

Developing the evidence base to describe the flood risk to agricultural in England and Wales

Technical Summary: FD2634

The below is an extract only, please see the Technical Report for further detail and clarification.

Introduction

Flood and coastal erosion risk management (FCERM) activities have shaped much of today's agricultural production having reclaimed and improved the floodplains of the rivers and coast in England and Wales for agricultural purposes over hundreds of years. The aim of this project is to identify, assemble, verify and utilise a numerical evidence base together with an agreed and repeatable methodology to describe the flood and coastal erosion risk to agricultural land in England and Wales.

The study only examined flood risk presented from rivers or the sea. Throughout the analysis, the quality and relevant of the input data should be borne in mind. It should also be remembered that the methods used are focused on providing a credible national view not local accuracy.

Headline Results

This project represents an attempt to comprehensively quantify for the first time the extent of flood and coastal erosion risk to agricultural land in England and Wales. The below summarises headline findings for selected questions. For full details, including assumptions and limitations, please refer to the main technical report.

Q1: What is the total of land at risk of flooding from (i) rivers and watercourses (ii) the sea (iii) any other source, within the extreme flood outline?

The area of land at risk of flooding in England is (i) 987,800ha from rivers and watercourses; (ii) 441,300ha from the sea; and, (iii) 226,300ha from rivers and sea. This gives a total area of land of 1,655,400ha at risk of flooding in the 1 in 1000 year event.

Q2: How much of this area is agricultural land?

In England there are 1,224,900ha of land in agricultural use (LCM2000) in the floodplain (of the 1 in 1000 year event). This covers 74% of the total area of the floodplain.

Q3: What do these areas represent as a percentage of the national resource? Are there high-value, specialist, or regionally constrained farming outputs that are disproportionately at flood risk?

The total area of best and most versatile (ALC Grade 1, 2 and 3) agricultural land in England is 7,841,000ha. Of this, 1,038,100ha is within the floodplain. This equates to 13% of the total. However, of the total area of ALC Grade 1 land in England (323,000ha), 58% is located within the floodplain (187,000ha).



Q4: What is the area of agricultural land that is presently protected by defences?

Agricultural land may be situated in the floodplain but not benefit from defences either because defences are not present or because the land sits beyond the protection of the defence. 762,000ha of agricultural land in England benefits from flood defences.

Q5: What is the area and grade of agricultural land benefiting from pumped drainage?

It is not possible to identify the total area of agricultural land benefiting from pumped drainage as the benefit area for each pumping station is not routinely identified. However, the Internal Drainage Board (IDB) dataset has been used to identify the area of agricultural grade land falling within IDB districts. Of the total 1,169,200ha covered by IDB districts in England;

- 191,700ha is Grade 1 (16%),
- 331,300ha is Grade 2 (28%),
- 537,300ha is Grade 3 (46%),
- 103,700ha is Grade 4 (9%), and
- 5,200ha is Grade 5 (<1%).

Q6: What is the expected annual damage avoided to agricultural land by FCERM defences?

The expected annual damage avoided is calculated considering separately fluvial and coastal defences. In England, the presence of fluvial defences avoids £5 million of expected annual damages, whereas coastal defences avoid £110.8 million.

Q11 & Q12: What is the area of land that has been converted to inter-tidal habitat through manage realignment (or other similar techniques such as RTE) in England? What percentage of this area of managed realignment was previously agricultural (within 10 years prior to conversion)?

In England, the total area of land converted to inter-tidal habitat in the period 1991 to 2009 through managed realignment is around 1180ha. of this, 700ha (59%) was identified as arable use in LCM 1990.

Q16 & Q17: What is the extent and grand of agricultural land currently classified as within an inland flood storage are in England? What is they typical frequency and seasonality of flooding in flood storage areas?

The total area is 14,300ha. The frequency of flooding for the storage area is detailed below:

Frequency of flooding (by return period, years)	Area of flood storage area flooded (ha)
<5	0
5 – 10	30
10 – 20	240
20 – 75	1,230
75 – 200	590
>200	11,690
Outside flood zone	570

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