

GRASSROOTS

**Calf rearing
under the spotlight**
pages 4-5

**From 400 Kg to 520 Kg
MS/cow in 10 years**

pages 2-3

**Cow efficiency not cow
production**

pages 6-7

**A day in the life of...
Mairead Hayes**

pages 8-9

**How to run a successful
farm business**

pages 10-11



400kg to 520kg MS/ cow in 10 years

Selective breeding & parentage verification credited as key

In the past decade the Lincoln University dairy farm has reduced its dairy cow numbers by more than 100 without compromising production, with average annual kilograms of milk solids over that time going from 400kg per cow to 520kg per cow.

"That's good from both a business efficiency point of view and from an environmental point of view," says Peter Hancox, Lincoln's farm manager.

Today there are 560 cows on the milking platform. Aside from sharp farm management practices, Peter credits

a more-targeted approach to both breeding and production efficiency for many of the gains the farm has made.

Previously a big user of Premier Sires, the farm has in recent years adopted more nominated options, with a focus on making faster strides in genetic gain through use of latest, genomically-selected, young bulls. With a drive to reduce its bobby calf output, the farm is now utilising liquid A2/A2, Sexed Semen, and short gestation Angus, with an overall strategy to breed toward an F10 animal that has an A2/A2 profile.

KNOWING WHO'S WHO

While more targeted semen selection helps improve rates of genetic gain and efficiency on farm, another 'cog-in-the-wheel' is the application of GeneMark parentage testing, which helps the farms toward 100 % recorded ancestry of the herd.

Parentage testing, for example, allows for more-accurate decisions on:

- i. which lines of calves would be best to rear as replacement stock, or;
- ii. which cows would be best-mated for breeding purposes (as opposed to beef options), or;
- iii. which cows should be lined up for sale or culls.

Peter has been using GeneMark parentage testing for the past 10 years or so.

In 2010 the farm was milking 670 cows but today it milks 560 cows, all of which have their complete ancestry identified and DNA verified, Peter says.

He says the benefits of whole herd testing go well beyond easy identification of calves to dams during winter calving (potentially eliminating the labour-intensive job of manually matching and recording animals in the paddock).



Lincoln University farm

Listen to our latest webinars

For those of you who missed the opportunity to listen to the latest webinar in our Pasture to Profit Insights series, the spotlight was shone on cow efficiency towards the end of January.

Go to <https://youtu.be/rf5910-5gls> to listen to LIC's Malcolm Ellis presenting his findings from farms around New Zealand on efficient cows. Malcolm was joined by Sophie Evers from Teagasc who has researched cow efficiency in the Irish dairy industry, Sarah Baker, farm manager from Plymouth in Devon who's monitoring and breeding for cow efficiency, and Sally Pocock LIC's UK sales manager who all took questions at the end.

We've also done two very popular webinars with Michael Murphy, one of the key individuals behind the acclaimed Positive Farmers brand. Michael's a well-known figure in Irish dairying circles. A dairy farmer, entrepreneur and international businessman, he's a pioneer in high profit, grass-based dairy, not just in Ireland but worldwide. He has interests in farming operations around the world. He speaks frequently at international conferences and has taken on topics such as wealth creation and the industry's international future. He's led more than 10 farm study tours to New Zealand and has also taken producers to the MidWest of the United States. He now spends a lot of his time mentoring young people starting out in dairying and he has strong ties with Moorepark.

The first is an interesting conversation with Michael discussing his background and why he believes grass based dairy farming is the best. Go to <http://ow.ly/mRNb50HiaiW> to listen.

Then click on the link below to hear his second podcast. Here Michael talks about the importance of grass, the efficiency it offers in the diet, and the importance of the key role it plays in your dairy herd's ration. <https://licuk.podbean.com/e/michael-murphy-on-grass-based-dairy/>



A CLEAR LONG-TERM VISION

Peter reflects on 2010, when the Lincoln farm faced a number of business challenges it was keen to hit head-on.

The challenges included a parentage mis-match rate of about 30% on both its 2009-born and 2010-born calves.

Initial DNA testing also indicated its 'top-160 keepers' was worryingly inaccurate; 11 of the 'keeper' stock had taken a spot ahead of other young stock that showed more genetic worth (based on better parentage/ancestry results, together with its genetic make-up).

The farm wanted to address its animal identification issues, Peter says, along with better attention in exposing the true under-performing stock (i.e. incorrectly identified as high breeding worth animals due to mis-mothering).

TIME FOR A FRESH FOCUS

Thanks to a combination of accurate management of stock, better repro, targeted genetics, and GeneMark's ongoing DNA parentage identification, the farm has today overcome those fundamental challenges of a decade ago, Peter says.

"If you'd said to me 10 years ago, when our cows were averaging 400kg milksolids (MS), that they could get to 520kgMS, I would've thought that would be quite a stretch. But I know those sorts of gains are quite achievable now.

"Without GeneMark, we wouldn't have correctly identified and consistently kept the best genetics and made the gains we have... there's little doubt there's been impact, and there's little doubt it's a

return on our investment.

"What we do know is that we've reduced cow numbers from 670 to 630 to 560, and we're still doing the same production.

"It's funny to think where we might be in five years time - can we get to averaging 550kgMS a cow? ... will that be the new norm for us?"

Peter says if the Lincoln farm can continue working on its repro and mating management while nailing empty rate and six-week in-calf targets, there was still significant room for improvement yet.

He says it's "quite conceivable" that in 10 years the farm could be milking 50 fewer cows while averaging 550kg-600kgMS per cow.

Under the spotlight

The move from an all-year-round to an autumn block calving system has forced Walford College to turn one of its biggest weaknesses into one of its biggest strengths.

Open days in 2022

Join us at the monitor farm open days this year at Walford College



The first open day is on **April 13** where we will be covering the following topics

- Reviewing the mating performance
- The grazing plan to reduce impact of high fertiliser prices
- The long term plan around growing maize



The second open day will be on **October 26** where it will be covering the following topics

- Review of financial performance of the last financial year
- Breeding plan for the year
- Final topic still to be decided

If you are wanting to attend one or both of these open days please email Sean Chubb on schubb@liceurope.com to register your place.

“When I took over as manager and started the transition to an autumn block herd, the majority of heifers were being mated at 16 months of age or older,” explains farm manager Tom Moore. “This resulted in heifers struggling to get in calf, and once they entered the herd they didn’t last long. The impact of this was felt throughout the business. It was nothing to do with the genetics, it was all to do with the management. Moving to an autumn block I knew that this had to change otherwise the transition would be a huge failure, and the college wouldn’t have a dairy herd anymore.”

The plan to improve heifer rearing centred around three actions, changing the location where the heifers were reared, employing someone to solely rear the calves, and the implementation of a regular weighing regime so corrective action could be taken.

“The move to an autumn block made some buildings redundant, such as the dry cow shed,” says Tom.

“At first, when we were talking about the options with Sean Chubb from LIC, we were talking about putting intensive beef in the shed or parking caravans, but once we reviewed the existing calf rearing shed, it was a no brainer to rear the calves in there.”

The old shed had little windows that could be opened but the air still didn’t really move, in the old dry cow shed with the high roof and two mostly open sides there’s constant fresh air coming in and around the calves.

“The shed is set up with straw bales and gates making pens for groups of eight calves, groups they will stay in until they are weaned. Then the pens are opened up into a bigger area, and they can mix with the other weaned calves.”

Kate Meredith who is contracted to rear the calves doesn’t think she does anything too dissimilar to any other calf rearer to which Tom disagrees: “I’m not allowed to do anything with the calves except look at them, as I need to meet Kate’s standard. Kate’s focus on detail has made a huge impact to the animal growth rates and survivability of the calves. We haven’t lost a calf over the last two calving’s, and we’ve only lost one from a twisted gut since Kate took over... so a phenomenal result really.”

Kate explains: “When a calf is born it’s brought into the shed where it’s weighed, tagged and has its navel sprayed. It’s put into its pen that will be its home until it’s





What a difference two years make

In November 2019 LIC joined with Walford College to work with a new monitor farm. This monitor farm was a break from tradition, as it was transitioning from an unprofitable all-year-round farm to an autumn block one with the goal of becoming one of the top 20% profitable autumn block farms within the LIC CFP database. Since the beginning, there have been many changes to the farm to help facilitate this end goal, below is a quick look at some of these changes.

The first major change for the farm was that the cows would be grazing, so to ensure grass quality was kept, the low yielding cows were turned out by January 2020. To enable this to happen the staff put in a mammoth amount of work over the winter, including creating the initial 1.1kms of cow tracks, splitting seven paddocks up to create 18, and putting in water lines and troughs. Additional work has brought in another three paddocks and extended the tracks by 400 metres. This one act has seen milk from forage increase from 985L up to just under 5000L in the 2019/2020 season and with this the cost of feed has dropped significantly.

A spotlight was also put on the heifer rearing, pre transition around 20% of the heifers were being mated at 16 months or younger. This led to poor heifer retention into the second lactation and higher rearing costs. A dedicated calf rearer has been contracted, and calves are weighed regularly to ensure they're meeting their growth targets. The shed the calves are reared in has also changed which has seen a reduction in health issues. Since these changes and with greater attention paid to the heifers, the retention of heifers into second lactation was 95% from last season and the heifers are reaching target mating weights.

The herd has seen its fair share of the changes as well, with all the cows being mated in the autumn this year. Crossbred cows have also been purchased to increase cow numbers from 160 to 200 cows. Throughout these changes, production hasn't gone below 7000 - 8000L, and constituents have increased.

The most important change that has been seen is in the finances, pre transition the farm was losing £442,000 but now is on target to make a 1.97ppl profit.



weaned. For the first three days it'll be given colostrum milk then moved onto a whey-based milk power. I feed the calves three litres twice a day. The ratio of powder to water is 150 grams per litre. The powder has 20% protein, 20% oil and 0% fibre. Calves will stay on this rate until they're four weeks of age, then they move to once-a-day feeds of three litres before being weaned at six weeks.

Calves are also offered water, straw and starter pallets with an additive called Early Bit which encourages intakes, this is offered from the day they enter pen. Through this system, as calves grow, they must eat more and more starter pallets to meet their increasing energy requirements, this in turns helps to develop their rumen early.

"I make sure the water, straw and pellets are topped up and kept clean, this means no wet half chewed pellets left among the other pellets. When I top up the pellets, I mix the old in with the new to ensure nothing is sitting on the bottom going stale. Mixing up the pellets also attracts the calves in, you always see them having a bit just afterwards. While the calves are feeding, I'll do a light bedding up to ensure that there's no wet straw, so the calves have a dry place to sleep no matter where they lay down."

Tom explains that the cost of rearing the calves this autumn has worked out to be just £1.88 a day, down from between £4 - £5 under the old system. "I haven't compared our rearing costs with any other farmers yet, but I think that's a competitive rate. If it turns out that we are still higher than most block calvers I wouldn't be upset, I see this as an investment in the future of the herd. I want these calves to be in the herd for at least six years and you're not going to achieve that by cutting corners.

"Weighing has been something Sean has pushed us hard to do, and it's been an eye opener in terms of what growth calves can do," explains Tom.

"Last spring we had our Holsteins calving down as well as the crossbred cows that we bought in. The calves out of the Holsteins were averaging 1.2kgs per day growth rates, whereas the calves out of the crossbreds weren't too far behind averaging 0.9kgs per day. This autumn the calves haven't reached these heights, only achieving an average of 0.9kgs per day. We're not quite sure why this is, and will need to look back over the weights. We might look to go for a higher spec milk powder next year."

While the autumn calves haven't reached the growth rates of the spring calves, they're still growing at a rate above what is needed for them to achieve 60% mature weight at mating, and 90% mature weight at calving. "I've never weighed calves before," explains Kate. "It's always been done by eye, but what this new information offers is that we can review each stage and make refinements as we go along."

This increase in focus has not only benefitted the calves born into the new system but also the heifers that were born into the old system. "The empty rate in the heifers used to be around 30% but since putting the focus on weighing and growth we have seen this decrease to 8% last autumn, and the percentage of heifers retained to second lactation has jumped significantly... we achieved greater than 95% last year," says Tom. "This has only been achieved through monitoring and focusing on their growth rates."



Cow efficiency not cow production

Dairy farmers should be concentrating on cow efficiency rather than per cow production... that's the view of LIC's General Manager for New Zealand Markets Malcolm Ellis, who delivered a webinar on the subject in January, saying efficiency was pivotal to delivering a milking herd geared up to meet future challenges.

As a fourth-generation dairy farmer, he's seen the industry move through many different cycles, but sees the challenges facing producers in the next few years as some of the most difficult they have yet to meet.

"Today the letter P stands for profit, not production, irrespective of the farm system you operate. Ten years ago, it was all about production, with the emphasis on working with bigger cows able to deliver higher milk volume. Steadily we have seen the metric changing to kgs/MS /kgs /lwt becoming the key driver. This does not mean that smallest is best as associated non-negotiable per cow costs will not be able to be diluted by the associated lower per cow productivity." Citing two key dairy areas in New Zealand, he mentioned the irrigation costs in the Canterbury area and the wintering costs in Southland. They remain the same regardless of the cows being milked.

"My key message is not to under-estimate the need to have the right cow for the job," he says. It's critical that you identify the best cow for your own situation. I've seen great examples of Holsteins, Friesians and Jerseys performing well, but different breeds will be at their best in different circumstances."

"In a strong milk price environment it will be profitable to supplement cows at seasonal times of feed deficit but unfortunately too often the introduced feed is merely a substitute to the utilization of the cheaper feed in the form of pasture. My reaction is to conclude that too much feed is being used to substitute pasture. Ask yourself whether you are making money out of milk, or milk out of money."

Malcolm says that for 23 consecutive years up to 2015 we've seen cow numbers increase annually in New Zealand by greater than or equal to 100,000 cows per year. The peak was in 2014/15 where the national herd reached 5 million cows, but now this is levelling off and forecast to gradually decline. It is universally accepted that we have now

reached 'Peak cow' and as we navigate a landscape of fewer cows those cows are going to have to be better to maintain farm profitability and the posterity of farming families and communities.

"Believe me, the role of herd improvement is going to be more important than it's ever been. We must be milking better cows and better cows must be defined as measured by efficiency of performance".

Environmental and Regulatory considerations in New Zealand are pointing to a 15% reduction in cow numbers - by 2030 - in the next eight years - to reduce carbon footprints. While these future predictions vary in different countries around the world, we are all heading in the same general direction. "In the past many have made the mistake of believing that if they are milking less cows, they need to milk bigger cows. This is simply not true."

So, what does the future hold?

"We need to recognise the need to lift up the value of cow efficiency to enhance farm system profitability. What is the scale of the contribution genetic gain can make to the future profitability and prosperity to a given farm system? We will need to be more efficient and will need to produce at least as much from less, while maintaining profitability and competitiveness.

"It's an important balancing act. We need to protect the next generation. I want there to be opportunities for my children within the dairy sector."

NZ Dairy statistics reveal that over the past 10 years genetic and phenotype trends have combined to add 5.9kgs/MS/cow each year - with 2.7kgs/MS/year coming from genetics (approx. 50% of the gain) and the balance coming from the environmental considerations.

"BW has increased over the same period by, on average, 9 BW units per year. Can we challenge ourselves and increase

this rate of gain to 15-20 points if we put increased focus on genetic gain?"

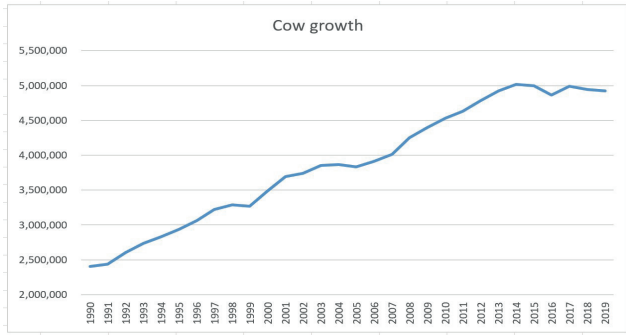
Malcolm refers to the sharpening focus in NZ on herd improvement, pointing to the difference in efficiency between the top and bottom quartiles of a dairy herd, and saying that while increased use of sexed semen speeds up the opportunity for genetic gain, it's the 160kgs difference in milk solids between the top and bottom quartiles within herds that provides the key opportunity. "In reality we already have the cows with the desired levels of productivity, it's just that we need more of them! He's certain there is no justification for milking bigger cows if one is in search of advancement within the farm system. There's a limited correlation between the size of the cow and the efficiency of her output. Bigger cows often have significantly poorer fertility, which is undesirable because getting as many cows as possible in-calf inside the first 6-weeks of mating is a key focus for efficient block-calving farm systems. "If we're not milking more cows we're going to have to be milking better cows.

"Cow efficiency defines 'good cows'. Profitability, fertility, efficiency and smart cow selection will define success as we move forward."

Focused on the future

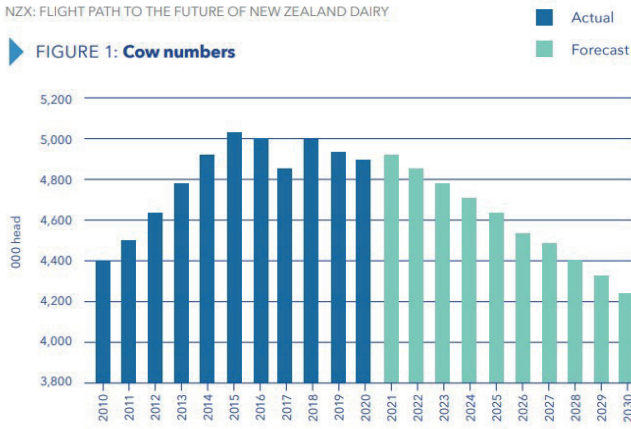
- 'If we are not milking more cows we are going to have to be milking better cows'
- 'Cow Efficiency needs to be lifted up and targeted in our thinking'
- 'Profitability, fertility, efficiency and smart cow selection will define success as we move forward'

Reset looming following 23 consecutive years of cow growth.



NZX: FLIGHT PATH TO THE FUTURE OF NEW ZEALAND DAIRY

FIGURE 1: Cow numbers



2020/21 full season - Mature cows - min DIM = 200

Ranked by Liveweight BV	No. of Animals	Avg KgMS	Avg BW	Avg PW	Avg LW	Avg livewt BV	Avg fertility BV	Avg Friesian 16ths
group 1	137	635	-82	-17	-12	75.1	-4.1	15.4
group 2	137	653	-57	2	7	61.9	-3.4	14.6
group 3	138	643	-19	21	16	43.1	-2.3	13.1
group 4	137	656	9	94	99	16.0	-2.4	9.7
group 5	137	639	49	130	125	-9.2	-1.5	7.0



A day in the life of... Mairead Hayes

Born in Tipperary to dairy farming parents, Mairead Hayes has been working with Eurogene (LIC's distributor in Ireland) since 2009 and says that building relationships with farmers is the part of her job that she enjoys the best.



A 'normal' day sees her on the telephone, supporting the breeding advisors, managing stock control, bull coding, shipments and carrying out general office duties.

"I really enjoy the customer care side of my role and find the team spirit in the office here great - we work really well as a team."

some 20 miles away for the next 12 months, studying shorthand and secretarial/office skills. Her first job was with Bulmers (cider) as an office administrator and sales assistant. After a year she moved on to MSD to cover a team member on maternity leave before moving to a German factory called Schiesser where she took up a

lockdown, it came at a peak sales time. I live about 32kms from the office so I chose to cycle to the office twice a week - 75kms a day so 150kms a week. While cycling is my main hobby, using my bike to get to and from work on a regular basis kept me sane. I was out on the open road, getting lots of fresh air, and keeping fit at the same time. A winning mix."

To say cycling is a hobby is perhaps a bit of an understatement. Mairead has completed both the Ring of Kerry which is 180kms and the Ring of Beara which is 140kms a number of times. The longest cycle was the Tipp 200 which was, as its name suggests, 200kms in length and she became one of only two women to complete this course in 2019.

"It's something I took up maybe seven years ago when my children were more grown up," she says. "It did start as a hobby but, as I'm competitive, I soon got involved in the 'sportive' events and I'm looking forward to them starting up again in 2022."

Mairead's role is full time from January to June each year, then she's off for June, July and August when the children are home for the summer holidays, and back part-time from September to Christmas. It's a routine that suits her well.

In February 2020, she was really excited to be offered the chance to travel to New



Mairead's parents ran a 50+ black and white Friesian milking herd while she grew up, but as the youngest of seven children she didn't really take an active role on the farm. She went to school in the nearby village of Drangan, about three miles from her home, where she says her favourite subjects were maths and the Irish language. "I was fluent while I was at school, but have to admit I've lost it now as I'm not using it on a daily basis."

Leaving school at 16 she went on a secretarial course in Clonmel,

few different roles. Mairead returned to Bulmers as shipping clerk & customer care role.

Later she moved to Eurogene where she has remained, with 2022 being her 14th year in her current role.

Since Covid, she says the team has remained in its own 'little bubble' and is full of praise for how all the office staff worked together to keep the company running smoothly.

"We were all really busy during





Zealand to LIC's head office in Hamilton. She had a packed itinerary and was joined by two LIC colleagues from the UK team, as well as others from Australia.

On the first full day she visited Newstead and went on a 'bull safari' where they saw the bulls in their normal working environment. She says this gave her a much better understanding of the background work involved and she saw all mature bulls had their own open space.

Next was a visit to LIC Riverlea where she saw robotic automated milk testing. In New Zealand, farmers are recommended to have four herd milk tests per year, and during the diagnostic tour she saw the full process of diagnostic testing on sample tissues taken from the animals. "I found this really interesting as I've sent sample tissue to Neogen in Scotland for the IBB programme."

Visits to farms were intermingled with sightseeing and evening events, one of the most interesting, she says, was a trip to a Maori cultural show and dinner in Rotorua where she experienced Maori culture and had the chance to do a traditional dance while the men tried out the famous 'haka'. Maori crafts were on show, and the food was cooked in the traditional hangi from in the ground.

Rotorua is famous for its geothermal features which include bubbling mud pools. She sat in the hot springs before heading to the Skyline restaurant, which is only accessible by gondola, and later went for a tree top walk which is a 30-minute suspended walk, illuminated by different coloured lanterns suspended from trees.

The trip was rounded off with an opportunity to meet the breeder of both

Priests Solaris and Priests Sierra, and a mini-international two-day conference back at LIC's head office in Hamilton.

"We packed a huge amount into the two-week visit, and I will be forever grateful to have been able to see the New Zealand side of the business. This really was the trip of a lifetime for me and has helped me immensely with my understanding of the role LIC plays back here in Ireland."

Returning home to her family, husband John who is a 3D printing specialist with MSD, daughter Maria (20) who is studying pharmaceutical science at UL, son Patrick (18) wanting to study engineering or science, and daughter Edel (14) still at school, she loved reporting on her experiences.

More recently she's joined the Kilkenny Triathlon Club and says this is a 'very brave' decision considering she can't really swim! Triathlon brings together the sports of cycling, running and swimming. She loves hiking, and often completes sunrise hikes on her own, climbing the local Slievenamon mountain which offers fantastic views from the top. The climb is 720m and her best time to date is 36 minutes.

She's also keen on gardening and has an acre of flower beds surrounding her home, reading self-help and thriller novels, and while she has little time to watch TV, makes sure she steers clear of the negativity offered by news channels!

Fitness certainly runs in the family with

both Patrick and Edel involved with the Gaelic Athletics Association (GAA) and Maria competing in weightlifting competitions under the 'Olympic' banner which is more about technique than weight of the lift.

Family dog Dexter is a white Bichon Frise, and soon after he arrived in the family, a present for Edel's birthday, along came the LIC bull Dexter. "It was an amazing coincidence really," says Mairead, "but he's a playful little fellow and we all love walking him."

Finally, what about plans for the future? "I love my job at Eurogene and the team of people around me. I hope I'll be there for a long, long time, and that once we move further into 2022 more restrictions will be lifted and we can get back to the 'new normal'. I love travelling but that's been very difficult for the last 18 months or longer, so hopefully we'll be able to get in a family trip or two as we move into the year."





Running her own farm business successfully

Deirdre McMahon won a prestigious award in 2020 when she was announced as the 2020 Teagasc/FBD Student of the Year. Farming in north Clare and south Galway she has a herd of 180 crossbred milkers and says she keeps her farms grass-based and 'simple'.

Winning this award came as a surprise to Deirdre, who competed against students across Ireland to take the title. "I was delighted to win, I really didn't expect it. It was a tough competition and I feel very privileged and proud to have taken the title."

She farms a total of 214ha with her husband Bryan, split between three farms across the two counties. Burren Dairies consists of two milking platforms and a heifer rearing/silage farm. Located in the Burren in north Clare they milk 180 cows on a 62ha leased farm which also has a 40ha winterage. The home block of 35ha which is located in Clarinbridge, Co. Galway was converted to a dairy in April 2021 and they're currently milking 88 cows on that block. The support block which rears the youngstock, provides silage and additional winter facilities is 68ha and is located 20 minutes from the home farm in Corrandulla, Co. Galway.

"There's a bit more walking involved in Clare, so we keep the younger stock there," she explains. "The older cows

are kept where they're closer to the parlour."

At the moment they have around 88 replacements, but will soon have some stock to sell, as the aim is to keep 20% -54 - to join the two herd and sell the remainder. Beef calves are sold privately.

Deirdre certainly didn't follow a traditional route into farming. She trained first as a nurse and had spells in both Ireland and the UK in A&E in

leading hospitals before she had a change in career.

She met her husband Bryan while she was working at St Thomas' Hospital in London and followed him back to Galway where he was already a full-time farmer. "I got my passion for farming while I was helping him on the farm and stopped nursing in 2017 when I started milking cows." The following year they leased the farm in Clare.

Deciding to go to college in 2019, she took a course that was available to those who already had a degree and was pleased with the flexibility it offered. As well as in-house lectures, a lot of the work could be fitted around her growing responsibilities at home.



"The course was very good, very technical and very focused on grassland management. The college was milking more than 300 cows, it was a commercial unit with a strong infrastructure, so there was a lot of information and substance I could take back to my own farm." She completed her Certificate in Agriculture at Salesian Agricultural College in Limerick and from there was put forward as their top student to enter the national competition, where she faced a challenge from other students across Ireland.

She faced a high-powered interview panel who asked about everything from her college experience to on farm performance and activities, her future ambitions and her involvement with the local community.

"It was quite a challenge, but I enjoyed every moment. It's widened my circle of fellow farmers and networking and helped me with my thinking."

She believes that there could be more support offered to women who are interested in farming as a career choice. "Farming is currently seen as a predominately male career in Ireland, but this was not always the case. Not too long ago both of our grandmothers were the ones milking the cows and managing the day-to-day work on their farms. It's going to take a while before this is perceived as the norm again. There are many women working on family farms as well as having off-farm careers who may not be recognized as farmers, or even realize the value they bring to the family farm business themselves. These women have skillsets that are very valuable to the running of an ever-challenging modern day farming business.

"When you're running your own business, it doesn't matter about your gender. You are the boss. I would say to any women who want to farm - get on and do it. Make the most of every opportunity you get, don't put limits on yourself. Anything is possible when you want it enough."

Asked what the key take home messages from her course were, she talks about the importance of milk recording. "This has made a huge difference on how we're managing

our cows," she says. "We can be much more effective in selecting the cows that we breed from. At the moment we're aiming to record every other month, six times a year, with the key ones before six weeks into calving, the May peak, and just before drying off."

She's also joined a couple of different discussion groups, including Galway



Grazers and the Greenfield Academy 2 and the Demeter Group. "I plan to keep developing myself, and I'm always looking to take courses which will add to my skills base and help me farm better." She's recently completed an online diploma with UCD in creativity, innovation and leadership.

"I'm the sort of person who always needs new challenges, and I look at how people are operating in every walk of life, not just farming. There are take home messages from other industries that can help us improve our business."

Going back to her farms, Deirdre says she is committed to a simple grass-based system with crossbred cows that are great grazers. She's now completed re-seeding 80% of the farm and increased the clover element of each field to reduce nitrogen costs. "I'm focusing on the detail and at the top of my KPIs is the monitoring and improvement of both soil fertility and cow fertility."

Looking ahead she has no plans to expand further, aiming to only breed from the best cows to continually improve the quality of her cows.

"We're spring calving and we use LIC genetics as they give us the type of cow

we need for our system. Bulls used in 2021 include ZSP, Epic, Proclaimer and Spot On. Primarily we select for solids and fertility. Our average weight per cow is probably around 500kgs, and in 2020 our solids were 470kgs/cow. We're aiming for 500kgs+/cow this year and then we'd like to get to 520kgs. This is achieved with 700kgs/concentrates.

"When we decide to keep a cow she has to be the best cow. We'll be a lot tougher on culling and we know we've a lot more scope in terms of improvement. Our grass yield is great, 17tonnes/ha, and clover is definitely the buzz word at the moment, but we need to understand fully how to manage it, that is the next challenge".





GLENMEAD SB TRAPEZE

Efficiency is the key word when it comes to Trapeze. An A2A2 Spring Tralee Bass son, low liveweight at 16kgs, making him a safe option for use on well grown heifers. Trapeze's dam is still a contract at 7 years old, a great innings and sign of a really strong cow family. Bred by Kevin and Felicity Clark from the Glenmead herd in the Bay of Plenty. Some of Trapeze highlights are a gBW of 296 a fertility gBV of 5.4 and 0.58 in the udder.

How do we get you the best possible bulls from New Zealand?

Well, like all good things worth waiting for it takes time... and timing is everything.



Dam at 6 years of age - TIRONUI INTEG MEG

TIRONUI SUPERMAN ET

Bred from an outstanding Integrity dam, averaging 11% solids across 5 lactations, this Superstition son really stands out as one of the top of bulls of the class of '18. With a pedigree of Superstition x Integrity x Nevy its easy to see where the production of 74kg solids comes from. On top of this an udder support of 0.56 & functional survival of 1.7%, daughters of Superman will persist in herds for many years to come.

It's a nine-month process to get the best possible bulls selected and onto our EU stud then collecting against the targets set.

First, we need to review what each European market requires to meet their farmer needs. Armed with this each June we start to screen all the eligible bulls in the system along with the new graduates who have daughters calving in August/September. These new graduates were used as yearlings in our Sire Proving Scheme three years earlier. The scheme will start identifying those rising to the top through the early milk recording information along with information gathered by those farmers around: milking speed, adaptability to milking, temperament and their overall opinion of each animal

Some bulls are excluded at this point due to a number of reasons:

- They have been vaccinated for IBR
- They have developed health issues

- Their daughters aren't out-performing their cohorts
- Their semen is of poor quality

The list of prospect bulls remains relatively unchanged until September when phenotypic data starts feeding into their proofs. This is where we see the biggest re-ranking and some previously unfavourable bulls come back into the mix and, vice versa, some drop away.

At this point the NZ market will also be watching the proofs closely and they have they same focus as us in getting the best available to farmers as soon as possible. So, instead of waiting a year they'll pick the cream of the new graduates to use immediately on the national herd. This can mean several of our preselected bulls become unavailable to collect until a little later in our collection process.

In early October we revisit the entire list of bulls available with a focus on

those that are available to start collections in November, our first intake. We continue to watch the changing proofs as more daughter performance information feeds into the system. We then select an intake of two teams of bulls to collect in December. Often at this point we'll find bulls that have risen later on as more daughter information feeds through.

Intake 1 and 2 bulls are collected for their sexed and conventional targets, and these are reached prior to intake 3 bulls taking centre stage on 20/01.

Meanwhile, in December, we're analysing all the high use NZ spring bulls for those that will add the most to our European farmers, this includes the new graduates that were fast tracked into the NZ breeding plan. These guys need to go through all the same quarantine processes as the other bulls, so are only available from 20/01 onwards for collections. There're our intake 3 bulls.

We follow these with a team of equally as good intake 4 bulls which are generally good bulls that we already hold some stocks of to get us started with our earlier starting farmers in market.

Targets for all these bulls is assessed weekly based on farmer interest, and pre orders with rostering changes made where possible.

Exports to the EU/UK have to undergo a very controlled protocol to ensure both quality and disease status are kept to the very highest levels possible, and this also takes time. It can be 50 to 68 days from the date of collection until the straws are available in market. To achieve this year-on-year without disruption is a feat that requires meticulous planning and attention to detail, along with a little bit of lady luck.

Last spring was a good example when lady luck decided to desert us and, despite all our checks and braces, we ended up a bit late for some. We've invested heavily in the process and expansion of sexed collections to further minimise the reliance on that little bit of luck.

As long as all goes to plan, you'll see some bulls like these guys below here for you this year. And, when you look at this quality, I'm sure you will agree the effort we put in on your behalf is well worth it.

VAN STRAALENS SAFARI

If you're looking for an easy calving outcross, Safari is the bull for you. An F11 with a liveweight of -5kg combined with 64kg of solids, Safari daughters are extremely efficient cows. On top of this a capacity of 0.71, Safari is the ideal bull to increase volume & solids while also maintaining liveweight & capacity.



GLANTON DESI BANFF



This outcross bull, sired by the renowned Arrieta Terrific Desi. Banff is the perfect bull to use as a first cross on your Friesian cows. Banff has a massive fat percentage of 6.8%, its easy to see where it comes from with his dam averaging 6.94% fat across 5 lactations. Add in a massive fertility of 5.2%, its hard to look past to improve solids & fertility in your herd.

McKENZIE GF COMET S3F

If you're looking to increase solids and liveweight through capacity Comet is the bull for you. Comet would suit both grass based and high input systems due to his high intake capacity. Add into this Comet's excellent udder support of 0.74 & udder overall of 0.85 these cows will last in both systems.



NOT AVAILABLE IN IRELAND

WERDERS PREMONITION



Topping the RAS List, and bred by Thomas & Courtney Werder of Patea, ranking highly as a genomic bull, it appears he's come good on his potential! Now with 132 herd tested daughters and 87 TOP (traits other than production) daughter inspections done, Premonition has an udder overall gBV of 0.71 and capacity gBV of 0.62. Sitting at 440gBW, Premonition is part of the KiwiCross Forward Pack and KiwiCross yearling-friendly team. A Priests Sierra son, he looks set for a considerable stint on the RAS list, with rock-solid cows in his back pedigree.



Diverse sward looking full of potential!

Regenerative Agriculture (Regen Ag) – an ecological approach to food production systems focusing on soil regeneration, encouraging and supporting biodiversity, improving the water cycle, optimising carbon sequestration and increasing resilience to climate related challenges.

Regen Ag is fast becoming the most important modern farming methodology. Why?

It resonates with our consumers who are constantly being bombarded with how they can ‘save the planet’ through the choices they make. Therefore, it’s actively encouraged by our processors to keep abreast of this competitive consumer angle. But what about us... the farmers?

In many ways this growing movement is exactly what we need too. Ultimately our livelihoods are linked to the health of the land, so it’s in our best interests to nurture and protect it. Regen Ag can give us a model on which we can hang our social licence to farm – allowing us to demonstrate to our local, national, and global communities that as custodians we’re an integral part of the solution.

For many farmers Regen Ag is scary (and probably a lot of other words besides). Change always is. A huge hurdle for us to overcome is our belief in what we are doing now, and the ‘if it ain’t broke’ philosophy. After all, we’ve been led here by science, research and good advice.

It’s obvious how current farming methods have an impact on the natural world we can see. A growing network of soil scientists are expanding their understanding, and demonstrating that soil is a living ecosystem which we’re also interfering with. The fertilisers and sprays we use, worms and medicines, cultivation techniques, crop selection and rotation, stock type and grazing management are some of the obvious ones. All of this is being reshaped through the blooming science of Agroecology, the application of ecological principles to agriculture.

Whether you realise it or not, we’re gradually adopting these principles already through farming policy and regulation. Processors take this a step further with their own member

guidelines. While many environmentalists might argue these are not being implemented quickly enough, they are managed in context with making them financially practicable. But does this mean we should wait until we’re ‘required’ to change?

Regen Ag takes Agroecology a step further... it’s about actively repairing and regenerating soil, habitat, and biodiversity, allowing natural mechanisms to support us. Farming more in harmony with the nature at all levels, from what we can see to what we can’t, both within and surrounding our farm boundaries.

The greatest hook for Regen Ag is its focus on carbon capture. Utilising the natural process of photosynthesis to draw carbon into the soil where it feeds the soil microbiology and improves water infiltration and holding capacity. A healthy stable soil microbiome promotes better plant health, yield and resistance, possibly even plant nutrient density. It helps hold soil together, reducing erosion and sustains plants better through challenging weather events. As all agriculture one way or another is based on plants, this must be a win for everybody.

“It’s worth noting here for pasture-based farmers that maximising grass growth via soluble fertilisers (therefore maximising photosynthesis to draw down carbon) may need to be reconsidered. New research is beginning to suggest that soluble fertilisers impede the symbiotic relationships between plants and soil microbiology, therefore negating the other beneficial



Grazing group discuss the management of diverse swards, particularly when it wants to shoot



Dry cows grazing a mature diverse sward grown without N

impacts. (Google Green Cover Seed Dr Christine Jones The Nitrogen Solution) The fact that soluble fertilisers end up in our waterways and atmosphere (without including the carbon footprint of its manufacture and transport) probably means our reliance on this practise should be at the very top of our list if we are to reach carbon neutral status. For most, this will be the hardest hurdle to jump as we grapple with the implications of such a change. Instinctively we assume this means less output. Depending on your farm system maybe it does. However, does it have to mean less profit?

Some early UK research into the regenerative strategy of diverse swards with minimal N use have shown competitive productive output in terms of tDM/ha and comparable ME so large reductions in stocking rate may not be needed long term. (Google Field Options sward diversity or contact Germinal for an update on their trials).



Dairy herd grazing in autumn on tall diverse sward cover

Perhaps instead of seeing these environmental methodologies as challenges, let's see them as opportunities. There are small, relatively low risk changes you can make within your system that will begin your journey and an ever-growing network of early adopting farmers to learn from.

Those who adjust rotation lengths to allow sufficient rest between grazings already have one foot on the ladder. Likewise, those who have plenty of clover in their swards, or are increasing sward diversity. Reducing drugs on farm via selective dry cow therapy or worming based on faecal egg counts is now commonplace. Many look to use min-till cultivation techniques and are reducing their use of sprays. Minimised and more strategic use of soluble fertilisers (if at all) will be an area many of us will need to address in the coming years... so why not start now while cost pressures of this input will really bite.

While these alone are a way off truly regenerative agriculture, they're a start. And those who rely predominantly on grazing with lower proportions of imported feed will find change less dramatic. Bear in mind that those managing this type of low feed input dairy system already have the most resilient profitability (Google David Beca LIC webinar).

Unfortunately, we can't look to research and science for Regen Ag production system blueprints yet. But perhaps we shouldn't wait? Every farm as they say is different. Not just the soil, land, location and microclimate, but your own management. Each farm has its own unique biological system. Seeking advice from those with experience, gradual experimentation, observation, and monitoring what is most successful will be your best allies in the adoption of any regenerative strategies that are outside of your comfort zone.

Regardless of your opinions about the Regen Ag movement, it's forcing us to think more critically about how we manage our farms, question long held beliefs in indoctrinated practises, and lift our eyes to beyond our farm gates into the wider community in which we function.



Richard Spelman

New production variants discovered

From spring 2021 all farmers in New Zealand using LIC's GeneMark DNA Parentage Testing service will have their calves screened for six newly-discovered production variants which impact animal health and milk production.

Although affected animals are rare (about 0.5% of animals born are affected by one of the six variants), impacts are substantial and include lower milk production, lower milk solids, smaller stature, smaller chest circumference, and lower liveweight.

Because the variants are recessive, animals need to inherit two copies of the gene to show an effect (i.e. one variant each from the sire and dam).

Richard Spelman, LIC chief scientist, says the discoveries reinforce the importance of continued investment in gene discovery and genetic analysis technology to help farmers breed healthier, more efficient, dairy herds.

"By supporting farmers to identify and minimise the number of animals that are susceptible to particular 'negative' genes, we can breed cows that are more resilient, speed up the rate of genetic gain, and help ensure the sustainability of New Zealand's pastoral industries for years to come," he said.

The implementation of the new Illumina technology at GeneMark has allowed the variants to be included within the new genetic panels used for GeneMark DNA parentage testing.

Information on affected animals will be provided free-of-charge alongside parentage results so farmers can make an informed decision on whether to retain these animals in their herd.

"We're excited to transform our investment in research and development into a simple convenient service for our farmer shareholders, one that could save millions in lost production," Spelman said. "Knowing what calves have these genetic variations will help ensure farmers rear only the healthiest, highest performing animals."

The discoveries were made possible by genetic mapping studies on LIC's large DNA sequencing and animal production datasets, as well as funding received from MBIE's Endeavour fund.

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