

Sustainable and Holistic Food Chains for Recycling Livestock Waste to Land



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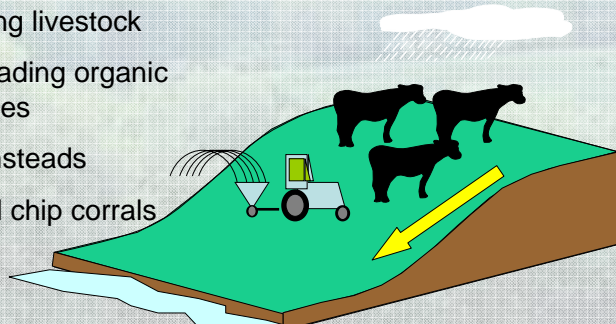
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Background

Transfers to water (organic matter, pathogens)

Sources of pollutants:

- Grazing livestock
- Spreading organic resources
- Farmsteads
- Wood chip corrals



Pathways:

- Drains
- Ditches
- Runoff
- Livestock in streams
- Aerosols

Impacts on:

- Water quality
- Industries dependant on clean water

Shell fisheries



Tourism



Rural economies



Methods

- Catchment selection – River in North Devon
- Interview up to 100 farmers
- Establish focus groups (farmers, EA, retailers, shell fisheries, NFU), citizens juries
- Develop field, farm and catchment scale risk assessment tools using expert panels, on farm assessments and nationally available datasets'

Aims

A multi-scale approach from farm to regional level

To determine the potential impact of introducing changes in management to control pathogen transfers from:

- grazing livestock
- manures (slurry, dirty water, solid manure)
- farmsteadings – (yards, tracks, sheds and barns)

And determine the impact on

- farm economics
- practicalities at the farm level

And 'knock-on' effect on

- local communities
- industries

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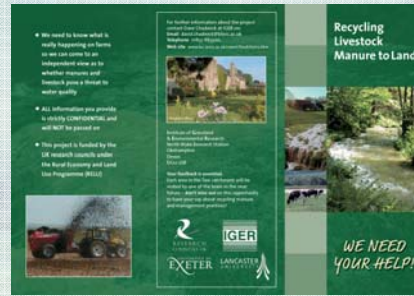


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Farmer Recruitment

- ID farms within the catchment, Yellow Pages, Soil Association, Grassland Societies
- Farmer leaflet – mail shot with follow up phone call to arrange interviews

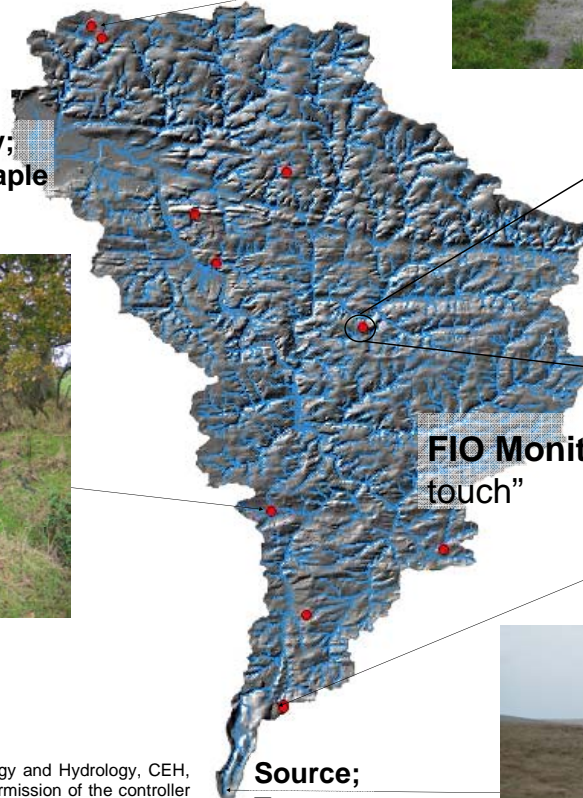


Stakeholder meetings
E.g. EA, NFU, farmers groups



Taw Catchment

Estuary;
Barnstaple



Weight	Field component	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)
1.0	Road potential	high/low	v low or low	medium	high	very high
1.0	Preferential flow potential	high/low	v low or low	medium	high	very high
1.0	Erosion potential	high/low	v low or low	medium	high	very high
1.0	Soil source characteristics	no inert	inert	inert/slow	slow	fast
1.0	Evidence of bacterial activity in the soil	none	low	medium	high	very high
1.0	Type of waste applied to field	none	injection	trailing shoe	spread	broadcast
1.0	Waste application method	none	none	slow dependent	fast	very fast
1.0	Waste application rate	none	25%	50%	75%	100%
1.0	Animal type grazing	none	none	none	none	none
1.0	Slipping durability	none	none	none	none	none
1.0	Electric isolation	none	none	none	none	none
1.0	Soil permeability characteristics	no	low	medium	high	very high
1.0	Subsurface drainage	no	yes, but poor condition	yes	yes	yes
1.0	Overland flow distance	low	medium	high	very high	very high
1.0	Livestock access to streams	no	low	medium	high	very high
1.0	Tracks and boundaries adjacent contour	no	low	medium	high	very high
1.0	Streamway location	no	low	medium	high	very high
1.0	Concentrated springs	no	low	medium	high	very high
1.0	Existing mitigation (minus)	None (0)	Some (2)	A lot (4)		

FIO field risk index = [?(transfer characteristic score x weight)]
x [?(source characteristic score x weight)]
x [?(connectivity characteristic score x weight)]
- [?(existing mitigation x weight)]

RECYCLING LIVESTOCK WASTE TO LAND PROJECT FARM RISK ASSESSMENT QUESTIONNAIRE

Farm and field conditions / manure management

Survey No: _____

Q1. Site information _____

Q2. Farm name _____

Q3. Can you show me on the map - the boundaries of your farm?

Q4. What area does your farm cover (farmyard and land)? ___ Acres

Q5. And what area of your farm do you own? ___ Acres

Q6. Can you give a break-down of field use (estimated acres of land use)?

Permanent Pasture _____

Temporary Pasture/Lay area _____

Forage Crops _____

Arable crops _____



FIO Monitoring "light touch"



River network based on digital spatial data licensed from the Centre for Ecology and Hydrology, CEH, which includes materials based on Ordnance survey 1:50000 maps with the permission of the controller of her Majesty's stationery office Crown Copyright (0186A). Catchment boundary derived from the NextMap Britain dataset.

Source;
Taw