HCC & Farming Connect

Study Tour of New Zealand

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Contents

Intention of visit

Ten years ago I sold all the male lambs that I produced to the store market, these were purchased and taken down country to be fattened, due to disease regulations this is no longer an option.

Now as a typical Welsh livestock farmer in this part of Wales, I spend a fortune on concentrate feed for fattening my lambs prior to slaughter, this feed is all purchased onto my holding and I carry it out to the lambs from October until they are fat enough to be slaughtered, this is not only taking up a lot of my time it is also eating up a lot of my profit, now with feed prices double what they were last year, I need to rethink the way in which I fatten my lambs in the hope that it will reduce my costs and improve my profit margins.

I have looked into alternative crops and have learned that chicory may well suit my farm for the purpose of fattening lambs, therefore I decided I needed to find out more, not only about chicory but also other crops that will hopefully do the job for me.

I have been lucky enough to be awarded this scholarship and I have used it to visit New Zealand (the home of chicory) in the hope that in the future I will be able to fatten my lambs from the field and not from the creep feeder as I have done for many years.

Agriculture in New Zealand

New Zealand is sometimes called 'The Worlds Biggest Farm', this is because its economy is strongly based on its agriculture and horticulture. New Zealand is fortunate to have mild climate with even rainfall and although this can be high in some areas (7 metres a year)the grass will still grow, allowing stock to graze for 365 days a year therefore reducing the need for intensive supplementary feeding and winter housing.

Over the last decade more than a million hectares of countryside has been changed from the pastoral farming ways to alternatives such as fruit and in some cases the farms have been split into smaller batches and sold to become lifestyle units, having said that, New Zealand is still one of the top five exporters and its income still comes from agriculture in the form of meat, dairy products, wool and fruit.

DAIRY – The dairy farms in New Zealand are mainly owner farmed units but more and more are turning to a system called 'sharemilking' this is where the farm and the stock are owned by one person but all the labour is provided by the sharemilker in return for a share of the Milk Cheque, the amount of the share will depend on the amount of other inputs by the sharemilker, these inputs include things like vehicles and rubber wear for the milking parlour.

New Zealand supplies 90% of the internationally traded dairy products and currently dairying is very strong with many sheep farms being converted into dairy units, there is also a lot of woodland being taken out and the ground is being improved to make even more dairy farms. In the Canterbury Plain region there will be 58 new dairy farms in 2008 totalling 102 new ones in New Zealand, but it is not just the ones that are producing milk it is also the ones that are used as dairy support farms that will have to be changed from another type of farming.

SHEEP – the number of sheep in New Zealand is dropping rapidly. Last year alone the number dropped by 2 million, in fact over the last two decades the number of sheep has dropped from 70 million to just 40 million, the forecast for April/May (Autumn) is that there will be an extra 300,000 breeding ewes on the market in Southland alone, this is due to the fact that more money can be made from keeping dairy replacement heifers than sheep, this should be alarming to the sheep industry of New Zealand but in the long term should be good for the UK. At the time of my visit, the price that the New Zealand farmer was getting for his lamb was very similar to that of the UK, mainly due to the problems that the UK farmers have at this time. Luckily for the New Zealand Farmer, wool is worth much more than here, the quality of the fleece is higher and each ewe produces a fleece that is much heavier, some flocks are even shorn twice a year to maintain standards.

OTHER LIVESTOCK. These include :-

Deer - which are farmed for meat and velvet, several of the farms that I visited had at some time farmed deer as the deer fences are still in place, deer love to graze chicory and will selectively graze it in the field.

Pigs – these are farmed for domestic use and many of the farms that I visited had their own pig that would be killed for meat for the family.

Goats – these are commercially farmed mainly for milk but also for meat and their fine wool.

FRUIT. New Zealand has large areas of orchards and vines, in some areas (Nelson) apple trees are being removed to plant grape vines for wine, New Zealand's wines are best known for their intense flavour and clarity of colour. Kiwi fruit grow well and are seen in these orchard areas, at the time of my visit the vines were in flower with the male plants flowering a lot heavier than the fruit producing female ones. To ensure adequate pollination they are planted in alternate rows (males in one, females in the next) As pollination is essential to the production of fruit, hives of bees are placed at the end of the rows, the collected nectar is removed from the hives daily to ensure that the bees are kept hungry, this will encourage them to go out and look for more nectar and thus pollinate the kiwi flowers.

Chicory

Chicory is a well-known herb, which is a high quality Spring/Summer and autumn active forage crop, it gives excellent liveweight gains to growing cattle, sheep and deer.

It is ideally suited to fertile free draining soils and has a long taproot, it has a high mineral content especially selenium and copper, it is highly palatable with high digestibility figures, and when it is grown in a mixed ley it can give up to 4 years of grazing.

Chicory will grow on a Ph level of 5.7 or above.

The germination takes 37 days and the plants will start to grow in the spring when the soil temperature has reached 8 degrees C but its most vigorous growth will come when the soil temperature reaches 15 degrees C.

Chicory responds well to the application of Nitrogen with good growth rates being achieved.

A photo showing Puna 11, Chicory

Ground preparation

All weeds should be sprayed at least 14 days before the seeds are sown, preferably it should be sprayed twice at an interval of 10 days to get a good kill, but a minimum of 14 days prior to seeding as the seed and the crop are very spray sensitive.

A firm seedbed is required and rolling should take place after sowing as this will help to prevent sun damage to the seeds.

Slug pellets should be applied with the seeds to prevent slug damage to the crop.

Seeding methods

Can be direct drilled alone at a depth of up to 10 mm. Can be direct drilled as part of a seed mixture at a depth of 10 mm. Can be broadcast onto an existing ley, germination will take place on the bare soil providing the field is rolled to get the seeds on the soil.

Can be broadcast with fertilizer but care must be taken not to burn the seed by leaving them together in the spreader for more than 1 hour.

Seed Rate

If sown as a sole crop the rate should be 5-6 kgs/ha. If sown with a long-term pasture ley the rate should be 1.75-2 kgs/ha

Possible Problems

Chicory is only safe to graze after 70 days this is when the taproot system is strong enough to withstand grazing.

Chicory is very sensitive to spray.

Overgrazing causes damage to the crown and therefore prevents regrowth. Under grazing will allow the stem to harden and become hollow which will in turn allow water to enter the stem and cause it to rot.

Chicory is winter dormant and extreme care should be taken not to poach or damage the crop, as this will cause it to rot and therefore kill the plant.

Future uses

The future looks good with trails being undertaken to develop:- spray resistant varieties.

Soft stemmed varieties (will allow more flexible grazing)

Red varieties(higher anti-cancer genes)

Chicory varieties

CHICO – high yield, persistent, leafy and upright growth, improved cool season growth, with good drought tolerance, fast establishing and high yielding.

CHOICE – very high yields with excellent animal liveweight gain, drought tolerant and highly productive, large upright leaf growth habit.

GROUSE - large uniform leaves with upright growth habit and high quality, mineral rich forage, better cooler season growth with quicker establishment.

PUNA 11 – High yielding from spring to late autumn, thick, deep taproot that allows good drought tolerance and high mineral extraction giving outstanding animal performance.

Plantain

Plantain is a mineral rich perennial herb with an upright, ribbed, broad leaf which is suitable for grazing, it is particularly relevant as it is productive over a wide range of climactic conditions and soils. It is especially useful in dry areas that are prone to drought as it will respond quickly when the conditions improve.

Plantain is a fast establishing plant and is highly palatable to livestock in fact they will graze it first in the field situation. It suits a grazing system similar to that of ryegrass and its yield potential is the same as for perennial ryegrass.

Plantain has a deep taproot with high levels of calcium, sodium and copper, therefore has a good effect on animal health.

Ground preparation

Plantain suffers from very few pests and diseases but is sensitive to broadleaf herbicides after it has emerged therefore it is important to use pre emergent weed control on the selected pasture.

Seeding methods

Plantain can be direct drilled alone at a depth of up to 10mm. It can be direct drilled as part of a seed mixture at a depth of 10 mm. Plantain can be oversown onto an existing ley, germination will take place on the bare soil between the existing plants as long as the seeds can get down to the soil, this can be aided by rolling or harrowing after the seeds have been sown.

Seed rate

Plantain can be sown with a multiple grazing Brassica at 2-3 kgs/ha with a permanent pasture at 2-4 kgs/ha or up to 10 kgs/ha as a specialist crop. A rate of 1-3 kgs/ha should be used for over sowing situations.

Possible problems

Plantain is spray sensitive but is not as susceptible to spray as chicory. Plantain will bolt to seed if it is not grazed hard enough, or topped throughout the season.

Future Uses

The future of plantain is looking better than that of chicory as it has a longer growing season and is better suited to poorer quality soils. The plants will last for a minimum of 7 years in ideal conditions. Plantain was the most talked about new crop in the New Zealand upland sheep sector.

A comparison of lamb growth, between straight perennial ryegrass and a perennial and tonic plantain mix.

Varieties

TONIC – Adds valuable dry matter to a pasture, has a longer growing season than that of clover, will improve percentage of lambs reaching target weight at a specified date.

HERCULES – Has a higher dry matter content and is 4 weeks later going to seed than Tonic. Hercules contains selenium as well as the other trace elements.

PERENNIAL RYEGRASS

This is the most commonly grown ryegrass in New Zealand because of its ease of establishment and its all round performance including good summer growth, some varieties have increased leaf growth due to the fact that they are later flowering than other varieties, this is because a plant will grow vigorously in the aim of producing a seed head, once this has been achieved the growth of that plant will slow down, this is true of all plant species. Perennial ryegrass has good tillering of the leaves and can withstand the occasional overgrazing it is a versatile, low maintenance, general –purpose pasture.

CLOVERS –

Clovers are legumes which are known to have stolons on their roots which enable the plants to fix nitrogen from the atmosphere and make it available to the plants which grow around it, therefore it is a beneficial plant to grow.

White clover- comes in varying leaf size the general rule is that the larger the leaf, the more upright the plant with larger but fewer stolons on the root system, the medium size leaf sizes, they grow closer to the ground but have higher stolon density therefore fix greater amounts of nitrogen from the atmosphere.

Red clover – is a short lived, tap-rooted legume with a high feed value, it can be used for the fattening of lambs but extreme care should be taken with the grazing of female stock as it is

oestrogen rich and therefore will have a detrimental effect on the productivity performance of female animals. If being grown as a whole crop a high fibre feed should be made available to the grazing stock to prevent bloat, bloat is caused when the rumen fills up with digestive juices, which cannot be expelled. The feeding of a high fibre feed is the most general purpose of the differing alongside red clover will prevent the build up of these gasses and thus reduce the problem.

Subterranean clover – is a persistent and productive clover which self seeds, it does this by setting seed and dieing in the spring then in the following autumn the seeds will generate a new plant, this is a very useful crop in hilly, hard to work areas. The plants themselves are small which spread out over the ground providing the maximum chance for the plant to reseed itself.

OTHER FEEDS GROWN FOR FINISHING LAMBS

TURNIPS, KALES, SWEDES – These make a good break crop to be used between grasses, they are a one season growth crop that will enable good control of weeds to take place, before the planting of the next grass or alternative crop, they make ideal winter feed crops.

Pasja – is as early maturing turnip, that produces a large amount of leaf and little bulb, which in turn produces a high quality summer feed that provides a flexible option for summer or autumn feed to all stock types, this variety has a good regrowth rate which will enable subsequent grazings with high yields. It is very important to ensure that all air particles are removed from the seedbed as this will help to retain moisture the quote is ‘roll, roll, roll’. It is important not to over graze as this will cause damage to the crown of the plant and subsequent regrowth, providing that the plants are not over grazed they can give up to 4 grazings in a rotional system. Animals grazing on Pasja will perform better when they have access to a high fibre feed such as straw; this enables better digestion to take place.

Winfred

This rape has a versatile and reliable regrowth, it is one of the earliest maturing rapes and is ready for grazing between 70 and 85 days after sowing, under ideal conditions it may last up to 18 months, it is a hardy forage crop which is not only tolerant to frosts in winter but also to summer dry conditions.

Dietary values of feeds

Crop	%DM	ME/KGDM	Crude Protein
Short leafy pasture	15	11.7	27
Mixed length leafy	18	10.8	21
Dry Stalky pasture	28	8.1	10
Good Hay	85	0.8	12
Oat Straw	86	7.0	4
Wheat Sraw	86	5.7	3
Barley Straw	86	7.1	5
Swede Tops	15	13.5	15
Swede Bulb	10	13.5	11
Turnip Tops	13	14.1	20
Turnip Bulbs	9	12.9	12
Rape	20	12.4	16
Kale	16	11.9	15
Wheat	86	13.5	14
Barley	86	13.1	12
Oats	86	12	13
Molasses	75	11.8	4
Chicory		9-11.7	14-24
Plantain		11.8-12.7	11-17
White Clover		8.8-12.0	17-24
Ryegrass	18	9	18

Number of seeds per Kilogram

Species	Seeds/kg
Perennial Ryegrass	500,000
Hybrid ryegrass	
Tetraploid	255.000
Diploid	500,000
Italian Ryegrass	
Tetraploid	250,000
Diploid	500,000
Timothy	2,500,000
White Clover	1,400,000
Red Clover	
Tetraploid	295,000
Diploid	500.,000
Subterranean Clover	150,000
Chicory	830,000
Plantain	500,000

Weed Control

This is a major issue in New Zealand as the climate allows for exceptional growth of all plants; this is not only true of useful species but also of weeds. There are several different ways in which weed control is achieved.

Grub out. This is where the farmer will dig out the thistles with a spade like tool called a Grubber, if it is done before the thistle goes to seed and also done as new thistles appear good control can be achieved (believe it or not, this method is used by most farms during the growing season) it is also used to remove any thistle that may have been missed by another method.

Chemical Topping. This is a method of controlling grasslands with the use of chemical sprays. It works by applying a low rate of Glyphosate (Roundup) to permanent pasture this will then suppress the grass and weed growth which allows the clover more light and enables it to grow better, it therefore becomes a stronger plant then the weed and helps to control it. Trails have shown that this form of topping can improve lamb growth rates by up to 25%. These trails have shown that an application rate of 180-500mls of chemical to 100L of water to the hectare is the rate needed to have a desired effect at this level the chemical will not burn the clovers.

How to use this method successfully:- use on poorer quality established pasture. DO not use on Italian or Hybrid ryegrass or on young grass leys. Apply in spring before the grass goes to head. The application rate van vary due to local variation but do not exceed 500mls, as this will kill the whole ley. Avoid overlapping, as this will increase risk of losing the ley. Animals DO NOT have to be removed from the field during treatment. The pasture can take up to 6 weeks to recover but the benefits will be seen. This is a cost effective way of controlling weeds.

Mob Grazing. This is suitable for the control of thistles. In the example shown to me 3500 ewes had been weaned and turned onto 12 acres of lush grass with a heavy thistle burden these ewes were left on this field for a maximum of 4 days this made them hungry enough to eat the thistle but not hungry enough to have a detrimental effect on their body score, this was done on a 3 times 12 day rotation.

Spraying. When controlling thistles by this method it should not be done too soon, the best success has been achieved when the thistles have finished growing but have not yet produced a seed head, if sprayed at this time the thistle plant uses all its energy into producing seeds and therefore a better kill is achieved.

Docks. The control of docks can be achieved by spraying or weed-wiping them with molasses, this will make them more palatable to the livestock who in turn will eat them, this must be

done before they go to seed. Docks when eaten have a beneficial effect on livestock, as they are very high in vitamins and minerals, they also have high levels of good tannins, which have a good effect on fighting cancer cells.

Diary of a visit to New Zealand

29/10/07 Fly from Heathrow

31/10/07 Arrive in Auckland. Hired a car from Jucy Rentals very good service, handy to airport, competitively priced, fully recommend them to visitors.

Visit to Bill Robinson, Roroa Red Deer Stud, Cambridge-1250 English Red Deer, farmed for 3 things: VELVET cut at 56 days off 500 deer, giving 3kgs from the young stags and 5-6 kgs from the older stags @ £62/kg.

TROPHY these stags are chosen on the shape and number of prongs on their antlers, they are sold for breeding purposes as the more prongs the more velvet.

CARCASE these deer are chosen for the shape and conformation of their body they will be used for breeding purposes. Deer will selectively graze Chicory and the leys are planted with 2kgs/ha of Chicory as well as Aberdart Ryegrass in with the grass ley.

01/11/07 Matt Strachan of PGG Wrightson took us to 3 dairy farms in the Hamilton area.

FARM 1 – 325 dairy cows. Growing Chicory for 8 years, changing over to Puna 11 as this variety causes less tainting to the milk also growing plantain. 3 cows to the hectare milking 5500L/cow (no concentrate feed) Cows lasting for an average of 5 lactations.

FARM2 – 680 dairy cows milked in 88/44 herringbone parlour cows being fed during 2 summer months on Turnips and Chicory, Turnips for the older cows and Chicory for the younger ones as their teeth are not strong enough to graze Turnips effectively, chicory is sown as a sole crop at a rate of 5- kgs/ha

FARM 3 – A passing visit to a farm with extreme poaching due to conditions, the field has been broadcast oversown with Chicory, a good example of low cost chicory growth.

02/11/07 Visit to Errol and Netta Clark, Glenburn Highland Fold –Retired milk farmers now farming a prize winning herd of 70 pedigree highlands (can grow docks that equal mine)

Afternoon visit to J Swap who farms 5 farms, owns 5 quarries over the North Island and also runs a large Haulage Business. Spent the afternoon helping to move bulls from farm to farm.

J Swap is one of the biggest store and transport systems of Palm Kernel in the North Island.

03/11/07 Visit to caterpillar museum showing how the native bush was removed from New Zealand and the ground was converted into farmland, a lot of it was done after the 1st World War to enable the service men coming home, farms to work, unfortunately due to

extreme cobalt shortage the livestock that was put on this land would be unthrifty and in some cases die, as the farmers didn't know what was wrong they left the land, this ground was then planted with fir trees during the depression of the 1930s, these areas of trees are now being pulled out to change back into farmland and as the cobalt shortage is now known about it is no longer a threat, the ground is receiving up to 10 tonnes of lime/ha. This is taking place from Tirau to Rotorua and in the Taupo area.

Sunday 04/11/07 Travel from Taupo through Eskdale and onto Hastings where we would spend the night.

05/11/07 Visit to 3 farms in the Otmaauri area.

FARM 1 – Adam Lowry farms 400 Angus x Devon cows and uses an Angus or a Devon bull, some heifers are kept as replacements the rest of the young cattle are sold at around 400 kgs. Runs 5-6000 Romney ewes giving 140% lambing, grows 60 ha of Affco Swedes. Reseeded ground is drilled with 2kgs of chicory and 2 kgs of plantain in with the grass mix. He also grows a white clover and chicory mix for fattening lambs he has achieve a liveweight gain of up to 400 g/day@32-40 kgs.

FARM 2 – Craig and Trish Sinclair, Farm Manager. The farm consists of 600 ha of summer safe ground (rains throughout the summer) plus a further 350 ha of dryer land. Runs 5500 ewes scanning 183% of which 148% are reared also runs 300 cows, he grows around 30 ha of Winifred rape on the dryer ground, which is used to fatten the lambs through the dry summer, to graze well rape needs an application of 40 units of Nitrogen at six weeks post emergence, this application will increase the yield by 20%, the rape needs to be 18' high before grazing and should be eaten off to 8' before it is rested for regrowth. The rape is fenced into strips and has a set stocking of 50 lambs/ha.

FARM 3 – Brian and Kirsty Livsey, emigrated to new Zealand in 2003 from Scotland. Farms 280 ha with 1600 ewes and 140 cattle, he buys the cattle as baby calves feeding them 1 bag of milk plus 4 bags of creep until they are 100 kgs in weight they then have only grass, they are mainly Friesian bulls which will gain 1 kg/day during the winter from grass. His lambing percentage is 170% at scanning and 140% at docking, in 2006 he lost only 21 ewes. Set stocking for lambing is 8 twins/ha or 12 singles/ha. He currently fattens lambs of Lucerne but the grazing has to be strictly managed to avoid red water disease, he is looking into growing fodder beet for future years as it will be easier to manage. The ewes are shorn twice, the lambs are shorn once, the wool is worth $15/head.

A quick visit to Bennie Ward to say thank you for organizing today, he is one of the biggest scanning contractors in New Zealand and employs a lot of British boys for scanning. He currently farms sheep but is going to change over to cattle next year as he feels that there is a better future for beef than sheep.

6/11/07 Visit to Brett and Jodie Neilson, Takapau. Farms 245 ha with 1400 ewes scanning 162%, rearing 144%. They wean all the single lambs at 13 weeks and the twins at 14 weeks when 50% of the male lambs will be killed weighing 16.5 kgs, they run an all grass system and they use 400 kgs/ha of phosphate and lime costing $200/t and it costs $23./t to spread.

Travelled onto Norsewood where we visited Ewan Clark a share milker, milking 270 cows on an all grass system on a 22 day paddock rotation, with the night paddocks being smaller than the day paddocks.

7/11/07 Met with Joanne Amyes of PGG Wrightson in Palmerston North,

Visit 1 – Massey University – Crop Trails Dept, met with Dr Bill Rumble the developer of Chicory to make it what it is today. Dr Bill explained that chicory had first become available as an animal feed after only 8 years of trails and breeding.

Trails are continuing in the hope of breeding the ideal version. I was shown lost of new species of chicory including a 3 stemmed variety which will be more suitable for silage use as the stems so not become as hard, a red chicory which has high anti cancer genes, and also the work being undertaken to grow a spray variety, this is of particular importance as weeds grow very quickly in New Zealand and the chicory being used now cannot be sprayed as it will die. I was also lucky enough to be shown around the clover trail plots which have a red leaved clover, this version has high levels of the anti cancer genes. A creeping red clover which will last a lot longer than the upright version, I was also told that the bigger the clover leaf the less stolons in the root system.

When I mentioned that I had a problem with docks growing on my farm in Wales, Dr Bill said that if I was to find the trails, he could develop a dock that animals would readily eat, and as docks are mineral rich the animals eating them would do very well. Unfortunately my time with Dr Bill was very limited, he is a great character and I would have loved to spend more time with him.

Visit 2 – I was taken to see the PGG Wrightson Seed Distribution Center, PGG has the sole trading rights to all chicory seeds grown worldwide, at the warehouse all sorts of seed are bagged and dispatched, I was told that all chicory seeds are grown in Italy.

Visit 3 –Alayne and Colin Bliss of Fielding, originally from Newtown, Powys.

Some of the farm is sown with 5 kg chicory, 4kg red clover, and 4kg of white clover, the remainder of the farm is sown with grass which is heavily infested with thistles, it is currently being farmed by a manager who is using the ground for sheep and bull beef, he is also grazing dairy replacements heifers for someone else.

Visit 4 – Diary farm in Clydesdale area this farm is only 8km from the sea and is very windy in fact no cultivation work can be done, as the sandy ground will blow away. Every paddock is reseeded (sprayed and direct drilled) every 6 years with a grass ley mixed with 1k chicory, the grazing rotation is 14 days and if weeds become a problem one third of the paddock is topped off before it is grazed, this is done to encourage the cows to eat the chopped grass and also the weeds. Currently milking 1270 Jersey cows, with heifers coming from a Nucleus herd of 250. The cows are milked by 4 staff members which

work alongside the manager and there is also a member of staff for rearing the calves. The cows are producing 20.43L/day giving 500 milk solids/ha, when there is a shortage of grass the cows will be fed extra maize silage with soya and straw. The fertilizer used is 3 dressings of 46% nitrogen plus any effluent from the cow yards and parlour washings.

Visit 5 – Wayne Harding – Mount Biggs, Rears 684 rams lambs for a stud and also grazes trendicust heifers which are bred to go to Africa these heifers are good at withstanding high temperatures, he also grazes his own lambs which will grow from 18th December through to 14th March they go onto the chicory at 28kgs and are killed at 47 kgs with a dead weight of 20 kgs, the lambs have put on an average of 274g/day for the last 3 years all off chicory and ryegrass which is spread at 6 – 7 kgs/ ha, it will get 2 dressings of urea at 50-60 kg/ha one dressing will go down the spout with the seeds and the other one in the autumn, the chicory and ryegrass will be reseeded after 3 years as he finds that 1/3 of the plants die each year.

08/11/07 - Visit to Simon and Christine Buckey, Wairer Station, Ihuraua. Simon is the manager of a ram selling station, which sells between 4500 and 5000 yearling rams each year, 2 years ago they sold the most ever 5200 in total. The farm also runs 300 suckler cows and 100 store cattle, which are used to clean up the grazing ground after the sheep. Lambing time is very hectic as all the lambs have to be tagged and recorded soon after birth, this is very important as all the rams are valued according to their 'genetic score' this is calculated by factors such as wool length, whether it is a single or one of a multiple lamb at birth, and also the details of the parent sheep are taken into account. The sale rams come from a total of 35000 ewes, which are farmed, on contract with Wairere station.

The farm is very steep and the ground cannot be worked with tractors, any ground work that has to be undertaken is done by helicopter or fixed wing planes using a GPS system, this is done by contractors and sometimes proves to be very difficult as the weather conditions need to be suitable. About 30 hectares of ground is put into rape each year and then it will be reseeded the following year making a total of 60 ha to be worked each year, the ground is first sprayed with Roundup, sometimes they will spray, seed and apply fertilizer on the same ground on one day, the cost of the whole operation from grass to grass including the break crop and all the fertilizers, lime, slug pellets and seeds is $1200/ha. Chemical topping is used at Wairere at a rate of 200-400ml/ha and 100 L of water.

09/11/07 On getting up this morning I was told that the weather conditions were favourable for the crop-seeding helicopter and that it would be arriving around 10am, I was also told that a fixed wing airplane would be arriving about 12 noon to spread the fertilizer, as this is something that I was hoping to get to see during my stay in New Zealand, I decided to stay a little longer, unfortunately the wind picked up and the helicopter had to be postponed until another day, luckily the weather was still suitable for the fertilizer to be spread. At 1 pm the plane arrived and after looking at the farm maps went for a flight above the paddocks to be spread I was lucky enough to go with the pilot on our return to the landing strip/runway the place was loaded with some of the fertilizer which was being stored in a roll off roofed shed. The plane then took off and spread the 1.1 tonnes of fert that he was carrying, a full load took just 6 minutes to spread, this work costs $1200/hour.

I left Wairere and headed south to Holmes and Adriene Warren. Unfortunately I didn't arrive until early evening so I only had a brief look around part of the farm. Many Welsh people have visited the Warrens in the past and as I didn't spend much time with them, I feel that I cannot do their farming justice. I did learn that they grow chicory to fatten lambs on, this is grazed by the smaller lambs as they are weaned, and then later, the chicory is grazed by the better lambs for 3-4 weeks until they are fat enough to kill, they will gain 300g/day.

10/11/07 Early sailing to the South Island on arrival I decided that I would head south to Kiakora.

Sunday 11/11/07 Spent the day being sick after going to watch whales.

12/11/07 Drove to Duncan and Jane Frazer, near Culverden. Arrived at lunchtime just as they were loading fat lambs onto a brand new Scania lorry it was only 3 weeks old and it cost $500,000 and it holds a total of 640 lambs when full.

The Frazers farm 2500ha running 6500 ewes and 400 suckler cows they keep 40 replacement heifers each year the rest of the calves are sold when they can get a carcase weight of between 200 and 300 kgs. The ewes are lambed using a light airplane which Duncan will land in the field if a ewe needs assistance they will have a lambing percentage of 130%.

The ground is irrigated as it is very stony and dries extremely quickly, the irrigators take3 hours each day to move, this is done using a special hook which is dragged around behind the quad bike, this hook will then catch onto the ball at the end of the irrigator line, then the line is dragged into the required position.

13/11/07 Met with Dick Arnst of PGG Wrightson, Dick showed me 2 farms and also organized a visit to Lincon College trail plots.

Visit 1 – Beef and Sheep farm near Culverden, here as the rainfall is only 30'/year all forage is grown on polder dykes, they are growing a chicory and clover mix at a rate of 4kgs of chicory and 6kgs of clover and then on year2 they direct drill grass into the ley, this is done because they find that the chicory will only last 18 months under these conditions, because of the high rate of clover sown with the chicory, the farm finds that there is no need to add extra Nitrogen as the clover will provide enough, not only for the chicory but also to the grasses that are sown later. The Chicory/Clover mix (once established) is grazed for 3 days then not grazed again for 21 days this will allow good re-growth.

Visit 2 – Lincon College Trail Plots. At this site there are 100 ha of plant trail plots employing 30 people, who will record all the growth details of the various grass species on trail, each species has 3500 plants which are planted out individually in rows of 10 to a row, these grasses are then measured and tested for things like feed value, heading dates etc.

Visit 3 – Finishing Lamb and Beef near Burnham, 670 ha employing 3 full time staff, fattening 6000 lambs and 2000 cattle off pivot irrigated grass and plantain leys, which will last for 5 years, both the lambs and the cattle are brought into this unit from the companies hill farms, the lambs coming in at 28kgs they go out at 43kgs with the best gaining up to 45 kg/day. The cattle come in, again from the hill

farms, at the age of 1 year weighing 390 kgs they go out about 570 kgs with a killing out percentage of 58% the best will gain up to 1.7 kgs/day 4 years ago the same farm (under a different man) was selling 239 kg/ha now is it selling 1205kgs/ha this just goes to show that good staffing is essential.

14/11/07 **Visit to CMP Slaughter House** Canterbury Meat Packers)

This slaughterhouse kills lambs for the Waitrose Company and the lambs that were being killed today were being killed today were for export.

On entry to the lairage of this slaughterhouse, the lambs are plunge dipped and then spray washed to remove any dirt from the animal, this is done to help eliminate any contamination of the carcase. After the stunning and the bleeding process, the knives used for the cutting of the carcase are cleaned after every incision and the cut on the carcase is steam vacuumed to remove any debris, this strict cleanliness helps to keep the meat safe for long periods which is essential if the meat is to be sold on the fresh market. Once the carcase is ready to be hung it is placed in the chiller unit for 24 hours, after this time it will go to the cutting and packing plant, here everything is rigorously checked, any faults that are found will be repacked and sent to the freezer and the meat cannot be sold as fresh.

The New Zealand meat trade have done trails and found that meat from stressed animals wont keep very well, so every care is taken not to stress the animals prior to slaughter.

Visit to 5* Feed Lot , Wakanui Beach.

At this feedlot the cattle are fattened for the Japanese Market, who want them very, very fat compared to British standards.

The whole site is 75 ha in size and it holds up to 20,000 cattle when full, only 13,000 on site at the time of my visit. 28 people are employed, with the female staff being the horse riders, who ride around the pens of cattle doing health checks, any ill ones are removed from the pen and put into the hospital pen until they are better. The cattle(all males) are kept in pens of 200 and are on site for 270 days, they will have a weight gain of between 1.2 and 1.5 kgs/day, and the site has a mortality rate of 0.25%. The unit produces 45,000t of dry muck, which is spread onto the maize land of the 15 individual farms who grow the maize on contract for the feed lot, these farms are encouraged to grow good yields of maize by holding a competition each year to see who can grow the most, the prize being an all expenses paid holiday. The liquid muck is pumped out onto the grass ground, which will produce the grass silage.

15/11/07 **Christchurch show**

I was very impressed with the sheep at the show as there is no trimming etc allowed, all the animals are meat scanned and then judged on their merits rather than on their looks.

16/11/07 Visit to Ken and Carolyne Derby, Rangitata Island. 210 ha of Grass and Clover land with irrigation, running 1600 ewes with a scan percentage of 170%, rearing 155% and a barren percentage of 2.5%, they also run 485 ewe lambs which are rearing 365 lambs their ewe mortality rate

is 2%. The first lamb sales come at 12 weeks when 268 were sold; they averaged 16 kg deadweight the next 300 were sold at 15weeks. A new irrigator was purchased in 2005 for $400,000 this is used on 106 ha of the land.

The farm was purchased in 1992 for $275,000 and it will be sold in February 2008 for $4.1 million, the purchaser is a dairy unit who intends to change it into a dairy farm, there is no Capital Gains Tax in New Zealand.

17/11/07 visit to a diary farm, Rangitata Island. Milking 1400 cows in 3 mobs, all are milked in one rotary parlour, producing 28L/day.

The whole farm is irrigated. The heifer calves are reared as replacements and the male calves are sold as Bobby calves before they are 4 days old.

Visit to Prattley factory, Temuka. This is the home of Prattley animal handling systems that are now sold worldwide; the business was established in 1966 at its present site, the owner being a local man.

Sunday 18/11/07 Travel to Oamaru. Watch the Blue Penguins (which are the smallest breed of penguins in the world) come in from the sea after their day fishing.

19/11/07 Visit to John and Lyndi Dobson, Winton

John and Lyndi are in the process of retiring with their son taking over the work of running a pedigree herd of 300 Holsteins and another dairy unit of 500 cows. They were the first dairy farm to move into the southland in the 1970's coming from Taranaki region. John is still actively involved with the dairy herds taking care of the heifers and the dry cows, he also runs a 60 cow suckler herd, a prize winning Shorthorn herd and 500 ewes which will give him something to do when he retires fully from the dairy unit!!

20/11/07 visit to Lance and Bev Wilson, Te Rae, Winton. Lance was one of the founder members of the Coopworth breed of sheep (Border Leicester x Romney) Lance and Bev were obviously really hard working farmers before retirement as the farm has 48 cattle grids between the fields, lots of Flax hedges have been planted, and these make excellent shade for the sheep. His son who also milks cows at his home now runs the farm. Lance and Bev still run a flock of 600 ewes producing Coopworth rams.

21/11/07 - Morning visit to Mervyn and Marie Frew, Otopiri Gorge. This is a group study farm, which is a hill farm with lots of tussock grasses that are left for shade.

Farm size – 884 ha

401 ha cultivated 34 ha Swedes

329 ha oversown tussock

154 ha bush/scrub

Stock 4226 ewes inc 272 Kelso ewes

1585 ewe lambs 258 Ranger ewes

212 stud rams

50 rams

122 cows inc heifers Hereford/Simmental.Angus x

102 yearling cattle

4 bulls

Lambing percentage ewes 158%

Ewe lambs 58%

Calving percentage (inc heifers) 94%

Grass seed mix -18kg ryegrass

4 kg white clover

1kg chicory

1 kg plantain

Fertilizer use 300 kg super 10

N as needed

Lime 2 T/ha

Wool production – 5.04 kg/head

Afternoon visit to Alister and Lyn Cocks, Owaka.

Alister and Lyn moved from the Canterbury plains to this area 10 years ago. Today was a discussion group open day and I was lucky enough to be invited to join them.

Farm details – 1023 ha

Stock 5730 ewes

200 cows Angus and Angus x

75 young cattle

2007 lambing perentage = 198.3 % overall

Ewe deaths = 6.7%

Ram sales =306

At lambing time this year a comparison was done between lambing triplets on the flat ground and leaving them to lamb on the steep hill ground, (where no help could be given)The hill ones with no help had a 12% better lambing percentage than those on the lower ground and there was a lower death rate of 2%in the hill bunch.

Grass leys 24kgs late heading ryegrass with 1kg chicory and 1 kg plantain and also clovers, a late heading ryegrass is used as this allows for tighter management of the grassland. 400-500 kgs/ha of lime is used and sulphur is also applied. Thistle control is done where possible by mob grazing and also by using spray, but Alister feels that a better kill is achieved if the thistles are sprayed when they are at their maximum size, this allows the plant to take up more spray.

Problems on the farm are vitamin B12 and Bearings (prolapses) all of the bearing ewes will be culled.

22/11/07 Milford Sound, Nature at her best!

23/11/07 Queenstown –Bungy Jump shotover jet boat ride

24/11/07 Transport Museum and travel to Haast

Sunday 25/11/07 Travel to Westport, stopping to look at the gold mining town of Ross and the pancake rocks at Punakaiki.

26/11/07 Visit to Richard and Sue Horrells, Horrells Farm, Nelson.

A successful fruit farm in a microclimate that very rarely gets a frost below – 4 degrees Celsius. They were growing mainly eating apples but as the supermarkets are dictating terms and cutting prices, they are pulling out the apple trees and planting Kiwi and Grape vines in their place, the grapes are wine varieties and in 2006 they won an Irish award for Best Wine. At the time of my visit they were busy erecting new trellis for the vines to grow up.

27/11/07 Sail across to North Island

28/11/07 Visit to Robert and Jane Brown, Mangamingi, Eltham. Farming 729 ha, with 3500 Romney ewes, 900 ewe lamb replacements as well as 500 store cattle, including 50 dairy replacements which are grazed for $7/head/week. The ewes scan at 160% and they rear 135-140%. All ram purchases come from Wairere (visited earlier) The ewes are shorn twice a year and the lambs are shorn at weaning this helps with fly control.

Each year 16 ha of Pasja (Rape) is planted to fatten lambs on. The lambs go on to it at 30kg and are sold fat at about 42 kgs, the Pasja will allow 4 good grazings if it is rotated with grass, it is important that the lambs are not allowed to chew on the stalks as this will stop the regrowth.

29/11/07 Mangamingi. Day spent helping sort and clean ewes ready for shearing. The 6 year old ewes are all mouthed and some of them are sorted out for selling (the ewes are all ear marked according to age)

30/11/07 Visit to Racewell Factory, Te Kuiti. A factory making sheep and cattle handling equipment.

01/12/07 Long drive to see the Giant Kauri Trees in the Waipoua Forest.

Sunday

02/12/07 Visit to Sheep World, Warkworth. A small sheep centre, demonstrating different sheep breeds, sheep shearing and the different uses of wool.

03/12/07 Fly back to Britain from Auckland

Future Plans

My future plans are to make money from an easier form of farming than I have been undertaking for the past 20 years.

I am going to reduce my ewe numbers, which will free up some ground to enable me to grow crops to fatten my lambs. I intend to grow plantain and chicory in with the reseeded ground and rape as a fattening lamb crop. I will also direct drill clovers and ryegrasses into existing leys to improve the pastures quickly. I am going to experiment with chemical topping in the hope that I can control weeds without killing the ley.

I will store less grass in the pasture by tightening grazing and rotating the sheep around the fields. I will use the yearling cattle to clean up the pastures after sheep rather than saving grass for the cattle.

I am going to move away from the Beulah speckle ewes and the Blue Faced Leicester Rams which love bagged feed, and go towards forage fed ewes such as Welsh, Welsh crosses and Hardy Speckle types, I will use Suffolk rams on them to produce easier finishing lambs, this will reduce my purchased feed costs.

I intend to stop taking ground away from home this will help to reduce my transport costs and also give me some spare time, as I have always gone with the lorry driver to deliver the sheep to the ground. My idea is that if I can't keep them at home, I won't keep them at all.

I am hoping that with these changes, life will be a lot easier, and that the sheep in time, will become an easy-care flock.