Hollyoaks
Musical Icons	Elvis Presley	Madonna	Eminem
Music Mediums	LPs & EPs	Cassettes & CDs	Digital (iPods & MP3s)
Money	Earn it	It is not everything	Give it to me
Loyalty To Employer	Work my way to the top	Shortcut to the top	Give me Saturday off or I'll quit
Respecting your Elders	Automatic	Is polite	Whatever!
Sex	After marriage	On the backseat	Online
Change	Resist it	Accept it	Want it
Technology	Ignorant of it	Comfortable	Feel it in their gut
Justice	Always prevails	Up to the courts	If you can afford it

Source Peter Sheahan- Generation Y Thriving and Surviving with Generation Y at Work

The characteristics of Generation Y are unique. This is because the world within which they have grown up is vastly different to the world in which we grew up. This generation has been at school longer, travelled further and have access to more information through television and the Internet.

It is in the first 21 years of an individual's life where their views and beliefs are formed and their understanding about the world manifests itself. These come from firstly genetics, which are clearly individualistic but also from nurture, in other words what they pick up from social values, home life, school and church values.

Generation Y mature much earlier, are more street wise and image conscious. Critical to this, in attracting this generation, is the image that needs to be portrayed to them. In Peter Sheahan's words

"Think MTV not BBC. Is what you are offering them an MTV experience or a BBC experience and that extends to all aspects of the expectations of Generation Y in work, at home and at play. If what they are offered or given is not an MTV experience they will either not be interested or just walk away."

But critical to this MTV experience is the emphasis that Generation Y place on time, change and lifestyle.

◊ **Time**

Living in a western economy in the last 10 to 15 years has been like living in a pressure cooker, as wealth has increased so has pressure around time. All generations, not just Generation Y, feel pressure around time, but because Generation Y have known no different they embrace it. This is why we have seen the massive growth in fast food, express buses, express trains, Tesco Express, Coffee to Go, etc. This generation leaves their computers on overnight to save themselves 2 minutes the next morning. They are an impatient generation.

Generation Y are also ambitious. A lot of their entertainment has consisted of sport and computer games, both of which are competitive. They are also under pressure to perform well at school and then find a good job. All of this has made them well accustomed to competition. They want success and they want it now.

But this success if often judged by how quickly they move up the career ladder and they don't want to start at the bottom. In fact they despise the thought of it, they want to start at least in the middle and if they do start at the bottom they do not intend to be there for long.

Whilst ambition is good, if they feel that they have the ability (and remember that because they are over confident they will apply for jobs above their experience and skill level) and they are not getting the opportunity they crave for, they will go and find it elsewhere. Retaining Generation Y will be a big challenge.

Fast rapid reward is an essential priority in attracting and retaining Generation Y.

◊ **Parenting**

Parental style has changed. Parents have created friendships with their children and home life is often less strict. Their voice is heard. When growing up they often just got what they wanted, when they wanted it because Mum and Dad were too busy to explain why they

shouldn't or couldn't have it. Parents give in more easily as a way of making themselves feel less guilty about the lack of time they spend with their children.

Parents often judge their own success by the feats of their children and this has led to a sort of over parenting. They also realise that not everyone succeeds and are therefore determined to give their children every opportunity even if it means pushing them.

The downside of this is that Generation Y have separated effort from reward. They think they are entitled to wealth and success just for showing up and do not understand the concept of cause and effect or short term sacrifice for long term gain.

◊ **Education**

Education styles have changed. Generation Y have never failed at school. If they come last or bottom they are consolidating skills or showing potential even if little Johnny hasn't got off the couch in five years. This style does encourage self confidence but can lead to over confidence and much of Generation Y believe they are better and more capable than they actually are.

Generation Y embrace change whereas previous generations have been wary of it or even resisted it. Coupled with this they get bored easily. Perhaps the main reason for this is their craving for and interest in technology. Technology changes at a rapid rate and they are not interested in yesterday's technology, they always want the latest and fastest, almost regardless of cost.

Without technology they get bored quickly. This is a challenge in attracting Generation Y into our industry. How we stop them from getting bored could be one of the greatest challenges, particularly on a dairy farm, where many jobs are repetitive and mundane.

◊ **Lifestyle**

The last difference here is that Generation Y work to live, not live to work. They want all the money and success that a career offers but are not prepared to give their life to get it. They want their work to have a purpose and to be more than just making money. They want success but they want it on their own terms.

If their work life does not fit around their lifestyle they will not be interested. This means that Generation Y workforce may well fall into one of the following two categories:

1. Those who see work merely as a means to an end and put up with the monotony of low skilled repetitive jobs for just as many hours a week as necessary to make enough money to maintain their lifestyle. To attract this category farming must be able to compete with other industries on pay and working hours.

2. Those who consider work to be more than just an occupation, it would be their vocation. But if this is to be the case there are conditions to be met. It is not just about money, they will want work to be fun and fast paced, results and action focussed, they will want exciting projects and flexible working hours. However, if work does not fit around their lifestyle they simply won't show. These are the type that our industry craves for but, in either case, carrot and the stick no longer works. The carrot meaning future benefit and money does not work because future benefit is not something that motivates Generation Y. The stick, or in other words 'you will be punished if you don't take the necessary action' won't work either because they will just not show up.

IS DAIRY FARMING AN OPTION FOR THE NEXT GENERATION?

I was speaking to a retired dairy farmer about the characteristics of Generation Y. He suggested that if what I was saying is true then the dairy farming industry has nothing to offer the next generation.

I believe this to be a negative view, but clearly the industry has great challenges ahead in attracting this next generation.

We are seeing an endless stream of city professionals buying up land as lifestyle blocks. They crave rural living and many of them dream of a farmhouse in the country with land, "a true goal in life". Yet, in the dairy farming profession, this is thrown in with the job. It is often overlooked as a huge benefit and one that I never, as a youngster, fully appreciated. Living on a dairy farm is a paradise for children. Mine have a 500 acre garden surrounded by livestock, nature in abundance and a part in the rural community.

Accommodation is not the only factor otherwise many more people would wish to be dairy farmers. Interestingly the requirement of a better lifestyle or a work to live attitude is already showing itself in the UK workforce. Thirty five percent are part- time/casual/freelance or self- employed and this proportion of the population is growing. If a career only offers traditional full time positions with no flexibility it will almost automatically alienate 35% of the workforce. It is believed that this figure will grow to 50% in the future when more and more of Generation Y enter the workforce.

Demand for quality personnel into all industries is growing and pressure to attract them is getting higher. Everyone is looking for smarter, brighter and better talent and dairy farming is no exception. This means that other industries will be competing for a diminishing number of qualified youngsters. The power is shifting from the employer to the employee as demand exceeds supply.

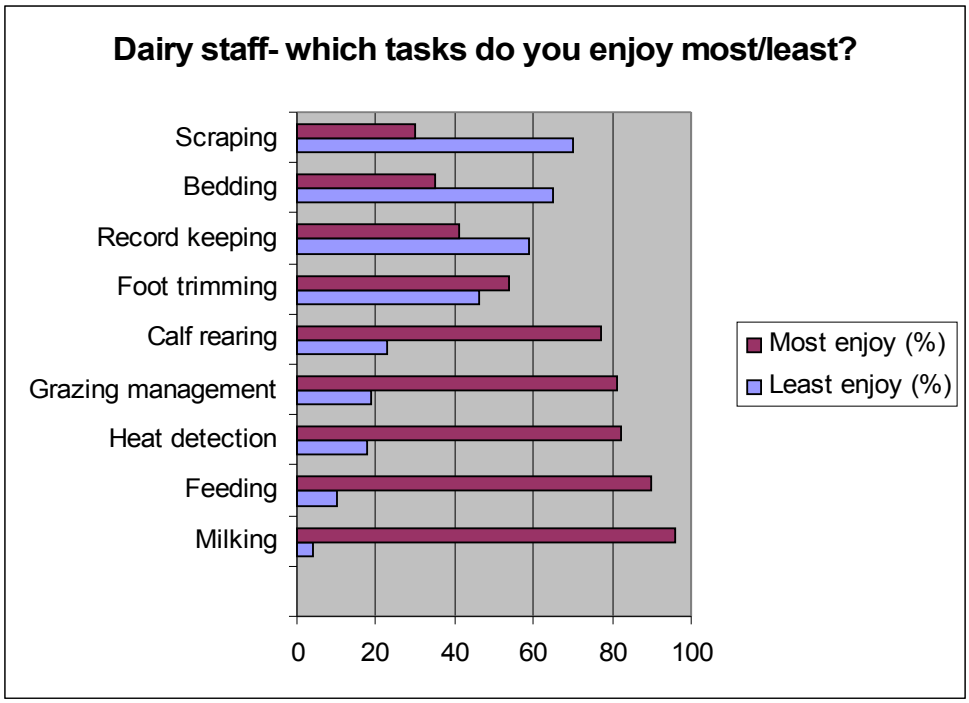
Our industry is under pressure to brand itself an industry of choice, one that is great to work and to be involved in. Of course, branding alone is insufficient. The industry has to deliver what it promises.

So what must we do to attract more youngsters?

The MDC/Lantra report mentioned earlier looks at all aspects of the dairy farming labour market. It highlights that dairy farming is disadvantaged by an overwhelming impression of long and unsociable hours. Seventy percent of farmers surveyed in the report agreed that they, and their staff, worked too many hours. This has to change. The average hours worked can be 60 to 70 hours per week with 3 to 5 days off per month and between 15 to 21 days holiday per year.

One thousand herds people were sent questionnaires and asked to give approximate hours spent each day on various tasks. The following table shows the results:

They were also asked to define the tasks that they enjoyed most/least and the results are shown below:



Source MDC Lantra Labour sourcing and management for the dairy enterprise. Project No 01/T6/01

If we are to reduce the hours worked, it must be a case of reducing the hours worked on each task whilst eliminating or dramatically reducing the time spent on the least enjoyable tasks. For example, foot trimming can be contracted out and time spent on record keeping/bedding and scraping can be reduced or mechanised. This reduces hours spent at work and reduces the unpopular jobs. Simple!

Time spent milking accounts for nearly 30% of the days' tasks. Despite it being one of the most enjoyable tasks there must be scope to save hours worked. These are all areas that I concentrated on when I travelled abroad in addition to other areas that I felt should be a priority:

- The need to simplify complicated production systems.
- The need to improve herd health.
- The need to meet our customers demands to gain their confidence and support.
- Reduce reliance on antibiotics.
- Improve animal welfare. Improve food safety and dietary health.
- Improve environmental levels of farming.

The countries that I visited were Denmark, New Zealand and Australia. I felt the contrast between Denmark, with its intensive farming, and New Zealand with its extensive systems would be a good balance with Australia somewhere in between.

In preparation for my trips I planned to visit farmers whose focus was:

- Simple and profitable dairy systems.
- Dairy systems where young people are succeeding and enjoying a career in dairying.

Plus:-

- Anybody with an interest in seeing the next generation succeed in dairying.
- Anyone who might explain how to encourage the next generation.

A BRIEF OVERVIEW OF THE COUNTRIES VISITED

Denmark

As a member of the Arla Foods Milk Partnership Board, Denmark was of special interest to me.

I was fortunate to get contacts through Arla UK and I arranged visits to the Danish Dairy Board and The National Centre of the Danish Agricultural Advisory Service. I am grateful in particular to Jens Christian Flye and Jesper Kring who planned a full itinerary of farm visits including Stefan Damsgaard – President of the Danish Young Farmers Association and Knud Eric Jensen – Chairman of Arla Foods Amba. Robert Tange of ABS then arranged another full itinerary of farm visits with particular emphasis on young, successful farmers. I am grateful to Robert and his wife Dorte for their kind hospitality.

I was most impressed with the professionalism of the Danish dairy industry at every level. It has always been an active and progressive industry working in an environment that is far from ideal with more constraints than many other countries. Their growing season is shorter than

the UK and winters can be long and hard, farm size traditionally was small but the 5,400 current dairy farmers have an average quota size of 810,000 litres making the average Danish dairy farmer the largest in the EU.

Land is in short supply and there are strict environmental constraints, largely due to low-lying land, many inland stretches of water and the close proximity of an intensive pig industry. They do however have healthy levels and distribution of rainfall and good soil types. Not too much land is uncroppable.

The industry recognised that in order to compete their levels of performance must be as good, and possibly better, than average compared with other countries.

If they can out- perform other countries by better use of technology, genetics and professionalism they feel that they will always be able to compete, certainly in the European market. It also accounts for their well structured farmer owned processing capacity which pays not only a price for raw milk, but profit from product processing and marketing.

Victoria, Australia.

I had very fond memories of a previous visit to Australia and my anticipations of this trip were extremely high. I was not disappointed.

The entire visit was spent in Victoria, which is the highest milk producing state, generating approximately 65% of Australian production. I visited Gippsand, mainly wetland farms (non-irrigated) and Northern Victoria and the dry land farms where irrigation is essential.

Virtually all my contacts came through the Nuffield network but I am particularly grateful to Max Jelbart, Karen Baum and Gordon Cleary for their help in finding an excellent array of farms and people to visit and for their excellent hospitality.

The most common production system is spring seasonal milk production. Split calving systems are becoming more popular in Northern Victoria. Approximately 50% of Australian production is exported in the form of product and Victoria has a very high percentage of its milk manufactured into product for that market.

In 2002/03 the region was hit by the worst drought for a generation and 2007 is equally dry. Consequently, climate change and water availability is of great concern.

Australian dairy farms are typified by lack of buildings, often just a milking shed with a lean-to barn for machinery or calf rearing. Very few cows are housed and grazing is available all year round. They look upon their Summer as we do our Winter because this is when they need to supplementary feed with silage (grass, maize or lucerne) when grass growth slows due to heat and low rainfall.

Just over 10 billion litres of milk are produced annually with cows averaging between 5,500 to 6,000 litres. Yields are increasing whilst total cow numbers are decreasing. I was fortunate to meet two eminent consultants; John Mulvaney with the view that production, and therefore profitability, is being compromised by pushing yields per cow whilst Gordon Cleary has the view that increasing production per cow through increased supplementary feeding is in the main, the most profitable way forward.

New Zealand

This was my first visit to this beautiful country and I hope to go back.

Again most of my contacts were gained through the Nuffield network and these contacts took us (I say 'us' as my wife Ruth joined me for the last two weeks of the trip) from Auckland down to Wellington and then Nelson down to Queenstown. I had not realised just how big a country New Zealand is until we had an 11 hour drive from the North of the South Island down to the South of the South Island. Our many contacts included Don Harvey, John Hopkins, Jim van der Poel and Murray King and between them they organised various interesting trips.

Don Harvey was a 1967 Nuffield scholar. On a trip to the UK in that year he visited my uncle Tony Fair and they have remained in contact ever since, hence this contact – Nuffield Networking at its best.

The New Zealand dairy industry is similar in structure to Denmark. It is well structured and professional with all sectors closely linked and proactive with each other including the processing co-op Fonterra. This is where the similarities end because New Zealand dairying is extensive, heavily reliant on pasture based production systems. They have perfected this system over the decades and believe that this system will maintain their position as one of the lowest cost producers in the world. Ninety five percent of their milk is exported as product. They are exposed to world market forces and the strength of the New Zealand dollar compared to the US dollar.

Irrigation is widespread, particularly in the South Island, and Fonterra are pushing for 2% growth in milk output from the industry each year.

Feed supplementation is low and restricted in the main to times of grass shortage in the autumn/winter months. Maize/grass or whole crop silage may be fed, palm kernel is a popular alternative.

FINDINGS

Herd health

Without doubt the single most important message that I brought home was that herds in all three countries had superior health and fertility when compared with UK herds.

- **New Zealand**

The New Zealand spring calving pasture based system has served the industry well over many years.

As with any block calving system getting cows in calf year on year at the same time is crucial to the success of the system. Herd fertility is therefore as important as milk in the tank. They do not tolerate poor health or fertility; their milk price is low and therefore they cannot withstand additional cost. Problem cows are quickly culled. Because of this aggressive culling and because of their excellent milk recording and cow evaluation systems the industry has bred, over the years, cattle ideally suited to their system.

The breed of cow developed in New Zealand falls into three categories.

1. Holstein – Friesian.
2. Jersey
3. Kiwi Cross – an accepted breed in its own right but in affect a Jersey/Kiwi Friesian cross bred.

Their bull proofs place great emphasis on fertility and longevity by publishing for each sire.

- Breeding worth (BW) - the expected ability to breed profitable and efficient replacements. In general the higher the BW of the bull the more profit is likely to be produced by its offspring. Herds are often valued by BW and banks prefer their clients to have high BW herds as it gives greater security against loans.

- Fertility Index - a figure to show the ability to produce daughters that conceive and bear a calf in the calving period.

- Total longevity - a longevity value of +200 days is expected to leave daughters that will last a 100 days longer in the average herd than a bull with longevity of zero.

The New Zealand farmer is so confident in their sire proofs that, when purchasing semen through New Zealand Genetics, they only state which of the three breeds they wish to use and then use semen from the 'bull of the day'.

The Holstein influence does have, and will continue to have, a part to play in the future as the industry strives to improve the productivity of their cows. The cows of the future are predicted to be slightly heavier and more productive.

However I would suggest that the industry may have suffered some years ago from imported Holstein semen mainly from America which was used reasonably extensively. During periods of higher milk price, feeding more bought in feed was less risky and it was thought possible to achieve higher profitability with greater Holstein influence. It was thought by many to be the way forward to achieve improved productivity. However, these larger, higher producing cows struggle to eat enough pasture, get back in calf and maintain adequate body condition to sustain a 12 month seasonal calving system. Despite this, they have carefully identified Holsteins that are very fertile and have high longevity figures to create the modern Holstein/Friesian NZ bulls. This is why, when New Zealand bulls are sold overseas they say with confidence that, despite the Holstein influence, they produce very fertile long life cows.

Two particular visits stick in my mind

On the farm of Grant Scott, south of Queenstown with 650 cows, he pointed out the 7 remaining Holsteins left in his herd from a time when he dabbled in Holstein semen. They were easy to spot because they were head and shoulders above the remainder of the herd. He told me that not one of them was in calf!

As I was walking through the jersey herd of Barbara and Louis Kuriger, Louis couldn't remember the last time a vet had been on farm. He thought it was 12 months ago and that was to administer a leptospirosis booster which in New Zealand has to be done by a qualified vet.

- **Australia**

The Victoria dairy industry, like New Zealand, has many seasonal calving herds. The difference is that they have a higher milk price and also have reasonable quantities of locally produced cheap grain. There is, therefore, more supplementation and consequently higher yielding herds.
The farming is very similar to many UK systems with the exception that no winter housing is required. The herds are extremely healthy and because they maintain seasonal calving, fertility, too, is good.

Dairy farmers in Victoria, as in New Zealand have over the years been selective in their breeding policies and again have zero tolerance for poor health and fertility. Take, for example the farm of Paul Zuidema. Paul is an Australian Nuffield Scholar and he and his two brothers milk 800 Holstein/Friesian cows. I spent an afternoon with Paul and observed the milking. I saw no lame cows and only one was being treated for mastitis.

The majority of cows are Friesian type although there is more Holstein influence than in New Zealand. Many Australian farmers use New Zealand bulls in their breeding programme.

- **Denmark**

As in New Zealand and Australia, the Danes have developed cows ideally suited to their systems. They have a choice of 4 dairy breeds:

1. Danish Holsteins.
2. Danish Red.
3. Danish Jerseys.
4. Danish Red and White Holsteins.

The Danish Holstein accounts for over 70% of all Danish dairy cattle. The table below shows distribution and yields of these breeds.

Breed	**Yield (Litres)**	**Distribution (%)**
Danish Holstein	8,900	71.9
Danish Red	8,119	8.5
Danish Jersey	6,185	11.9
Danish Red and White Holstein	7,820	1.5
Cross bred	**n/a**	6.2

Herd sizes are growing rapidly in Denmark although herd numbers are decreasing. Currently there are 5,450 dairy farms with an average herd size of 105. Corresponding figures in 2014 are predicted to be 2,700 herds with an average herd size of 170.

As herd sizes grow and units develop there is a tendency to rely less on grazed grass. This was particularly noticeable in herds with Danish Holsteins. In fact during my visit I did not see any Danish Holsteins at grass at all. The only cattle I saw out grazing were from other breeds. There is a growing belief that the Danish Holstein is becoming too difficult to manage at grass. Some farmers tell me that these animals just could not cope with grazed grass

Danes have been breeding for health and fertility for many years. They have developed the S-Index, a formula for breeding long living, healthy and high yielding cows. They have a major advantage over other countries in the volume and accuracy of data that they collect on farms. Around 90% of the dairy cows are milk recorded and about 85% artificially inseminated. All management information is included as part of the data collection.

Vets are required to log all antibiotic and fertility treatments on the recording database which gives the geneticists a lot of accurate and very extensive data to work with.

It is vital that the Danish cow is healthy because there is a high cost of antibiotic treatment as only vets are allowed to administer drugs even to treat mastitis. The vets also administer and run monitoring, preventative and eradicative contingency plans.

The aim is to prevent disease and infections from being imported but also to limit and eradicate existing diseases such as IBR, BVD and Salmonella Dublin.

So not only have the Danish bred healthy, high yielding cows, they have also developed several different breeds to fit different production systems of which the Danish Holstein is ideally suited to the high input, high output, fully housed system.

The Australian approach to feeding

The Australian approach to feeding dairy cows has aspects that, I believe, we can learn from.

Silage is fed mainly in summer to supplement grazed grass, using a mixer wagon down feed fences or often just fed onto the paddock through a forage box or in round bales. If fed through a mixer wagon other ingredients frequently are added. The majority of supplementation though, is fed in the parlour. Crushed wheat is the most popular in parlour feed. Often a bin of whole grain falls through a roller and the crushed wheat is then augered into the parlour feeders. Wheat grain, when rolled, does not flatten as in the UK. Because the grain is so dry it is in effect crushed into 7 or 8 bits. In extreme cases some farmers are feeding up to15 kgs a day of wheat in this way but it is more usual for 6 to 10 kgs to be fed. In the UK this level of feeding would seem neither sensible nor practical due to the risk of acidosis. Other farmers use barley or triticale rather than wheat as these are less fizzy and the fermentation process is slower. The problem of acidosis is overcome in a combination of ways:

- Firstly, there is widespread use of modifiers such as Rumensin and also mild antibiotics such as Tylan in the ration. Neither of these products are available in the UK.

- Secondly, they place enormous importance on fibre levels in their ration in the form of long fibre such as hay and lucerne and as NDF in supplementary feeds. In essence they take great care to feed the rumen not the cow. So effective are their feed regimes that the digestive dysfunction and lameness often caused by acidosis is virtually eliminated.

The only herd I saw with any hint of feet problems was a 10,500 litre grass grazed herd milked 3 times a day on 12 kgs of crushed wheat daily. The feet were slightly red and puffy and on this farm the rotary platform had a power hose continually directed at the feet so each cow had its feet hosed clean 3 times a day.

I was fortunate to spend time with Gordon Cleary of The Dairy Business Centre. Gordon and his colleagues developed the Cud Programme now adapted by the MDC into the ‘What If Workshops’. The Cud Programme places great emphasis on the NDF levels in rations. NDF levels are calculated as a percentage of live weight and by mid lactation should be about 1.2% of live weight.

High levels of hay are fed particularly in early lactation cows at spring grass. Quality of hay is adjusted depending on stages of lactation. Two to 4 kgs of hay can be fed daily. Lucerne is also used extensively which is an excellent feed with good fibre content.

The parlour

There are enormous differences in attitude surrounding milking parlours and milking times when comparing UK, Australian and New Zealand farmers.

The Australians and New Zealanders will not tolerate long milkings and have perfected cow flow. I believe this goes a long way towards their laid back and more relaxed approach to dairy farming.

Take for example the Zuidema family. Two brothers milk 800 cows comfortably in 2 ¼ hours, including a ¼ hour coffee break after the first 400 cows because the arms need a rest. They milk through a 60- point rotary with one operator at cups on and another at cups off.

In New Zealand I visited a 600 cow herd during the afternoon milking. Two 17 year olds were milking, again through a 60- point rotary, with no ACR's. One of them was going home when he had finished to help his father milk their own 600 cow herd. That's 1,200 cows milked in one afternoon!

Rotary versus herringbone

The majority of new installations I came across were rotaries. The consensus is that to milk large herds quickly the rotary parlour is preferable. This is not a universal view and in New Zealand in particular, large herringbone parlours are still being installed.

In Australia, cows are often fed in parlour so they have a strong tendency towards a rotary as a parlour of choice. To feed in a rotary only needs one feeder while in a herringbone there needs to be a feeder per cow place, which, in a very large herringbone, can considerably increase the cost of installation. That said, rotary parlours are expensive to install.

Findings

- Target milking time must be a maximum of two hours..
- The operator in the cups off position is the most important as he detects most of the problems.
- When automating a parlour it is often the cups off operator that is made redundant especially in a rotary.
- In most New Zealand and Australian rotaries there is little automation and little clutter. They take the view that the money saved on automation goes a long way to installing a larger parlour thus reducing milking time and increasing through put. But of course more operators are required.
- A two man herringbone is more sociable to work in than two man rotaries. This can be alleviated by intercom between cups off/on operators in a rotary.
- Milking through rotaries in sheds without any walls is far more pleasant than being enclosed in hot weather.
- Rotary sheds which are much wider than the platform are more pleasant to work in. On one farm that I visited in Australia the owners young children rode their bikes into the shed to say goodbye to their father before cycling to school.
- Automated teat sprayers tend to deliver 50% of the spray onto the wrong part of the cows body.
- Cow flow is crucial and is as important as the parlour itself for fast efficient milking. Bigger rotaries do not always mean faster throughput.

- There is some frustration that milking technology has not improved. In some cases I came across 20 year old rotaries being replaced with new rotaries of very similar design.
- There is some scope for robotic cup attachment in rotary parlours. The technology is available but cup attachment is currently too slow.
- There is little interest in robotic milking on pasture based/large herd systems.

Attitudes

On my travels, I have been particularly impressed with the attitude of both young people and of the dairy industry towards young people. There is an upbeat mood towards dairying despite overseas industries having similar problems and concerns to our own. In some cases, the prime example being the drought in Australia in 2002/3, they had every reason to be despondent and downbeat but by their very nature, they accept the vagaries of the industry and manage their way through.

In all countries, there is an awareness that there are not enough youngsters entering the industry and that the industry has to adapt and change in order to attract them. There is a strong belief that a successful career in dairying is still possible and in some cases the opportunities are greater than they have ever been.

With this much confidence, it is merely a matter of steering youngsters towards dairy farming and then encouraging, supporting and helping them to progress once they are there.

- **New Zealand**

The New Zealand industry has a renowned career progression pathway, which is as follows:-

Farm worker	Entry level role. Follows directions and learns basic skills
Farm manager	Requires a strong understanding of basic skills and a willingness to accept responsibility and to manage staff
Share milker	A self employed position where the contractor receives a percentage of the milk income (e.g. 50%) and generally owns all the stock. They are responsible for clearly defined areas of expenditure (for example all costs relating to stock) and they own and supply the cows and wheels and standards (electric fencing, motor bike, hand tools etc)
Equity partner and farm owner	Both roles have a financial investment in the business and a great deal of input into all aspects of the business operations

This career pathway enables young people to develop their knowledge and skill to gain increasing responsibility and work towards the objectives of many which is farm ownership, either outright or as an equity partner in a joint venture farming company.

New Zealand is renowned for its share milking arrangements but less so for its equity partnerships, yet the equity partnerships concept is an excellent opportunity for youngsters. As land prices have increased dramatically in New Zealand over recent years, outright farm

ownership is nothing more than a dream for many farmers. This problem is exacerbated by increasing herd sizes and the need for more acres for a business to be viable.

Under an equity partnership the farm is owned by multiple partners, usually investors and an operating farmer. This gives the investor the chance to invest in new businesses without being concerned with the day- to- day operations while young farmers have the chance to get involved with the industry and a stake in the business sooner than they would otherwise.

Bankers also see it as a safer investment. The minority shareholder is usually the operating manager but the major decisions about running the farm are made together allowing all parties to benefit from sharing knowledge and experience.

Career changes

They aim to get more school leavers into the industry but also to encourage people to change careers and 'go dairying'.

Whilst I was in New Zealand, they were part way through an 8 week project to persuade people to change careers and enter the dairy industry. There were TV, radio and magazine adverts and they had taken 630 calls to the designated telephone number by day 9 of the campaign.

This particular initiative promoted the industry as:

the 'all blacks' of the New Zealand economy-a team working together to beat the rest of the world'

a career with many options and pathways to suit a range of lifestyle and ambitions,

for people who are prepared to learn new skills, a career in dairy farming offers a great lifestyle, career and personal opportunities.

The Kuriger report

I was fortunate to spend some time with Barbara and Louis Kuriger on their farm in Taranaki. Barbara had undertaken a Kellogg Rural Leadership project entitled 'Perceptions of a Career in the Dairy Industry'. She had looked at how the industry could recruit more people and had looked at what the perception of secondary school students were towards the industry and to find out where some positive links could be established.

She asked the students to rate 10 career objectives on a scale of 1-10. The results were as follows:

Career Objectives	**Rating**
Pay	7.83
Time off	6.43
Stability of employment	6.27
Family	6.11
Career advancement	5.96
Travel	5.78
Asset building	4.72
Working in a team	4.68
Accommodation provided	4.31

Working by themselves	3.30

She concluded that young people could be confident that in New Zealand, dairy farming delivers on four out of the top five career aspirations but in the area of time off, dairy farming is not yet meeting the career objectives of younger people.

She recommended that the industry must be more proactive in working with careers advisors as they are key to getting the 'dairy farming' message across and that the industry has an obligation to inform students of the opportunities. She also felt that the industry should continue to follow a path of good employment and that we all have an obligation to be a good employer!

A similar report by Gillian Searle entitled 'The Reality of a Career in the Dairy Industry' compliments these findings. She felt that dairy farmers need to reject the idea that dairy farming is an unavoidably long hours job because although dairy farmers and their employees really enjoy their job, the long hours are a problem. Her recommendations were that the industry should put more effort into reducing the number of hours that a young person had to work to be part of the industry through research and effort into labour saving technology.

She also recommended that farmers improve their staff management so that the dairy industry develops a competitive advantage in the labour market.

ATR Solutions (Attract, train and retain)

I met up with Shaun Wilson of ATR Solutions. This is an industry financed organisation.

Shaun accepts that school leavers are the most challenging group to attract and he believes that careers advice is poor and generally not supportive of agriculture mainly because, in the past, it has been a choice of last resort. Many parents believe this too, due to its historically poor image. Because careers advisors and parents are influential in a young person's choice of career, both need to be educated on the positive aspects of pursuing a career in farming.

Initially it was only the careers advisors that were contacted however, now ATR Solutions try to establish four points of contact per school for example, the Principal, Careers Advisor, Parent Teacher Association and a Governor (particularly if there is a farmer on the board of Governors).

They pull out all stops to get agriculture back into schools. They run a series of on-farm career days under the title of 'Window to Dairying'. Each day runs seven thirty minute sessions in various sectors of dairying. They target 15-17 year olds and have 1 ½ full time staff between April and October specifically with the aim of getting schools to attend these on farm career days.

A new pilot project named 'Dairy Kids' aimed at 5-12 year olds in the Bay of Plenty region seeks to educate parents and younger children about dairying.

In the area of staff retention, the industry has responded by introducing an Employment Health Assessment. This assesses employment relationships within the workplace and identifies areas for improvement, giving tips and advice to help with changes of direction to try and enhance working relationships.

It is called QFENZ (Quality Farm Employers of New Zealand) and Shaun, too, is involved with this project. It is an organisation whose members are committed to providing a quality

workplace and career options for their employees. QFENZ assists members to deliver employment practices on farm in a manner that benefits both the employer and the employee. The emphasis is on developing and supporting people in order to develop their businesses.

To join QFENZ, the farmer is interviewed on and off farm and the board then decides whether to award QFENZ accreditation. The farmer can then use this when advertising for jobs making him an 'employer of choice'.

Two particular farm visits highlighted the attitude towards young people.

Alistair and Sharon Rayne encourage young people to join their team, but expect them to move on three to four years later. They only employ quality, keen young people and they recognise that these people will have drive and ambition and will therefore move on to further their own careers. They get enormous satisfaction from developing youngsters and seeing them succeed. They give them a fairly free reign early on and accept that they will make mistakes. They choose good people and let them get on with it.

Phillip Luscombe is supportive of the 'manual concept'. The manual is a document collating all farm practices including effluent disposal, fertiliser application, deadstock disposal, irrigation, grassland monitoring etc. It shows why things are done and the consequences if they are not done. It extends to policies covering all areas of the day- to- day running of the farm. It was developed as a single reference point so that if something needs doing or if something goes wrong, all the staff know where to find out what to do. It places emphasis on staff to use their own initiative and young people thrive on this concept.

It gives Philip the freedom to get off the farm knowing that he does not have to be relied upon to provide all the answers. The manual is also a great educational tool. To be effective it has to be updated regularly. The benefit to the owner is that when writing the manual, it gives an opportunity to analyse and think about current procedures, which quite often results in further simplification or alteration to existing systems.

- **Australia-Victoria**

The Victoria dairy industry has a similar career pathway to New Zealand. The equity partnerships have not developed at quite the same pace but I came across a number of variable order share milking contracts. This is where the spilt is more favourable for the landowner, but the share milker is not required to have as high an investment. For example on one farm the share split was 30:70 in favour of the land owner but the share milker did not own the cows therefore had little capital tied up. This shows the enormous flexibility of share milking agreements and alongside equity partnerships there are many options for youngsters.

There is a decline in the number of traditional 50:50 share milking agreements due to substantial increases in the price of land and increasing herd size. Larger herds are more expensive to buy while increasing land prices mean that the owner is often getting a lower return on capital. It is therefore preferable for the owner to employ a manger or a lower order share milker.

There are still many successful 50:50 traditional share family agreements in place although the number of share farming agreements failing is quite high. The importance of the relationship between the parties in any such agreements is crucial.

What particularly surprised me was the attitude of young farmers towards debt and risk. The Australians use a phrase called 'crossing the line'. This is when an individual takes the plunge and invests in dairy farming either as a share milker, equity farmer or landowner. In the majority of cases this means borrowing large sums of capital. It was not uncommon to find young farmers with only 50% equity (the proportion of their business that they own) some were prepared to go as low as 35% equity.

Many young people who do 'cross the line' are prepared to accept poor liquidity in order to service debt; in other words a cash poor lifestyle. As land prices have increased those investing in land have seen good capital growth but many viewed this as an opportunity to borrow more money leading to a continuation of cash poor, asset rich lifestyles and some exceptional hard work in the bargain.

John Mulvaney is an agriculture consultant who helps younger people 'cross the line'. He believes to be successful a youngster needs the following qualities:-

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- never stop learning
- goal orientated
- driven/broadly passionate
- tight financial control
- management skills proportionate to risk taking
- commitment to others
- effective communicators
- honest/realistic
- hard working/prepared to delay benefits
- single minded and focused
- positive attitude

Young Dairy Farmer Development Program

In Gippsland I was fortunate to stay with Karen and Warick Baum. They are 50:50 share farmers at Jundiuick in West Gippsland. Karen is the project manager for the Young Dairy Farmer Development Program. This was developed on the back of a need for a coordinated support network for young farmers. It identifies that younger farmers need:

- support
- unique requirements often not addressed by current industry support mechanisms
- personal skill development to allow them to reach their full potential.

This scheme is financed by a number of industry organizations and is, in reality, an extension of the Young Farmers Club but helps promote and encourage youngsters by providing contacts, training, farm walks and general advice.

Warwick helps with the 'Cows Create Careers' project which links dairy farming with education. One part of the project places calves in schools to encourage children to feed, monitor and look after them and to give the children an early insight into farming.

Australian school children can choose agriculture as a subject in its own right. The 'Cows Create Careers' project is one of several projects designed to encourage school children to choose this subject which may then lead to a career in agriculture.

Dairy Moving Forward

Dairy Australia has a manager for Farm and Choice Management. This department has a programme entitled 'Dairy Moving Forward' that looks specifically at new entrants into the industry and what needs to be done to attract more.

- **Denmark**

The Danes recognise the importance of attracting youngsters into the industry. Their Farm Advisory Service has 2-3 people solely responsible for this task.

Almost 1,000 youngsters choose a career in agriculture each year. They start their agricultural education at the age of 16 when courses become available. All students require, as part of their agricultural studies, a minimum of 29 months on farming in order to be professionally farm qualified. A further 6 months training entitles the student to the 'Green Card'. Land ownership above 30 ha is not legal without a Green Card qualification. It gives the Danish population confidence that their land is in the hands of fully qualified professional farmers. It also means that the farmers themselves are a well respected sector of society.

The industry helps young farmers:

- By offering them favourable loans, these are at a reduced rate and are guaranteed by the state
- Quota schemes- 1% of all quota traded is transferred to the national reserve and distributed to young, newly established farmers once a year (125-150 farms/year)
- Setting up aid under the EU Rural Development Policy

Despite this help, it is very difficult for youngsters in Denmark to step on to the farming ladder, particularly as, when I visited, land, quota and dairy cow prices were at an all time high.

The more established younger farmers that I met were heavily borrowed and were having to work extremely hard to finance debt. They were however seeing their assets gain in value. They were an extremely dedicated, professional and resourceful group of people. I was particularly impressed because, with the high input, high output systems they operate, there is a lifestyle cost.

The high lifestyle cost and high cost of entry is a problem that the Danes have addressed and there is a move towards farm partnerships and joint ownerships. This is where two or more farmers join to farm a larger unit often with further investment in dairy facilities. The benefits are economies of scale, specialisation, leisure time and more opportunities for younger people to be involved with a larger unit. This is particularly beneficial if two young farmers join together as they are both eligible for quota from the national reserve which means up to one third of their quota might be free of charge. Farmers who have joined in this way have seen enormous benefits in lifestyle and time off.

SO WHAT CAN WE DO IN THE UK?

Learning from what I have seen abroad I believe that there is much we can do in the UK to make our industry more attractive to the next generation.

Without doubt the most important message centres around herd health. It is a fact that herd health has been deteriorating in UK herds. I had not realised the extent of that deterioration until I spent time amongst herds abroad. So noticeable are the differences, that my main recommendation is a simple one. We need to emulate what dairy farmers do in Denmark, New Zealand and Australia to improve herd health.

If we can do this, and there is no reason why we cannot, we will go a long way to improving welfare (which the customer demands) reduce reliance on antibiotics, reduce costs, reduce the stress which comes from milking unhealthy animals, save time and altogether create more of an MTV experience.

How do we do this?

◊ **Change the cow**

In each of the countries visited the industries have developed cows to suit their individual systems. They have made mistakes along the way but generally have been successful in developing a cow that fits.

In the UK we have done things somewhat differently. Firstly, our major objective over the last couple of decades has been to improve yields. We have become a yield driven and yield focussed industry. This has been achieved by using overseas Holstein genetics most of which originated from the United States.

Breeding for yield has come at a cost because as yields have increased health and fertility has reduced. Production is genetically correlated to infertility, mastitis and lameness and the incidences of these health traits have deteriorated over the years. Cows have become more angular, another indicator of poor daughter fertility, but also linked to a range of metabolic diseases, mastitis and lameness because frailer cows have fewer reserves and lower immunity.

By improving management and housing UK farmers have made some progress in managing their herds to mitigate herd health pressures. But this has come at a financial cost and it means that the cows have become more difficult to manage if they are to stay healthy and remain in the herd for many lactations. In many cases we have bred animals not particularly suited to our production systems. In other countries they have a range of cows to suit different systems. We have reached the stage where, in the main, one cow has to suit all. This is not sensible because we have a range of production systems and different types of milk contracts, for instance white water level supply contracts for our liquid market and constituent contracts for the manufacturing sector.

The noticeable exception is the true seasonal calver. These producers recognised some years ago that, to maintain a true block calving system, the Holstein cow would not fit. Predominantly they have used crossbreds, often with Jersey or Friesian, to develop a lower yielding but healthier and more fertile animal.

Overseas, they have had breeding policies to help keep herds fertile, healthy and to improve longevity. We must learn from this. There are already moves in this direction in the UK as farmers use alternative breeds, crossbreeding and selecting for management, health and fertility traits in their sire selection. This trend must be encouraged and promoted.

Data in The States (US Department of Agriculture Animal Improvement Programs Laboratories) shows that the selection traits most strongly related to longevity are daughter pregnancy rate, calving ability, SCC score, udder and feet and leg composite.

Traditionally farmers looking for longer lived cows would select for high type, but the management traits mentioned above do not necessarily go hand in hand with high type

In order to breed healthier fertile, longer lasting cows it is important to select for the following criteria: positive longevity and fertility, mastitis resistance, improve udders, with particular emphasis on udder depth, legs and feet, avoid putting limits on type and avoid overly large and angular cows.

There are three options here:

1. Continue to use Holsteins
2. Friesian/New Zealand type genetics
3. Cross breeding

1) <u>Continue to use the Holstein breed and through selective breeding improve health and fertility</u>.

There need to be changes to help producers with sire selection.

Profitable Life Index (LPI)

The LPI needs to change as it is weighted too heavily in favour of production traits, particularly fat and protein and not enough in favour of health and management traits. For a producer on a liquid contract, with little or no benefit from extra fat and protein production it makes this figure meaningless.

Similar figures for national ranking in Denmark has approximately 35% of genetic weighting on production traits whilst in the UK it is approximately 70%.

It is currently possible to select a high LPI bull and breed daughters that are significantly worse in terms of SCC and daughter fertility.

The Fertility Index (F.I)

The F.I was developed early in 2006 and has been published by the MDC since February 2006. It includes six traits; calving interval, none return rates after 56 days, days in milk until first impregnation, number of inseminations, milk yield at 110 days and body condition score.

It is a measure of daughter fertility and figures are available on the MDC website. I have yet to see, however, a bull proof brochure from any company showing these figures and it would be beneficial if this figure was more widely published.

Genetic bases

Currently all breeds are evaluated separately on their own genetic base. Direct comparison of bulls from different breeds is therefore not possible. Direct comparison would give more meaningful information so it would be easy to see which bulls from which breeds really would have an impact on future breeding policy.

There is growing concern about the continued use of Holstein bulls and inbreeding. In the USA inbreeding is increasing at a fairly constant rate of 0.1% per year and early heifers born in 2006 have an average inbreeding of 5.2%. The standard recommendation for commercial milk production is that inbreeding should not surpass 6.25%.

Inbreeding robs dairy producers of income by increasing stillbirths, reducing cow fertility, inhibiting disease resistance and shortening herd life. The belief is that global inbreeding is almost as severe elsewhere as in the USA because as in North America, Holstein genetics have replaced native breeding stocks internationally.

2) <u>Friesian/New Zealand type genetics</u>

A quicker fix to the health and fertility issue is the use of Friesian or New Zealand type genetics. This would quickly put strength back into herds, reduce angularities, improve chest and rump width and reduce stature. This would give a more robust animal and improve longevity.

New Zealand type genetics have been proven to perform well on all systems where forage makes up a large part of the diet and because they have a range of Holstein/Friesian bulls to chose from there is every chance that healthy fertile cattle can be bred with little milk loss.

This was researched in the international strain trial comparing New Zealand high genetic cows (NZ90) and North American high genetic Holstein (OS90) at two sites, one in New Zealand and one in Ireland using different feeding levels.

The results were as follows:

- The NZ90 strain had better reproduction performances in both trials.
- Overall pregnancy rates were between 29% to 37% higher in NZ90 cows.
- Offering high levels of concentrate supplementation did not improve the reproduction performance of OS90 cows.
- The NZ90 strain was more profitable on both sites at all feeding levels.
- The main advantages of the NZ90 strain in Irish conditions were the reduced cost of fertility and lower replacement costs.

This clearly shows that New Zealand type animals on grass based systems will improve health and fertility.

3) <u>Cross breeding</u>

I believe another quick fix is cross breeding. This introduces heterosis (highbred vigour) which has important effects on many production traits that contribute to overall health, fertility and longevity. Heterosis is the opposite of inbreeding depression and is a bonus that comes on top of the average genetic level of the two parent breeds. It should be about 5% for production and at least 10% for mortality, fertility, health and survival.

Extensive research has been carried out in this field. Trials in the US at Minnesota University have looked at the effects of cross breeding using different breeds. The one that attracts me is the use of the Scandinavian Red

The following table shows the results of this trial.

Trait	Holstein	Scandinavian Red x Holstein
Cows	*380*	*328*
Sires	*69*	*13*
Milk (kg)	*9,757*	*9,281*
Fat (kg)	*346.2*	*340.0*
Protein (kg)	*305.3*	*297.3*
SCC (1st 150 days)	*2.1*	*1.8*
Fat & Protein (kg)	*651.4*	*637.3*
Calving difficulties by breed of dam(%)		
1st calving	*9.3*	*4.7*
2-5 calving	*4.9*	*2.5*
Still births by breed of dam (%)		
1st calving	*11.8*	*4.9*
2-5 calving	*5.4*	*3.8*
Survival rates after first calving (%)	*86*	*93*
Days open	*150*	*129*

Source L.B Hansen, B.J Heins and A.J Seykora, University of Minnesota, USA 2005

Using Scandinavian Red (either Norwegian Red, Danish Red or Swedish Red) will give easy calving, robust, fertile, high yielding cows with good resistance to disease. The reduction in yield of approximately 6% should be easily offset by improved performance in other areas.

I have seen Swedish Red crossbreds milking under UK conditions and production and health figures on these units back up research figures.

◊ **Improve the ration**

The Australians have been forced to place great emphasis on rumen health due to high levels of wheat that many of them feed. We can learn from them. Our emphasis often lies in protein and energy levels, when formulating a diet, fibre might come third on the priority list. The Australians put fibre first.

Dan Huggins of the Dairy Business Centre assesses a TMR ratio by feel. He has perfected this approach to establish what percentage of scratch factor is in a particular ration. He likes to feel a 15% scratch factor. At this level, he believes, the rumen will stay healthy. A 15% scratch factor is very difficult to achieve in the UK unless lucerne is used. Some believe that adding lucerne to a ration can have a medicinal effect. This is just a case of getting the rumen healthy. In the absence of lucerne, a good target for UK diets is to have 15% of the diet made up of particles longer than 1.5 inches.

The Australians are fortunate to have rumen modifiers that are not available in the UK. However, we do have a number of products that are perhaps overlooked in the battle to combat sub-acute rumen acidosis. Yeast products for example.

There is definitely a case in the UK to use independent nutritionists to help formulate rations. They have no ulterior motives other than to maintain a healthy rumen, a healthy cow and a happy client!

◊ The parlour

I believe that if we took the New Zealand and Australian attitude towards milking, the industry would be more attractive to the next generation.

The UK approach is to sweat your assets and fully utilise fixed costs. Bringing the milking parlour into this context means keeping it going for as many hours as possible each day.

I have already identified milking as being one of the most popular jobs on farm providing milking times are not too long. If they are too long it quickly becomes one of the least popular jobs.

To create an MTV experience attitudes towards milking parlours and milking times need to change radically.

This means that we too must look to reduce milking time to a maximum of two hours. The problem is that most UK farmers that install new parlours find that within ten year they are far too small.

The following are my suggestions:

- When building a new parlour build it for double the cow numbers that you anticipate having in the next 5 years or at least have the ability to enlarge it relatively easily in the future.

- Many UK rotaries are heavily automated (all singing, all dancing) because when the cow disappears around the platform, if there is no cups off operator, the cow isn't seen again until the next milking. Automation is relied upon to pick up problems, for example alarms alert the operator to lower than expected yields or milk conductivity. I believe the Australian and New Zealand approach is more practical. Save money on automation and spend on bigger installations with improved throughput. It does mean a minimum of two operators but few large parlours have fewer than two operators anyway.

- Be aware of running costs as maintenance and service requirements vary enormously between manufacturers. One UK 60- point rotary I saw cost £6,000 per annum to service.

- Do not under-estimate the importance of the cups off operator.

- Throughput is reliant on the time it takes the cups on operator to prepare the teats and attach the cups. If this takes 20 seconds per cow, for example the maximum number of cows a 50- point rotary can milk is 180 per hour. This would be the same for a 60- point and therefore unless the cups on operator was faster, or less time was taken to prepare the teats, there would be no benefit in having a 60 point over a 50 point rotary.

- The time spent preparing teats and attaching cups needs to be reduced to speed up milkings. Research by the Food Standards Agency shows that the number of bacteria on teats is not linked to the visual cleanliness and they recommend that all teats should be cleaned. They do not recommend dry wiping as this removes very few bacteria. In Denmark, virtually every farm I visited had individual reusable udder towels washed with disinfectant after every milking in industrial washing machines. They believe this to be cheaper than disposable wipes. They do not have the option of pre- dipping as this is not allowed because if the pre-dip is not completely removed from the teat before cup attachment contamination of the milk may occur.

- It is unlikely that one operator wiping cows with disinfectant cloth (7 seconds) and attaching cups (7 seconds) will do so in less than 14 seconds. This means that, with perfect cow flow, 250 cows per hour is the maximum throughput in any parlour unless there is no teat preparation or there is a second cups on operator. Clearly the 400 cow per hour operator in Australia is not carrying out any teat preparation as he is milking one cow every 9 seconds.

◊ **Brand our industry as an industry of choice**

To create sustainable farming we have got to have a sustainable workforce. In this area we are not succeeding. The Danish, Australian and New Zealand industries have had some success and we can learn from them.

- We must get dairy farming into schools to get the message across to school children and particularly their parents and career advisors (the gate keepers to a young persons career) that dairy farming is a real career option. We need industry led initiatives like 'Cows Create Careers' and 'Window to Dairying'. This may need to be a targeted approach and will need an enormous amount of resources.

- Make steps to rid this industry of its negative label. There are so many positive things that this industry has to offer but it is notorious for its two negatives; long hours and low profitability. This is a massive challenge. Low returns will improve and it is up to us to tackle the long hours.

- Introduce a career pathway. When a youngster enters the New Zealand industry he has a clear, defined career pathway laid out in front of him, a ladder that he is encouraged to climb. It throws open enormous opportunities and the concepts of lower order share-milking and equity partnerships are excellent. Our industry needs a similar career pathway along with organisations such as the Young Dairy Farmer Development Program in Australia that helps and gives them support and a gentle push to go up to the next level. 'Fresh Start' implemented on the back of the Curry report is doing excellent work in this field. The National Trust too has a project up and running to support new entrants to their farms. We must whole-heartedly support such schemes.

- Farms will continue to get bigger making it more costly to set up. At the same time youngsters demand flexibility and lifestyle. Farmer co-operation, through farm mergers, joint ownership and farm partnerships will grow. Our industry needs to facilitate and encourage this co-operation. The English Food and Farming Partnership was formed for exactly this purpose. It is an excellent organisation and needs to be fully supported.

- A scheme similar to the QFENZ (Quality Farm Employers of New Zealand) accreditation scheme should be emulated in the UK. It gives the employer a label as an 'employer of

choice' because they place emphasis on developing and supporting people in order to develop their business. The message that I learnt from youngsters in New Zealand was that it wasn't the farm, system or the facilities that mattered, only the person you were working for. By adopting this sort of scheme, farmers would be required to develop and commit to employment practices consistently amongst the best. The accreditation would attract young people to their business, secure in the knowledge that they are in a good place to further their career.

CONCLUSION

To help us attract more youngsters into the UK dairy industry we can learn from the dairy industries of countries overseas such as Denmark, New Zealand and Australia.

We all recognise that attracting the next generation is a huge challenge but not an insurmountable one. This will be more difficult than in the past and everyone within the industry needs to play their part.

We approach the start of the 'Year of Food and Farming'. This is a campaign to promote healthy living by giving young people direct experience of the countryside, farming and food. It is therefore an ideal time to promote the UK dairy industry and to capture the imagination of our future dairy farmers.

RECOMMENDATIONS

Paramount to understanding this subject is to understand that the next generation are different from any generation before them. If we can understand them this goes a long way towards attracting, managing and retaining them.

I hope, through this study, that I have made some progress in doing this.

There is little point in trying to resist or change their attitudes and approach, but accept that a career in agriculture will have to offer equal rewards and opportunities as any other career.

The industry has many positives; the great outdoors, stability, working with animals, country living (the dream of many urban dwellers), working and living close to the family and quality accommodation. The positives must be promoted.

There are also some negatives which make it fall short of the next generations' aspirations.

These aspirations are:

- An MTV not BBC experience.
- To be kept constantly challenged.
- To be given opportunities to progress and succeed.
- No drudgery.
- Quick rewards.
- Technological advancement.
- Work to live opportunities.
- Flexibility.
- Working as part of a team as opposed to working alone.
- To be part of a stable, competitive, profitable and dynamic industry.
- To feel valued and to have the backing of society.

If we tackle the negatives and allow young people to meet their aspirations, the industry will attract more of them. The areas on which the industry needs to focus are:-

Profitability and image

The profitability of UK dairy farming will improve for the following reasons

- Changes in attitude of the retailers due to pressure from their customers to pay the supplying farmers a 'fairer' price.

- Returns for those farmers who have invested in processing and adding value to milk.

- Changes in global markets is resulting in dairy products rising in price. Stocks of products are low, demand is increasing due to the dramatic growth in the numbers and wealth of the global population and supply is struggling to keep up with demand.

- Supply will continue to be tight due to competition for land for non-food uses, in particular crops for bio-ethanol production, and the increasing value of grain which will lead to less grain fed milking cows worldwide. The outlook for the UK dairy farmers operating a system where grazed grass and conserved grass makes up a large proportion of the diet is perhaps better now than it has been for thirty years.

- Image will improve as profitability improves. There is an inevitable time lag. We as individuals must promote our industry at every opportunity and encourage our representatives to do so too.

Long working hours

The biggest negative, by far, can be solved in the following way

- Mechanise, reduce or contract out those tasks which are the most unpopular.

- Change attitudes towards milking and massively reduce milking times. In new installations, prioritise in throughput and cow flow, two hour maximum milking time and anticipate herd size doubling within ten years.

- Change the cow - The UK herd is high yielding, unhealthy and difficult to manage and this has resulted in many high cost, complex and intensive systems. The more complex and intensive the system, the higher the labour hours required and the higher the lifestyle costs. Breed for health, fertility and management traits and do not be afraid to move away from the Holstein breed. Likewise formulate rations for rumen health rather than for output.

Attitudes

The current generation of farmers must change their attitudes towards the next generation and accept that:-

- They will want a career in the industry to be more than just as a paid employee. They will want to be more involved, to be engaged, challenged and given opportunities to progress and succeed. We must encourage all of this and not stand in their way.

Guide and mentor as opposed to just being the boss and become an 'employer of choice'.

- They will want flexibility and plenty of time off. Just because they are not prepared to work the long hours that we did when we were their age does not mean they are bone-idle.

- That there is a need to collectively invest in organisations whose sole responsibility is to attract youngsters into the industry

- That as herd sizes continue to grow it is increasingly difficult for young people to get a foot on the ladder. Equity partnerships are excellent solutions to this problem. This concept needs to be promoted within the industry.

AND FINALLY…….

On the back of this study, what will I do on my own farm?

- Employ an independent nutritionist briefed to improve rumen health.

- Use Scandinavian Red as a crossing bull for all future heifer replacements.

- Aim to achieve high quality grazing and conserved forage.

- Install an improved network of tracks using concrete sleepers.

- Invest in a very basic 50 point rotary.

- Invest in automatic scrapers.

- Give my staff the option of a profit share scheme on top of their basic salary.

- And if there are any 'bad days', let my mind wander back to that long weekend on the beach in the Abel Tasman National Park!

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I am extremely grateful to the Nuffield Farming Scholarships Trust and my sponsors The Farmers Fund for the opportunity to meet with highly motivated, successful and inspirational farmers in various parts of the world. This has renewed my enthusiasm and optimism for the future of the UK dairy industry and convinced me that this is a viable career option for my own children should they so chose.

I have spent a total of eight weeks away from my farm. This would not have been possible without the commitment of those left behind to manage; many thanks to Kevin, Will and Vernon.

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The views expressed in this report are entirely my own and do not necessarily represent the views of the Nuffield Farming Scholarships Trust, or my sponsor or any other sponsoring body.