

'The Rule of Three – air, water, soil: A CSF Case Study'



**Catchment
Sensitive
Farming**

Working together for
a healthy environment



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Catchment Sensitive Farming (CSF) is led by Natural England, in partnership with Defra, the Environment Agency and the Forestry Commission.





Introduction

- How CSF work with local farmers – Timeline
- What does our desk study include before meeting you on site
- What information can you access
- What advice can we provide
- What support can we provide for capital works

Glossary

CSF – Catchment sensitive farming

CS – Countryside stewardship

SFI - Sustainable Farming Incentive

SSSI – Site of special scientific interest

NVZ – Nitrate vulnerable zone

NE TAP-D - Natural England Tree Action Plan – Delivery

FC – Forestry commission

SWT – Suffolk wildlife trust

FiPL – Farming in protective landscapes

A.L.E.R.T – Agricultural Land Environmental Risk Tool



Farm is in the East Suffolk Catchment, River Blyth Beef cattle, herbal leys, grassland

CS Mid tier, SFI, Capital works – Local land agents are employed to help.

AB10 Unharvested cereal headland

AB11 Cultivated areas for arable Plants

AB7 whole crop cereals

AB8 flower rich margin and plots

AB9 winter bird food, AB12 Supplementary winter feeding for farmland birds

SW1 4-6m buffer strip on cultivated land

BE3 Management of hedgerows

GS4 Herbal leys, GS2 Low input grassland, GS17 Lenient Grazing Supplement

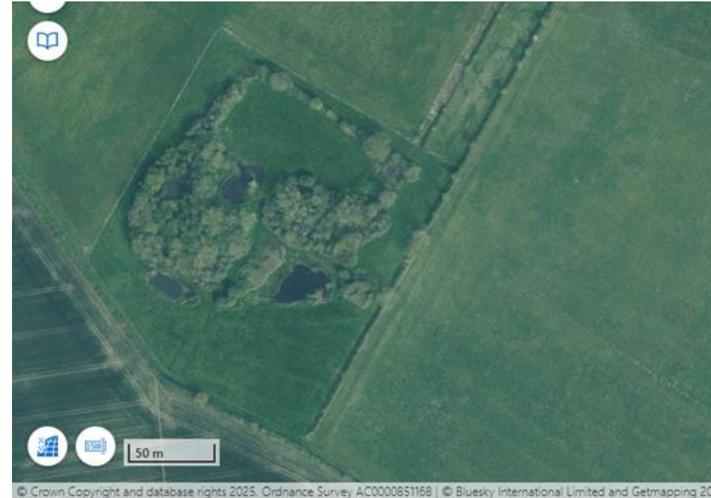
HS1 Maintenance of Weatherproof Traditional Farm Buildings
Just been extended.



SFI 2023

Timeline

2015 - CSF grant aided fencing for SSSI ponds – ‘small waterbodies which have a high conservation value.’ Able to manage grazing better in the area.

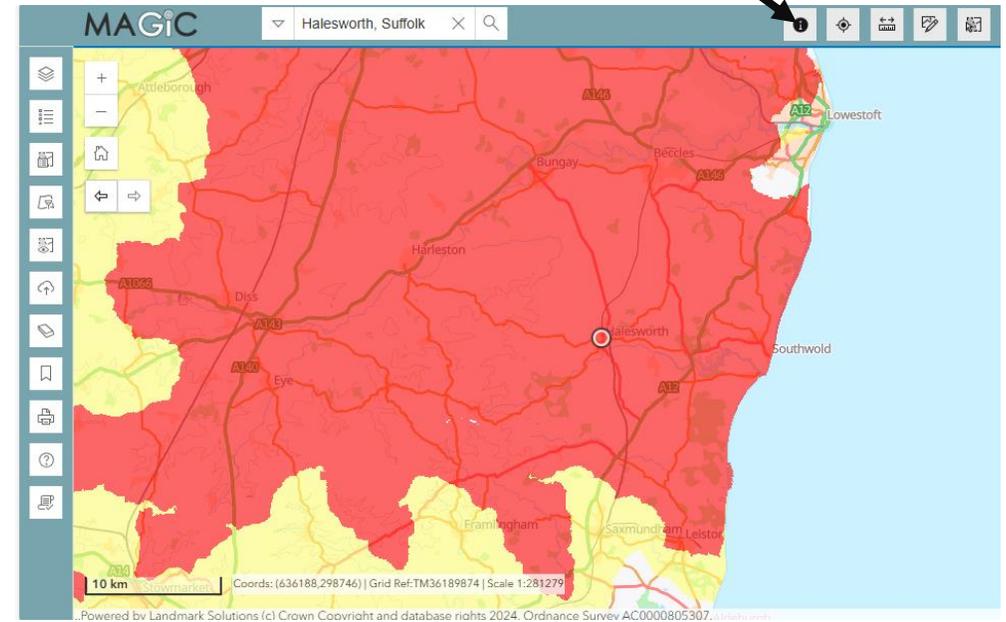
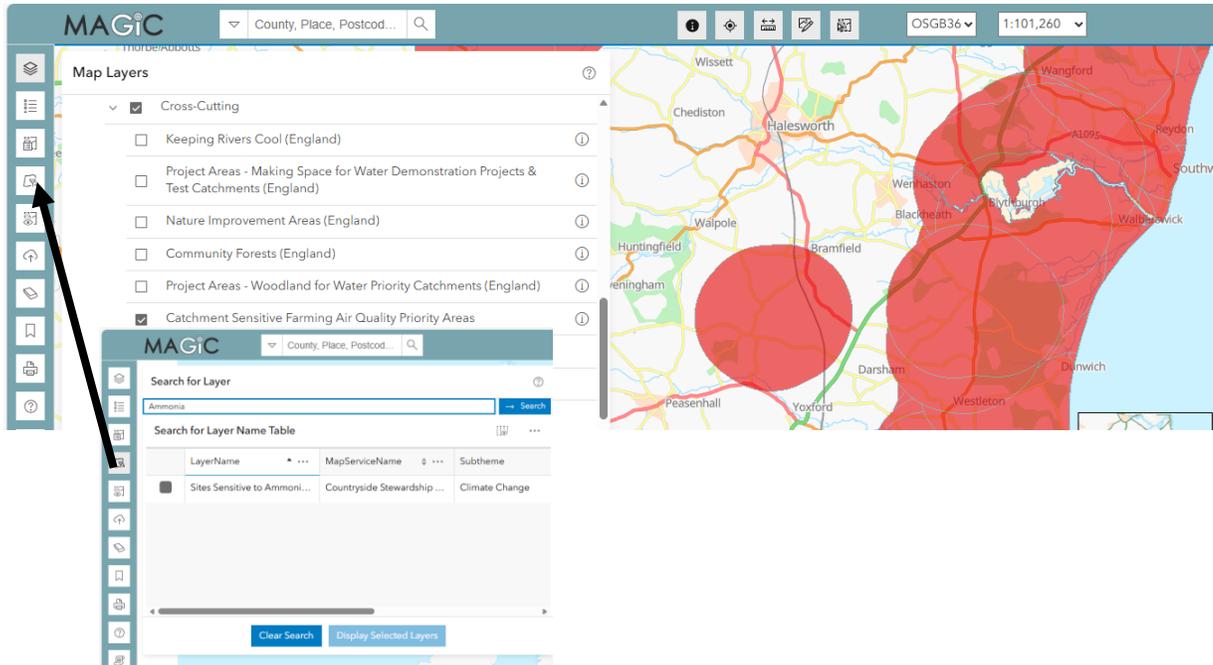


2017, 2019 - Request for CFS advice visit and capital grants discussion - Information gathering before farm visits.

2017, 2019 - Information gathering prior to site visits

Air quality, ammonia, - Dataset that describes the priority areas for air quality advice from Catchment Sensitive Farming (CSF). The data shows those SSSIs where the critical load for nitrogen deposition and/or the critical level for ammonia are being exceeded.

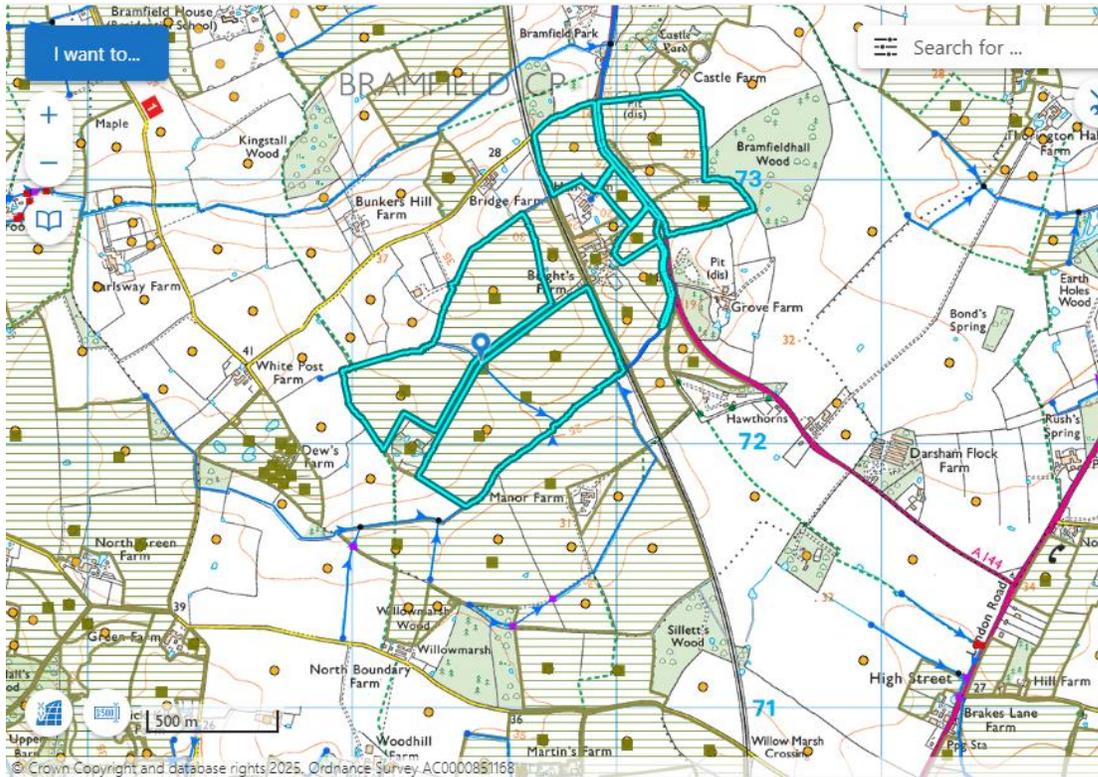
'Water quality – countryside stewardship water quality priority areas'
Use i button to see the priorities in the area. Surface water Phosphate+ Sediment + Nitrates.



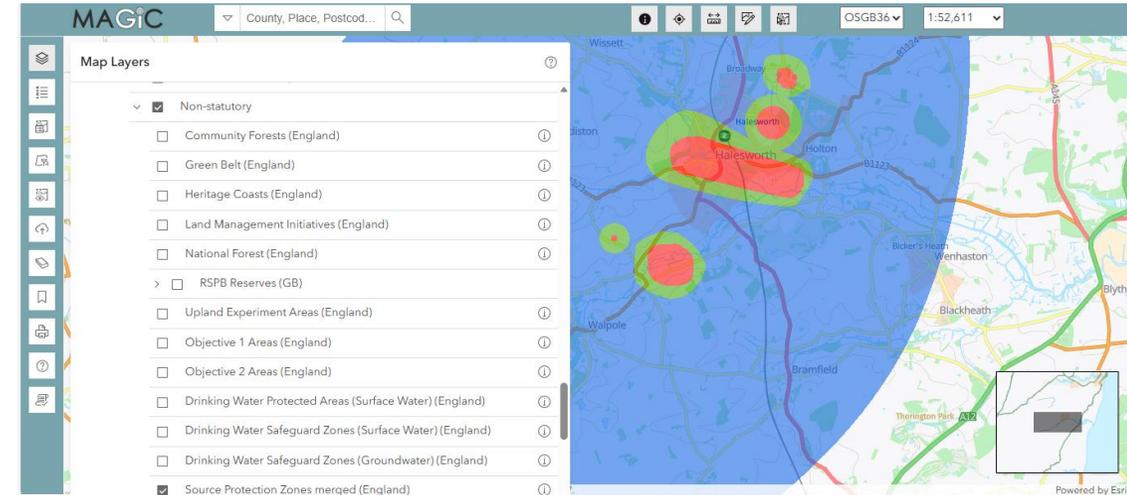
Catchment Sensitive Farming (CSF) is led by Natural England, in partnership with Defra, the Environment Agency and the Forestry Commission.

2017, 2019 - Information gathering prior to site visits

Farm area, CS options, SFI actions, Rivers, tributaries, water flows, contours



Source protection zones



Remember do not store or apply organic manure within 50m of a borehole, spring or well. Your organic manure spreading risk map should include these areas.

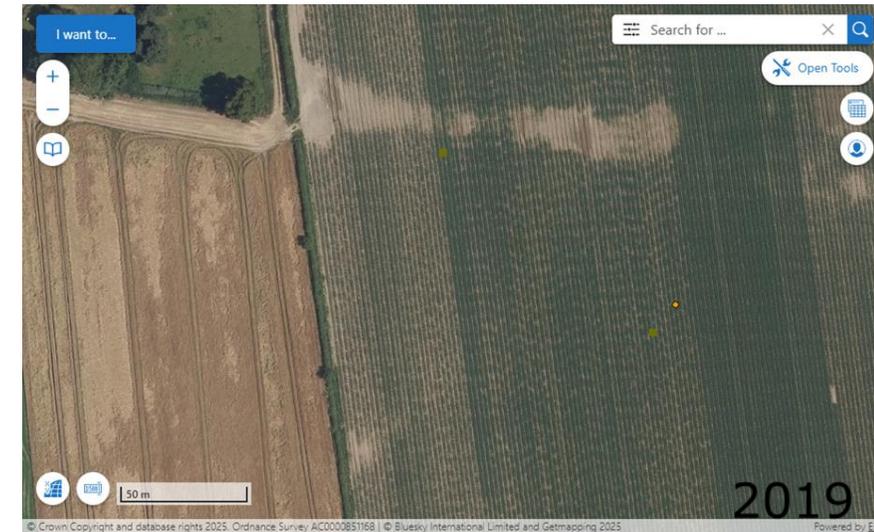


2017, 2019 - Information gathering prior to site visits

CSF A.L.E.R.T mapping - Agricultural Land Environmental Risk Tool. Overland flow pathways. Instructions on the CSF stand.



Previous aerial photography using our mapping system or google earth



Other Information
Nitrate Vulnerable Zones
Soil type
Flood risk
Springs (OS maps)
Previous records, colleague's knowledge

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2017, 2019 - CFS advice visit and capital grants discussion and approval.

CSF

Need to understand yard drainage when on site. Local ditches or other water bodies.



How can we reduce the amount of 'slurry' on site - roofing?
Opportunities for reducing ammonia emissions?

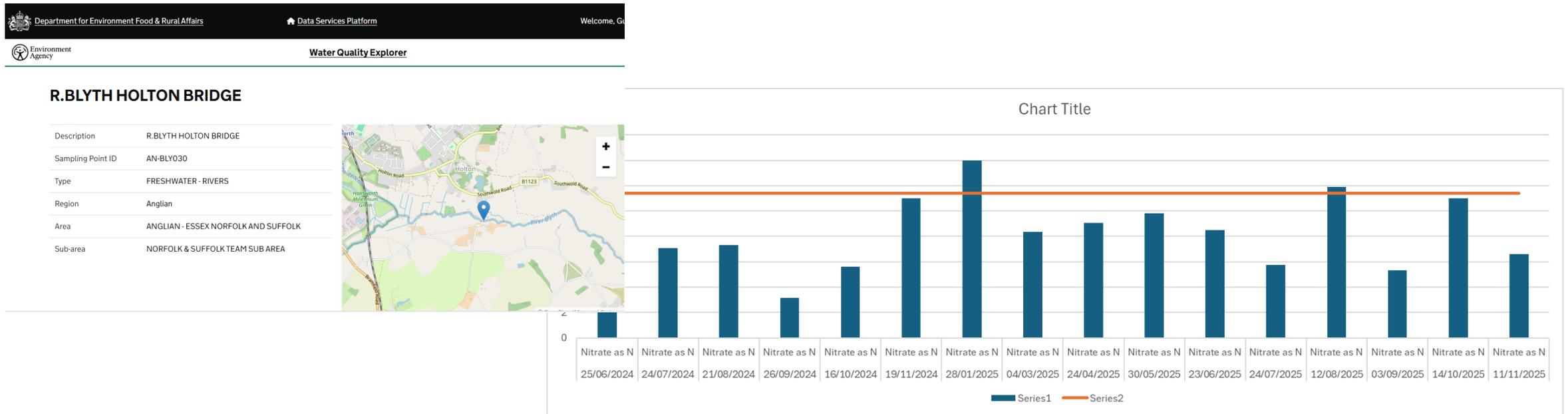
Working with the farmer and agent CSF approval given for
RP28 Roofing livestock gathering areas, and manure pads.
RP15 Concrete renewal
RP13 Yard – underground drainage pipework
RP14 Yard inspection pit
RP4 Livestock and machinery hardcore tracks
RP18 Above ground tanks
Other - RP16 Rainwater goods (new guttering/downpipes), LV7 Livestock troughs, LV8 Pipe work associated with livestock troughs.
Advice given on relevant regulations, and pollution prevention.

CSF has to justify how the items/options will help improve water, air quality, natural flood management. CSF also considers how these items will help meet the aims of The Environmental Improvement Plan (EIP) 2025.



2020 - Meeting with the farmer and three other neighbouring farmers who had formed their own cluster 'Blyth Valley Cluster group' and a member of the Future Farming team from Defra to discuss farming issues.

2022 - Delivered a talk on water quality to Blyth Valley Cluster group, Suffolk Wildlife Trust acted as facilitators. → A few farmers tested land drains using nitrate strips provided by CSF, with surprising results. SWT undertook water testing, with FiPL funds, and latterly Essex and Suffolk water.

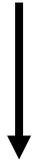


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2023 - Provided help with calculations for working out how much water from site. Provided maps showing flood zone 3 and watercourses flow pathways.

2023 – Farmer attended Rainwater harvesting event



2023 – Attended Sustainable Farming conference

2025 – Support for rainwater harvesting tanks CS capital items, supplied link to calculator

2025 – Attended soils workshop. → CSF undertook soil sampling, worm counts and percolation tests over 6 fields.



Soil Chemical Analysis

	Index	Result	Low	Marginal	Target	Marginal	High					
P	1	13.2 mg/l										
K	1	91.0 mg/l										
Mg	3	112 mg/l										
Organic Matter (LOI)		6.5%										
Soil pH		7.4	Very Acid		Acid		Neutral		Alkali		Very Alkali	

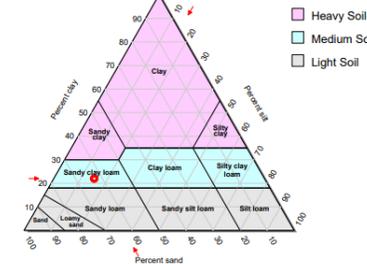
Where no future crop code has been given, levels are calculated assuming an arable crop. If general fertiliser and lime recommendations have been requested, these are given on the following sheets. The analytical methods used are as described in DEFRA Reference Book 427. The index values are determined from the DEFRA Fertiliser Recommendations RB209 9th Edition.

Microbial Activity

	CO ₂ - C	209 mg/kg	Low	Moderate	Good	High
Cropped						
Grass land						

Benchmarked relative to UK agricultural mineral soils.

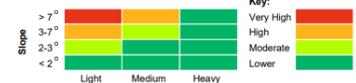
Textural Classification



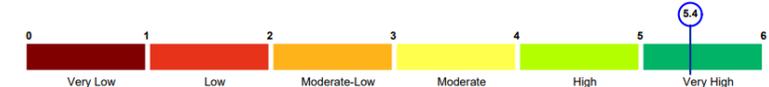
Breakdown:	Sand 63%	Silt 15%	Clay 22%
Soil Textural Class:	Sandy Clay Loam		
Major Soil Classification:	Medium		
Calcium Carbonate Content:	<1% Non-calcareous		
Slope:	3°		

In very calcareous soils (>10% calcium carbonate) the silt and clay sized fractions are likely to contain particles of carbonate which may result in the incorrect classification of soil type.

Water Erosion Risk



Soil Health Index - Based on soil chemical, physical and biological results.



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2025 - *Fast-track to Soil Health organised by Upper Deben/Alde/Ore cluster facilitator (CSF contribute).* ———> The Farming Equipment and Technology Fund (FETF) 2025 for Grassland pasture aerator. Expected average cost of item (£): 3,498, 40% towards item. Increase infiltration rates, reduce runoff.



2025 – Hedgerow event at Porter Farms.

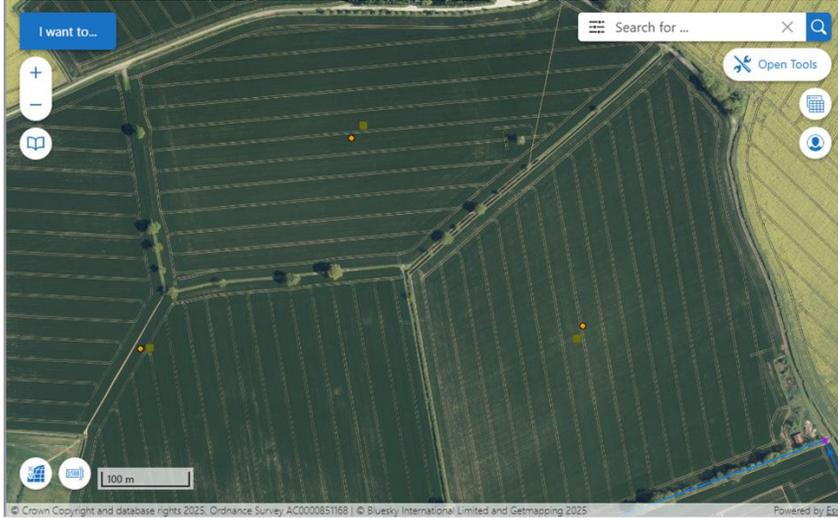
How can we reduce the amount of 'slurry' on site - roofing? Opportunities for reducing ammonia emissions?

Cover slurry stores to reduce ammonia emissions and depending on type of cover reduce amount of slurry – expensive. Slurry wizard can be used to calculate existing storage, storage required, calculates runoff from yards, runoff from roofs, total livestock N/kg/year, slurry produced from livestock. Slurry wizard was required for Slurry infrastructure grant.

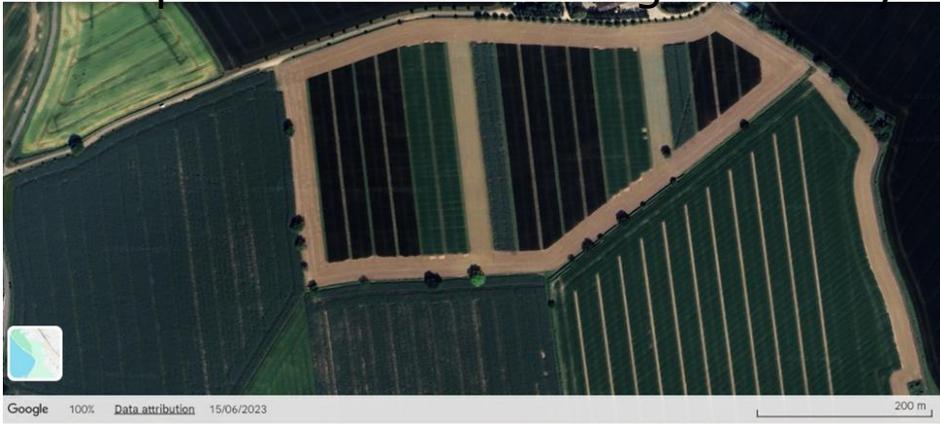


AHDB Slurry Wizard ~ Livestock Data Entry								
Livestock	Age	Liveweight/milk yield (litres)	Number of livestock	% collected as slurry	Annual N output kg/year	Daily excreta (l/day)	Total collected as slurry (l/day)	Total N (kg/year)
Beef Suckler	Over 24 months	Large (> 500)	100	50%	83.0	45.00	2250	8300
Beef Suckler	Over 24 months	Small (< 500)		100%	61.0	32.00	0	0
Grower	Over 24 months	-		100%	50.0	32.00	0	0
Grower	12 to 24 months	-	10	50%	50.0	26.00	130	500
Grower	2 to 12 months	-	98	50%	28.0	20.00	980	2744
Bulls Beef	Over 2 months	-		100%	54.0	26.00	0	0
Bulls for breeding	Over 24 months	-		100%	48.0	26.00	0	0
Bulls for breeding	2 to 24 months	-		100%	50.0	26.00	0	0
Calf	Under 2 months	-	98	50%	1.4	7.00	343	137
Total number of cattle			306			Totals for cattle	3703	11681
Pigs								
1 sow place inc. litters	Litter up to 7kg	With syn amino acid		100%	16.0	11.00	0	0
1 sow place inc. litters	Litter up to 7kg	No syn amino acid		100%	18.0	11.00	0	0

Future scheme for the farm- includes Agroforestry



Example of a local farm agroforestry



Whats involved?

- PA4 agroforestry plan- This item supports the healthy establishment of an in-field agroforestry system (farmer and/or agent).
- Local FC (Forestry commission) Agroforestry Woodland Officer, FC ecologist and deer officer.
- Local NE TAP-D (Natural England Tree Action Plan – Delivery) Adviser (Sophie Curwen), NE protected sites team and Environment Impact Assessment team.

Contact your local CSFA
gov.uk/catchment-sensitive-farming



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