

Future Farm update



Welcome and enjoy this newsletter giving you an update of Future Farm!

IN THIS ISSUE

Industry events and news

A brief summary of the UK industry events and top news stories for May 2024

An insight into the performance of the farm animals

A visual representation of the performance of our animals and how our farm compares

An insight into the Future Farm beef unit

A summary into the work the beef unit has achieved in recent years as part of a case study produced by James McCaughern

An insight into the costings of the dairy cows

A report produced by Wynnstay (Forage4Profit) detailing the costings of the Main dairy and Smart dairy unit

Did you know...

Our monthly section containing general farming facts

New starters

A warm welcome to the new starters at Future Farm

Staff vacancies

A list of current staff vacancies on Future Farm

Thank you and Feedback

A brief thank you to our readers and details on where you can give feedback

Don't forget to check out our website for more information on the farm at

<https://futurefarm.zone/>

Industry events and news

Upcoming events:

NSA Scotsheep – 5th June 2024 @ Aikengall Farm, Innerwick

Royal Cornwall Show – 6th till 8th June 2024 @ Royal Cornwall Showground

Tractor fest – 8th and 9th June 2024 @ Newby Hall, Ripon

Cereals – 11th and 12th June 2024 @ Bygrave Woods, Newnham Farm

Royal Three Counties Show – 14th till 16th June 2024 @ Three Counties Showground, Malvern

Royal Cheshire County Show – 18th and 19th June 2024 @ Clay House Farm, Tabley

Lincolnshire Show – 19th and 20th June 2024 @ Lincolnshire Showground, Lincoln

Royal Highland Show – 20th till 23rd June 2024 @ Royal Highland Centre, Ingliston

Future Fest Day – 22nd June 2024 @ Harper Adams University

Groundswell – 26th and 27th June 2024 @ Lannock Manor Farm, Hitchin

Royal Norfolk Show – 26th and 27th June 2024 @ Norfolk Showground

Local news:

The month of April commenced the planting of black poplars trees on Future Farm, two pairs of trees (both male and female) were planted on the farm as part of the Chester Zoo Black Poplar project, to re-introduce the rare trees to the UK. And members of Edgmond Parish Council were invited to tour the Farm and discuss plans on how the farm and the community can work together in the future.

Over the past 18 months, Shropshire farms have been hit with thefts of high-value farm machinery, GPS equipment and tools. Considering this, approximately 200 farmers have joined two WhatsApp groups to share information about suspicious activity and unusual sightings to each other and the police. These crimes not only have a devastating impact on farms by disrupting the ability to work but also the safety of farming life. The police are working hard to engage with the local community to identify and prevent rural crime, but with limited resources, the job falls heavily on farmers to protect their livelihoods. Future Farm has had first-hand experience with the theft of an agricultural vehicle, luckily the vehicle was recovered but the theft was unexpected and highlighted the need to make the farm more secure. The installation of our new gates at the two entrance points of the farm has helped the farm become a safe space for the staff and a deterrent for thieves.

News stories impacting Future Farm:

Animal Disease

Precautionary movement restrictions have been put in place at a farm in Ayrshire after a case of Bovine Spongiform Encephalopathy (BSE) was confirmed. The origin of the disease is still unknown; however, the case was identified quickly because of routine surveillance and stringent control measures, it has been confirmed that the animal did not enter the human food chain. It is currently an isolated case, but it highlights the importance of remaining vigilant to spot the disease early. More information about BSE is available [here](#).

In recent weeks, it has been emphasized that farmers across the UK should be vigilant as there is a high probability that a new strain of Bluetongue will be blown over from Northern Europe by midges. The first case of the new strain was found in November last year and since then there have been 119 cases in cattle and 7 cases in sheep across Kent, Norfolk, and Suffolk. Farmers have requested the development of a vaccine to combat this new strain, the Government have heard the concerns of the farmers and are 'actively engaging' with vaccine manufacturers to develop a vaccine for UK use, in addition, experts at The Pirbright Institute virus research centre are now studying how the midges are spreading the disease. To find out more about the news of this new strain, please click [here](#).

Bluetongue and BSE are both notifiable diseases so anyone suspecting the disease must report it to the Animal and Plant Health Agency (APHA). The staff at Future Farm are diligent when it comes to observing the health and welfare of our animals, if any disease is suspected, it can be guaranteed that the farm staff would be quick to inform the local authorities and isolate the animal.

Carbon emissions

JSR Farms have been in the news recently as they have produced home-grown beans which has replaced 50% of the soya bought in for their pig finisher rations and used slurry additives to cut ammonia emissions by more than 10% in ongoing trials at their site. JSR Farms are known for closely integrating arable and pig enterprises, and they have a large operation across multiple units and sites, as they produce breeding stock for their sister business JSR Genetics. Sustainability has always been a core ethos for the farm, but a carbon audit carried out five years ago has helped drive ambition to reduce the farm's footprint. The news has given Future Farm plenty to discuss, on the plans going forward that could be adopted into our system and ultimately reduce our footprint.

(continued)

Carbon Emissions cont.

Basalt rock is gradually becoming the new way of thinking when it comes to boosting carbon capture on your farm. 30,000 tonnes of basalt rock will be spread across farmland throughout the UK as part of an enhanced rock weathering trial. Enhanced rock weathering is a process that removes carbon dioxide from the atmosphere and permanently stores it in the rock. This could play a significant role in carbon capture and be the turning point of reducing a farm's footprint. Future Farm will be interested in the outcome and success of the trial, and hope this is a positive step to creating a carbon neutral future.

Production

Good news for Future Farm and other Muller dairy farmers as from the 1st of June 2024, they will receive 38ppl which is a 0.5ppl increase. This includes the 1ppl Muller Advantage premium, which is paid quarterly to the farmers in arrears.

Cabbage stem flea beetle has impacted the growth and productivity of oilseed rape, the damage these beetles cause have resulted in some farms deciding not to grow the crop in recent years. The lack of chemical options for oilseed rape has accelerated the rise in cabbage stem flea beetle and they have developed a varying degree of resistance to pyrethroid insecticides. Early studies from NIAB have suggested that shallow cultivations carried out shortly after combining oilseed rape could help reduce the adult flea beetle population. A detailed soil analysis conducted by NIAB revealed that most cabbage stem flea beetle larvae can be found in the top 30mm of soil, therefore, they believe the pupae are vulnerable to physical damage by cultivations at that stage. It is something to consider and for future farm to potentially start practicing, as with many farms the viability of growing oilseed rape with the abundance of cabbage stem flea beetle on farm is becoming increasingly difficult.

Mental Health

Mental health is a prevalent subject in the agricultural community, with the ongoing pressure of feeding the nation and the change in weather due to climate change, there is a lot for farmers to combat daily. From the 13th till the 19th May was Mental Health Awareness week, we want to highlight the positives that are happening with regards to Mental health in the community lately.

(continued)

Mental Health cont.

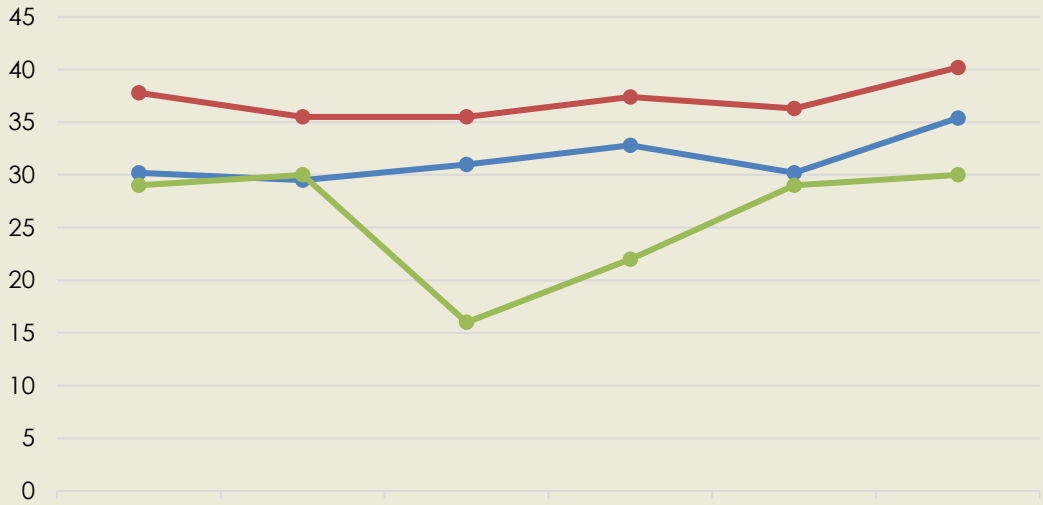
The UK's leading farming mental health charity, [RABI](#), announced in April that they would increase its spending on mental health services by up to £10 million over the next five years. They are to begin the increase in spending by launching a year-long initiative called Empowering the Worth and Wellbeing of Farming People, the initiative aims to strengthen their relationship with partners and encourage the farming and wider agricultural sector to find solutions to increase the mental resilience of the farming community. In addition, the charity will be the voice for farmers by ensuring members of parliament are aware of mental health challenges the farming community are facing.

It won't be long until Harper Adams University student, Tom York, will be competing in the local Ironman event on the 30th of June for the Farming Community Network (FCN). Tom is helping raise awareness of mental health and is urging people to remember they are not alone. Through his hard work to overcome his own mental struggles and dedication as a volunteer for the charity, he has already raised more than £3,000 for FCN. For more on Tom's story and to access his Just Giving page, please click [here](#).

Future Farm Animal Performance in April 2024:

The Main Dairy milk yield and KPI's in comparison to all NMR recorded herds of a similar herd size (Please note. The data in the graph and screenshot of the KPI table are from Herd Companion)

Herd Production Summary - Main Dairy

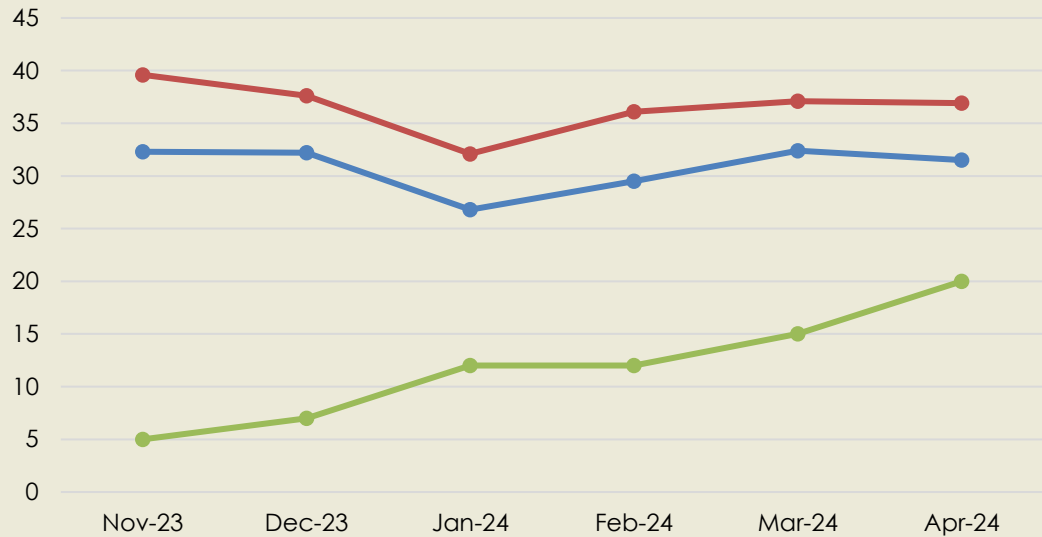


	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24
Avg Yield	30.2	29.5	31	32.8	30.2	35.4
Avg Milking Yield	37.8	35.5	35.5	37.4	36.3	40.2
SCC > 200	29	30	16	22	29	30

		Benchmark	New	Export	
		NMR14: Holstein herds > 300 cows	Benchmarks	Export	
Drag a column header here to group by that column					
KPIs	'Worst' <-----> 'Best'	Worst	You	Best	Mean
Milk/Cow/Year of life		3,855	7,358	9,017	5,987
Milk/Cow/Year		6,241	11,211	13,356	9,810
Lactation Yield		5,956	11,392	13,146	9,607
305 Day yield		5,714	9,939	11,761	8,872
Protein/Cow/Year		218	359	432	332
Fat/Cow/Year		250	432	627	416
Ave. Protein %		3.12	3.20	3.77	3.40
Ave. Fat %		3.64	3.85	5.30	4.25
Mean Parity		2.09	2.63	3.56	2.74
Calv. Interval < 385 %		29.17	52.12	78.63	57.32
Ave. Lactation length		373	343	241	309
Ave. SCC		358	101	87	167
% Cows in Parity 1		45.52	26.84	11.54	29.77
Age 1st Calving		939	736	666	778
Ave. Calving interval		462	396	364	392
Ave. Dry days		73	46	42	55
Culling + Death %		48	25	20	32
Ave. No. Cows		298	366	1,229	497

The Smart Dairy milk yield and KPI's in comparison to all NMR recorded herds of a similar herd size (Please note. The data in the graph and screenshot of the KPI table are from Herd Companion)

Herd Production Summary - Smart Dairy



	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24
Avg Yield	32.3	32.2	26.8	29.5	32.4	31.5
Avg Milking Yield	39.6	37.6	32.1	36.1	37.1	36.9
SCC > 200	5	7	12	12	15	20

Benchmark
New
Export

NMR11: Holstein herds <= 100 cows
Benchmarks
Export

Drag a column header here to group by that column

KPIs	'Worst' <-----> 'Best'	Worst	You	Best	Mean
Milk/Cow/Year of life	<div style="width: 92%;"></div>	1,923	9,242	6,507	4,514
Milk/Cow/Year	<div style="width: 92%;"></div>	3,223	9,932	11,034	7,117
Lactation Yield	<div style="width: 92%;"></div>	3,410	12,945	11,831	7,822
305 Day yield	<div style="width: 92%;"></div>	3,190	9,942	9,958	6,822
Protein/Cow/Year	<div style="width: 92%;"></div>	112	325	374	241
Fat/Cow/Year	<div style="width: 92%;"></div>	138	348	469	300
Ave. Protein %	<div style="width: 92%;"></div>	3.18	3.27	3.71	3.39
Ave. Fat %	<div style="width: 92%;"></div>	3.27	3.51	5.34	4.21
Mean Parity	<div style="width: 92%;"></div>	2.00	3.37	4.71	3.08
Calv. Interval <385 %	<div style="width: 92%;"></div>	10.53	43.59	69.01	46.84
Ave. Lactation length	<div style="width: 92%;"></div>	557	354	207	340
Ave. SCC	<div style="width: 92%;"></div>	870	506	57	206
% Cows in Parity 1	<div style="width: 92%;"></div>	51.85	4.88	8.70	26.29
Age 1st Calving	<div style="width: 92%;"></div>	1,351	677	730	892
Ave. Calving interval	<div style="width: 92%;"></div>	715	416	378	417
Ave. Dry days	<div style="width: 92%;"></div>	108	59	31	58
Culling + Death %	<div style="width: 92%;"></div>	90	16	10	28
Ave. No. Cows	<div style="width: 92%;"></div>	30	46	116	75

The Main dairy and Smart dairy milk quality components in comparison to the Benchmark Muller average

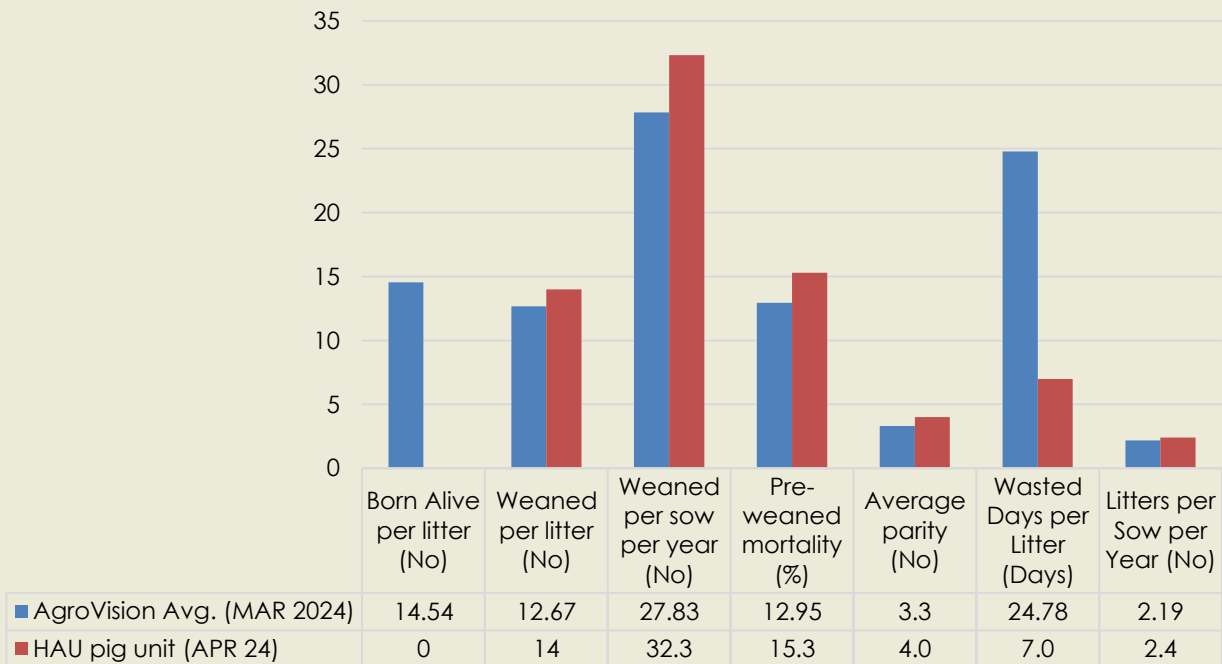
April 2024

	Main Dairy	Smart Dairy	Muller Average
Avg Bfat (%)	4.09	4.37	4.27
Avg Protein (%)	3.19	3.33	3.31
Avg SCC ('000/ml)	99	182	143.9
Avg BAC ('000/ml)	18	18	19.64
Therms (cfu/ml)	1400	830	454.5
FPD (m*C)	524	526	

The Pig unit production performance in comparison to the AgroVision Benchmark average. The latest AgroVision Indoor Benchmarking figures have recently been released, the figures can be viewed [here](#)

(Please note. The AgroVision Benchmark figures are produced on a quarterly basis, for this performance comparison the March 2024 report has been used).

Pig Unit Performance vs AgroVision Benchmark



Insight into the Future Farm beef unit:

Due to the dedication and hard work from James McCaughern, Matthew Bolton, Emily Upton, James Manvell, Christopher Ruffley and Kate Robinson, the performance of the beef unit has surpassed all expectations in terms of productivity and emission output. The following paragraphs have been extracted from the study '**Improving the sustainability of beef production at the Harper Adams University Future Farm: A case study of leveraging nutrition research into practice**' written by James McCaughern.

Since 2022 a change has commenced on the unit, with the vision of Future Farm becoming a beacon of research, teaching, and knowledge exchange, demonstrating best practice and an aim of achieving net-zero by 2030.

Considering this, an intensive dairy beef production enterprise was established, the unit now finishes British Blue cross steers and heifers from the all-year round calving Holstein-Friesian dairy herd. Between 2022 and 2024, stakeholders have tried to utilise the findings of the latest nutrition research to reduce feed costs and improve the sustainability of the enterprise. Identified areas of interest included alternative forage-based finishing diets (maize + grass silage versus concentrate-based), forage quality (moderate versus high-quality grass silage) and low protein diets (formulated according to crude protein versus metabolisable protein). The cost implications of these dietary formulations were modelled according to AFRC (1993) and are expressed in relation to a 550 kg steer growing at a rate of 1.45 kg per day.

Main findings:

- *Substitution of concentrates with forage had the greatest impact on diet cost and margin over feed*
- *Formulating according to metabolisable protein also increased predicted margin over feed with a decrease in dietary crude protein from 127 g/kg of dry matter to 103 g/kg of dry matter.*
- *The substitution of a moderate quality grass silage (10.7 MJ of metabolisable energy/kg of dry matter) for an excellent quality grass silage (11.9 MJ of metabolisable energy/kg of dry matter) demonstrated the lowest potential to reduce diet costs, with a predicted increase in margin over feed from £1.31 to £1.35/kg of ADG.*
- *Heifers and steers finished at 13.3 and 15.0 months of age, respectively.*
- *The calculated farmgate greenhouse gas emissions intensity is 11.05 kg of CO₂-equivalent/kg of deadweight, lower than the mean of 20.63 kg of CO₂-equivalent/kg of deadweight, reported by McNicol et al. (2024).*

Future avenues to explore includes the incorporation of feed additives and expansion to include a high performance outdoor dairy beef production system.

References:


AFRC. 1993. Energy and protein requirements of ruminants. CAB International, Wallingford.
McNicol, L.C., Williams, N.G., Chadwick, D., Styles, D., Rees, R.M., Ramsey, R. and Williams, A.P. 2024. 215, 103852.

An insight into the Future Farm Dairy costings for both herds:

These reports have been produced by Wynnstay (Forage4Profit), this is a new management tool the ruminant sector is using and will be useful for all ruminant farm staff when important decisions are to be made about the sector.

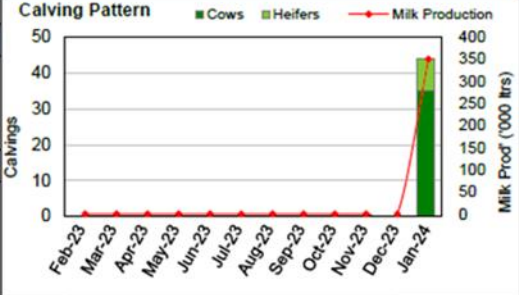
Main Dairy:

Name: Harper Adams
Number: TF11291 Dairy Unit

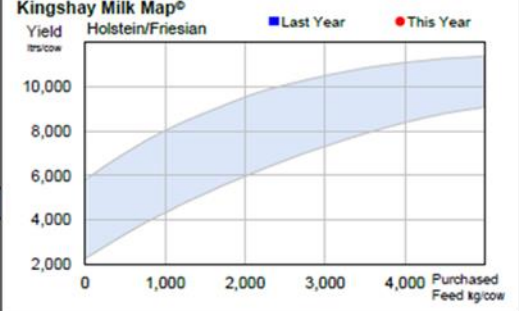


David Howard
MONTHLY REPORT
January-24

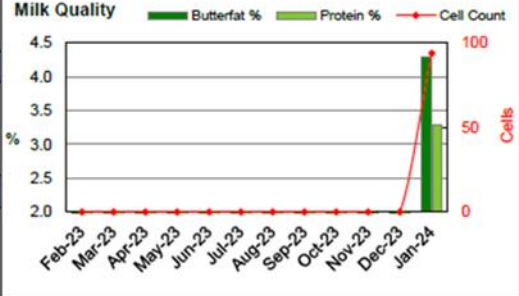
MONTHLY RESULTS				12 MONTH RESULTS		
Jan-23	Jan-24	Month Change		Last Year	This Year	Year Change
STOCK						
	371		Cows in herd			
	341		Cows in milk			
	35	9	Number of cow + heifer calvings			
MILK PRODUCTION						
	349,609	litres	Litres sold			litres
	0	litres	Litres retained on farm & un-saleable milk			litres
	33.1	ltr/day	Yield per cow			litres
	10	ltr/day	Yield from all forage per cow			litres
	0	ltr/day	Yield from grazed forage per cow			litres
	31%		% of total yield from forage			
	4.30	3.29 %	Butterfat : Protein			%
	44.1	33.7 kg/cow	Kg Butterfat : Kg Protein (Total Milk Solids)			kg/cow
	12	94	Hygiene : Cell count			
	38.54	p	Milk Price per litre			p
FEED						
	9.0	kg/day	Concentrate use per cow			kg
	0.27	kg	Concentrate use per litre			kg
	264	£	Concentrate price per tonne			£
	40	£	Other purchased feed cost per cow			£
	11.14	p	All purchased feed cost /litre			p
MARGINS						
	95,785	£	MOPF for herd			£
	258	£	MOPF per cow			£
	27.40	p	MOPF per litre			p
FORAGE						
			Stocking rate			cows/ha
			Milk from forage per hectare			litres
			MOPF per hectare			£



Calving Pattern ■ Cows ■ Heifers — Milk Production




Kingshay Milk Map® ■ Last Year ■ This Year



Milk Quality ■ Butterfat % ■ Protein % — Cell Count

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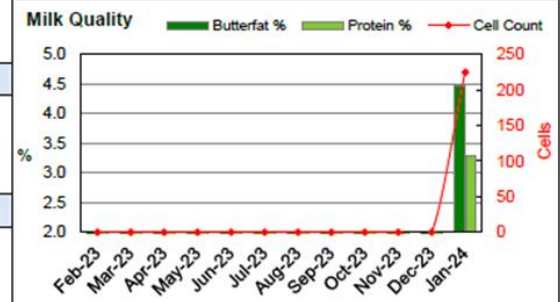
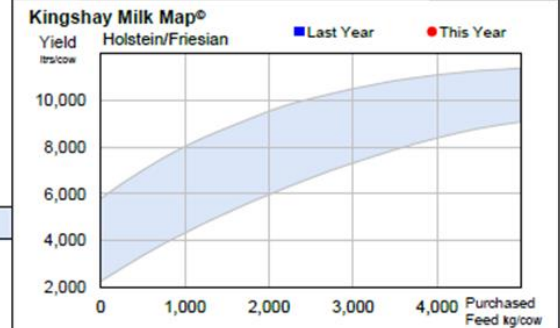
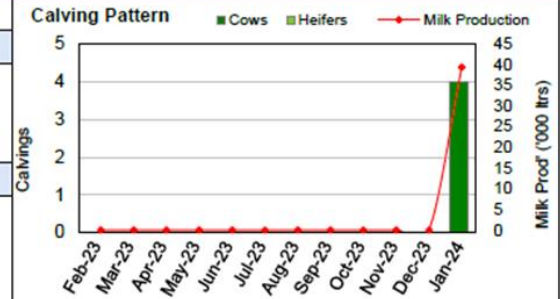
Smart Dairy:

Name: Harper Adams
 Number: TF11290 Robot Unit



David Howard
MONTHLY REPORT
 January-24

MONTHLY RESULTS			12 MONTH RESULTS		
Jan-23	Jan-24	Month Change	Last Year	This Year	Year Change
STOCK					
	50				
	43				
4	0				
MILK PRODUCTION					
	39,330 litres				litres
	0 litres				litres
	29.5 ltr/day				litres
	0 ltr/day				litres
	0 ltr/day				litres
4.47	3.30 %				%
40.9	30.2 kg/cow				kg/cow
23	225				p
38.50	p				p
FEED					
	11.5 kg/day				kg
	0.39 kg				kg
	337 £				£
	66 £				£
	20.38 p				p
MARGINS					
	7,126 £				£
	143 £				£
	18.12 p				p
FORAGE					
					cows/ha
					litres
					£



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Did you know...

- East Anglia produces enough barley to make **2.5 million** pints of beer each year! ([Bayer](#))
- **5.5 million** tonnes of potatoes are produced in the UK each year. That's enough to make around **27.5 billion** packets of crisps! ([Bayer](#))
- Maize originates from Mexico and Christopher Columbus introduced maize to Europe after his 1492 voyage ([Nestle](#)).



New Starters:

Ruminant sector:

After a successful application process, we are delighted to welcome two new members of staff, Sam Robinson, and Megan Morris, who will be joining the ruminant sector as Dairy Technical Scientific Officers. Sam will be starting his position in May and Megan will be joining the team in June.

On behalf of everyone at Future Farm, we wish both Sam and Megan all the best in their new roles.

Staff Vacancies

Monogastric sector:

1 x Pig Unit Technical Scientific Officer position – for more information, please contact Matthew Swaine

Ruminant sector:

1 x Dairy Technical Scientific Officer positions – for more information [click here](#)

Thank you for reading the Future Farm monthly update newsletter, if you have any feedback or would like to see something in upcoming updates, please send your request to futurefarmenquiries@harper-adams.ac.uk.

We apologise for anyone who has suggested content for the newsletter and was not included. We are doing our best to gather this information for future issues. In the meantime, if you or someone else would like to know more about the farm and our practices, check out our newly updated website <https://futurefarm.zone/>.