

## YOUR QUARTERLY FARMAX NEWSLETTER

SUMMER 2017 - 2018

### TAKING STOCK

Welcome to the summer edition of the Farmax *Advantage* newsletter.

In this edition read a case study set all the way over in the UK, with farmer Matthew House finding challenges in a completely different environmental and political climate.

You'll also find articles on pasture monitoring, farm systems education in schools and virtual fences.

Farmax trainings are beginning again next month, so be sure to say 'hi' if we're in your area!

We hope you had a Merry Christmas and a Happy New Year.

All the best for the summer season.

**GAVIN McEWEN**  
General Manager



### TEACHING FARM SYSTEMS IN SECONDARY SCHOOLS



**The New Zealand Agriculture Teachers' Conference hosted at St Paul's Collegiate last year was an excellent opportunity for Farmax to communicate with those educating our next generation of farmers and rural professionals.**

The re-occurring quote from teachers across the country was that "farm systems are one of the most difficult concepts to teach students", and this was partly because of the underlying complexity and numerous interactions in a farm system.

This challenge was seen as an excellent opportunity to demonstrate to the teachers and students the power and intelligence of FARMAX. Following on from this conference, Farmax has since developed a comprehensive secondary school education pack, with presentations, tutorials and activities which are all able to be used as teaching tools in the classroom. Within the first month of the package being released there were five secondary schools signed up and ready to start using FARMAX in the classroom.

The education package includes a presentation, tutorial, FARMAX software access, activity booklets and supporting information manuals - all available for free to any school in the country that would like to register.

Agriculture teacher Bronwyn Dwyer from Hauraki Plains College was extremely enthusiastic about using FARMAX in her senior classes: "I think it could fill a key gap in the learning resource for our students to see all of the interactions within a farm system".

**"...farm systems are one of the most difficult concepts to teach students..."**

A FARMAX workshop at Hauraki Plains College was organised with Farmax Technical Specialist Jack Keeyes.

Teaching a class of Year 13 agribusiness students, the workshop revolved around hands-on learning with the students getting straight into FARMAX to update farm systems, check financials and see the impact of a drought scenario.

The students were brilliant and picked-up FARMAX extremely quickly! It was great to see them constantly engaged and asking a number of questions as they began understanding the numerous impacts of a farm system change. A key learning from student Hannah Nicholson was: "FARMAX taught me how important it can be to manage your feed early in the season to build up supplies for the summer".

If there's a high school or secondary college that you think could benefit from the free FARMAX Education Package, contact Jack Keeyes on 07 981 4997 or at [jack.keeyes@farmax.co.nz](mailto:jack.keeyes@farmax.co.nz).

# CHALLENGING THE LIMITS IN THE UK

Matthew House seeks constant improvement, continually challenging those around him and the available industry support channels for ideas, tools and opportunities to make the next gain in his farming business. As the manager of 196ha Bowden Farm for the past three years, Matthew has made many successful changes to the farm business which have improved efficiency and profitability.

Despite constant improvement, Matthew still had aspirations for the farm and some new ideas he wanted to try. That's when Liz Genever, senior scientist at AHDB, put Matthew in touch with Farmax and they set the goal: "to build a sustainable farming system that is financially self-sufficient and able to produce a pre-subsidy surplus without intensifying labour requirements".

Together with Farmax technical specialist Jack Keeys, Matthew has been able to develop a series of models for his farm, looking at system transitions over the coming three years, and different options for a long-term sustainable farm system.

The first step was to build a base model for Bowden's 17/18 season. Relevant data from AgriNet, a type of farm management software in the UK, was entered into the FARMAX model, along with recorded animal numbers, mating details, and liveweight data from Matthew. This was finished off with the cropping, fertiliser, feeding and financials to develop a full farm system model.

Matthew's current plan is to lease-out less land each year while building up his numbers of mixed-aged cows and young stock, so FARMAX models



Matthew House, Bowden Farm Manager

were built to create a development plan over the 17/18, 18/19 and 19/20 years. This provided the opportunity to assess the carrying capacity, feed requirements and numerous other important aspects associated with developing the farm system.

The resulting pasture cover forecasts (Figure 1) have a lower annual average, but reflect a farm system with improved pasture use efficiency and quality control.

“...resulting pasture cover forecasts have a lower annual average, but reflect a farm system with improved pasture use efficiency and quality control...”

The pasture cover range from the 17/18 season was almost 1,000kgDM/ha at different points in the year (see Figure 1), but this has been almost halved to 550kgDM/ha by

19/20.

This pasture improvement was achieved through more efficient animal management and cropping techniques.

Table 1 highlights the potential value that was added through the improved pasture management, with an additional 1,442kgDM/ha available per year after large decreases in decay and loss of potential.

The three-year development plan involved increasing the peak stock numbers from 414 in 17/18 to 508 in 18/19 and then 571 in 19/20. By using FARMAX, Matthew was also able to see a range of other key performance indicators, achieved through improved pasture management, adjusted cropping, and increased stock numbers.

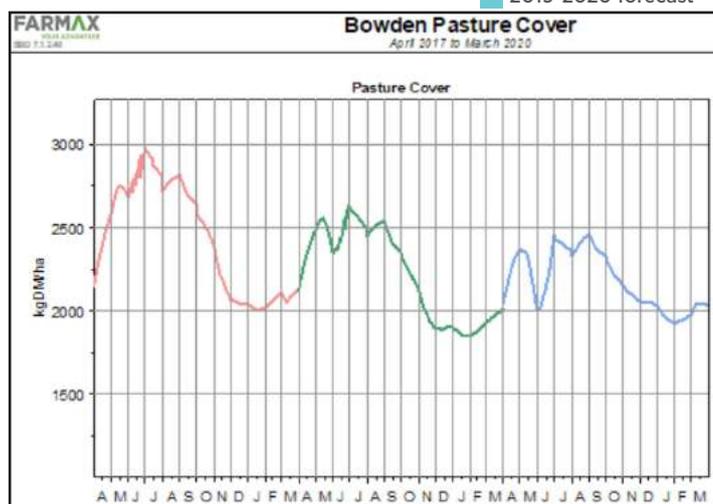
Kg of product/ha increased from 267.1 to 327.7, forecasted Gross Margin increased over 30%, and pasture loss decreased by more than 13%. This is in addition to an increased conversion efficiency (kgDM/Kg product) and production gross margin (pence/KgDM).

“FARMAX let me test out my future plans and gave me some further information to make the best decisions going forward,” said Matthew, who also asserted, “I’ve now got increased confidence in the system I’m developing, and some of the aspects that will be key to building further success”.

The next task for Matthew is to create a long-term FARMAX model which will really test the carrying capacity of his farm system within its current physical limitations. This will provide valuable information about where his stocking and production limits are, plus some target numbers for a consistent system achieving the most it can out of the land.

With the 19/20 forecast already showing a strong pre-subsidy financial performance, it will be exciting to see just how much more Bowden Farm can enhance its productivity and profitability.

Figure 1. Pasture cover forecast from April 2017 to March 2020, using Bowden farm system development plan



■ 2017-2018 model  
■ 2018-2019 forecast  
■ 2019-2020 forecast

Table 1. Farm pasture performance measures extracted from FARMAX Bowden development models

	2017/2018 Season	2018/2019 Season	2019/2020 Season
Potential Pasture Growth (incl. Nitrogen)	11,503	11,503	11,503
Loss of Potential	3,216	2,317	1,918
Net Pasture Growth	7,784	8,806	9,226

# THE IMPORTANCE OF PASTURE MONITORING

It's often said that pasture is the cheapest form of feed on New Zealand farms, but some would argue that depends on the mortgage repayments! Nonetheless, there is little doubt that efficient pasture management can have a dramatic effect on your bottom line.

For both sheep, beef & deer and dairy farmers, pasture production is a major indicator of profitability. For example, DairyBase data shows that in the Waikato in 13/14, average farm profitability improved by \$488/tDM/ha. Growing more pasture through improved management will consistently be reflected in profitability for little to no extra cost.

Monitoring pasture on hand and budgeting pasture growth rates should be an integral part of day to day management for all pastoral farmers. Having regular information available improves decision making through picking up trends early and adjusting the plan when necessary. It also provides farmers with regular feedback on their management; are we hitting post graze residual targets? Is average farm cover on track? Do we have a surplus or are we in a deficit?

The below pasture graphs are an extreme example of differences in pasture monitoring and feed management. Farmer One monitors regularly, providing themselves with consistent, objective data from which to make decisions. They have flexibility

with their stock policies in case changes need to be made. Farmer Two collects data rarely, and is less flexible with their stock policies. It isn't until they run into trouble that they measure feed on hand and begin to see the damage.

FARMAX will determine pasture growth rate when an Actual Pasture Cover is entered. This is a form of auto-calibration available in FARMAX, which uses animal pasture intake and pasture cover to determine the Actual Growth Rate. Currently, FARMAX has cover measurement integrations with FarmIQ (SBD) and C-Dax (Dairy) to make data entry simpler for users of both programs. Keep an eye out for announcements of other integration partners in the future.

There are many pasture measurement tools and services available, each of which have varying levels of accuracy and practicality. These include visual assessment, sward sticks, plate meter, pasture cage and possibly even drones! Perhaps the quickest and most accurate method available currently is the 'tow behind' style pasture meter. Businesses such as Accurate Growth in Te Awamutu and GrassCo in Southland now use these meters to monitor farms regularly and can offer extremely valuable information at affordable prices. They're certainly worth contacting for further information if interested:

[www.accurategrowth.co.nz](http://www.accurategrowth.co.nz)  
[www.grassco.co.nz](http://www.grassco.co.nz)

## IN BRIEF

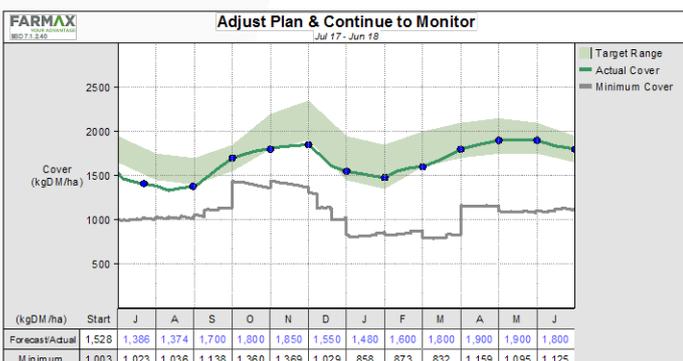
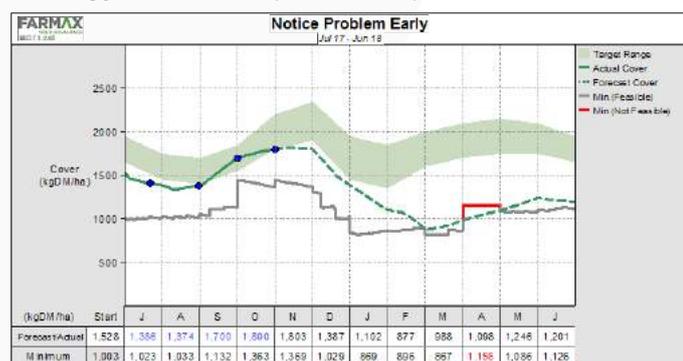
### ENDING SUPPORT FOR WINDOWS VISTA

From February 2018, Farmax will begin the process of ending support for the Windows Vista operating system. Microsoft ended support for Windows Vista in April 2017. The small number of Windows Vista users will have received an email advising of this change and what it means for them in the previous weeks. **Note:** Windows XP support was discontinued in 2017

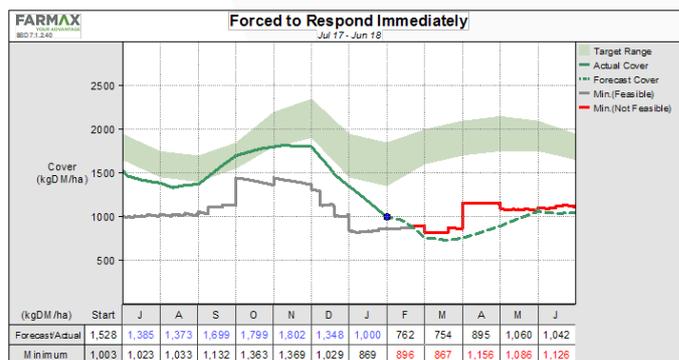
### SALES DEMONSTRATION

Want to find out how FARMAX could increase your farm's profitability or performance? Or are you wondering how FARMAX can better meet your planning and forecasting needs? Our technical specialists may be in an area near you to answer any questions you have about specialised farm planning tool, FARMAX. They can explain the benefits of FARMAX specifically for your farm, and how to tailor the tool to best suit the demands and goals of your farm businesses. Check out the Farmax website for more information.

**Farmer One:** Monitors regularly, forecasts a feed deficit and adjusts accordingly (the blue dots represent actual pasture cover measurements)



**Farmer Two:** Rarely measures covers, forced to be reactive and more likely to have stock underperform



## DID YOU KNOW?

New Zealand is home to more penguin species than any other place on earth, with 9 of the world's 19 species breeding across the country and its territories.

## DIRECT DEBIT AT FARMAX

Always aiming to improve customer experience, we are now endeavouring to make subscription payments easier by introducing monthly direct debit facilities.

### How does it work?

To start the process, you must complete the direct debit authority form and return this to Farmax Accounts via email to [accounts@farmax.co.nz](mailto:accounts@farmax.co.nz).

Download the form [here](#).

Once you have sent this form back to us, every month your invoice is emailed to you as per normal. Your due invoice amount is direct debited on the 20th of the month from your bank account.

### How will I know how much FARMAX is deducting from my bank account?

Your monthly invoice will clearly advise you of the amount to be deducted.

Additionally, your monthly statement will clearly advise you of the amount that will be deducted on the 20th of the month following.

### What if I have a problem with my invoice?

Please contact us as soon as possible if anything is incorrect with your invoice and we can suspend the direct debit payments until all issues have been resolved.

### Why should I sign up for direct debit?

- Save time as you never have to manually process payments to us

- You won't have to change your automatic payment amount
- Invoices are paid on time
- Subscriptions are always up to date

### What's in it for me?

We wish to offer a one time only incentive to customers to return the direct debit authority form to us by 28th February 2018.

All customers who send a completed form to us by the 28th February 2018 will go into the draw to win their FARMAX subscription free for a year!

In addition, the first 20 customers to get the form in to us will receive a free coffee voucher.

## LINCOLN RESEARCH GREAT FOR LUCERNE FARMERS

The 2017 Farmax Lincoln Scholarship recipient, Georgia King, studying a Bachelor of Agricultural Science with Honours, has recently completed her dissertation titled: Quantifying lucerne (*Medicago sativa*) growth in response to temperature and soil moisture. The idea for Georgia's study was sparked by an industry-wide interest in lucerne-based farm systems across much of New Zealand. Georgia specifically aimed to find out if local weather data could predict lucerne yields at Lincoln University.

Data from the 'Maxclover' long term grazing experiment at Lincoln University was used as a pilot dataset to examine seasonal and annual yield variations of dryland lucerne in response to environmental drivers. A lot of Georgia's analysis was completed in FARMAX and involved quantification of the relationships between dry matter production and weather factors, soil moisture and temperature, that might then be useful for predicting lucerne yield in other areas of New Zealand.

Results from Georgia's study will be made available for public consumption shortly, and she hopes that the research will be useful for farmers by enabling them to better predict the potential yield of their lucerne stand with the use of specific climatic data for their region and soil type.



# FARMAX ACCREDITATION

Congratulations to the following agricultural consultants, farmers and rural professionals who have passed FARMAX accreditation levels in Bronze, Silver and Elite. If you are interested in completing an accreditation level contact the Farmax HelpDesk on 0800 327 629.



**Cassey Edcombe**  
**Renee Hogg**



**Richmond Beetham**



**Matthew Blyth**  
**Felix McGirr**

## VIRTUAL FENCING: OUTSIDE THE BOX

BY ANDREW DEAN, HEAD OF PRODUCT DESIGN AT FARMAX

### WHAT IS IT?

In case you haven't already heard about it, virtual fencing is a technology whereby livestock are constrained to an area via GPS collars. When the animal approaches a boundary, the collar emits an audio warning. If the animal ignores the warning a deterrent is delivered, smaller than that given by a standard electric fence. As well as confining animals, the system can also move animals around by shifting the boundary line.

### WHO IS DOING IT?

In New Zealand, we should expect to see the first commercial virtual fencing products from Gallagher. The Hamilton-based firm have invested in Australia's eShepherd, a company founded by CSIRO and Agersens that holds a number of patents around virtual fencing.

In the US, the Department of Agriculture's Agricultural Research Service has been trialling virtual fencing since the early 2000s and also holds patents in the area.

### THE OBVIOUS BENEFITS

No more fences (mostly)! This benefit alone should offset the setup costs of a virtual fencing system, once the commercial products reach maturity.

Feeding out fodder crops: have the system manage a virtual break fence for you, feeding out at the exact rate you specify, with no need to manually intervene.

Sleep in! For dairy farmers especially, the ability to start bringing the cows into the shed unattended could mean a lot of extra sleep time for larger operations. Staff working friendlier hours will be more alert and be easier to recruit.

### LESS OBVIOUS BENEFITS

Shared land: Imagine sharing a block of land between two leaseholders (with say a 70/30 split), not by area,

but by available dry matter. Rather than the staff having to keep the mobs separate with fences, software could ensure the respective groups of animals graze 70% and 30% of the available dry matter.

Non-persistent, non-rectangular: currently paddocks are rectangular and persistent (i.e. they don't change often). This is done for the benefit of staff, not land or animals.

### NEW CHALLENGES

Invaders: you will still need some sort of physical boundary for your land, not to keep your stock in, but to mark your boundary and keep interlopers out.

What is the basic unit of land? Average pasture cover – of what? Without traditional paddocks, you still need to record land measurements against something. It's likely that a standard will evolve of dividing the farm into a grid of small squares. These units will have measurements attached to them in the software, which will use them as Lego blocks to build up its virtual paddocks.

The biggest barrier to getting all this working is getting the software systems and technology to talk to each other. Unfortunately, we in agtech are still waiting for data sharing. The longer we wait, the harder it will be to deliver the full potential of innovations like virtual fencing.

### WHAT VIRTUAL FENCING NEEDS TO SUCCEED

To succeed as something beyond a gimmick, a virtual fencing system needs to integrate with your existing animal inventory software. Having to re-enter your herd details and double enter all your stock transactions won't cut it.

It's likely that "first generation" of virtual fencing systems will feature software where you draw your virtual paddocks on screen and then drag and drop mobs to have the system move them around.

To really unlock the power of virtual fencing the system needs to know about the quality of pasture available in each unit of land, as well as your priorities for managing each of your mobs. It needs feeds from your pasture measurements (hopefully automated) and from your on-farm sensors, so it can have an accurate and up-to-date picture of your land, and of course it needs to know your constraints, such as nitrogen and water limits.

Then it can intelligently place the stock where they will get the amount of nutrition you specify. As the systems get better at this, farm systems will see big efficiency gains.

Virtual fencing has a lot of interest, and with all its potential benefits we will be hearing a lot more about it in the coming years. Watch this space!

