FARMER LED, FARMER DRIVEN

MONITOR FARM Scotland

Maximising the Potential of Forage Crops
A Monitor Farm Scotland Innovation Project

A Presentation by Kirsten Williams, SAC Consulting
for the Deeside Monitor Farm Open Meeting
‘Forage for Thought’
3rd December 2025

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Monitor Farm Scotland Forage Crop Innovation Project

Kirsten Williams, SAC Consulting

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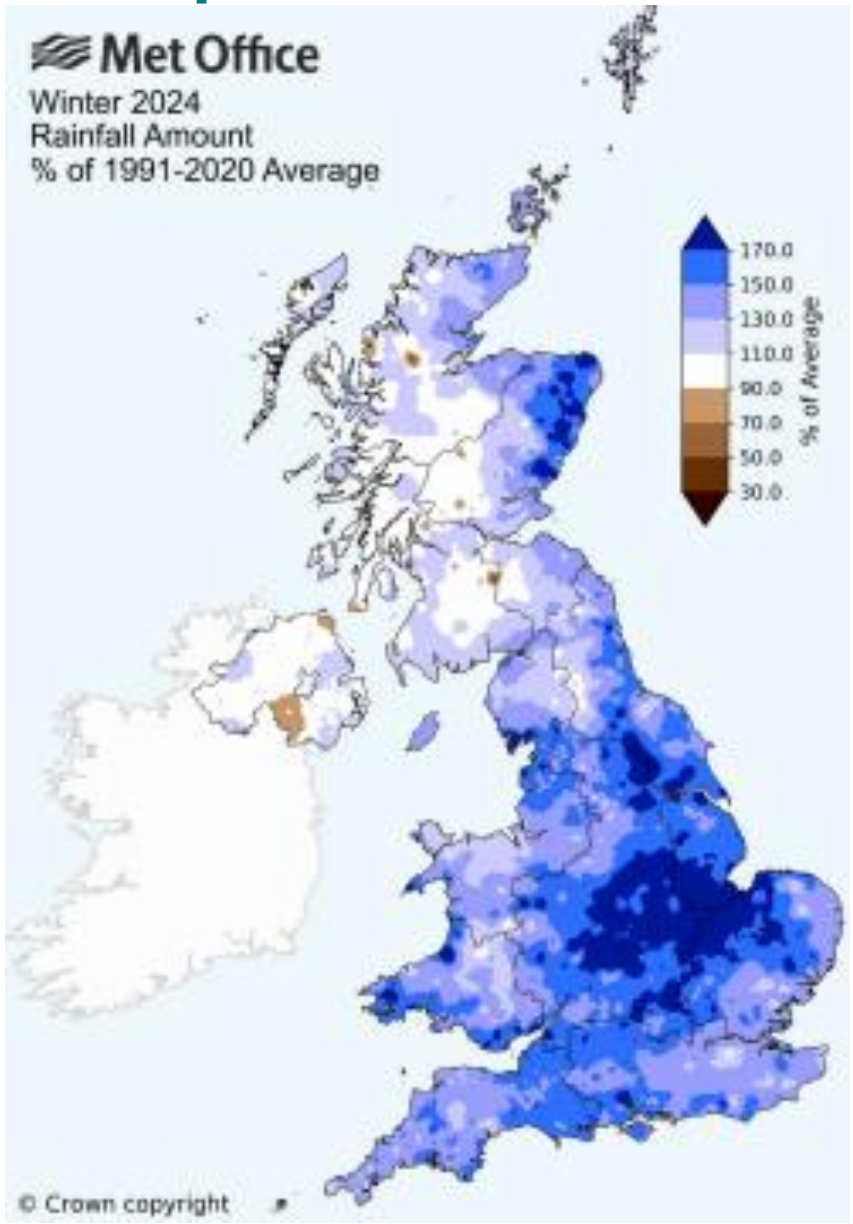
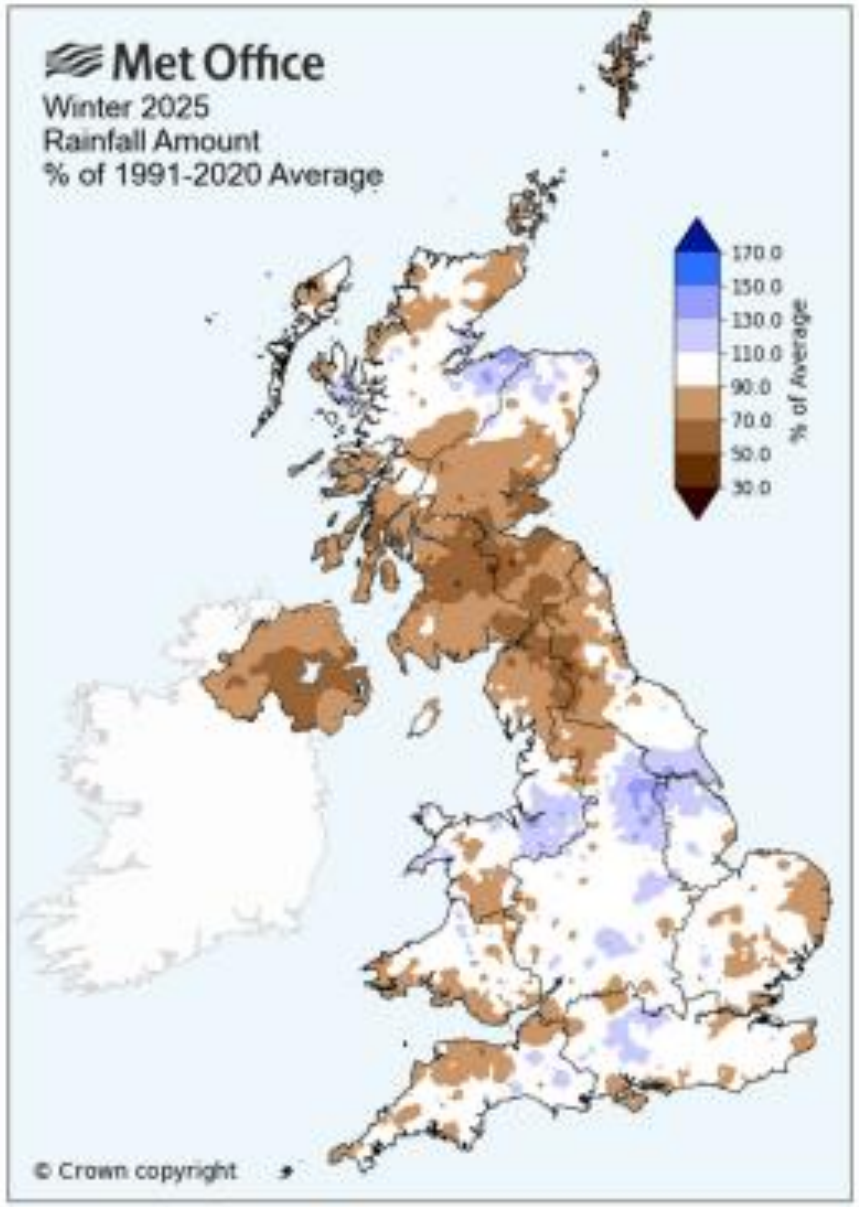
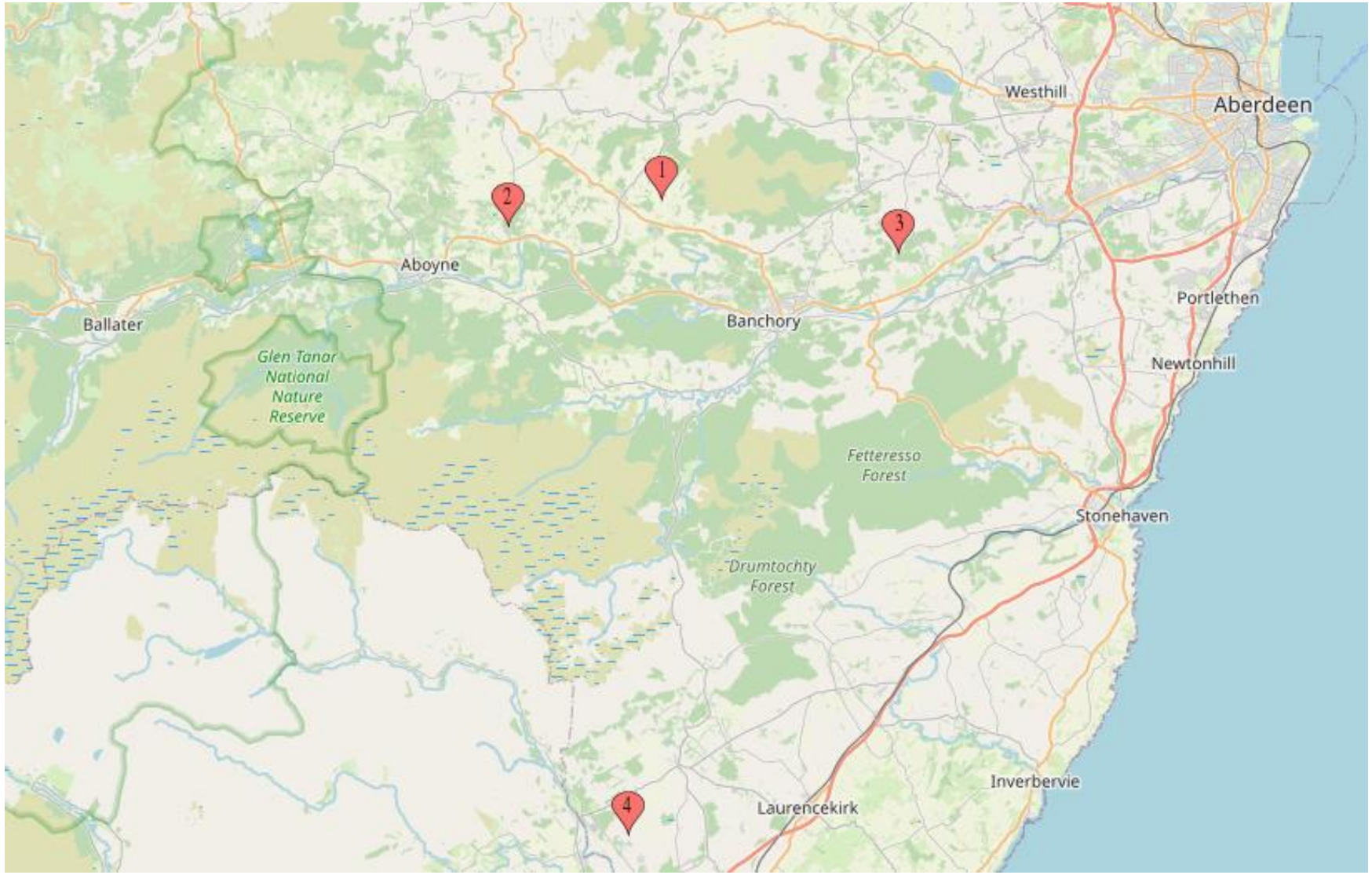
Comparisons





Project Farmers



1) Duncan Morrison
2) Robert Marshall
3) Jonny Stewart
4) Alex Stephen

- Varying land, soil
- Previous experience
- Have faced challenges
- Adaptable businesses
- Resilient
- 10 crops

Investigating:

- Growing cost
- Crop analysis
- Rationing
- Maximise Crop

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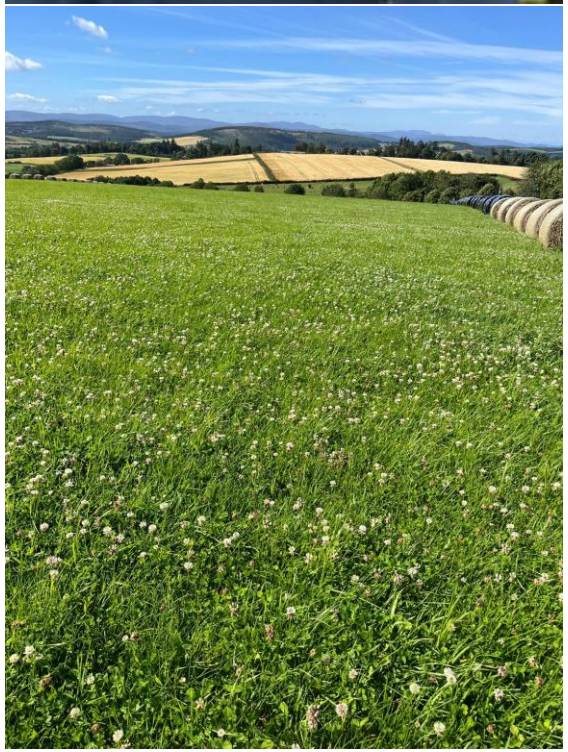
Duncan Morrison

- Kale
- Deferred Grazing
- Bales Placed
- In-calf cows
- Scope



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Robert Marshall

- Hybrid Brassica
- Bales placed
- Cows and In-Calf Heifers
- Scope

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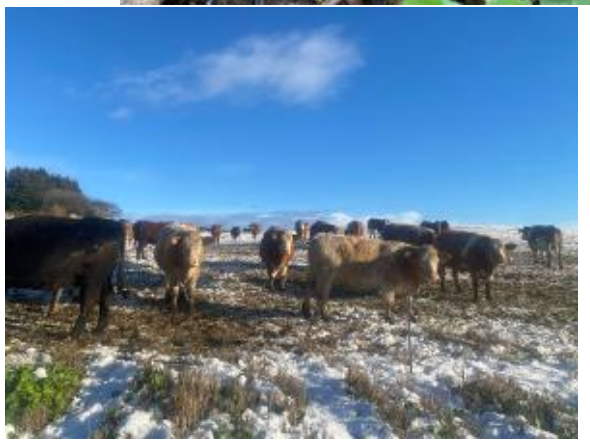
Jonny Stewart

- Fodder Beet
- Swedes
- In-Calf Cows
- Limited Land & Buildings



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Alex Stephen

- Stubble Turnips
- Fodder Beet
- Dairy Drives Business

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Outwintering on FASTV & the Field Talk Podcast

Click on each image for the episode

FAS TV Series 5 Ep 3 - Outwintering & Virtual...

FAS TV Series 4 Ep 25: Outwintering & Agritourism

Welcome to Field Talk, the Monitor

FAS TV Series 5 Ep 6 - Lamb Castration & Cattle Outwintering

Deferred grazing with hay bales (to be rolled out) – Meikle Maldron


Dry area for lying
Forage crop

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Ready Reckoner

Enter Data

DO NOT CHANGE FORMULA

Crop	**Crop 1**	**Crop 2**	**Crop 3**	
Total bag weight	7			kg fresh weight
Fresh weight/ha	70000	0	0	FW/ha
DM of crop	17%			%
Estimated DM	11900	0	0	kg DM
Tonnes of DM/ha	11.90	0.00	0.00	tonnes DM
Total area	2.5			ha
Total yield	**29.75**	**0.00**	**0.00**	**tonnes DM**

Duncan Morrison 2024/2025

Bales weigh 200kg(soft centre) – 4 bales/day – 114 cows
=7kg/hd/day minus 10% waste = 6.3kg/day (at 77.6% DM)
=**4.9kg DM/day**

Fence 456m long x 3m wide shift per day
= 1,368m2/114 cows = 12m^2/hd/day

Deferred Grass Cover 3,156kg (500kg DM residual)
= 2,650kg DM/ha
0.265kg DM/m^2 (and 12m^2/day) = **3.2kg DM** (21.90% DM) = **14.6kg Fresh**

Total Intake = 8.1kg DM (4.9kg+3.2kg) or 20.9kg fresh weight equivalent

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Measuring the quality

	DM	Protein	Energy
Hay	77.60	6.30	9.30
Deferred Grass Jan	21.90	12.40	10.20

DMI 8.1kg DM/day

- 78MJ energy
- 87% CP
- 670kg cows

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Crop Choice – System Choice

	LU/ha	Stock
Fodder Beet	16.88	4ha – 90 cows – 55 days
Kale	12.75	5ha – 85 cows – 43 days
Fodder Beet	11.02	6ha – 601 ewes – 70 days
Brassica Mix + Yellow Neep	6.31	6.8ha - 66 ICH – 140 days
Brassica Mix + Yellow Neep	10.14	4.04ha 63 cows – 90 days
Brassica Mix	8.26	2.42ha – 25 ICH– 30 days
Deferred Grass	7.13	12ha – 114 cows – 80 days
Swedes	6.62	6.8ha – 60 cows – 50 days
Stubble Turnips	2.40	23.82ha – 88 dairy X 550kg – 72 days
Failed Forage	1.28	6.80ha - 250 lambs – 50 days

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Crop Analysis and Yield

	DM (%)	Crude Protein (%)	ME (MJ/kg DM)	Yield t DM/ha
Forage Brassica 1 (RM)	14.10	11.42 (19-20%)	-	3.03
Forage Brassica 2 (RM)	12.10	17.16	-	5.14
Forage Brassica 3 (RM)	10.10	21.76	-	4.18
Forage Brassica (AS)	14.10	10.01	-	2.11
Fodder Beet Leaf (JS)	10.30	16.07	-	3.90
Fodder Beet Leaf (AS)	15.00	25.80	11.40	4.40
Fodder Beet Bulb (JS)	19.00	6.00	12.30	16.6
Fodder Beet Bulb (AS)	21.90	6.60	12.50	13.50
Kale (DM)	18.90	30.67 (16-17%)	12.70 (10-11)	8.97
Stubble Turnip (AS)	10.40	15.74 (17-18%)	-	0.36
Swede Bulb (JS)	8.10	9.32 (10-11%)	12.50	5.40

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Costs

	Fodder Beet 1	Swedes	Kale	Stubble Neeps
Growing Cost	£886.33/ha	£533.24/ha	£348.02/ha	£74/ha
Yield t DM/ha	20.48	8.94	8.97	4.91
Cost/kg DM	**4p**	**6p**	**4p**	**2p**
£/MJ ME	3.5p	5p	3.1p	1.4p
£/kg protein	0.5p	0.6p	0.1p	0.1p

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£/kg protein	0.5p	0.6p	0.1p	0.1p

	Barley	18% Ewe Conc	Soya
Growing Cost	£550/ha	£300/t	£350/t
Yield t DM/ha	5.16	-	-
Cost/kg DM	**10.7p**	**26p**	**31p**
£/MJ ME	8.1p	2.1p	2.3p
£/kg protein	0.9p	0.1p	0.05p

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Comparisons

- Highest cost crop to establish – Fodder Beet
- Lowest cost crop to establish – Deferred Grazing

- Highest yielding (DM/ha) crop – Fodder Beet
- Lowest yielding (DM/ha) crop – Forage Brassica Mix

- Highest cost/kg DM – Forage Brassica Mix
- Lowest cost/kg DM – Deferred Grazing

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How do costs compare to traditional systems?

Robert Marshall: In-Calf Heifers

	Traditional Feeding System	Robert Feeding System – In Calf Heifers
Silage 8.5kg @ 15p/kg	£1.27	-
Silage 2.55kg @ 15p/kg	-	£0.38
Brassica Mix 5.95kg @8p/kg DM	-	£0.48
TOTAL	**£1.27/hd/day**	**£0.86/hd/day**
X66 heifers	£83.82/day	£56.76/day
X140 days	£11,734.80	£7,946.40
Difference	£3,788.40	

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Alex Stephen: Heifers

	Traditional Feeding System	Alex Feeding System – Fodder Beet
Concentrate 0.44kg DMI @ 30p/kg DM (£300/t)	£0.13	-
Silage 1.16kg @ 15p/kg DM	£0.17	-
Fodder Beet 70% intake (1.12kg) @ 3p/kg	-	£0.03
Forage 0.48kg grass @ 6p/kg DM 0.48kg silage @15p/kg DM	-	 £0.03 £0.07
TOTAL	**£0.30/hd/day**	**£0.13/hd/day**
x601 ewes	£180.30	£78.13
x70 days	£12,621.00	£5,469.1
TOTAL	£7,151.9	

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Energy Requirements

	Kale	Stubble Neeps	Fodder Beet
Suckler cow 650kg mid pregnancy	88%	76%	111%
In Calf heifer 0.7kg/day mid pregnancy	77%	100%	96%
Ewe mid pregnancy	60%	77%	77%
Growing lambs 35kg 250g/day	106%	97%	-

Alex Stephen: Fodder Beet Energy Ewes

	Feb 2025 Grass Analysis	FB leaf	FB bulb
DM	18.2%	15%	21.90%
Protein	30.7%	25.8%	11.4%
ME	12.5MJ/kg DM	11.4MJ/kg DM	12.5 MJ/kg DM

- Support the ewes to 2 weeks pre lambing
- 2 weeks pre lambing *slightly* low in energy
- BUT…… good condition and high energy licks

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What's Next?

- Replication Missing
- Book Values
- Larger geographical spread
- Aphid Indicator for risk
- Industry trail sites – Scottish recommended guide?

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MONITOR FARM Scotland

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