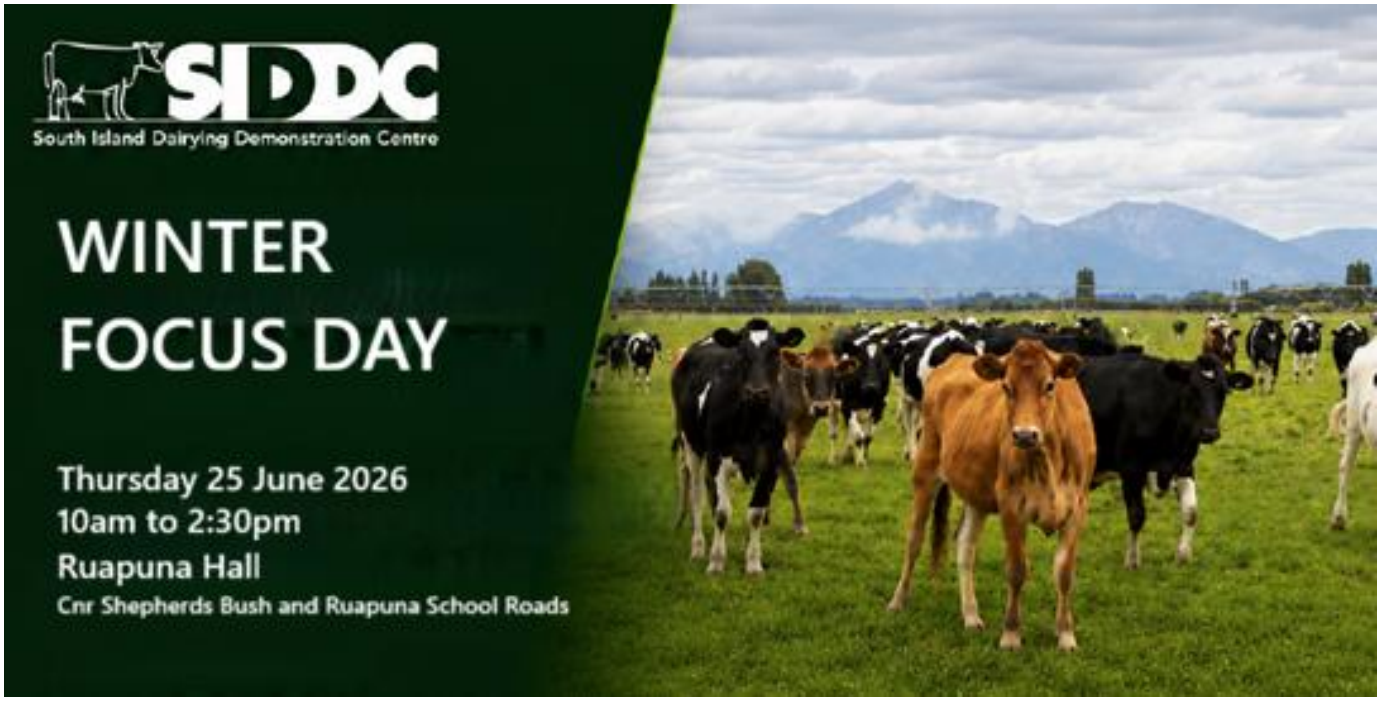


Benchmarking with MRB

Group learning and insights across a benchmark group with an in-depth review of Claxby Estate	Guest Speakers: • Jeremy Savage (MRB) • Sam Spencer-Bowers (Claxby Estate)

Hawkeye Pro with Ravensdown

Take a look at Ravensdown's precision fertiliser planning tool	Guest Speaker: • Mike White (Ravensdown)

Pasture Based Wintering Systems

Compare different approaches and share insights and learnings	Guest Speakers: • Ross Monaghan (Bioeconomy Science Inst.) • Anna Taylor (Bioeconomy Science Inst.)

Farmer Panel

Hear from local farmers sharing their experiences and insights	• Fraser Tasker • David Acland • Cam Henderson

SIDDC
South Island Dairying Demonstration Centre
Partners networking to advance South Island Dairying

HEALTH & SAFETY PROTOCOLS

RUAPUNA HALL

Please take note of the Health & Safety briefing prior to commencement of the Focus Day. Please take note of the emergency exits, and location of the safe assembly points and amenities as well as any hazards identified.

In case of an emergency, please use emergency exits and congregate at the evacuation safe assembly area.

First Aider on the day: Lauren Roberts

STAPLE HOMESTEAD LTD

This farm is a fully operational dairy farm with a number of potential hazards. Many of the potential hazards cannot be eliminated while also providing access to visitors therefore you MUST watch for potential hazards and act with caution.

Hazard Summary: **Look, think, act**.

The below chart provides a reminder of the types of hazards at LUDF. Watch for these and any other hazards that may be on farm today.

PEOPLE: You have been signed in on farm	**ANIMALS:** You are in their space – please treat them with respect	**TOUCH:** Electric fences – treat them as high voltage power sources
	**POTENTIAL TRIPS /SLIPS:** Uneven surfaces occur across the farm Be aware of fences and drains	**VEHICLES:** Follow the vehicle in front and be mindful when parking as indicated on arrival

If you are uncertain how you should act or proceed whilst on farm, stop and advise the facilitator.

By entering this farm, you are acknowledging your receipt of this hazard summary, and your agreement to take personal responsibility to watch out for potential hazards, and act in such a manner as to protect yourself and any others also on farm.

SIDDC Focus Day

25 June 2026

10:00am – 2:30pm

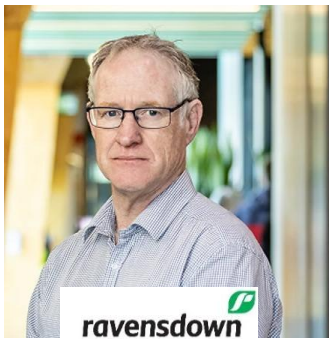
Benchmarking with MRB

Page 3

Group learning and insights across a benchmark group with an in-depth review of Claxby Estate

SAM SPENCER-BOWER
Claxby Estate

JEREMY SAVAGE
Macfarlane Rural Business



HawkeEye Pro with Ravensdown

Page 13

Take a look at Ravensdown's precision fertiliser planning tool

Pasture Based Wintering Systems

Page 19

Compare different approaches and share insights and learnings from farmers who are wintering on pasture.

Farmer panel: Fraser Tasker, David Acland and Cam Henderson

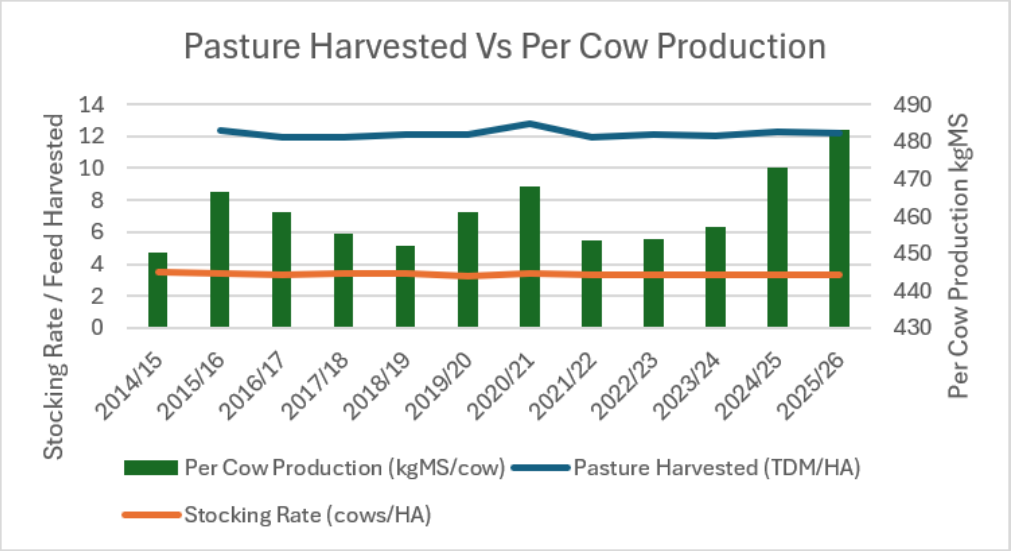
ROSS MONAGHAN

ANNA TAYLOR

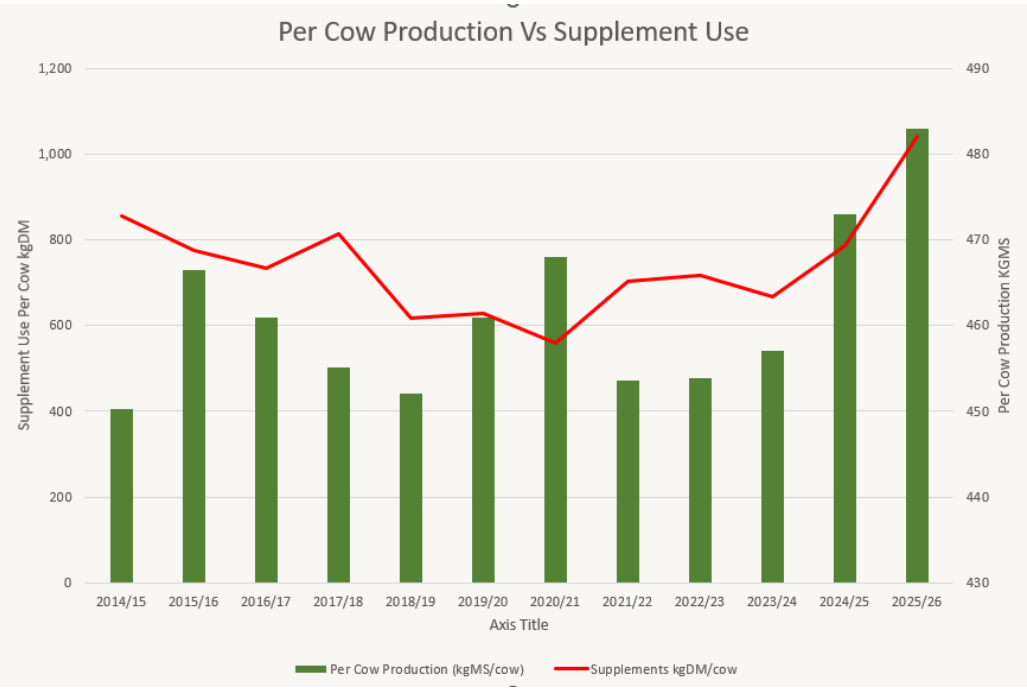
Partners networking to advance South Island Dairying

MRB Client Base Information – DSM

Date: June 2026



- Pasture Harvested has been flat.
- Nitrogen use has dropped from 240 to 165 kg/Ha/Ha.
- Stocking Rate has remained the same.
- Pasture harvested per cow has remained flat.
- Genetic gain for pasture yields has only been circa 1% + Generation interval has been 8 -10 years.



- Supplement use Typically 600 – 700 kg DM/cow. Now heading north of 1,000 kg DM/cow.
- Production Flat 460 – 470 kg MS/cow for many years
- Genetic Gain for cows has been 2% - Faster with sexed semen / wearables
- Last 2 seasons - production lifted to 480 kg MS/cow
- Supplement use lifted dramatically

Changes over time	2025/26	2024/25	2023/24	2022/23	2021/22	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15
Pasture Harvested (TDM/HA)	12.2	12.3	12.0	12.1	11.9	12.8	12.1	12.1	11.9	11.9	12.4	
Total Feed Harvested (TDM/Ha)	12.6	12.7	12.6	12.8	12.1	13.1	13.1	12.8	12.9	12.8	13.1	12.1
Area	255	264	270	264	265	253	268	267	265	262		
Herd Size	848	877	890	889	870	862	880	900	893	877		
Stocking Rate	3.38	3.35	3.30	3.36	3.32	3.43	3.28	3.37	3.37	3.35	3.37	3.46
Per Cow Production (kgMS/cow)	483	473	457	454	454	468	461	452	455	461	467	450
Per Hectare Production (kgMS/HA)	1639	1591	1523	1527	1518	1607	1522	1533	1563	1541	1574	1558
Pasture Harvested kgDM/cow		3687	3,553	3,587	3,662	3,813	3,676	3,587	3,480	3,571	3,612	3,445
Pasture Offered	4144	4338	4,134	4,125	4,211	4,385	4,227	4,125	4,002	4,107	4,154	3,962
Forage kgDM.cow	135	123	172	191	223	163	201	245	239	173	170	90
Supplements kgDM/cow	966	787	666	718	704	559	628	616	814	733	774	855
Feed Offered Per Cow (kgDM)	5249	5,248	4,972	5,034	5,138	5,108	5,056	4,986	5,055	5,013	5,098	4,907
Supplement as % of Diet	18%	15%	13%	14%	15%	11%	12%	12%	16%	15%	15%	19%
KGDM per KgMS	10.9	11.1	10.9	11.1	11.3	10.9	11.0	11.0	11.1	10.9	10.9	10.9
N Use per Ha	158	157	164	163	164	182	203	226	244	237	253	242
Forcast N Balance (kgN/Ha)	101	89	89	85	77	90						
GHG Co2 Equiv/kgMS	7.98	8.1	8.0									

DSM Data over time. As modelled in Farmax Dairy.

	Great	Average	Poor
Response Rate kgDM per kgMS	10	14	18
Feed Cost @ $9.75 / kgMS	$ 0.98	$ 0.70	$ 0.54
Feed Cost @ $8.35 / kgMS (Includes Contract Milker @ $1.40)	$ 0.84	$ 0.60	$ 0.46
Cost of Shed Supplements			
PKE @ $450 / T + Feeding		$ 0.53	/kgDM
Grain @ $530 / T + Feeding		$ 0.65	/kgDM

Claxby Estate – East Dairy & West Dairy

FARMAX

Compare Physical Summary
Jun 24 - May 25

		East Dairy Monitoring	East Dairy 202425 A	West Dairy Monitoring	West Dairy 202425 A	
Farm	Effective Area	303	302	303	303	ha
	Stocking Rate	3.3	3.2	3.3	3.2	cows/ha
	Comparative Stocking Rate	88.1	88.1	88.7	88.2	kg Lwt/t DM eaten
	Potential Pasture Growth	17.0	17.5	18.0	18.5	t DM/ha
	Nitrogen Use per total ha	182	183	176	190	kg N/ha
	Feed Conversion Efficiency (eaten)	11.0	11.1	10.9	11.1	kg DM eaten/kg MS
Herd	Cow Numbers (1st July)	1,011	965	1,000	964	cows
	Peak Cows Milked	1,010	964	999	963	cows
	Days in Milk	275	272	275	270	days
	Avg. BCS at calving	5.0	5.0	5.0	5.0	BCS
	Liveweight per total ha	1,670	1,602	1,656	1,595	kg/ha
Production (to Factory)	Milk Solids total	521,448	495,655	518,465	494,643	kg
	Milk Solids per total ha	1,721	1,641	1,711	1,632	kg/ha
	Milk Solids per cow	516	514	519	514	kg/cow
	Peak Milk Solids production	2.37	2.37	2.36	2.33	kg/cow/day
	Milk Solids as % of live weight	103.0	102.4	103.3	102.4	%
Feeding	Pasture Eaten per cow *	3.8	4.0	4.1	4.3	t DM/cow
	Supplements Eaten per cow *	1.3	1.0	1.1	0.7	t DM/cow
	Off-farm Grazing Eaten per cow *	0.6	0.7	0.5	0.7	t DM/cow
	Total Feed Eaten per cow *	5.7	5.7	5.7	5.7	t DM/cow
	Pasture Eaten per total ha	12.9	12.9	13.4	13.6	t DM/ha
	Supplements Eaten per total ha	4.5	3.4	3.9	2.6	t DM/ha
	Off-farm Grazing Eaten per total ha	4.0	4.0	3.8	4.0	t DM/ha
	Total Feed Eaten per total ha	21.4	20.3	21.1	20.2	t DM/ha
	Supplements and Grazing / Feed Eaten *	32.4	29.2	28.4	25.1	%
	Bought Feed / Feed Eaten *	22.9	13.8	19.6	11.6	%

(*) feed eaten by females > 20 months old / peak cows milked

Farmax Dairy 8.3.6.22

Farmax Data. 2024/25 Actual. 2025/26 Actual.

East Dairy	West Dairy
Additional 25,787 kg MS	Additional 23,841 kg MS
Supplement use up by 251 TDM	Per cow production+ 5 kg MS/cow
Cow numbers up 36 cows	Cow Numbers up 36 cows
Feed harvested stable	Feed harvested -0.2TDM
Response rate 10:1 kg DM per kg MS	Response rate 19:1 kg DM per kg MS
	Supplement use up by 465 TDM

FARMAX

Supplement Feeding for East Dairy

Jun 25 - May 26

DM Offered tonnes	Hay/Straw bought	Pasture Silage bou...	Meal and Grains bou...	Pasture Silage	Maize Silage	Fodder Beet	New Pasture	Maize/barley Silage bou...	Total
Jun 25									
Jul 25	4.69	3.50	1.20					12.2	21.6
Aug 25	35.9	69.0	12.8			21.1		54.4	193
Sept 25	8.04	181	74.3			46.9		16.1	326
Oct 25		22.1	78.5			12.1			113
Nov 25			74.0						74.0
Dec 25			57.6					35.0	92.6
Jan 26			14.9						14.9
Feb 26			51.6						51.6
Mar 26		51.0	100					63.4	214
Apr 26		52.8	21.2			38.1			112
May 26	57.2	109	9.86			77.9		55.6	309
Total	**106**	**488**	**496**			**196**		**237**	**1,523**
kg/Milker	*105*	*483*	*491*			*194*		*234*	*1,508*

Farmax Dairy 8.3.6.22

FARMAX

Supplement Feeding for East Dairy

Jun 24 - May 25

DM Offered tonnes	Hay/Straw bought	Pasture Silage bou...	Meal and Grains bou...	Pasture Silage	Maize Silage	Fodder Beet	New Pasture	Maize/barley Silage bou...	Total
Jun 24									
Jul 24	22.6	1.54	0.51					28.1	52.7
Aug 24	29.3	23.6	34.9			13.6		58.6	160
Sept 24	6.48	12.0	52.5			52.0		13.0	136
Oct 24		12.0	25.8			11.0			48.8
Nov 24		5.00	31.0						36.0
Dec 24			31.0						31.0
Jan 25			31.0						31.0
Feb 25			53.1	29.0					82.1
Mar 25			80.0	162		9.32			251
Apr 25			15.5			57.9			73.4
May 25	26.0	53.1	4.87			83.7		22.2	190
Total	**84.4**	**107**	**360**	**191**		**228**		**122**	**1,092**
kg/Milker	*87.5*	*111*	*373*	*198*		*236*		*126*	*1,133*

Farmax Dairy 8.3.6.22

FARMAX

Supplement Feeding for West Dairy

Jun 25 - May 26

DM Offered tonnes	Fodder Beet	New Pasture	Hay/Straw bought	Pasture Silage bought	Meal and Grains bought	Maize/barley Silage bought	Pasture Silage	Total
Jun 25								
Jul 25			30.6	3.64	0.91	38.6		73.8
Aug 25	19.3		38.3	73.1	13.0	76.5		220
Sept 25	15.4		8.69	152	65.6	17.4		260
Oct 25				32.0	42.3			74.3
Nov 25					77.4			77.4
Dec 25					47.3			47.3
Jan 26					18.8			18.8
Feb 26					29.2			29.2
Mar 26				23.0	92.9	74.0		190
Apr 26	28.1			29.0	20.6			77.8
May 26	85.4		33.0	69.6	10.8	32.0		231
Total	**148**		**111**	**383**	**419**	**239**		**1,299**
kg/Milker	*148*		*111*	*383*	*419*	*239*		*1,300*

Farmax Dairy 8.3.6.22

FARMAX

Supplement Feeding for West Dairy

Jun 24 - May 25

DM Offered tonnes	Fodder Beet	New Pasture	Hay/Straw bought	Pasture Silage bought	Meal and Grains bought	Pasture Silage	Maize/barley Silage bought	Total
Jun 24								
Jul 24			22.3	1.88	0.63		27.4	52.1
Aug 24	13.8		30.6	33.5	20.5		61.3	160
Sept 24	54.0		5.14	12.0	43.9		10.3	125
Oct 24	11.0			11.0	25.8			47.8
Nov 24				5.00	30.9			35.9
Dec 24					24.1			24.1
Jan 25					18.9			18.9
Feb 25					36.1	20.0		56.1
Mar 25	9.27				37.0	100		146
Apr 25	41.3				15.5			56.7
May 25	43.0		35.0		2.84		34.0	115
Total	**172**		**93.0**	**63.4**	**256**	**120**	**133**	**838**
kg/Milker	*179*		*96.6*	*65.8*	*266*	*125*	*138*	*870*

Farmax Dairy 8.3.6.22

Sam's Observations:

Cold spring & some cold periods in autumn this season (last season 24.25 was good spring but dry autumn – irrigation restrictions). *Yet the farm recovered and had last years feed harvested.*
More seed head this season. Silage made on farm was similar both seasons (approx. 100 ha per farm), but topping increased this current season. 400 ha topping per farm this season, vs 250 ha/farm topping last season.

Nitrogen will finish at 190 this season

BCS at calving approx 5.1 for each farm & season

Halter – managers & team more engaged in pasture management, 2IC's (limited experience) able to learn more quickly & cover manager when away more easily (no drop in production or loose round length etc). Trying to compare 2 quite different seasons. This season has run more smoothly with less experienced staff. Mating results same as last season – look to use rumination data better next season & look after 1st & 2nd calvers better next spring (achieve better conception rates in these cows).

Challenges:

- Feed Harvested is Stable – Stubbornly so. Was hoping to lift it higher with halter. Seasonal effect?
- Response rate to supplement varies with the 2 farms. Marginally profitable on average. One farm did super well, the other no so well!
- Extra cows on board needed to be feed – has turned out to be close to 100% on supplement. Do we drop the stocking 3.2?
- Canterbury feed harvested again remains average.

For this season:

- Hoping for a better season. Farm set up well heading into this winter. Less pasture damage than last season through May with really dry weather.
- Aiming for Halter to lift feed harvested. Continued focus on round management and keeping farm in the sweet spot for growth and quality. 2,250 – 2,350 kgDM/Ha.
- Regrassing through peak. Take out paddocks 20th October. Bump up demand and stocking rate through November/December so can utilise low NDF feed through this period to hold cows production up. Get paddocks back into production for the summer to harvest more grass through this period with high performing cows.
- If end up same feed harvested will drop stocking rate. Will drop the stocking reate3.2 cows/Ha the following year, aiming to get supplement use back to 700 kgDM/cow. Don't want to run the stocking rate on pure supplement. High performing cows eat a lot of grass! 3.2 cows sounds low, but not dissimilar to 3.5 low performing cows for demand.

MRB Profit Watch 2025/26	MRB Average	East Dairy
Effective Area (ha)	289	303
Stocking Rate (Peak Milkers/ha)	3.4	3.3
Milk Solids (kg / ha)	1626	1759
Milk Solids (kg /cow)	483	528
Peak Cows Milked	969	1010
Pasture Eaten Season (t DM/ha)	12.17	13.20
Pasture Eaten /cow	3625	4000
Total Supplement Offered (Cows) /cow	1022	1158
Crop Offered (Milkers) /cow	139	228
Supplement per cow	882	930
Total Feed per Cow	4786	5386
Supplement as % of intake	21%	22%
Financial Indices		
Stock Net Sales Income /kgMS	$ 0.65	$ 0.67
Gross Farm Revenue /kgMS	$ 10.26	$ 10.31
Operating Costs ($/kg MS)	$ 6.19	$ 6.05
Operating Profit (EFS) /kgMS	$ 4.08	$ 4.26
Gross Farm Revenue /ha	$ 16,684	$ 18,133
Operating Costs ($/ha)	$ 10,030	$ 10,643
Operating Profit (EFS) /ha	$ 6,653	$ 7,489
Return on Capital		
Return on Capital (excl. dividends)	8.5%	9.2%
Assets Employed (excl. shares) /ha	$ 74,218	$ 81,221
Financial KPI's		
Labour Cost /cow	$ 570	$ 620
Labour Cost /kgMS	$ 1.18	$ 1.17
Repairs & Maintenance /ha	$ 635	$ 593
Repairs & Maintenance /kgMS	$ 0.40	$ 0.34
Animal Health & Breeding /cow	$ 257	$ 336
Animal Health & Breeding /kgMS	$ 0.53	$ 0.63
Feed & Grazing (/cow)	$ 1,093	$ 1,002
Feed & Grazing (incl. Lease) /kgMS	$ 2.25	$ 1.89
Fertiliser & Nitrogen /ha	$ 984	$ 1,128
Fertiliser & Nitrogen /kgMS	$ 0.61	$ 0.64
Vehicles & Fuel /ha	$ 248	$ 440
Overheads /ha	$ 482	$ 324
Overheads /kgMS	$ 0.30	$ 0.18
Sharemilker Remuneration /cow	$ 620	$ -
Sharemilker Remuneration /kgMS	$ 1.40	$ -
Environment		
Nitrogen Use (kg N/ha)	161	182
GHG Emissions (t CO2e/kgMS)	7.8	8.0
N Surplus/ha	100	127

Claxby Estate – East Dairy – Feed Budgeting in Action

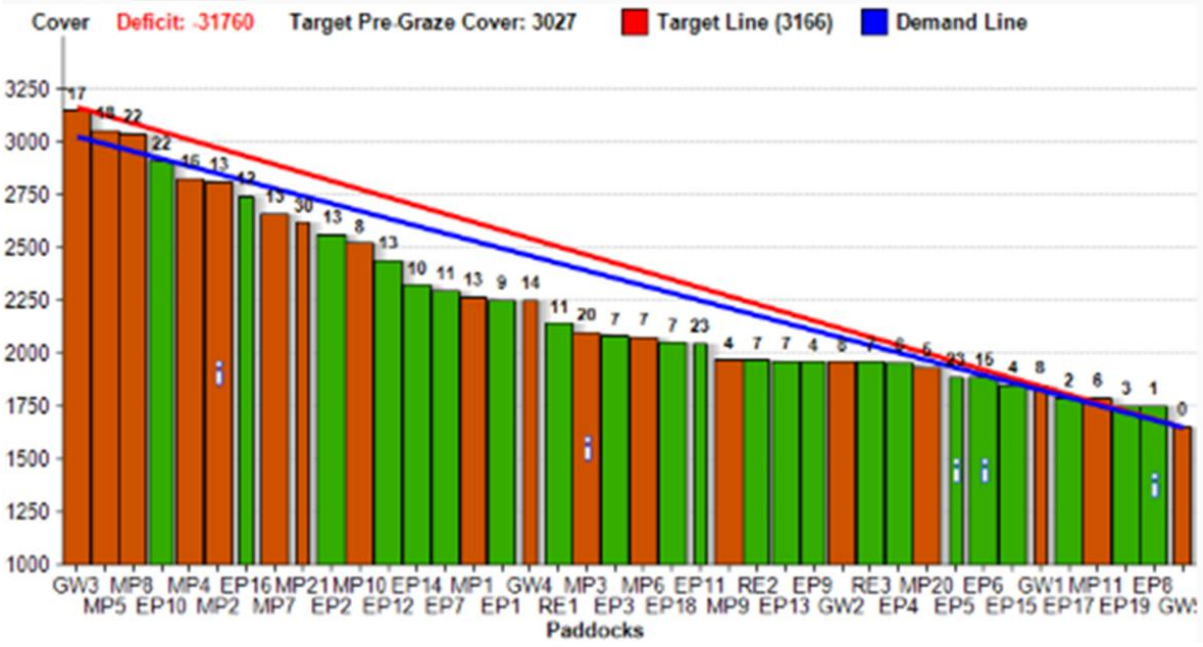
Date Measured	03/12/2024
Selected Mob	All Mobs
Daily Growth	70.2 (over 7 days)
Farm Cover	2226
Total Area	272.95
Total LU	953.72
LU / Ha	3.49
Demand / Day	17905
Demand / Ha	65.6
N Kg / Ha	0
N % Area	0
Weather	0mm, 0°
Cover / LU	208.02
Litre / Cow / Day	24.69 (19/11)
kgMS / Cow	2.31
Milk Quality	F5.1% / P4%
KgMs/Ha YTD	29 (301.17 Ha)
Short Term Silage	0 (0Ha) Reset
Long Term Silage	0 (0Ha) Reset
Area Unmeasured	20.17 Ha

	No.	Actual Grass	Meal	Silage	Target Grass	Mob
Spring Milkers	545	19	2	0	21	Mob 1
Autumn Milkers	335	18	2	0	20	Mob 2
Dry Cows	0	0	0	0	0	Mob 3
0-1 Year Old	80	19	0.5	0	19.5	Mob 2
1-2 Year Old	0	0	0	0	0	Mob 1
2+ Year Old	0	0	0	0	0	Mob 1

Cow Intakes

Target Pre-Graze Cover
Rotation Length 21 Rotation Last Week: 26.3
Post Grazing Cover 1650
Project wedge in Days, Using Growth Rate

Graph Type Cover



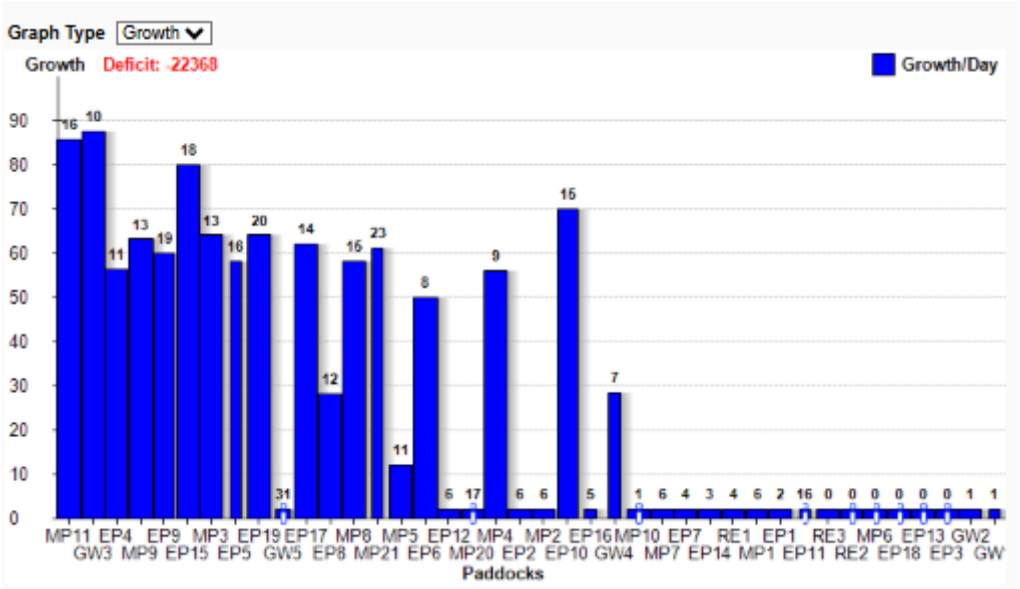
Cover Movement:

Last Week	(26/11)	2,105	
This week		2,226	
Cover Movement		+ 111	+ 16 kg DM/day

Demand	55 kg DM (last week).
Cover Movement	16 kg DM/day
Growth – theory	71 kg DM/day

Growth Measured 70.2 kg DM/day (I did not doctor this!).
Growth Rates can be trusted.

Growth – from Agrinet:



Score 9/10. Residuals not entered (shame was heading to 10/10)

FEED BUDGETING FRAMEWORK & SOP

Engage with software that is an effective decision support tool.
Eg, Halter, Aimer, Agrinet, Pasture coach.

Key Disciplines

1. Complete a farm walk weekly.
2. If using satellite supported pasture assessments, confirm pre-grazing's twice weekly.
3. Enter residuals daily into your software / Tool of choice.
4. After your farm walk – run through the attached feed budgeting framework.
5. Score a consistent 10/10.
6. Coach your staff to do this.
7. Be confident – Make the calls. IF comfortable, then panic

Cow Requirements	Livew eight KG			
Production kgMS Cow	**400**	**450**	**500**	**550**
1	12.5	13.1	13.7	14.3
1.25	14	14.6	15.2	15.8
1.5	15.5	16.1	16.7	17.2
1.75	16.9	17.6	18.1	18.7
2	18.4	19	19.6	20.2
2.25	19.9	20.5	21.1	21.7
Additional Feed Requirements				
+ 0.5 CS gain per Month.	2.4	2.7	3.0	3.3
+1km walking(where base 5km)		0.29	kgDM/additional KM	
Cow Requirements based on 12 MJM/kgDM. 88% Utilization				

Feed Budgeting Frame Work					
Phase	**Step**	**Decision Focus**	**Management Question**	**What You Are Testing**	**Score**
VERIFY	1	Cow Demand	Does demand match current per cow production?	*Intake vs production alignment*	
	2	Demand per Cow	Is Pasture demand per cow correct after supplements?	*True pasture demand*	
	3	Round Length Fit	Does target demand align with pasture available?	*Feed demand balance and round length Balance*	
	4	Round Length Trend	Does round length make sense vs last 3 days?	*Confirm your round length is correct*	
	5	Cover Change	How is cover change tracking: growth – demand between farm walks	*Feed surplus or deficit developing*	
	6	Growth Consistency	Is growth consistent across paddocks (~±15 kgDM)?	*Reliability of pasture walks and assesments*	
MANAGE	7	Demand vs Growth	Is demand greater than growth – do we need to act?	*Current balance of growth and demand*	
	8	Forward Impact	How does this Impact next week's round length?	*Future feed position*	
	9	Pasture Quality	Are pre-grazing covers too high (silage to shut up) or too low (supplement needed)	*Are you in the sweet spot for quality and potential growth.*	
	10	Weather Influence	What is weather doing. Ssoil temp / moisture / growth impact?	*Adjust for risk and variability*	
				Total (out of 10)	

Precision nutrient recommendations with HawkEye Pro

AU Patent Application No. 2025201202; NZ Patent Application No. 818961

HawkEye by ravensdown

1

What is HawkEye Pro

- HawkEye Pro produces high resolution variable rate fertiliser plans.
- Leverages automation and machine learning to drive fertiliser requirements for both maintenance and capital applications on New Zealand pastoral farms.
- Enables nutrient use efficiency (NUE) at a level of precision and scale that has never been able to be delivered before.

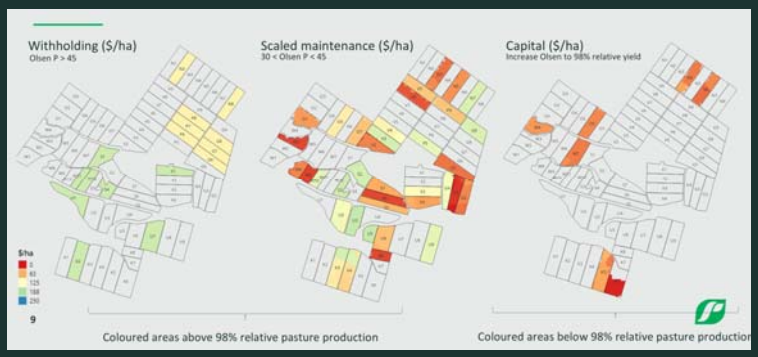
2

2

Dairy farm case study

Variable rate strategies have been shown to contribute to the bottom line

Dairy completing blanket applications on a 168 hectare dairy platform – maintenance is calculated for each paddock



	Withholding	Scaled maintenance	Capital	Net benefit
HE Pro vs Blanket	$7,500	$11,135	$1,051	
Per ha	$45	$66	$6	$117
Less WFST				$54
				$63
Assumptions				
$470/tonne SSP, Spreading cost $35/tonne				

3

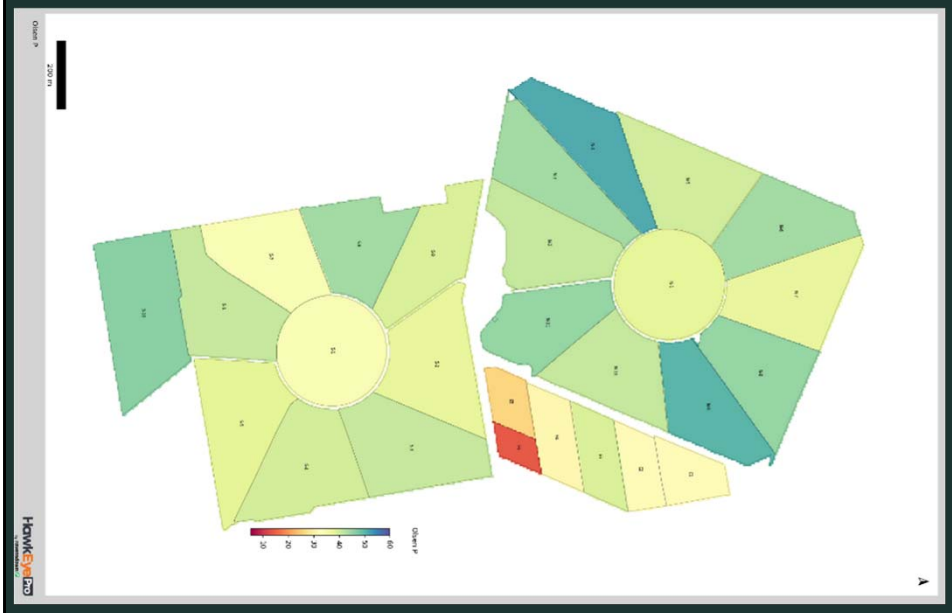
3

What does it mean for LUDF?

4

4

Soil test layers – Olsen P

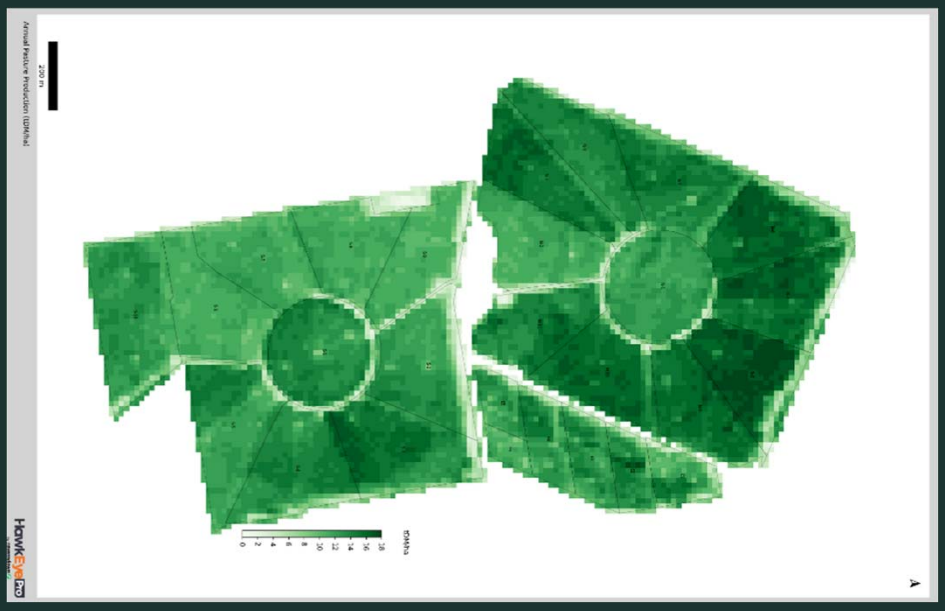


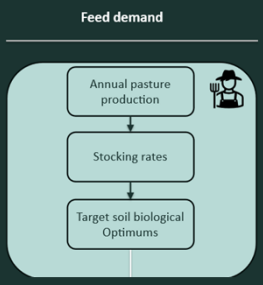
For the best picture of underlying soil fertility use

- Test every paddock
- But will work where you test representative paddocks

5

Pasture production to nutrient requirements





6

Maintenance precision plan

Olsen P: withhold 50

	Rate	Area	Tonnage
1	56 kg/ha	0.99 ha	0.06 MT
2	112 kg/ha	45.30 ha	5.07 MT
3	167 kg/ha	46.87 ha	7.83 MT
4	223 kg/ha	47.57 ha	10.61 MT
5	278 kg/ha	13.82 ha	3.84 MT
6	334 kg/ha	11.52 ha	3.85 MT
7	389 kg/ha	3.45 ha	1.34 MT
Total		169.52 ha	32.60 MT

HawkEye Pro takes into account nutrients returned in effluent

7

Capital + Maintenance precision plan

1	56 kg/ha	0.99 ha	0.06 MT
2	167 kg/ha	84.53 ha	14.12 MT
3	278 kg/ha	23.29 ha	6.47 MT
4	389 kg/ha	33.75 ha	13.13 MT
5	612 kg/ha	10.94 ha	6.70 MT
6	723 kg/ha	6.25 ha	4.52 MT
7	834 kg/ha	5.69 ha	4.75 MT
8	945 kg/ha	0.99 ha	0.94 MT
9	1112 kg/ha	3.11 ha	3.46 MT
Total		169.54 ha	54.15 MT

8

Can apply with maintenance calculated at paddock level

Olsen P
Target 40
Capped 10
Withhold 50

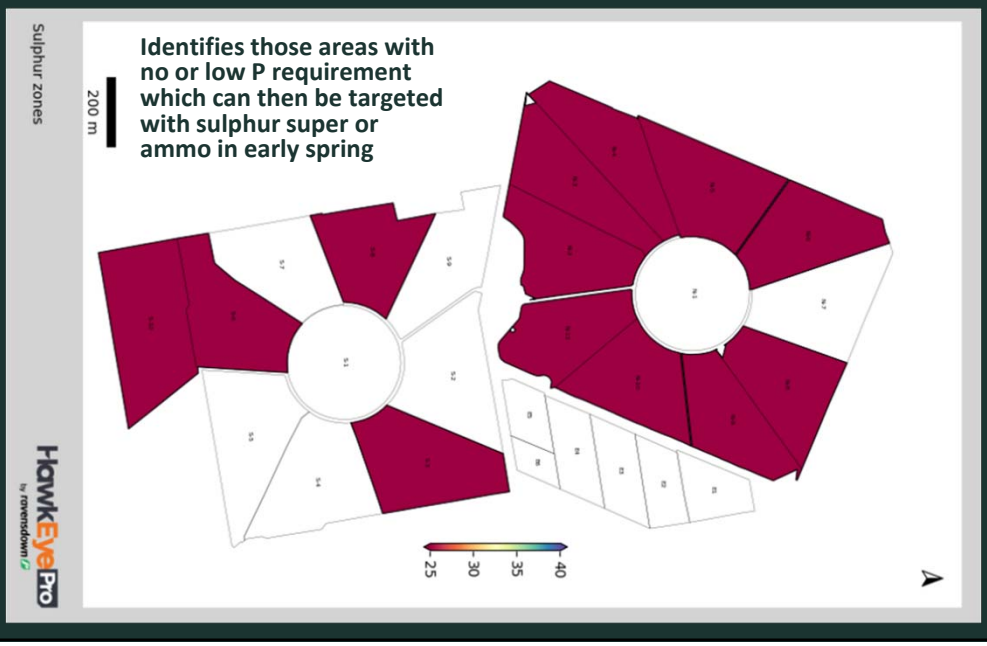
Olsen P: target 40, withhold 50

	Rate	Area	Tonnage
1	111 kg/ha	37.68 ha	4.18 MT
2	222 kg/ha	61.14 ha	13.57 MT
3	333 kg/ha	12.50 ha	4.16 MT
4	444 kg/ha	24.46 ha	10.86 MT
5	556 kg/ha	7.04 ha	3.91 MT
6	667 kg/ha	8.21 ha	5.48 MT
7	778 kg/ha	5.45 ha	4.24 MT
8	889 kg/ha	3.16 ha	2.81 MT
9	1111 kg/ha	3.11 ha	3.46 MT
Total		162.75 ha	52.67 MT

9

9

Capital + Maintenance precision plan (sulphur requirements)



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10

Precision plans can deliver

The outcome is a plan that enables nutrient use efficiency (NUE) at a precision and scale that has never been able to be delivered before.

11

Pasture Based Winter Grazing

Why it matters

The Progress: Many farmers are achieving A-grade Farm Environment Plans (FEPs) and meeting Good Farming Practices (GFPs).

The Reality: Nitrogen (N) concentrations in groundwater remain a challenge. In this catchment, the Hekeao/Hinds catchment, N loss targets are still required: 15% by 2025, 25% by 2030, and 36% by 2035.

The Opportunity: Intensive Winter Grazing (IWG) on crop is a considered a contributor to leaching, and Pasture-Based Wintering (PBW) is a viable mitigation.

The Numbers: Overseer modelling shows PBW leaching can be reduced, compared to fodder beet and kale. *Note this is farm specific.*

Policy Shift: While specific rules around slope and pugging have been removed, grass buffers around waterways and the protection of Critical Source Areas (CSAs) are now non-negotiable.

Winter grazing on forage crops

Winter grazing on forage crops has become common practice to ensure adequate feed is available to maintain and reach body condition score targets whilst stock are off the milking platform for the dry period.

Intensive winter grazing does have guidelines around good management practices to help protect the environment regarding soils, nutrients and water quality, and as well as ensuring good animal health outcomes. Click here for good wintering practices.

Pasture Based Wintering Systems - PBWS

Pasture based wintering has been returning to our farming systems. Recently there have been research trials and case studies completed on farms that have integrated pasture-based wintering into their system.

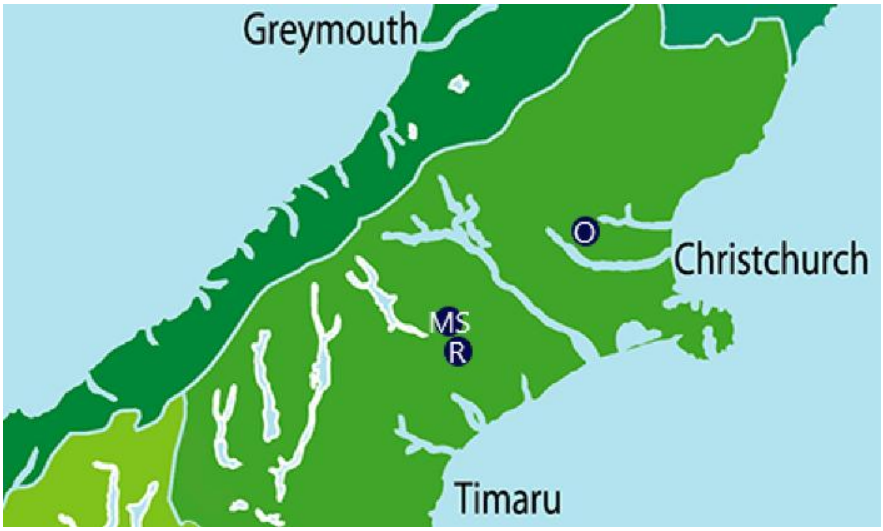
Today we will hear from farmers and science into the findings, learnings and experiences.

How: The Systems

	Fraser Tasker	Cam Henderson	David Acland
Enterprise	Dairy with Beef	Dairy	Sheep, Beef & Dairy
Peak Milk Cows	585	740	940
Area	152 ha effective dairy 184 ha support block - dryland	220 ha effective dairy 110 ha lease – dryland next door	354 ha effective dairy 2,900 ha block - dryland
Stocking Rate	3.85 cows/ha	3.36 cows/ha	2.65 cows/ha
Agronomy	20% fescue 80% cocksfoot. Fescue - strong in spring, legume friendly. Cocksfoot - hardy, good for wintering, flat growth.	Old pasture - cocksfoot, browntop some clover. Maintenance fertiliser plus some N in Oct pre silage.	Perennial ryegrass, clover mix.
Other crops	15 ha fodder beet, 15ha of kale, barley whole crop silage	Pasture only	Integrated into wider farm enterprise. Including 26 ha swedes, 12.5 ha kale along with rape, turnips and lucerne.
Supplement made	3 silage cuts - 3.0 t/ha	1 silage cut - 3.5 t/ha	Supplement made across whole station.

Wintering System			
Wintering Area	90 ha pasture / 184 ha	110 ha pasture / 110 ha	148 ha pasture / 186 ha
Stock	450 IC MA cows - pasture 220 IC R2 Heifers - kale 220 yearlings – fodder beet 120 dairy beef bulls (internal) Sheep	625 IC MA - pasture 166 IC R2 Heifers - pasture Yearlings off farm Calved down on runoff	664 IC MA cows - 445 pasture | 219 swedes 250 IC R2 Heifers
Wintering Period	70 days	70 days	75 days
Diet MA Cows	7.5 kg pasture + 5.5 kgs grass baleage	6.5 kg pasture + 6.5 kg grass baleage	9 kg pasture + 4 kg maize or grass silage 9-10 kg swedes + ad lib straw
Heifers	10 kg kale + 3 kgs wholecrop silage	6 kg pasture + 6 kg grass baleage	9 kg kale + ad lib straw
Yearlings	6 kg fodder beet + 2-3 kg grass baleage	Off farm	Integrated in the system
Grazing Intensity	28.5 m^2/cow/day	20 m^2/cow/day	~ 40-50 m^2/cow/day
Target Cover	3-4 t DM/ha	4-5 t DM/ha	3-4 t DM/ha
Closing Date	1 March - 15 April	10 November	1 March - 15 April
Pasture % of diet	58% pasture	47% pasture	70% pasture
Target Residual	1200	1400	1400 - 1500 grazed by sheep in September

Who: Farmer Panel Bios



Fraser & Lisa Tasker, Ruapuna

Run a diverse farming operation in Ruapuna, Mid Canterbury. Their enterprise consists of a 152-hectare irrigated dairy farm and a 184-hectare dryland support and stock trading property. They peak milk 585 cows, with the support block providing wintering for all cows and heifer replacement, along with dairy beef heifers, dairy beef and Friesian bulls, as well as trading sheep, including store lambs and in-lamb ewes. The variety of livestock they manage depends on seasonal factors and economic returns at the time.

90ha is used for wintering cows on pasture and is predominantly cocksfoot with some timothy, prairie grass, white and red clover, and plantain. Around 80–90 ha is cut for silage, with some paddocks taken up to three times. Barley whole crop silage also fed to cows this past season. Balance is used for trading stock and bull beef. Being dryland, property is at risk of dry period through summer and autumn can experience low pasture growth.

David & Kate Acland, Mt Somers Station

David & Kate peak milk 940 cows from 354 ha of unirrigated land at Mt Somers. They run 1,800 beef cattle and over 13,000 breeding sheep, on 2,900 ha. The property also includes 500ha of native vegetation and beech forest which has been retired from grazing, which supplies 400 hives. The wider property is used to support young stock and for winter grazing. They utilise 165 ha for winter grazing, which includes 130 ha of pasture and 35 ha in swedes and kale.

Cam & Sarah Henderson, Oxford

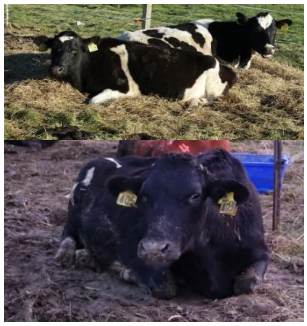
Run a 237-ha irrigated dairy operation with 220 ha effective, peak milking 740-750 crossbreed cows and lease a neighbouring 110 ha lease dry block which they use for wintering and rearing young stock as well as growing grain and grass silage for the milking platform. This equates to around 400 kg DM of grain and 340 kg DM grass silage imported per cow per year.

Previously, cows were wintered on fodder beet and/or kale. With constant difficulties around crop management and animal health, the change to an all-pasture based wintering was made. Baleage is harvested in spring which is left in the wintering paddocks, allowing pasture to accumulate until winter. This season they are exploring ~~n~~ew pasture species and how to look after irrigated pastures.

Why: Supported by Science

Background:

Southland, well-drained soil



- some favourable experiences with pasture-wintering approaches:

1. Improved lying behaviour, cow hygiene scores
2. ess mud and bare soil, retention of a growing plant,
3. Reduced N leaching - losses more than halved
4. BUT these benefits seem to depend on soil, pasture and management factors

   (e.g. soil drainage & structural resilience: pasture age and species; space allowance)

What we did - 2025

- Network of farms wintering cows on pastures

  Canterbury (3); Southland (2); Otago (1 dairy)

- Tracked key indicators of performance

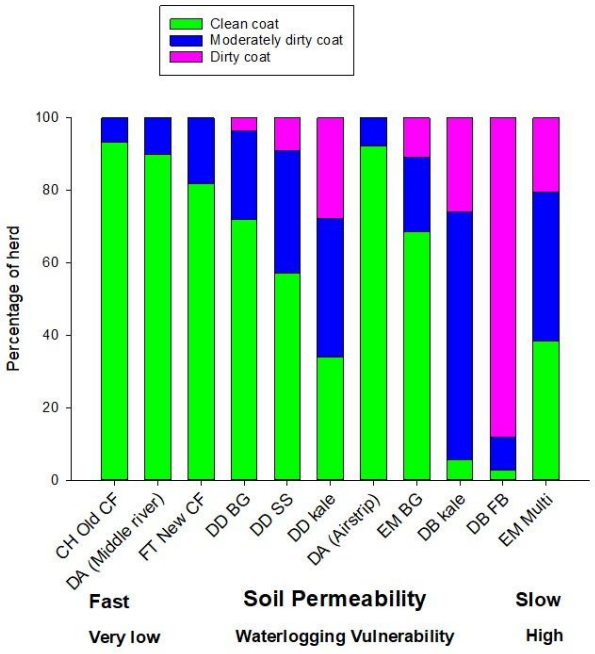
  Vegetation cover; soil condition; cow cleanliness & BCSs; estimates of urinary N excretion

What we found

Herd hygiene scores

- effect of soil permeability

(full set of findings submitted to NZ Grasslands Assoc)



What we found

Vegetation covers

- winter-grazed paddocks (%)

Month	Farm 1	Farm 2	Farm 3
June	79	89	84
July	85	55	73
August	84	70	73
Sept	82	91	93

(Grazed forage crop covers usually <5%)

(full set of findings submitted to NZ Grasslands Assoc)

Design principles that contribute to improved outcomes

1. Reduced grazing pressure (15+ m^2/cow/day)
2. Maximising ground cover
3. Low(er) N feeds ⟶ less urine N excretion ⟶ less N leaching
4. More soil armour/strength provided by established pasture
5. Well-drained and structurally resilient soil
6. Reduced cow trafficking/milling due to
   - loafing surface provided by residual hay
   - square, 3-day breaks at a time?
7. Dry-ish winters @ 150 - 200 mm rainfall?
8. Robust pasture and crop species?

Wintering in Action – On Farm Visit & Panel Discussion

Staple Homestead Ltd - Fraser & Lisa Tasker

Support Block Details:

Location:	Ruapuna, Mid Canterbury
Sea level:	300m above
Soils:	Ruapuna stony silt loam soils
Rainfall:	950 mm, wettest month December, driest month June
Area:	184 Ha effective
Irrigation:	Dry land
Stock:	210 Replacement yearling heifers
	30 R1 Beef X heifers
	130 Friesian, Beef & Jersey yearling bulls
	165 two year old replacement heifers
	1,500-2,500 summer trading lambs
	300-400 in-lamb ewes
	120 Empty Cows & R2 heifers
Environmental:	N Losses 29 kg/ha/Yr, Limit 49 kg/Ha/Yr (Baseline)
Wintering:	MA Cows wintered on pasture & silage
	Two year old heifers wintered on Kale & Barley Whole Crop Baleage
	Yearlings wintered on Fodder Beet & Grass Baleage
	Empty Cows & Heifers wintered on Kale & Baleage
Crops:	16 ha Beet, 18-22t average yield
	19 ha Kale, 11-14t average yield
	7 ha Barley, spring sown for WCS, 10-12t yield
	121 ha cocksfoot, prairie grass, timothy, red and white clover, plantain
	24 ha tall fescue, red and white clover, plantain
	6-8 year regrassing program

What were your drivers for change

Animal health & welfare, cropping challenges, complex, environmental stewardship, perception and values, profitability and resilience, people, opportunities

The three R's: Revenue, Resilience & Robustness

What Does the System look like

Fully pasture or hybrid system, stock classes and area allocation, youngstock requirements, agronomy

Feed & Grazing Management

Grazing intensity, supplement, pre and post grazing targets, residual protection, closing dates, allocation discipline, autumn growth risk

Animal Health & Welfare

BCS, consistency of diet, lying time/conditions (less mud), outcomes – down cows, metricure …

Environmental Outcomes

Leaching risk, soil armour, capture nutrients, risk still exists

Economics & Efficiency

Did costs reduce or were they moved and where are the biggest savings?

Operational Challenges

What caught you out? What would you do differently? Autumn growth, wet winter mitigation, pasture quality management, pasture damage and repair, forward planning

Unintended Consequences

What surprised you most? Any unintended wins or risks? Flexibility with other stock, simple system, high quality supplement required, soil compaction risk (hard pan),

Risk Management

What's your "Plan B" when its wet? When do you move to a safe paddock? How do you protect soils? Managing feed quality and seasonal impact – autumn growth

Have a Wet Weather Plan

- Reduce round length / increase shift frequency
- Increase supplement allocation
- Prioritise lighter soils and sheltered paddocks
- se preferential paddock if: soil damage exceeds recoverable level
- Back fence where possible
- Protect critical source areas first

Recovery Plan from Pasture Damage

- Rolling when practical
- Repair over-sowing, regrassing or next crop rotation
- Planned "safe" paddock – next crop paddock
- Spring fertiliser and nitrogen

Recipe for Succes: Key Messages

- Keep it simple
- Whole-system thinking
- Plan ahead - have clear targets and key dates (closing)
- Strong residual control
- Matching system to the environment - soil type + rainfall + pasture species
- Having enough supplement
- Grazing intensity (m^2/cow/day) to achieve outcomes
- Flexibility in bad weather
- Courage to try hybrid systems
- Access to water due to higher DM

Future Direction & Goals

Where do you take this system next? Climate resilience, more system flexibility, better use of feed surplus, time efficiency

Agronomy

Agronomy plays an important part of the system. Getting the right specie, growth profile, feed quality that can tolerate winter grazing is critical to success.

Species	Strength	Risk
Cocksfoot	Winter resilience, low pugging	Lower quality
Tall fescue	Deep root, drought tolerant	Slower establishment
Ryegrass	High quality	Pugging risk
Plantain	Environmental benefits	Persistence

SWOT Analysis

Strengths	Weaknesses
Environmental outcomes – N leaching	Requires discipline around closing paddocks
Animal welfare and health outcomes	Increased area required
Transition management not required	Lower quality feed and variability
Lower machinery and labour requirement	Weather dependence – reduce utilisation
Less mud created	Water consumption - high DM of supplement
Feed utilisation higher than crop	
Flexibility in grazing management	
Cost comparative	
Improved perception	

Opportunities	Threats
Mixed enterprises – flexibility	Soil damage and compaction over time
Soil armour and protection and biology	Autumn pasture growth rates on dryland
Integrate into wider cropping system	Soil type
Financial returns and options	Drainage
Pest & Disease management through rotation	Rainfall
GHG implications	GHG implications

The economics ....

Pasture based wintering can be cost-competitive, however it all depends on your system and alternative land use.

Wintering Feed Demand and Supply	Fraser	Cam	David
Cows	450	791	445
Days Grazing	70	70	75
Area - ha	90	110	148
Pasture pre grazing - kg DM/ha	3825	4500	3500
Target residual - kg DM/ha	1200	1400	1450
Pasture available per ha - kg DM/ha	2625	3100	2050
Total pasture available for grazing - t DM	**236**	**341**	**303**
Baleage/Silage required - t DM	173	379	130
Total winter feed required - t DM	**410**	**720**	**434**
Target daily intake - kg DM/cow/day	13.0	13.0	13.0
Pasture Diet % - approx	**58%**	**47%**	**70%**

Baleage Costs	Fraser	Cam	David
No of bales required - 300 kg DM/bale ^ silage equiv	578	1,263	^435
Baleage making cost - $/bale	$ 50	$ 50	$ 50
Total cost to make baleage - $	**$ 28,875**	**$ 63,135**	**$ 21,746**
Pasture equivalent cost - c/kg DM*	$ 61,425	$ 49,505	$ 78,884
Total cost to winter	**$ 90,300**	**$ 112,640**	**$ 100,630**
Wintering cost - $/cow/wk	$ 20.07	$ 14.24	$ 21.11
Wintering cost - $/kg DM	**$ 0.22**	**$ 0.16**	**$ 0.23**

Pasture equivalent cost	Fraser	Cam	David
Lease - $/ha ^ used to normalise		$ 650	
Fertiliser - $/ha ^ used to normalise		$ 300	
Lease Cost - $		$ 104,500	
Pasture equivalent cost - c/kg DM *	**$ 0.26**	$ 0.15	**$ 0.26**

**Pasture equivalent cost*

Table 7 Summary of all pasture growing costs ($) for the dairy farm model.

	Cost/kg DM
Direct Costs	0.03
Indirect Costs	
Opportunity cost of land	0.17
Other land costs	0.04
Wages of Management	0.02
Total	**$0.26**

Table 9 Summary of all pasture growing costs ($) for the sheep and beef farm model.

	Cost/kg DM
Direct Costs	0.03
Indirect Costs	
Opportunity cost of land	0.08
Other land costs	0.03
Wages of Management	0.01
Total	**$0.15**

Economic benefits of resilient pastures
Philip R Journeaux

EBIT Comparison

Pasture Based Winter System				
Pasture	110	HA	3.1 TDM/HA	341.0 TDM
Kale	0	HA	8 TDM/HA	0.0 TDM
Ceral	0	HA	0 TDM/HA	0.0 TDM
TOTAL	**110**	**HA**		**341.0 TDM**

Supply				Green	Silage
Green feed				341.0	
Silage	110	@	3,500		385.0
Cereal	0	@	8,000		
Straw	0	@	380		
Demand					
Green feed				341.0	
Silage					378.8
Balance of Feed				**0.0**	**6.2**

Feed Demand					
Cows	791	@	70	days	
Green			6.2	kgDM/cow	341 t DM
Straw			0.0	kgDM/cow	-
Silage			6.8	kgDM/cow	379 t DM
TOTAL			**13.0**	**kgDM/cow**	**720 t DM**

Pasture Based Dairy Support Profitability				
Income		***(40c / kgDM)***		
791	Wintered	10 wks	$38 /wk	$ 300,580
6	TDM	Silage	0.28 c/kgDM	$ 1,733
TOTAL				**$ 302,313**

Costs					
Effective Pasture	110	Ha			
Regrassing/Stitch	25	Ha		$850	$ 21,250
Ceral	-	Ha		$1,857	$ -
Kale	-	Ha		200	$ -
Silage	385	TDM		$200	$ 77,000
Super	0.25	T	750		$ 20,625
Nitrogen	0.12	T	1,500		$ 19,800
Electricty					$ 3,000
Rates					$ 9,000
R&M					$ 6,000
Vehicles					$ 3,500
Feeding Out			0.00	c/kgDM	$ -
Total Expenditure					**$ 160,175**
EBIT					**$ 142,138**
EBIT / HA					**$ 1,292**

Kale Based Winter System				
Pasture	56	HA	3.1 TDM/HA	173.6 TDM
Kale	36	HA	8 TDM/HA	288.0 TDM
Ceral	18	HA	3 TDM/HA	54.0 TDM
TOTAL	**110**	**HA**		**515.6 TDM**

Supply				Green	Silage
Green feed				515.6	
Silage	36	@	3,500		126.0
Cereal	18	@	8,000		144.0
Straw	0	@	380		
Demand					
Green feed				515.6	
Silage					204.2
Balance of Feed				**0.0**	**65.8**

Feed Demand					
Cows	791	@	70	days	
Green			9.3	kgDM/cow	516 t DM
Straw			0.0	kgDM/cow	-
Silage			3.7	kgDM/cow	204 t DM
TOTAL			**13.0**	**kgDM/cow**	**720 t DM**

Kale Based Dairy Support Profitability				
Income		***(40c / kgDM)***		
791	Wintered	10 wks	$38 /wk	$ 300,580
66	TDM	Silage Sold	0.28 c/kgDM	$ 18,421
TOTAL				**$ 319,001**

Costs					
Effective Pasture	56	Ha			
Regrassing/Stitch	-	Ha		$850	$ -
Cereal	18	Ha		$2,471	$ 44,478
Kale	36	Ha		$2,092	$ 75,312
Silage	204	TDM		$200	$ 40,842
Super	0.25	T	750		$ 10,500
Nitrogen	0.12	T	1,500		$ 10,080
Electricty					$ 3,000
Rates					$ 9,000
R&M					$ 6,000
Vehicles					$ 3,500
Feeding Out			0.06	c/kgDM	$ 12,253
Total Expenditure					**$ 214,965**
EBIT					**$ 104,037**
EBIT / HA					**$ 946**

Take Home Key Points:

South Island Dairying Demonstration Centre

Thank you for coming along to our Focus Day.

We welcome your feedback and recommendations for future topics of interest,

let us know by emailing office@siddc.org.nz, we would love to hear from you.

Our thanks to our partners:

LINCOLN UNIVERSITY
TE WHARE WĀNAKA O AORAKI

DairyNZ

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Bioeconomy Science Institute
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