# An overview of the UKCEH Land Cover® *plus* datasets

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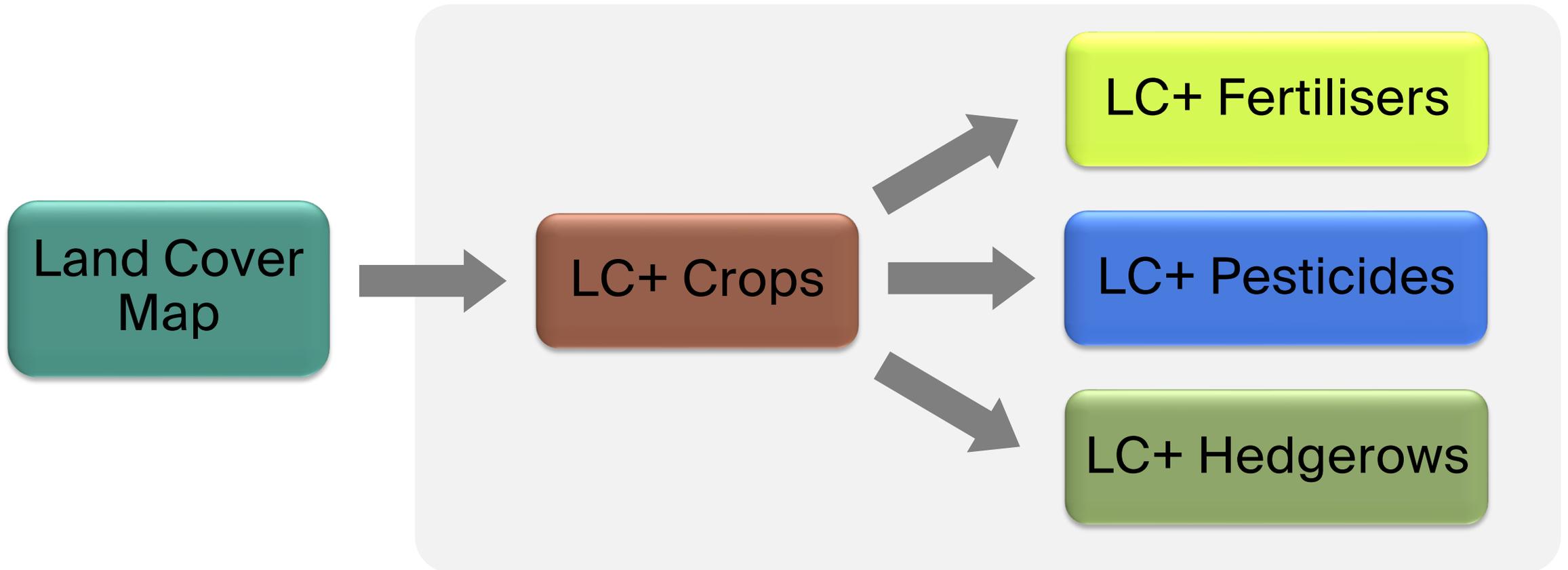
10th February 2026

UKCEH — Our planet. Decoded.

Digimap®

# UKCEH Land Cover® *plus:*

# UKCEH Land Cover® *plus:* Crops

**2025 data available now: 11 years!**
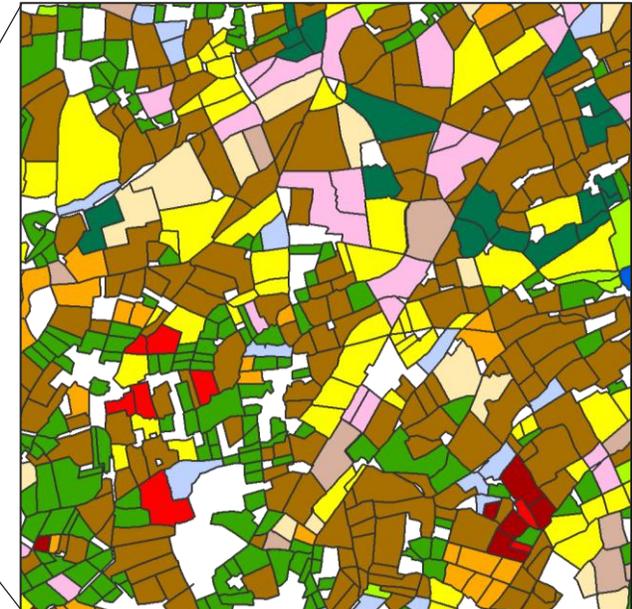
Vector (polygon) product
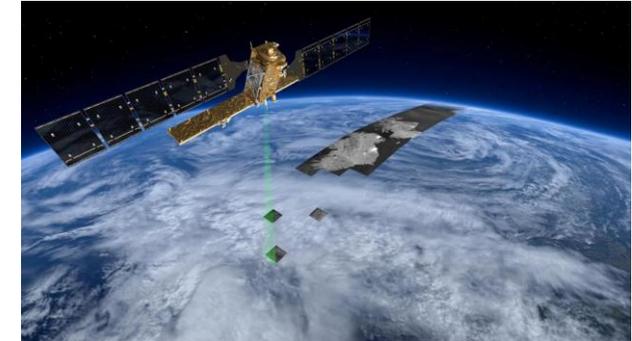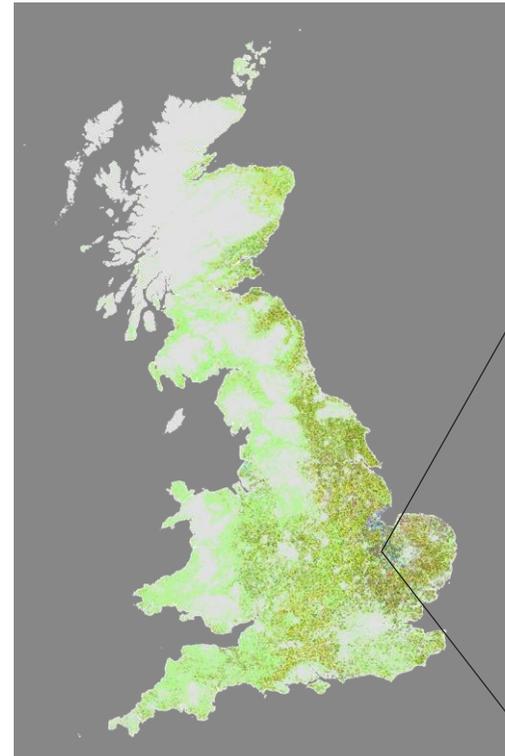
Produced annually since 2015

First GB-wide field-level crop map

UKCEH & RSAC
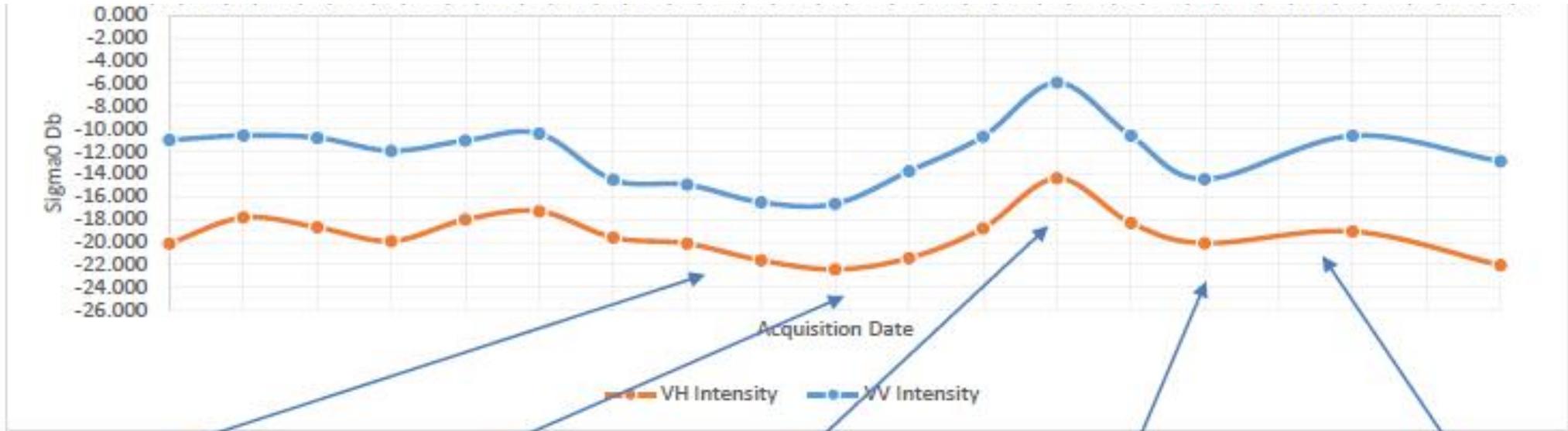
Sentinel 1 backscatter & Sentinel 2 optical

< 2 million fields

Up to 16 crop types classified and verified

Crop map main page: https://www.ceh.ac.uk/data/ceh-land-cover-plus-crops-2015
Quality assurance info: https://www.ceh.ac.uk/ukceh-land-coverr-plus-crops

# UKCEH Land Cover® *plus:*Crops

# Multiple years: many possibilities!
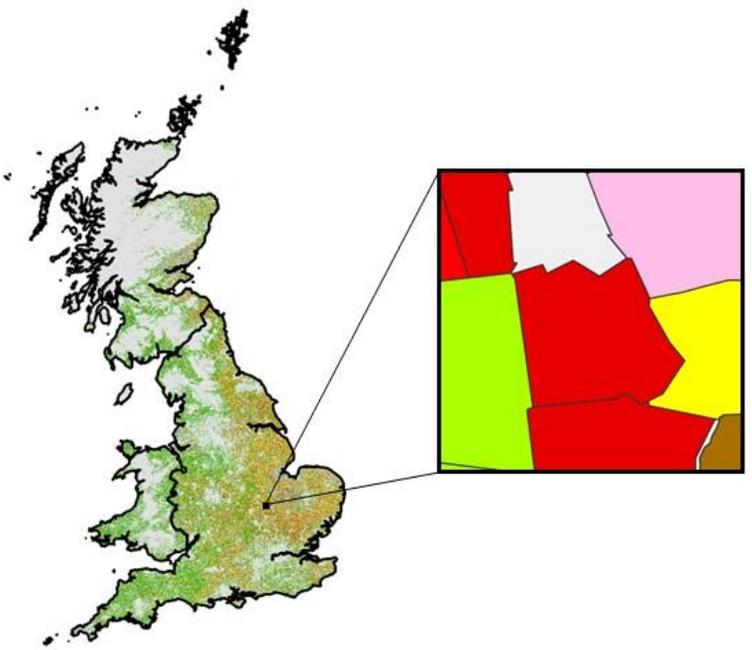


2015  field beans
2016  winter barley
2017  spring wheat
2018  oilseed rape
2019  peas
2020  spring oats

# Crops in research
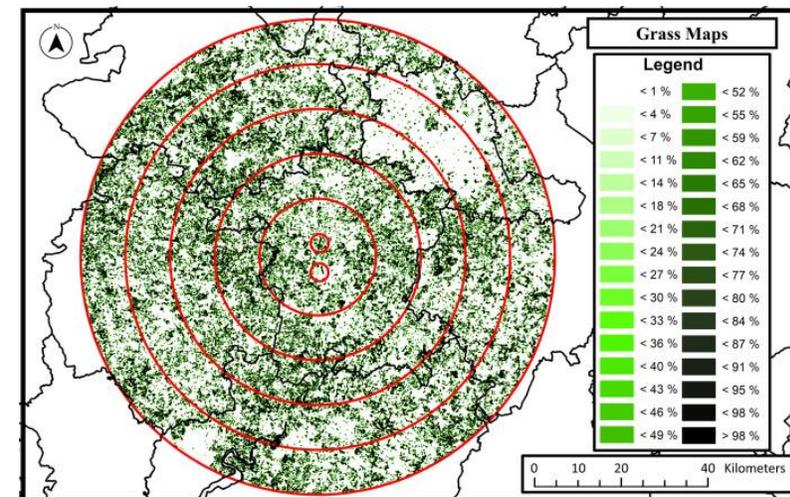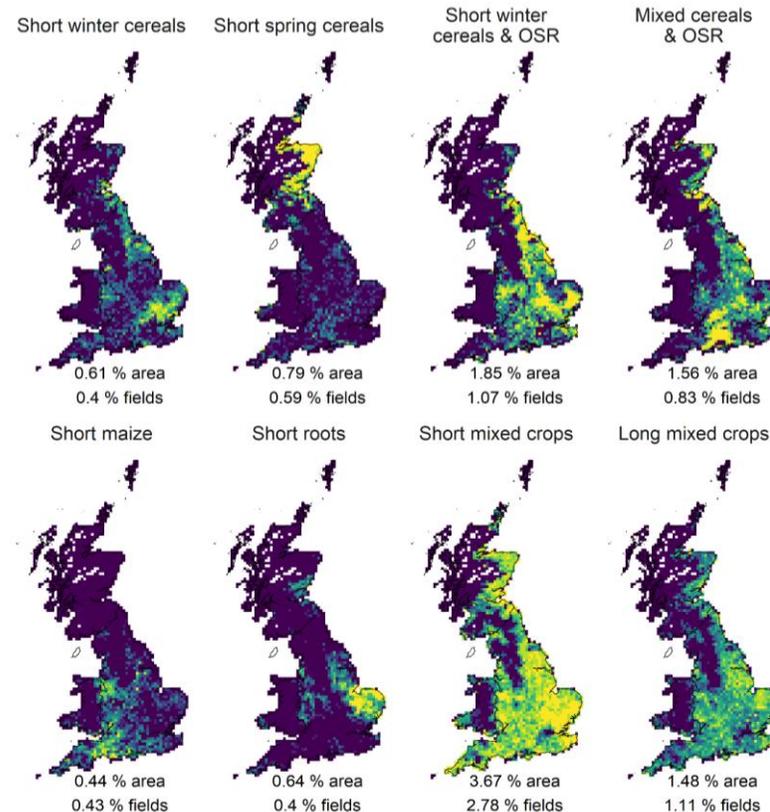


*Simulating crop sequences[1]*



Short winter cereals
0.61 % area
0.4 % fields

Short spring cereals
0.79 % area
0.59 % fields

Short winter cereals & OSR
1.85 % area
1.07 % fields

Mixed cereals & OSR
1.56 % area
0.83 % fields

Short maize
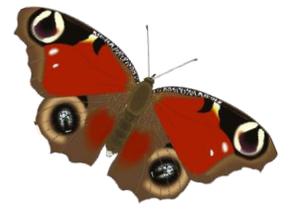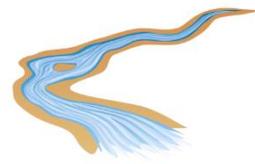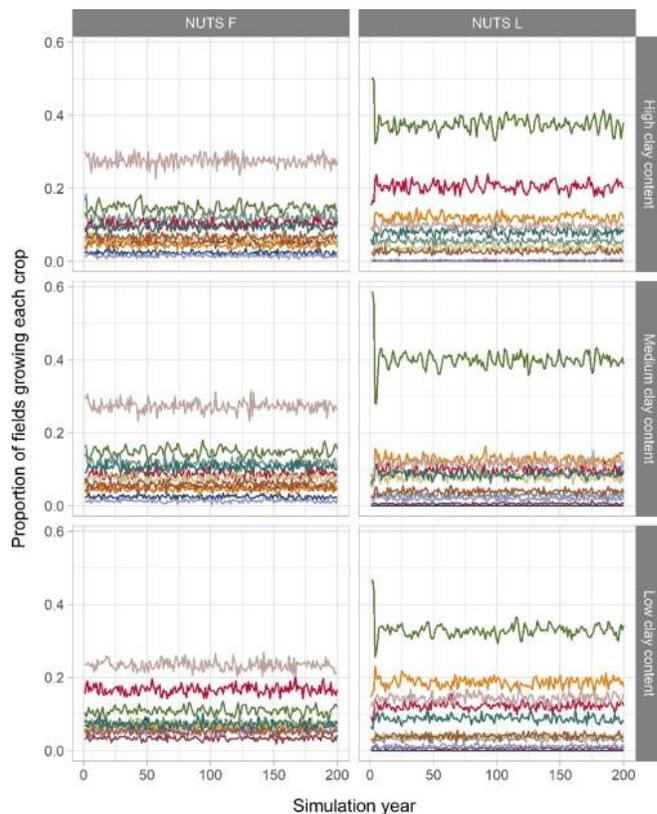0.44 % area
0.43 % fields

Short roots
0.64 % area
0.4 % fields

Short mixed crops
3.67 % area
2.78 % fields

Long mixed crops
1.48 % area
1.11 % fields

*Characterising crop rotations and predicting the next crop in a rotation[2]*



*Providing accurate predictions of grass pollen concentrations[3]*

[1]Sharp et al. (2021) https://doi.org/10.1016/j.compag.2021.106330; [2]Upcott et al. (2023) https://doi.org/10.1016/j.scitotenv.2022.160471; [3]Frisk et al. (2022) https://doi.org/10.1016/j.scitotenv.2021.152806

# Crops in research
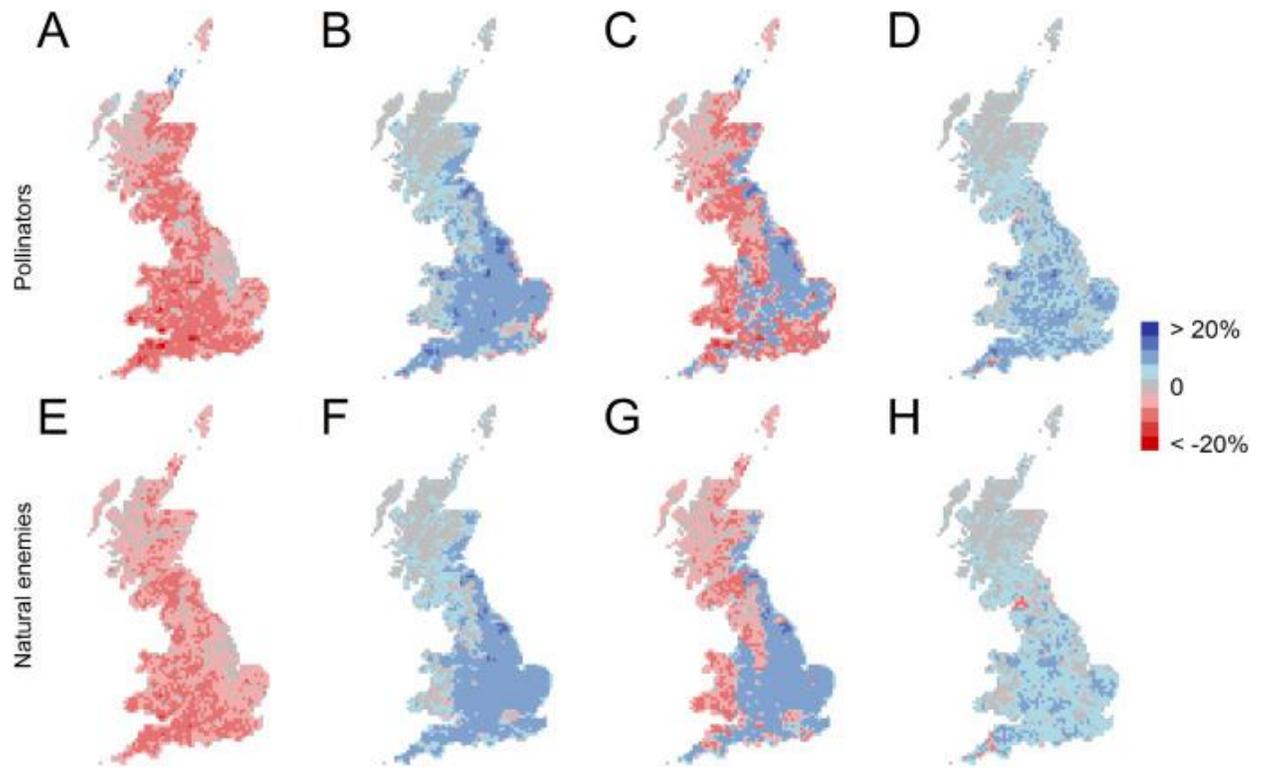


*Investigating effects of future agricultural intensity on insects[1]*

[1]Redhead et al. (2020) https://doi.org/10.1016/j.jenvman.2020.110550;
[2]Gardner et al. (2024) https://doi.org/10.1007/s10980-024-01866-4
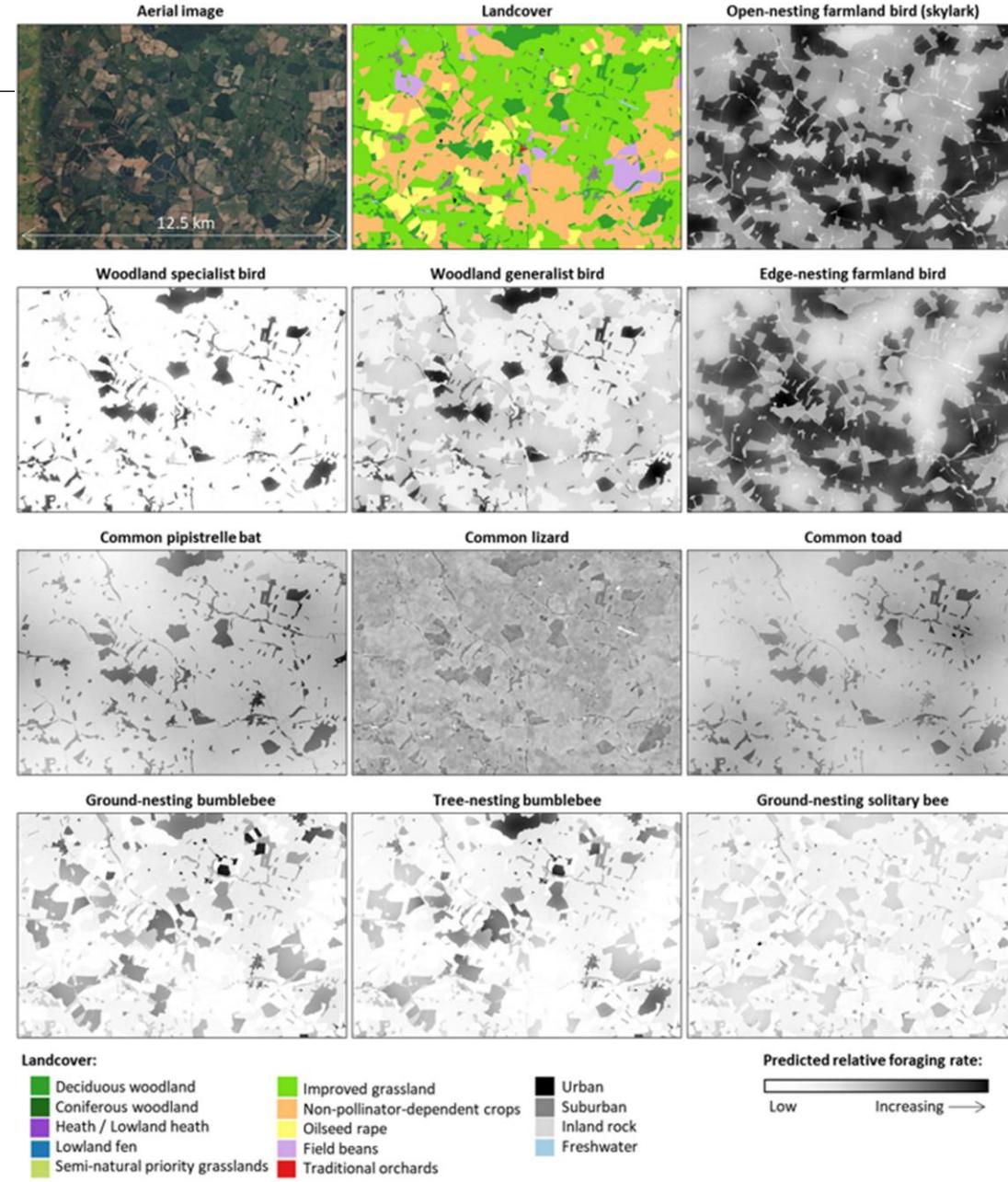
*Creating a family of process-based models simulating landscape use by various groups of species (*4pop)[2]*

# UKCEH Land Cover® *plus:* Fertilisers

***NEW maps***

**Now for individual years 2015-2021**

Raster product, 1km pixel

Total fertiliser application

Nitrogen, Phosphorus, Potassium

Total kg/km$^2$

England

Application and uncertainty maps



Nitrogen 2015

Info: https://www.ceh.ac.uk/data/ukceh-land-cover-plus-fertilisers-and-pesticides
Documentation: https://doi.org/10.5285/0fdfd1c8-eb14-4eef-9cc5-eeb00e1fcafa
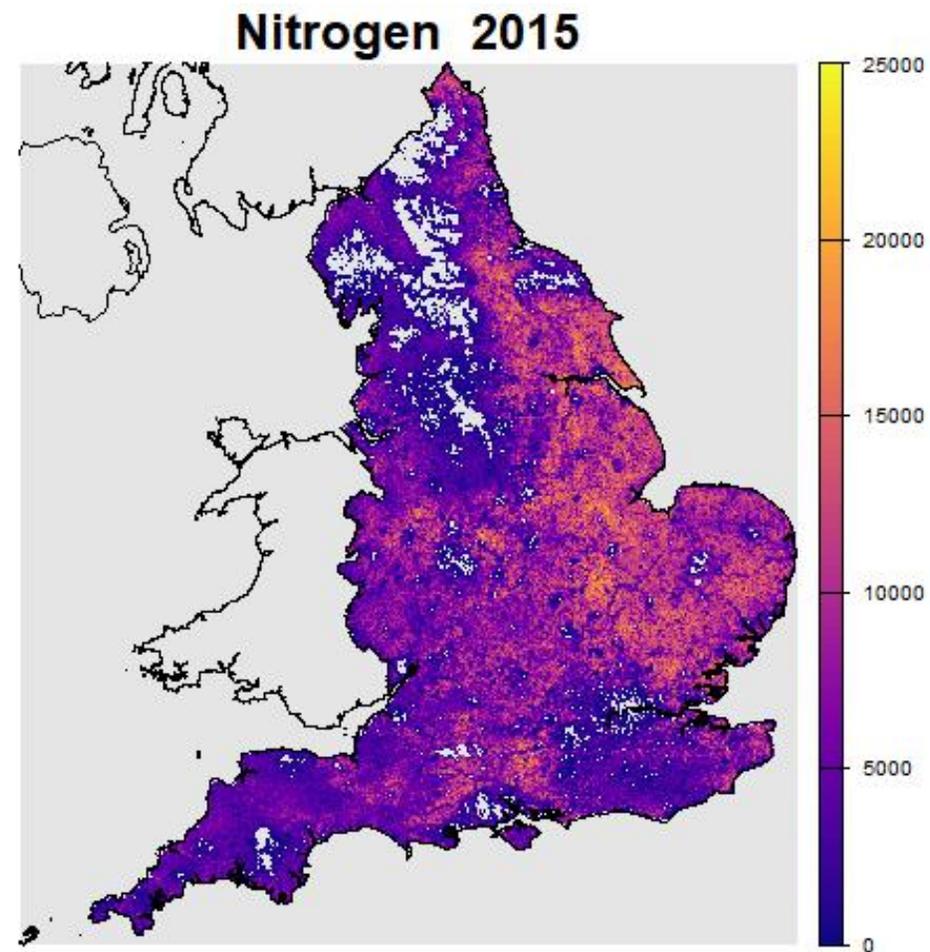
# UKCEH Land Cover® *plus:* Fertilisers

THE BRITISH SURVEY OF

## Fertiliser Practice

FERTILISER USE ON FARM CROPS

Anonymised data 2015-2021

Spatial interpolation model + crop area →
1km applications



Nitrogen 2015

Info: https://www.ceh.ac.uk/data/ukceh-land-cover-plus-fertilisers-and-pesticides
Documentation: https://doi.org/10.5285/0fdfd1c8-eb14-4eef-9cc5-eeb00e1fcafa
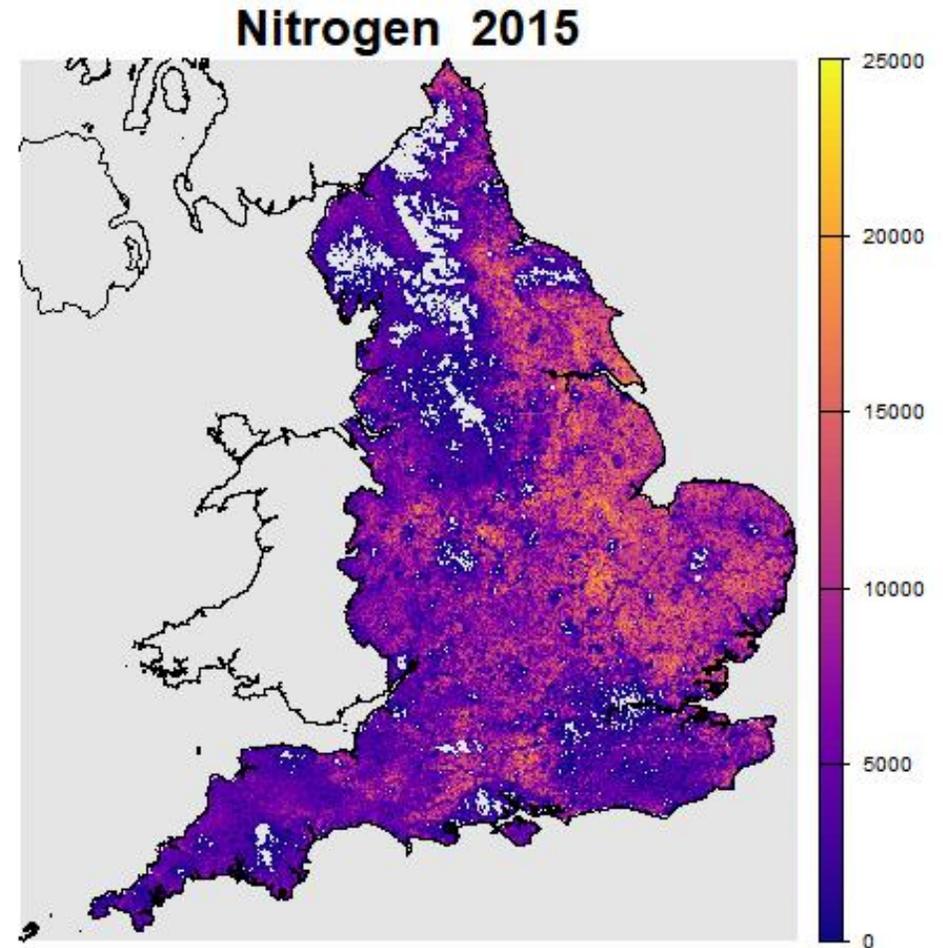
# UKCEH Land Cover® *plus:* Fertilisers

Older version still available

Average annual fertiliser application

2010-2015 snapshot



Info: https://www.ceh.ac.uk/data/ukceh-land-cover-plus-fertilisers-and-pesticides
Documentation: https://doi.org/10.5285/15f415db-e87b-4ab5-a2fb-37a78e7bf051
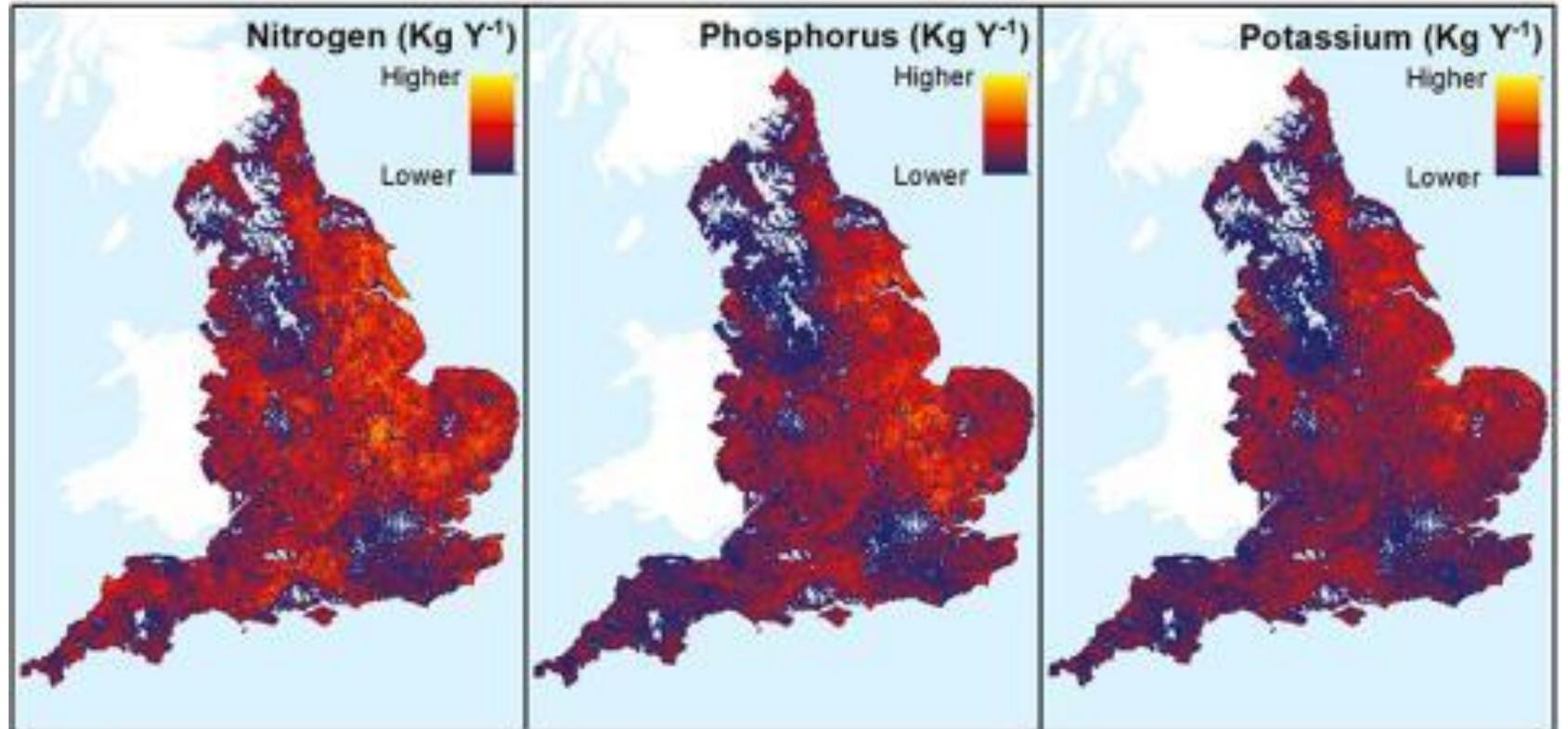
# UKCEH Land Cover® *plus:*Pesticides

Raster product, 1km

Average annual pesticide application

162 active ingredients

Total kg/km²/year

England, Wales & Scotland

2012-2017 snapshot

Application and uncertainty maps



Info: https://www.ceh.ac.uk/data/ukceh-land-cover-plus-fertilisers-and-pesticides
Documentation: https://doi.org/10.5285/99a2d3a8-1c7d-421e-ac9f-87a2c37bda62
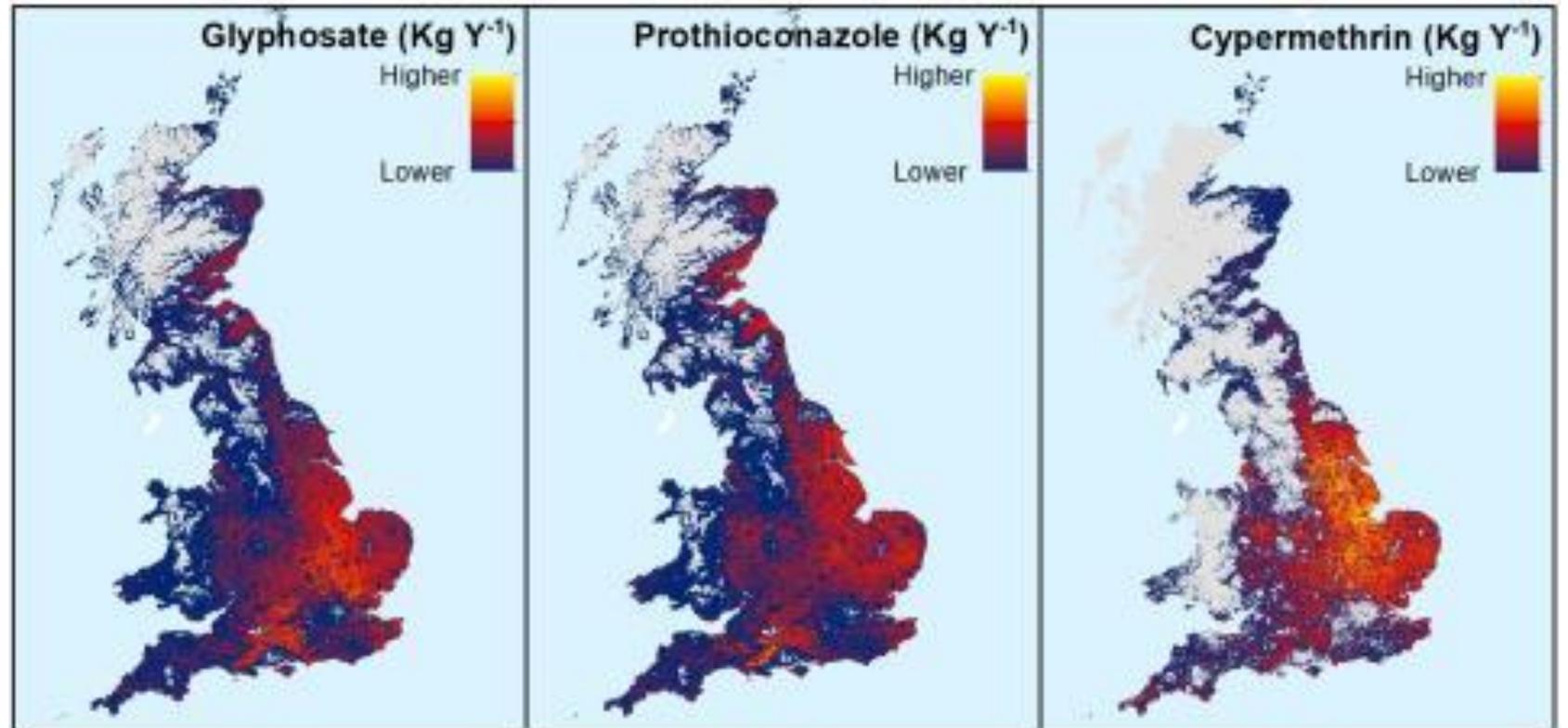
# UKCEH Land Cover® *plus:* Pesticides



County-level data from Pesticide Usage Survey & Scottish government

Pesticides are crop- and location-specific

Crop maps 2015-2017 in model & filling in gaps

Info: https://www.ceh.ac.uk/data/ukceh-land-cover-plus-fertilisers-and-pesticides
Documentation: https://doi.org/10.5285/99a2d3a8-1c7d-421e-ac9f-87a2c37bda62

# Pesticides and Fertilisers in research

Estimating agrochemical exposure risk in honeybees[1]
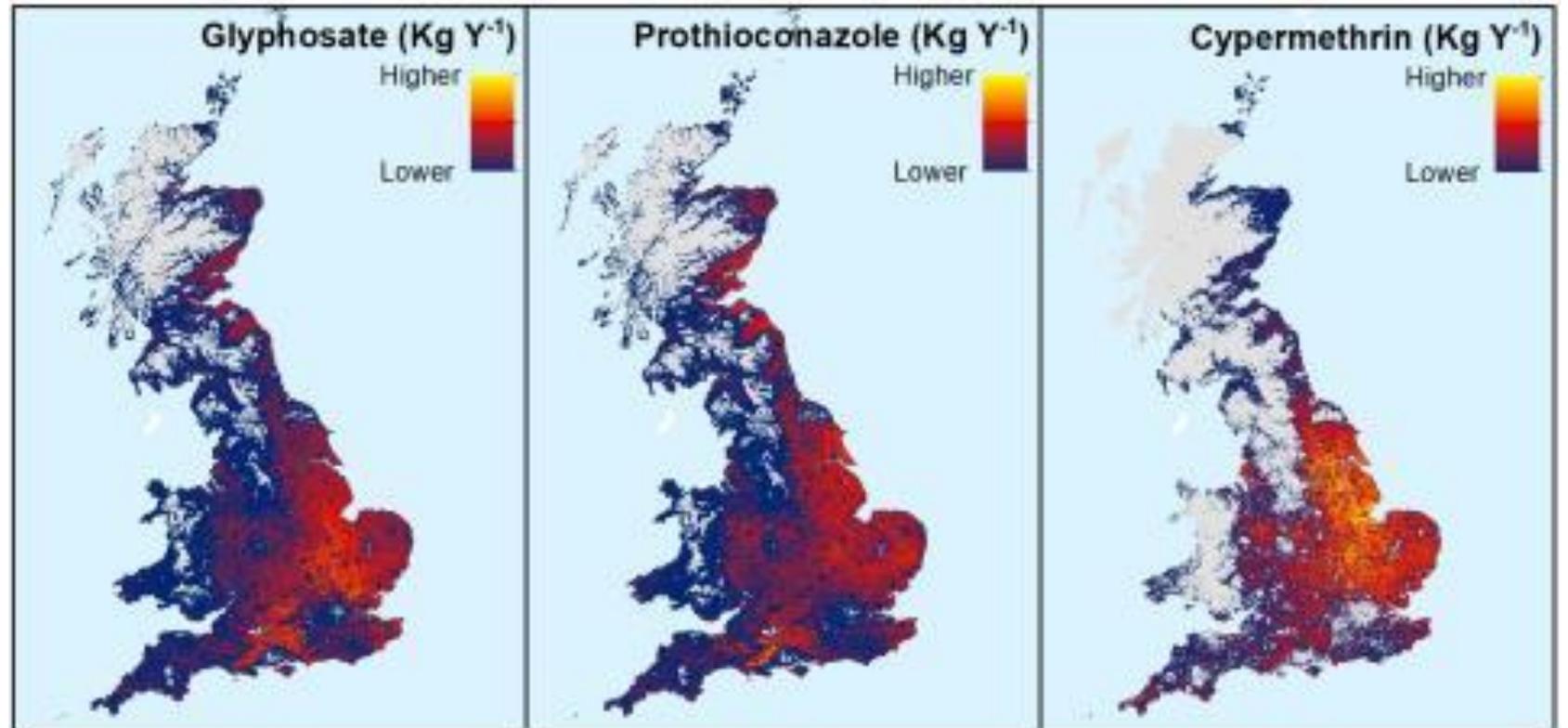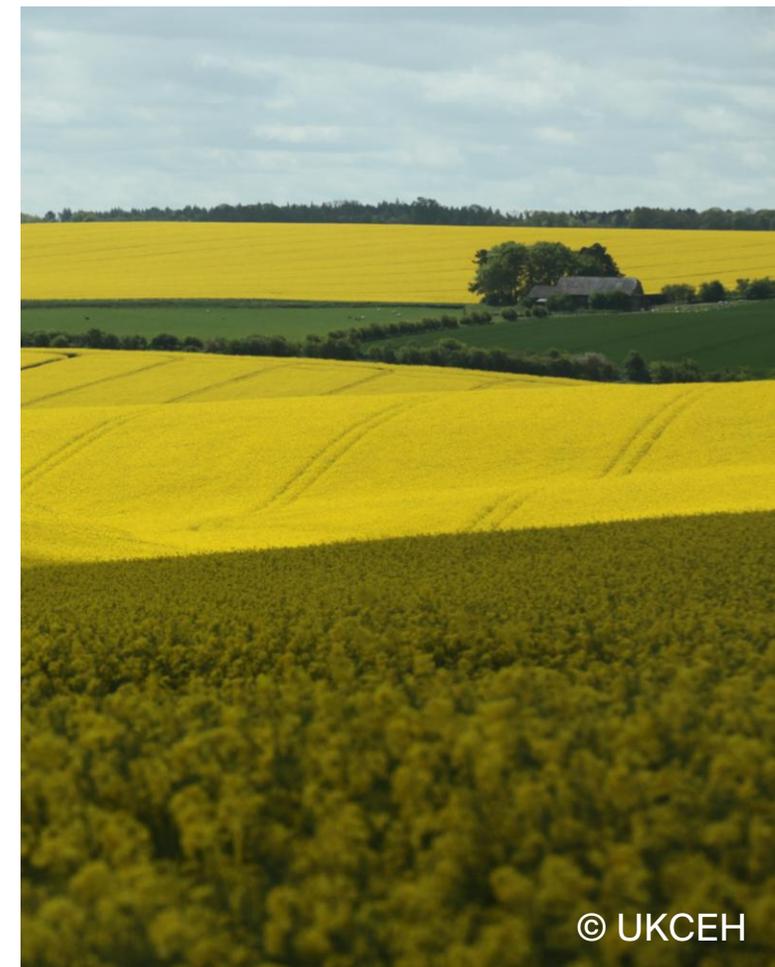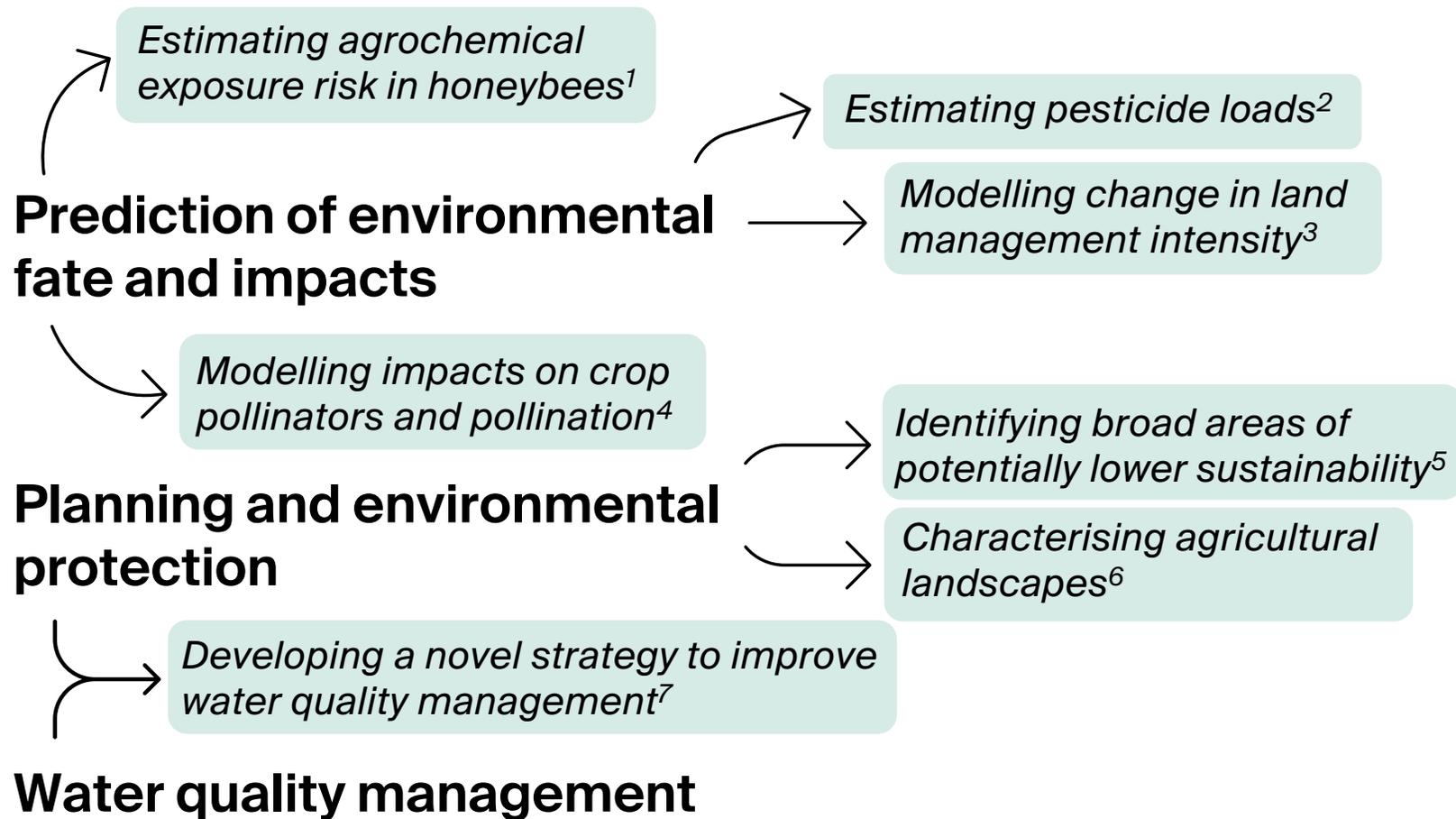
Estimating pesticide loads[2]

**Prediction of environmental fate and impacts**

Modelling change in land management intensity[3]

Modelling impacts on crop pollinators and pollination[4]

Identifying broad areas of potentially lower sustainability[5]

**Planning and environmental protection**

Characterising agricultural landscapes[6]

Developing a novel strategy to improve water quality management[7]

**Water quality management**

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[1]Woodcock et al. (2022) doi.org/10.1038/s41598-022-18672-0; [2]Upcott et al. (2025) doi.org/10.1016/j.scitotenv.2025.179223; [3]Brown et al. (2022) doi.org/10.1029/2022EF002905; [4]Rollin et al. (2022) doi.org/10.1016/j.gloenvcha.2022.102529; [5]Bullock et al. (2024) doi.org/10.1016/j.scitotenv.2023.168491; [6]Goodwin et al. (2022) doi.org/10.1088/1748-9326/ac810e; [7]Taylor et al. (2021) doi.org/10.1016/j.scitotenv.2021.147519

# UKCEH Land Cover® *plus:* Hedgerows



Visualisation: https://www.rgs.org/about-us/what-is-geography/geovisualisation/mapping-englands-hedgerow-landscape
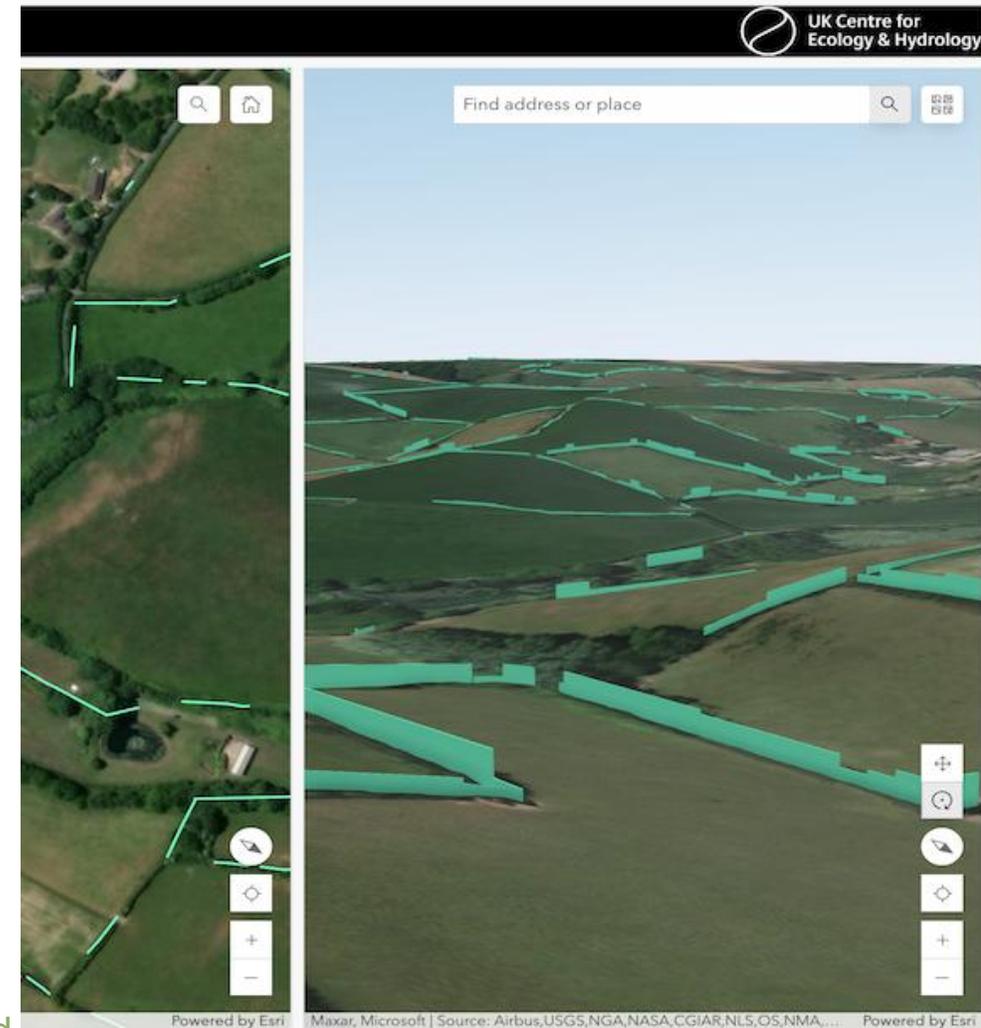
# UKCEH Land Cover® *plus:* Hedgerows

Vector (linear) product

2016-2021 snapshot of hedgerows in England

390,000km 1-6m tall

Data:

- 6 height classes, 0.5m – ≥ 6m

- Length: ≥ 2m

- Hedgerow structure: single, double etc.



Info: https://www.ceh.ac.uk/data/ukceh-land-cover-plus-hedgerows-2016-2021-england
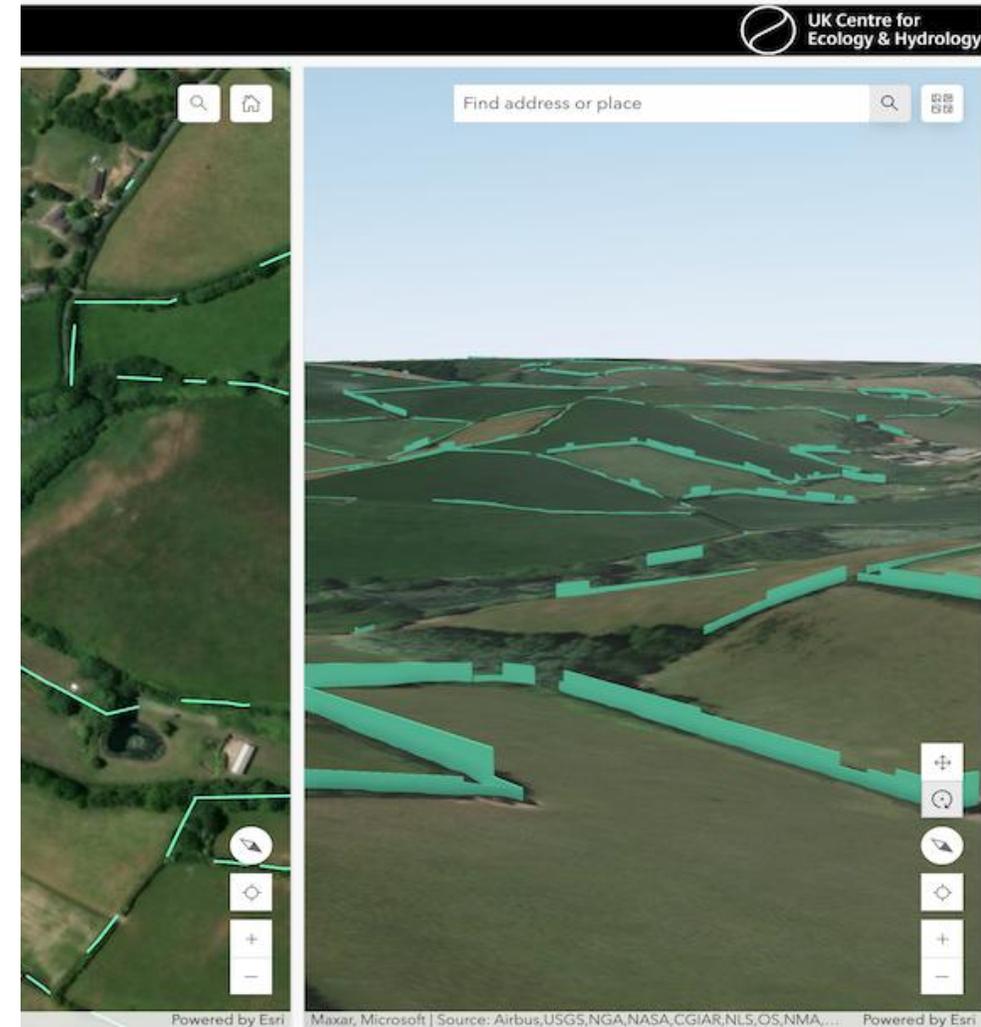Documentation: https://doi.org/10.5285/d90a3733-2949-4dfa-8ac2-a88aef8699be

# UKCEH Land Cover® *plus:* Hedgerows

Environment Agency LiDAR

Spatially integrates with LCM and LC+ products

Compatible with Countryside Survey height classes

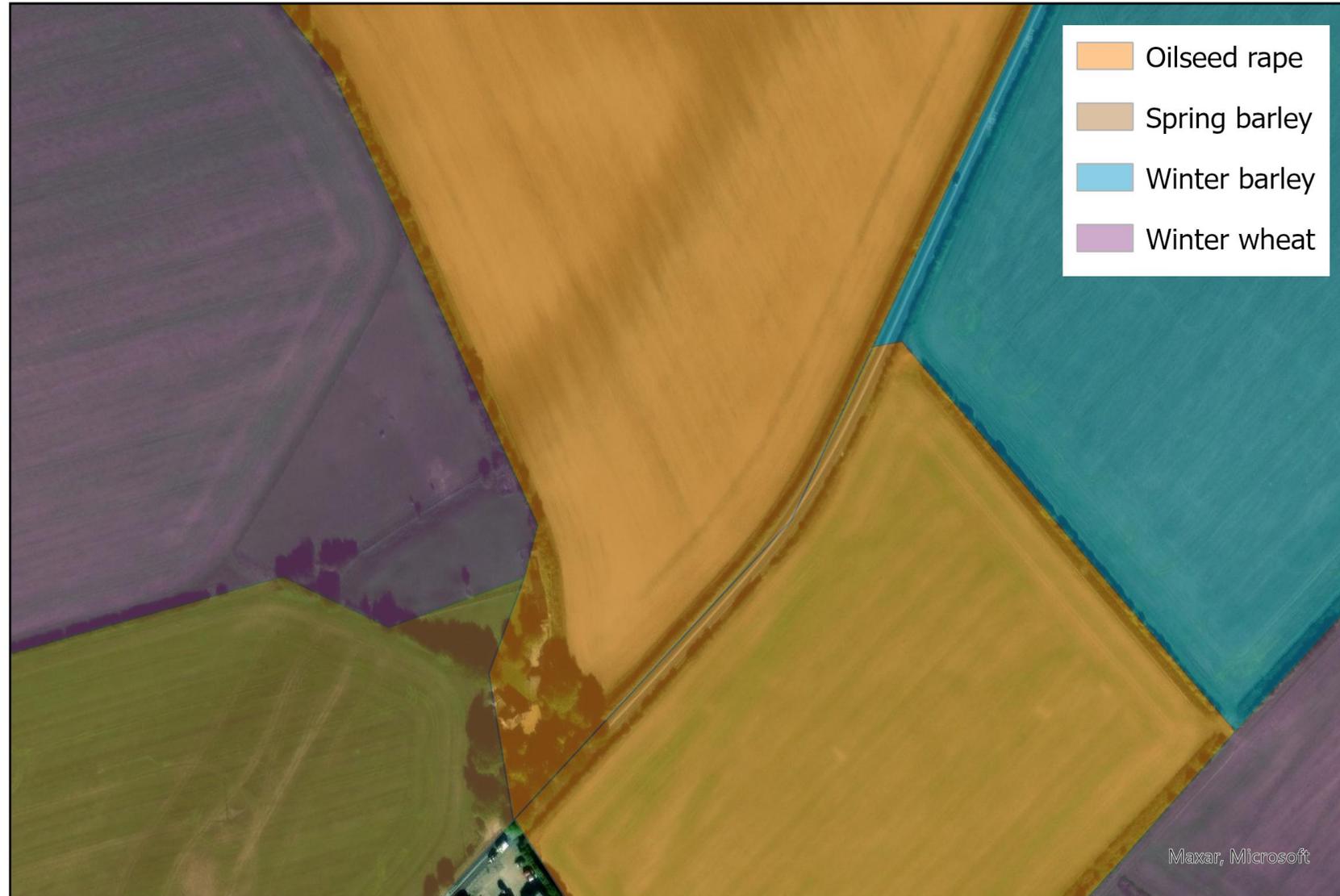80-90% accuracy of length compared to field verification

# UKCEH Land Cover® *plus:* Hedgerows



Maxar, Microsoft

# UKCEH Land Cover® *plus:* Hedgerows

Crop types



Oilseed rape
Spring barley
Winter barley
Winter wheat

Maxar, Microsoft

UKCEH

# UKCEH Land Cover® *plus:* Hedgerows

Height classes



Legend:
- 0.50-0.99m
- 1.00-1.49m
- 1.50-1.99m
- 2.00-2.99m
- 3.00-3.99m
- 4.00-5.99m
- 6.00+m

Maxar, Microsoft

# UKCEH Land Cover® *plus:* Hedgerows
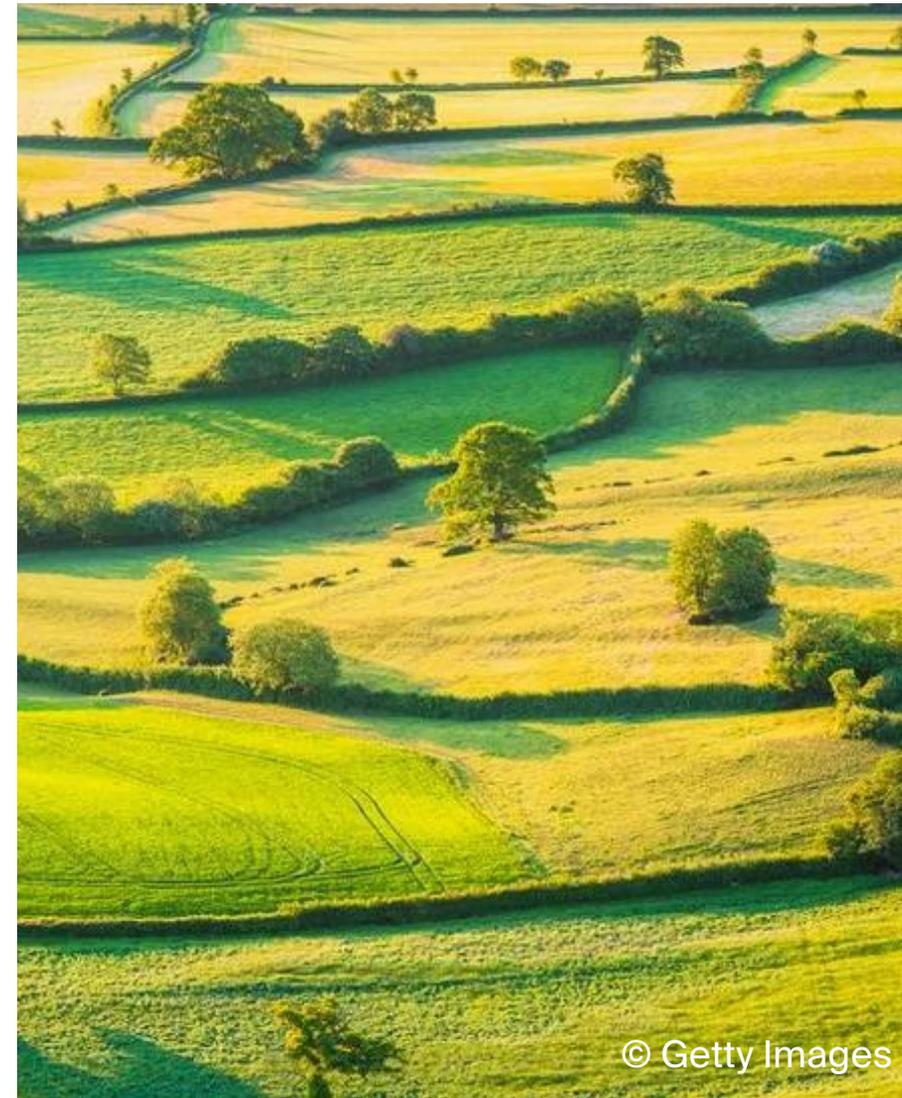
Width classes

# Hedgerows map potential

Benchmark dataset

Could be further developed, e.g. carbon storage

Hedgerow height – infer management

Habitat corridors and connectivity

Podcast: https://audioboom.com/posts/8448529-hedgelife-390-000

# LC+ maps to come...

**LC+ Pesticides**, later in 2026

3 timeslices to capture changes:

- 2012-2014

- 2016-2018

- 2020-2022

Follows same data and methodology where possible as the current LC+ Pesticides maps

**LC+ Crops 2026**, next winter



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# Licensing

UKCEH Land Cover® *plus*: **Crops**, **Fertilisers**, **Pesticides** and **Hedgerows** are **free for research purposes** through Digimap, same as LCM vector

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# Thank you.

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