AGRICULTURE ACROSS LINCOLNSHIRE

Analysis of the latest Defra Agricultural Survey Data plus additional data

Version 3 - October 2022

Codename: Consulting

CONTENTS

DISCLAIMER

This document contains data from the Department for Environment, Food & Rural Affairs, and the Office for National Statistics, that has been made available under an Open License and accessed via the gov.uk website and nomisweb respectively. Data has also been obtained under the Greater Lincolnshire Local Enterprise Partnership licence with Burning Glass / Emsi.

Codename Consulting is not responsible for data verification nor data-cleaning, and data has been analysed as is, with any faults. As such, all data-driven conclusions in this report are based purely on the data available for public access at the time of writing. All data used in this document is either the most up-to-date available at the time of the data review, or the most relevant.

All maps have been produced using the open-source Geographic Information Systems software ‘QGIS,’ produced by the QGIS Development Team (2022) and made possible by the Geospatial Foundation Project.

INTRODUCTION

Lincolnshire County Council have identified a need to update and expand their understanding of the agricultural sector in Lincolnshire.

Recent previous work conducted by Codename Consulting has provided an overview of the number of holdings, the total farmed area, and crops grown across Lincolnshire (and Greater Lincolnshire) using the latest Department for Environment, Food and Rural Affairs (Defra) data available at that time (2016).

In line with previous releases then we would have expected a 2019 tranche of data released in 2020. However, Defra reported that regional data collection for 2020 was disrupted by Covid-19 and therefore, 2020 results could not be produced for this level of data. Subsequently in July 2022, Defra have now released a 2021 tranche of data and this is used extensively within this report, along with data from 2010, 2013 and 2016.

This latest 2021 data enables us to provide a much more detailed picture of agriculture across Lincolnshire over and above last year's summary. Additional analysis now includes numbers of livestock (cattle, sheep, pigs, and poultry) and information on the agricultural labour force on commercial holdings (broken down by farmers, salaried managers, regular workers, casual workers, and by full/part time), along with where possible analysis at local authority district level.

Other areas highlighted by Lincolnshire County Council as being of interest in terms of providing a fuller picture of the agriculture sector across Lincolnshire include land values, labour shortages, and land use for energy sites (solar farms and anaerobic digestion) and energy crops. With regards to land values then we have drawn on data from Knight Frank LLP, an estate agency, residential and commercial property consultancy. As for labour shortages then under the Greater Lincolnshire LEP licence we have accessed and analysed online vacancy data for the sector through Burning Glass / Emsi online labour market tool. Land use data on energy sites has been drawn from the Renewable Energy Planning Database.

All data throughout this report is sourced from Defra unless stipulated otherwise.

NOTES ON DATA

The vast majority of data in this publication is drawn from the Defra June Survey of Agriculture, a large sample survey sent to a representative sample of holdings across England. As the results are based on a sample survey, they are subject to a degree of sampling error and do not take into account other sources of survey errors, such as non-response bias or administrative data errors. Cattle results are sourced from the Cattle Tracing System.

All the Defra data refers to commercial holdings. Commercial holdings are those with significant levels of farming activity. Commercial holdings are defined as those that exceed at least one of the thresholds detailed below:

Characteristics		Threshold
Utilised agricultural area	Arable land, kitchen gardens, permanent grassland, permanent crops	>5 ha
Permanent outdoor crops	Fruit, berry, citrus and olive plantations, vineyards and nurseries	>1 ha
Outdoor intensive production	Hops	>0.5 ha
	Tobacco	>0.5 ha
	Cotton	>0.5 ha
	Fresh vegetables, melons and strawberries, which are outdoors or under low (not accessible) protective cover	>0.5 ha
Crops under glass or other (accessible) protective cover	Fresh vegetables, melons and strawberries	>0.1 ha
	Flowers and ornamental plants (excluding nurseries)	>0.1 ha
Bovine animals	All	>10 Head
Pigs	All	>50 Head
	Breeding sows	>10 Head
Sheep	All	>20 Head
Goats	All	>20 Head
Poultry	All	>1,000 Head
Hardy nursery stock		>1 ha
Mushrooms	All mushroom holdings to be included	>0

FARM LABOUR - HEADLINES

- Total farm labour in Lincolnshire increased between 2010 and 2016 but has fallen in 2021. This is broadly in line with the national trend over this period.
- The agricultural sector in Lincolnshire is much more dependent on casual workers and regular full-time workers as part of its workforce than nationally. Despite this reliance, numbers of casual and regular full-time workers have fallen over time, particularly between 2016 and 2021.
- Between them Boston and South Holland account for over 3/4 of all casual agricultural workers in Lincolnshire.
- Boston and South Holland also have the highest levels of employment provided locally by employment agencies (3,150 and 4,050 respectively).
- The agricultural sector in Lincolnshire is less dependent on farmers / directors, which most likely demonstrates the larger farm sizes prevalent in Lincolnshire than nationally. Numbers of full-time farmers / directors have been on the increase but part-time farmer / director numbers have fallen between 2016 and 2021 (which is not in line with the national trend).
- East Lindsey has the highest proportions of both full and part-time farmers / directors (29% and 31% respectively).
- Online agricultural sector job vacancies increased significantly in 2021 in Lincolnshire compared to most of the last decade suggesting some issues locally for employers trying to recruit, though these appear not to be as acute as they were at national level.
- The largest increases in unique vacancy numbers between 2019 and 2021 were in the lower skilled / pay occupations of ‘Farm Workers’ and ‘Fishing and Other Elementary Agriculture Occupations not elsewhere classified’.

FARM HOLDINGS BY SIZE AND TYPE - HEADLINES

- The total number of farm holdings in Lincolnshire has decreased over time, and at 3,497 is at its lowest number over the last decade.
- Larger farm holdings with over 100 hectares of land make up over a third of all holdings in Lincolnshire compared to a quarter nationally.
- Farm holdings with between 20 and 50 hectares have experienced the largest drop in numbers.
- The number of horticultural holdings has dropped over the last decade and currently stand at 209 in 2021, nearly a 100 less than in 2010.
- The number of dairy holdings has also dropped significantly, falling from 39 in 2010 to just 14 in 2021. This follows a national trend but is much more pronounced locally.

FARMED AREA BY FARM SIZE/TYPE, AND LAND TYPE - HEADLINES

- The total farmed area in Lincolnshire has remained fairly static over time and at currently just less than 490,000 hectares, makes up 5.4% of the national total.
- East Lindsey is the only local authority district area in Lincolnshire to experience a decrease in its farmed area over the last decade.
- The vast majority of farmed area (87%) in Lincolnshire is farmed by holdings with more than 100 hectares. This compares with 75% nationally.
- At both Lincolnshire and national level, we can see over time that total farmed area has moved more into ownership, with less land being rented.
- At 382,636 hectares, and 84% of the total Lincolnshire farmed area (excluding horticultural crops), then arable land (defined as arable crops and uncropped arable land/bare fallow) is the dominant land type in Lincolnshire. Nationally, only 46% of farmed area is designated this land type.
- At 272,520 hectares, cereals dominate the total farmed area in Lincolnshire accounting for 56% of farmed area. The cereals farmed area has also increased by 10% since 2010, up from 247,200 hectares.
- Both the Lincolnshire pea and bean crop, and the all other veg and salad crop, are nationally significant accounting for 22% and 26% respectively of the farmed area nationally for these two crops. However, both have declined in terms of farmed area locally over the last decade. In the case of peas and beans then this is against the national trend of growth.
- At £11,000 per acre of prime arable land, then Lincolnshire features in the top 10 of English counties for land values.

CATTLE, PIGS AND POULTRY - HEADLINES

- Total cattle numbers in Lincolnshire have fallen by 20% since 2010, predominantly driven by decreases in the dairy herd.
- East Lindsey currently accounts for half of Lincolnshire's total cattle, with numbers there falling by 14% over the last decade.
- The total number of pigs in Lincolnshire has increased by 16% since 2010 (driven by increases in the number of fattening pigs), broadly in line with changes seen in pig numbers nationally.
- West Lindsey by far has the largest proportion of pigs across Lincolnshire's local authority districts at 49%. It has also seen pig numbers increase by 67% since 2010.
- Poultry numbers have increased steadily in Lincolnshire over the last decade, rising by 20% since 2010.
- At just over 16 million birds, Lincolnshire currently accounts for 11% of total poultry nationally.
- Over ¾ of Lincolnshire's poultry is located in East Lindsey (31%), North Kesteven (24%) and West Lindsey (23%). Whereas numbers have increased significantly over the last decade in both East Lindsey (38%) and West Lindsey (32%), numbers in North Kesteven have fallen by 26% since 2010.
- The farmed areas used for both specialist pig farming and specialist poultry have both increased in Lincolnshire over the last decade at a rate above that seen nationally.

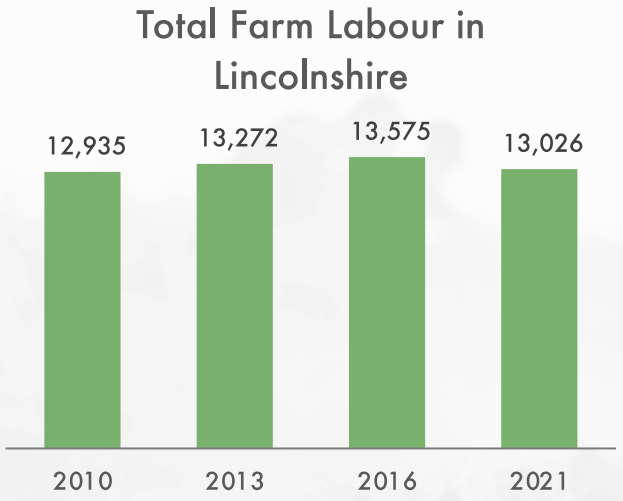
ENERGY LANDUSE AND FARM WATER USAGE - HEADLINES

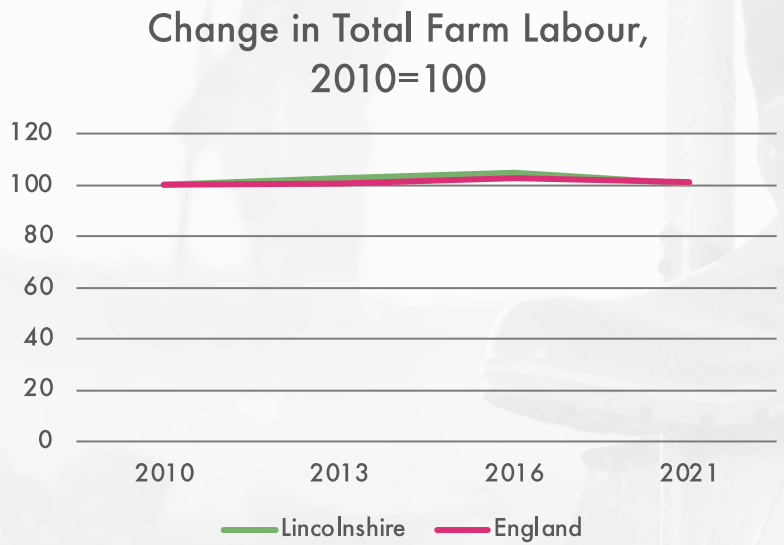
- Based on latest data available, we estimate that solar photovoltaic sites currently in operation cover approximately 606 hectares of land across Lincolnshire.
- Solar photovoltaic sites that are either under construction, awaiting construction, have had a planning application submitted, or are being scoped, will eventually cover a further 1,347 hectares of land across Lincolnshire.
- There are currently 32 anaerobic digestive sites across Lincolnshire though only two provide biomethane into the national grid (FKB at Holdingham, and Lockwood Estates/Future Biogas at Spridlington). The rest generate biogas which is burned on-site to generate heat, power or both.
- 121,000 hectares (ha) of agricultural land was used for bioenergy crops in the UK in 2020, 75,000 ha of which was maize used for anaerobic digestion, up from 34,000 ha in 2015. Whilst we do not have local figures for crop use in energy generation, we do note that the area of land use for growing maize in Lincolnshire has increased by 619% since 2010 (from 1,944 ha to 13,987 ha in 2021).

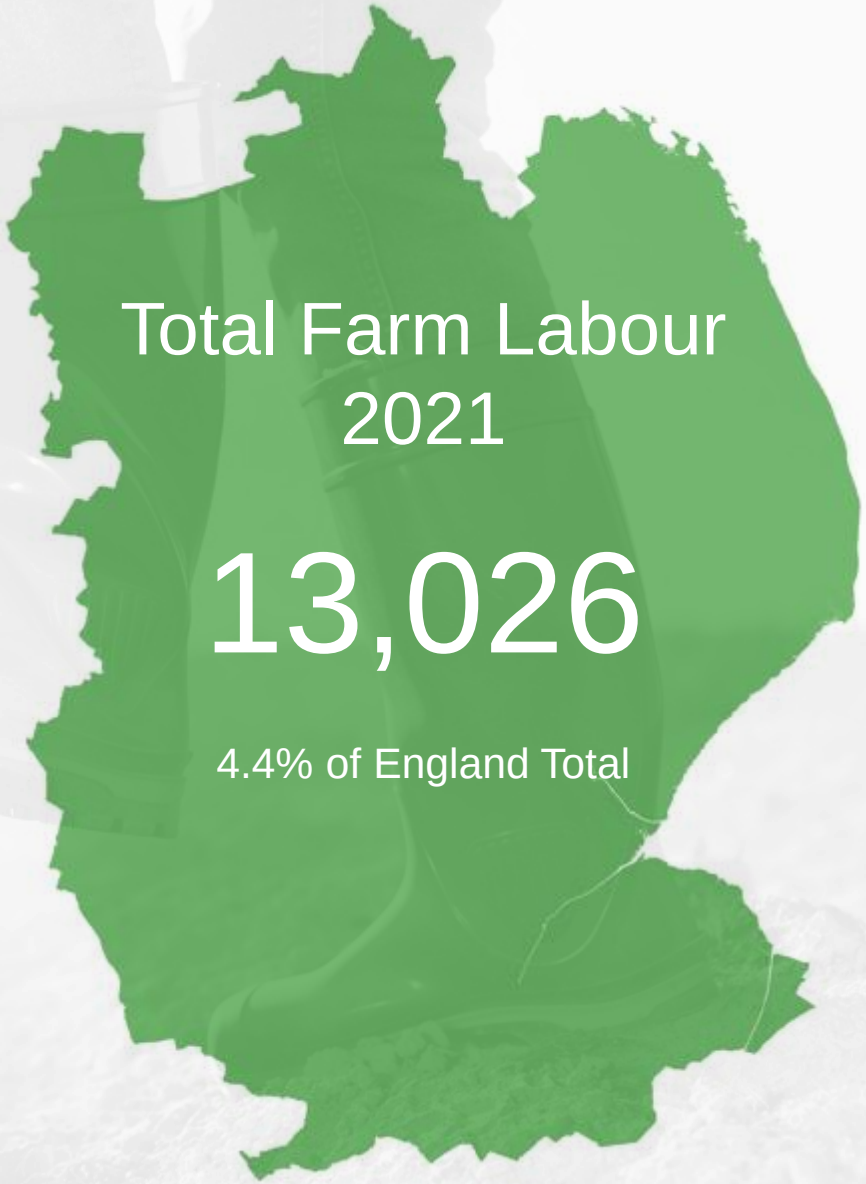
- Data from 2015/16 shows that whilst ‘mains water’ was overwhelmingly the main source of water for farming (85%), farms were increasingly abstracting water from rivers/streams/springs for immediate use (up from 28% in 2013/14 to 31% in 2015/16).
- Mains water usage in the East Midlands was higher than nationally at 93%, whilst abstraction from rivers/streams/springs for immediate use was much lower than nationally at 20%.

FARM LABOUR

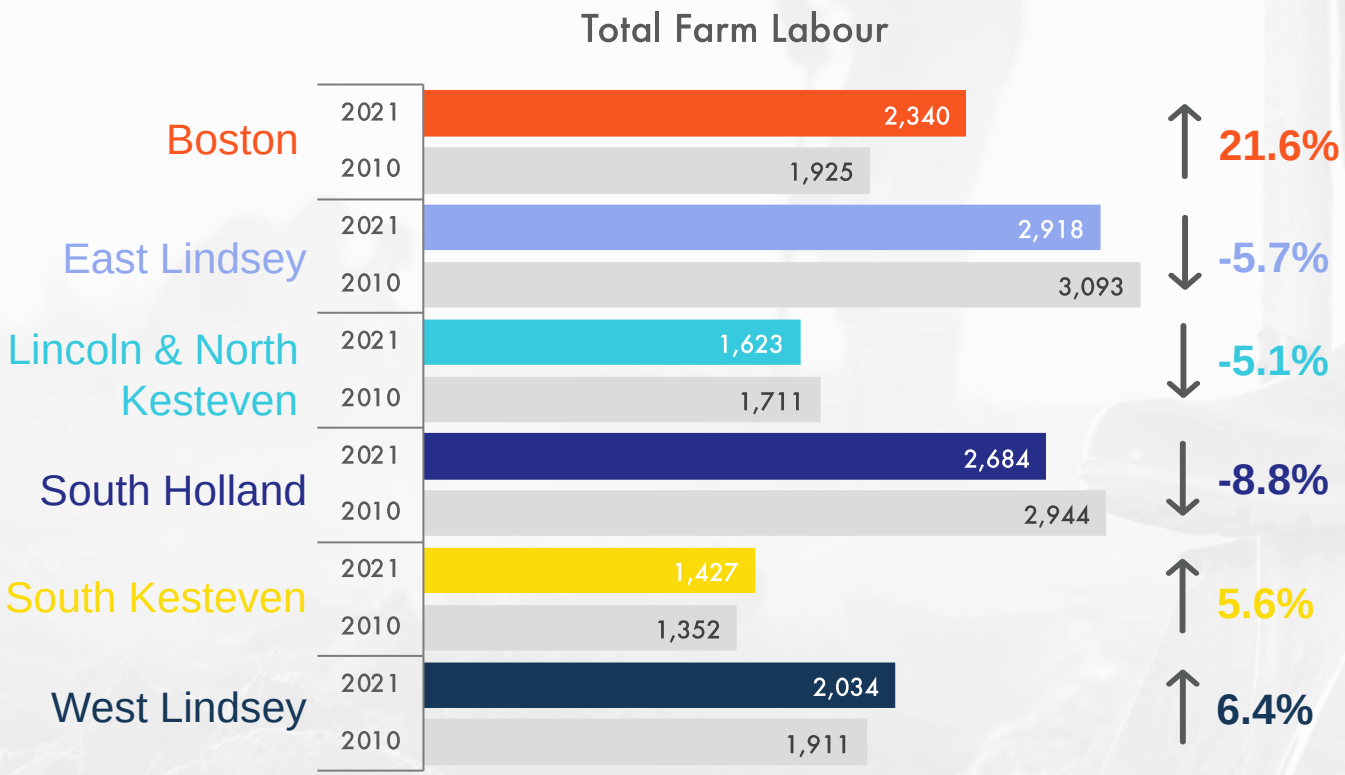
TOTAL FARM LABOUR

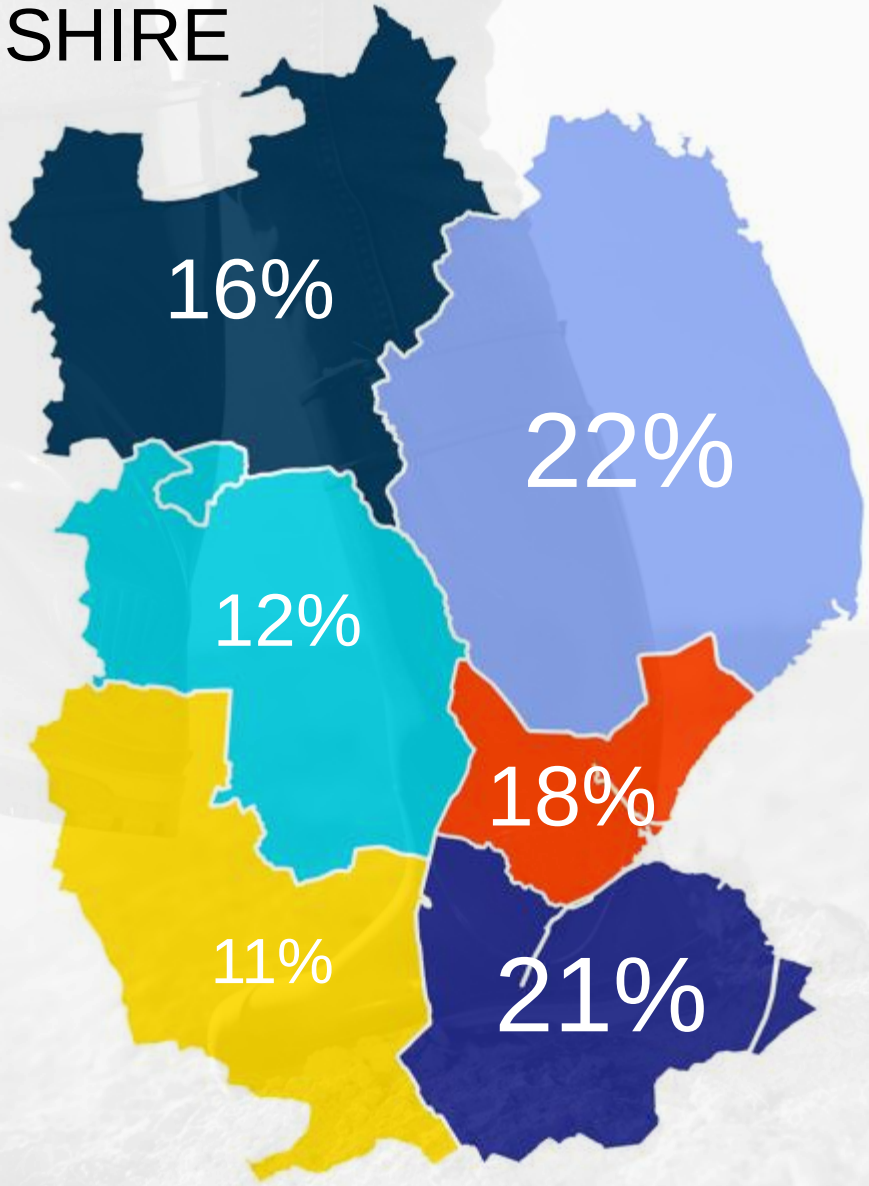






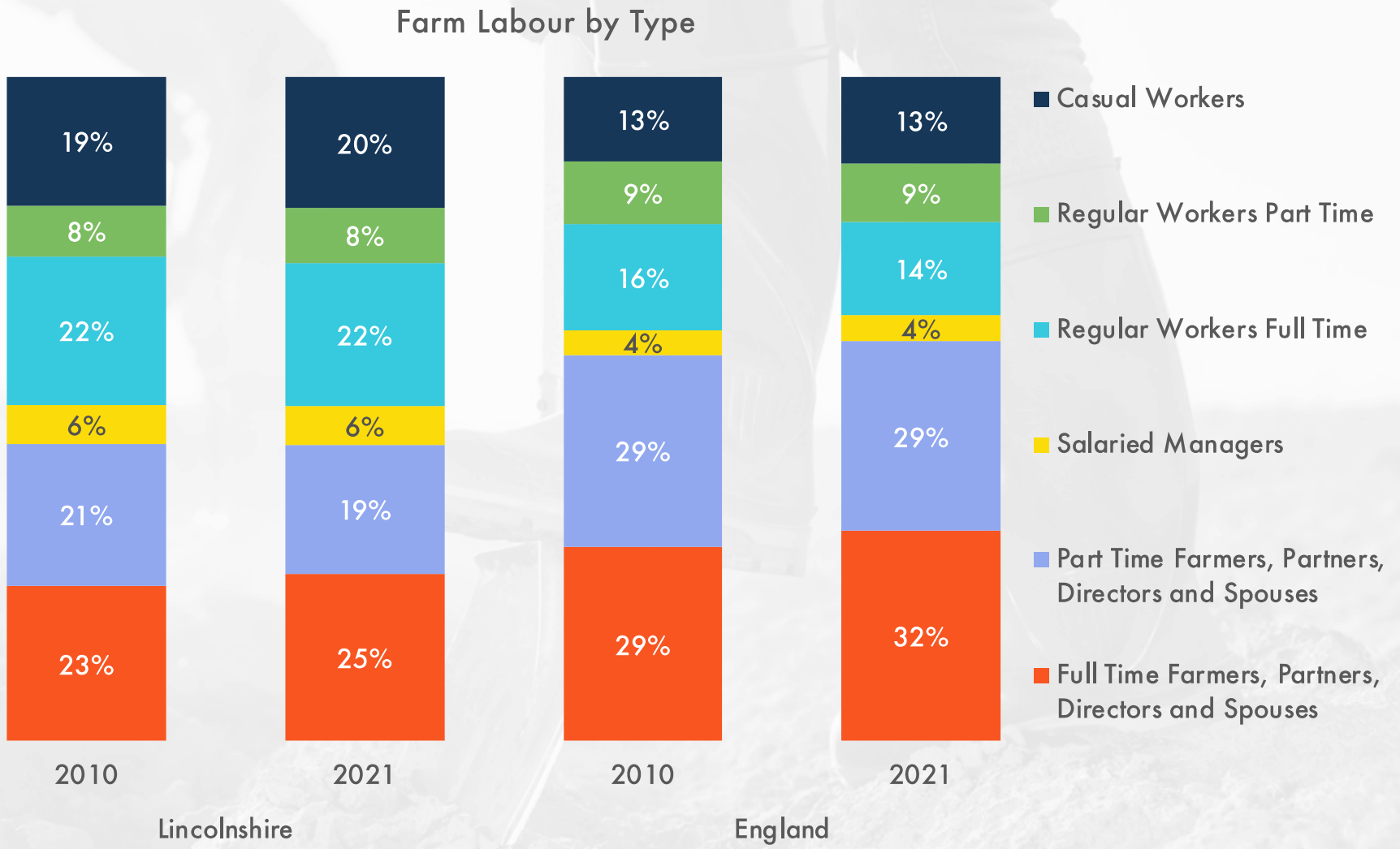
TOTAL FARM LABOUR ACROSS LINCOLNSHIRE



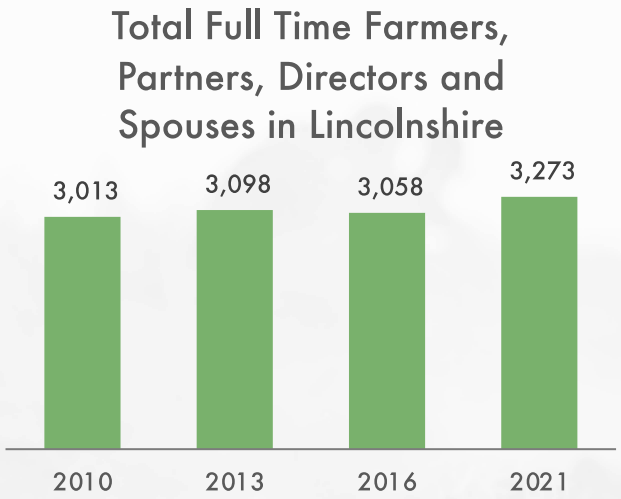


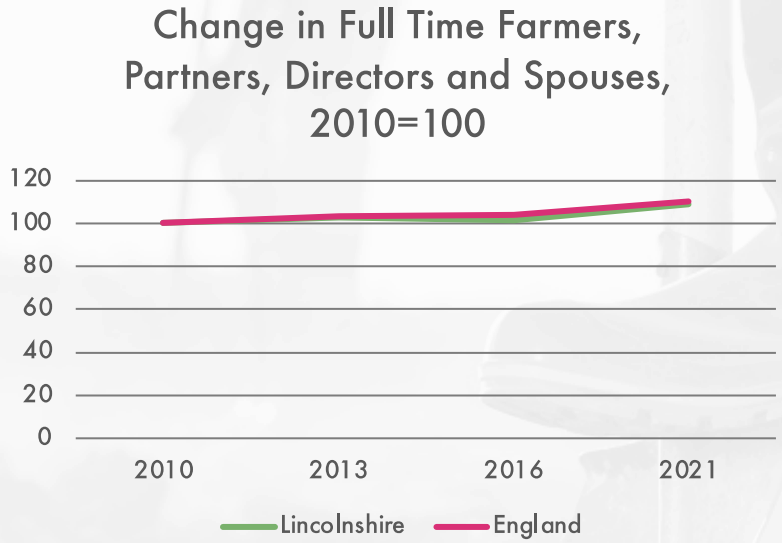
TOTAL FARM LABOUR BY TYPE

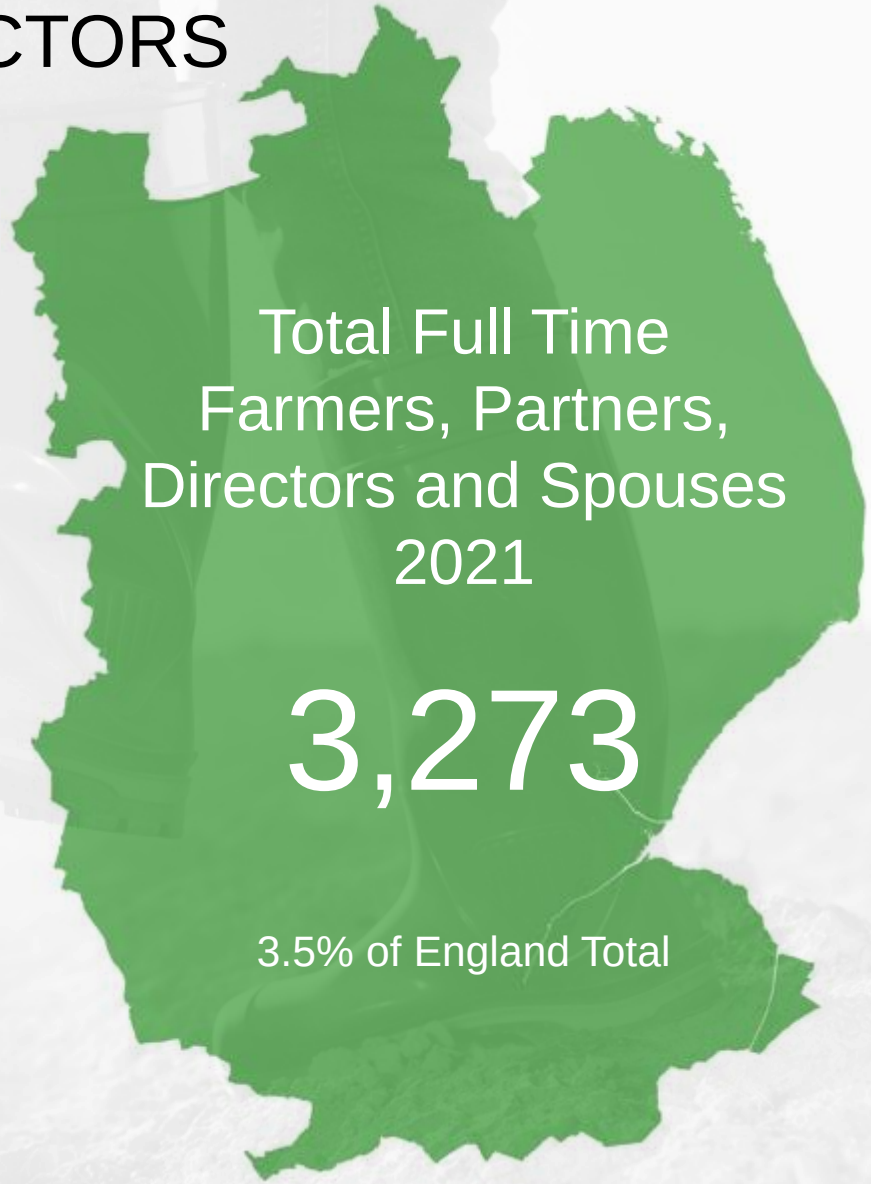
The chart on the right shows that the agricultural sector in Lincolnshire is much more dependent on casual workers and regular full-time workers as part of its workforce than nationally. Conversely it is less dependent on farmers / directors, which in all most likely demonstrates the larger farm sizes prevalent in Lincolnshire than nationally.



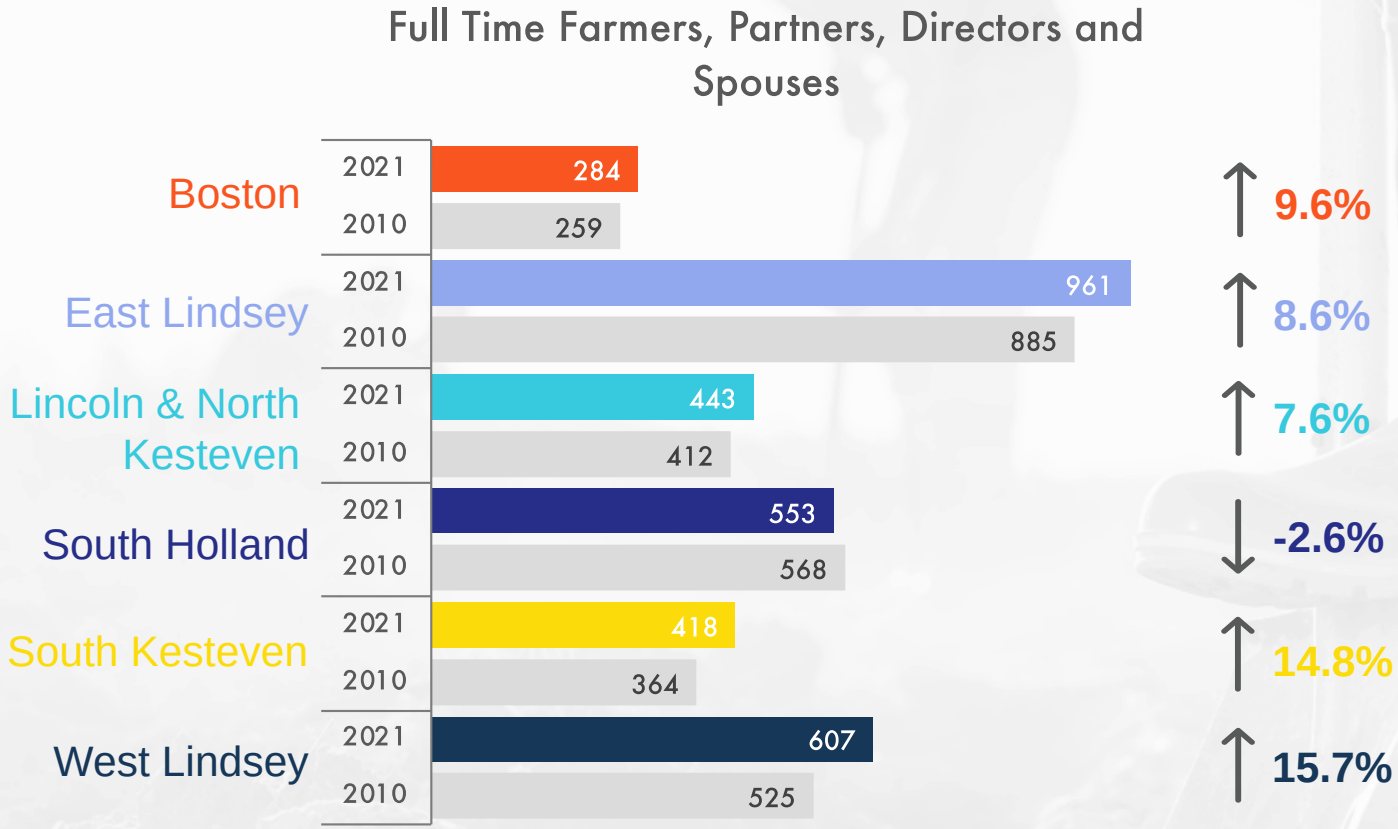
FULL TIME FARMERS, PARTNERS, DIRECTORS AND SPOUSES







FULL TIME FARMERS, PARTNERS, DIRECTORS AND SPOUSES ACROSS LINCOLNSHIRE



9.6%

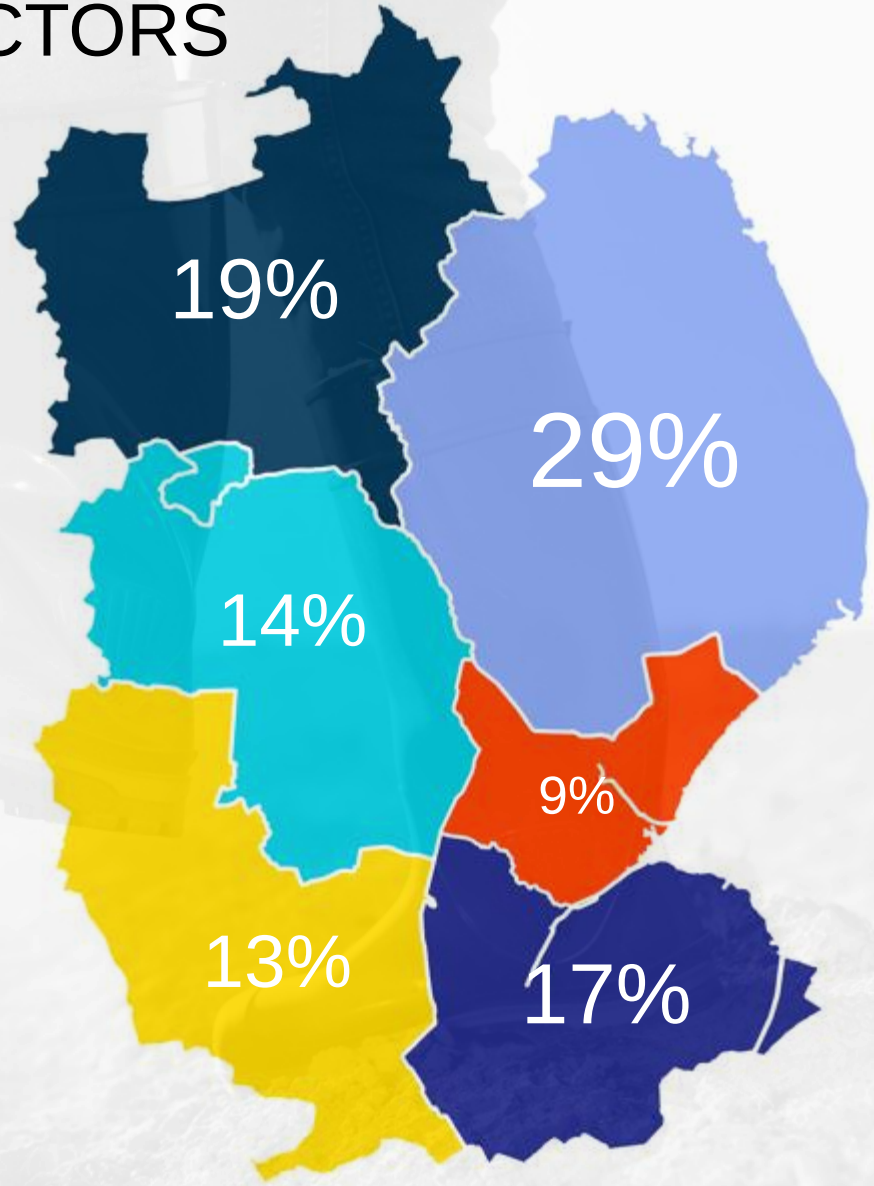
8.6%

7.6%

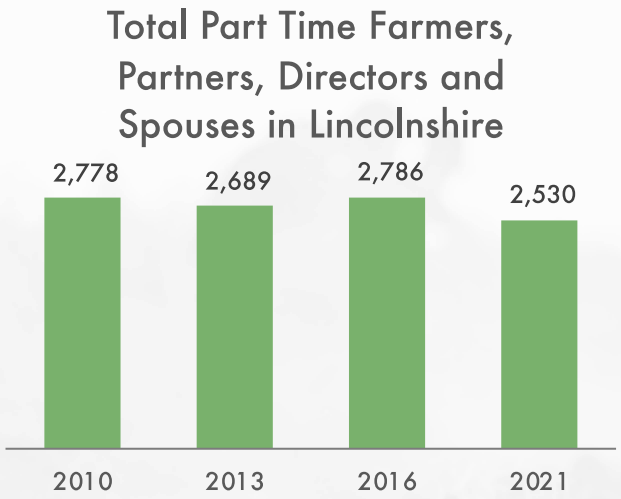
-2.6%

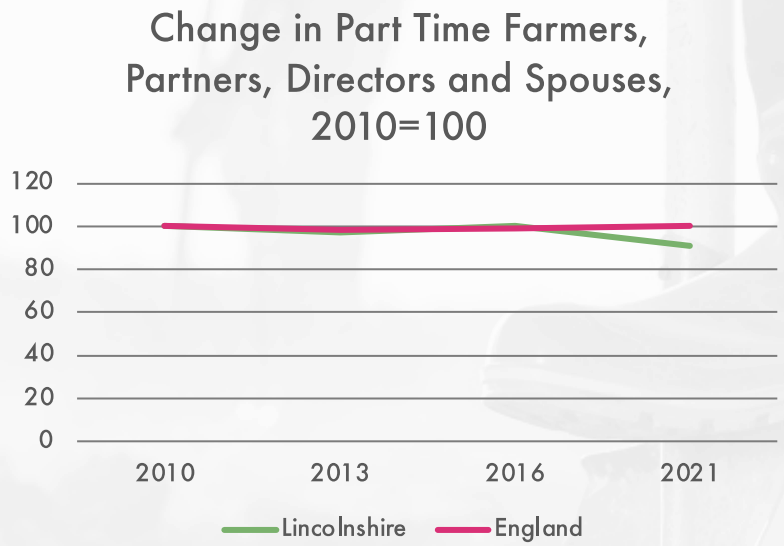
14.8%

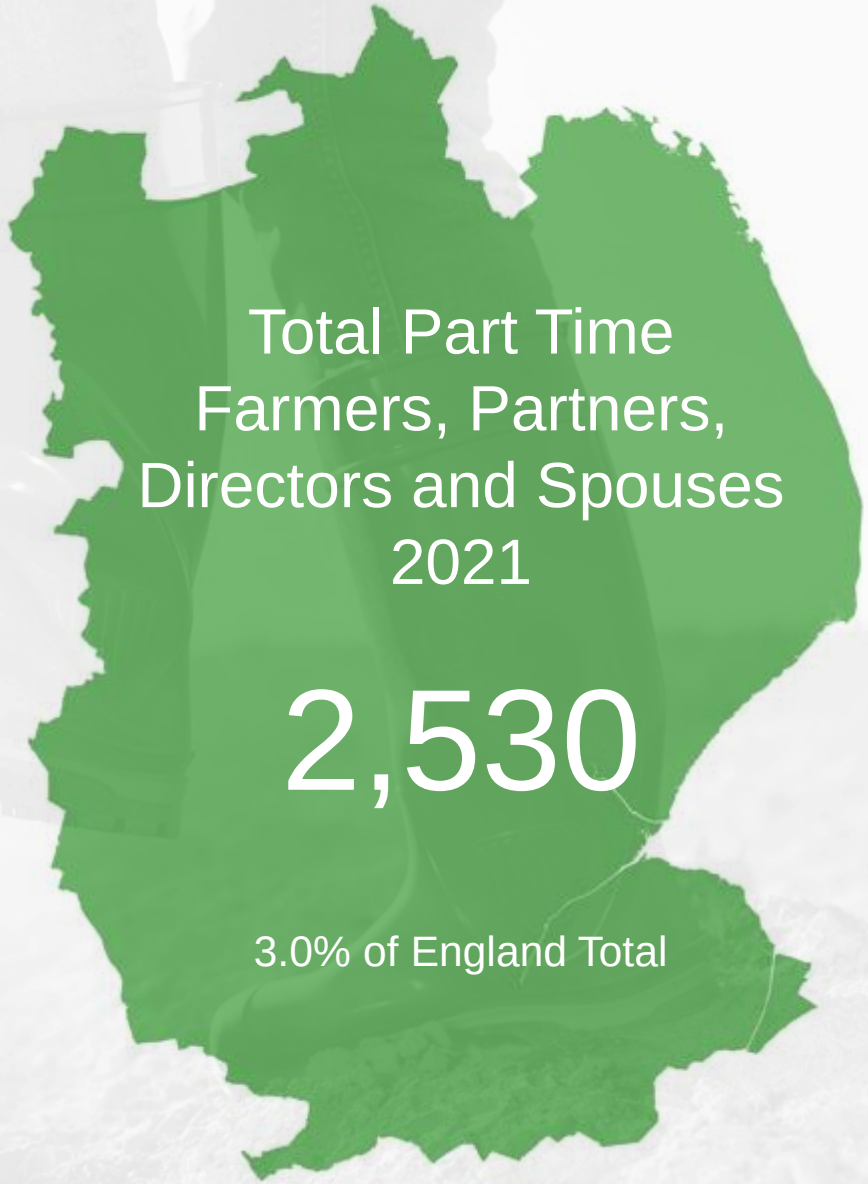
15.7%



PART TIME FARMERS, PARTNERS, DIRECTORS AND SPOUSES

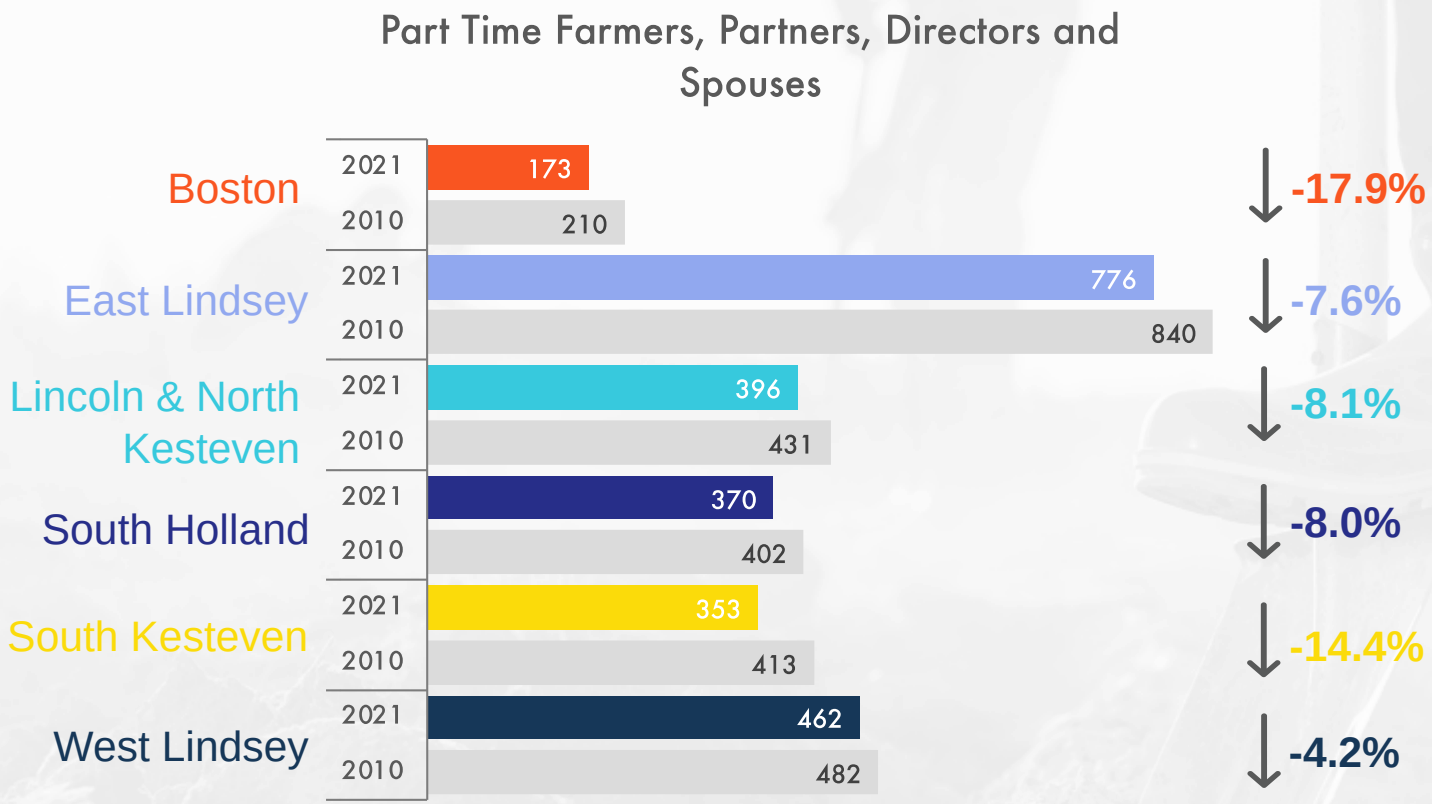






Note: Part time workers are those employed for less than 39 hours a week. Figures exclude school children but include trainees employed under an official youth training scheme and paid at Agricultural Wages Board rates or above.

PART TIME FARMERS, PARTNERS, DIRECTORS AND SPOUSES ACROSS LINCOLNSHIRE



-17.9%

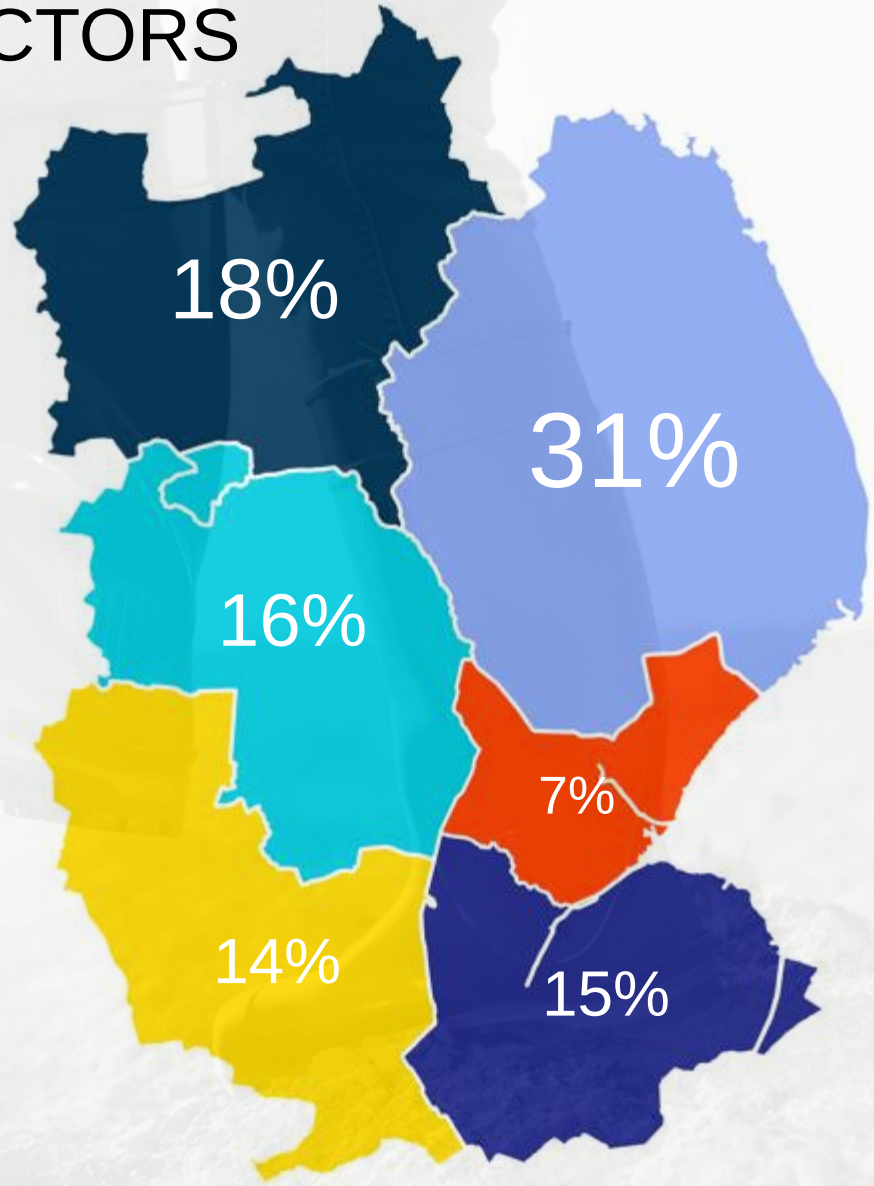
-7.6%

-8.1%

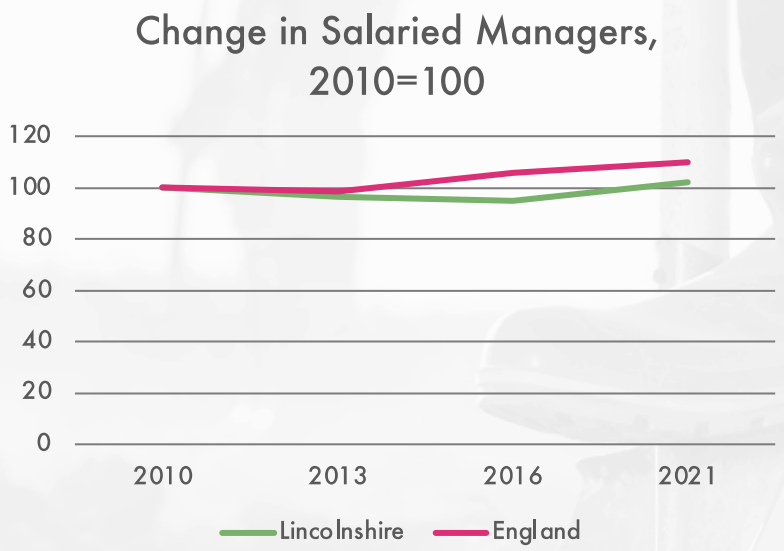
-8.0%

-14.4%

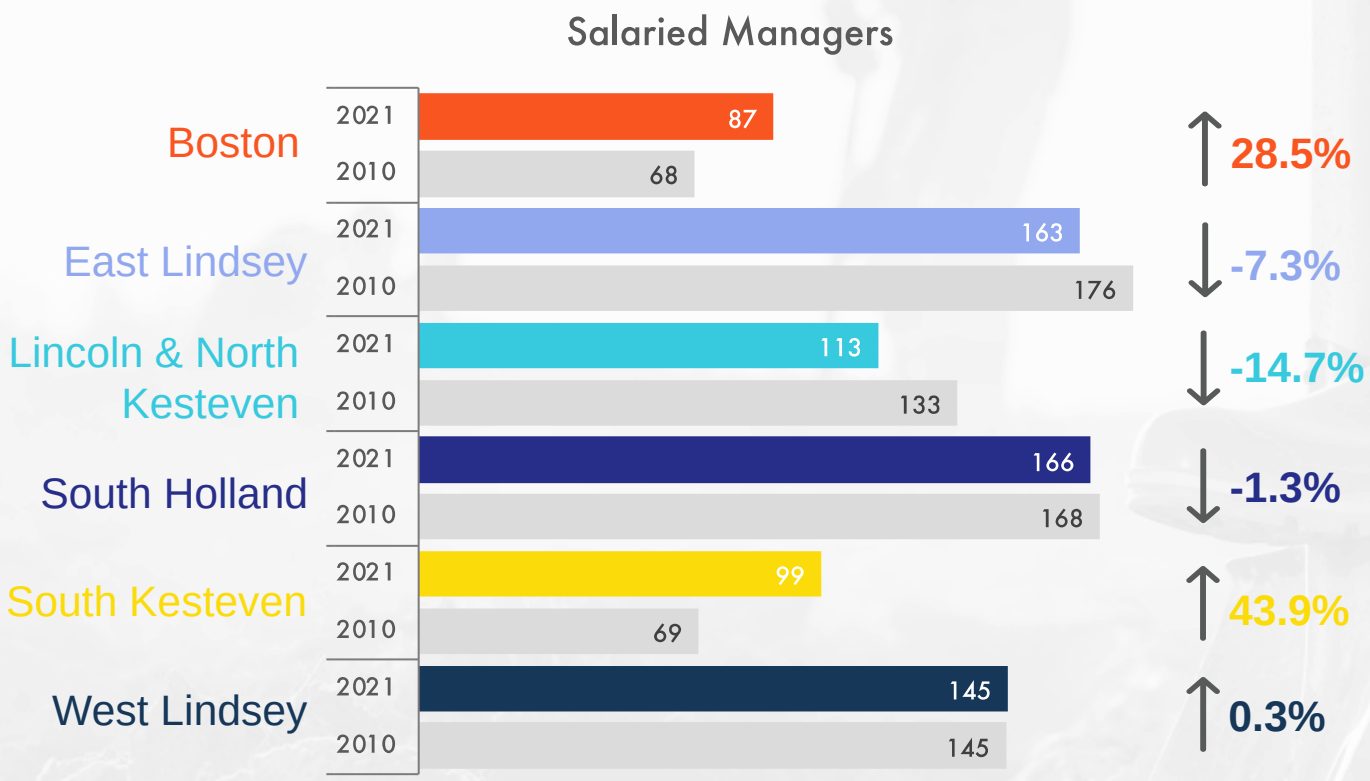
-4.2%



SALARIED MANAGERS



SALARIED MANAGERS ACROSS LINCOLNSHIRE



↑ 28.5%

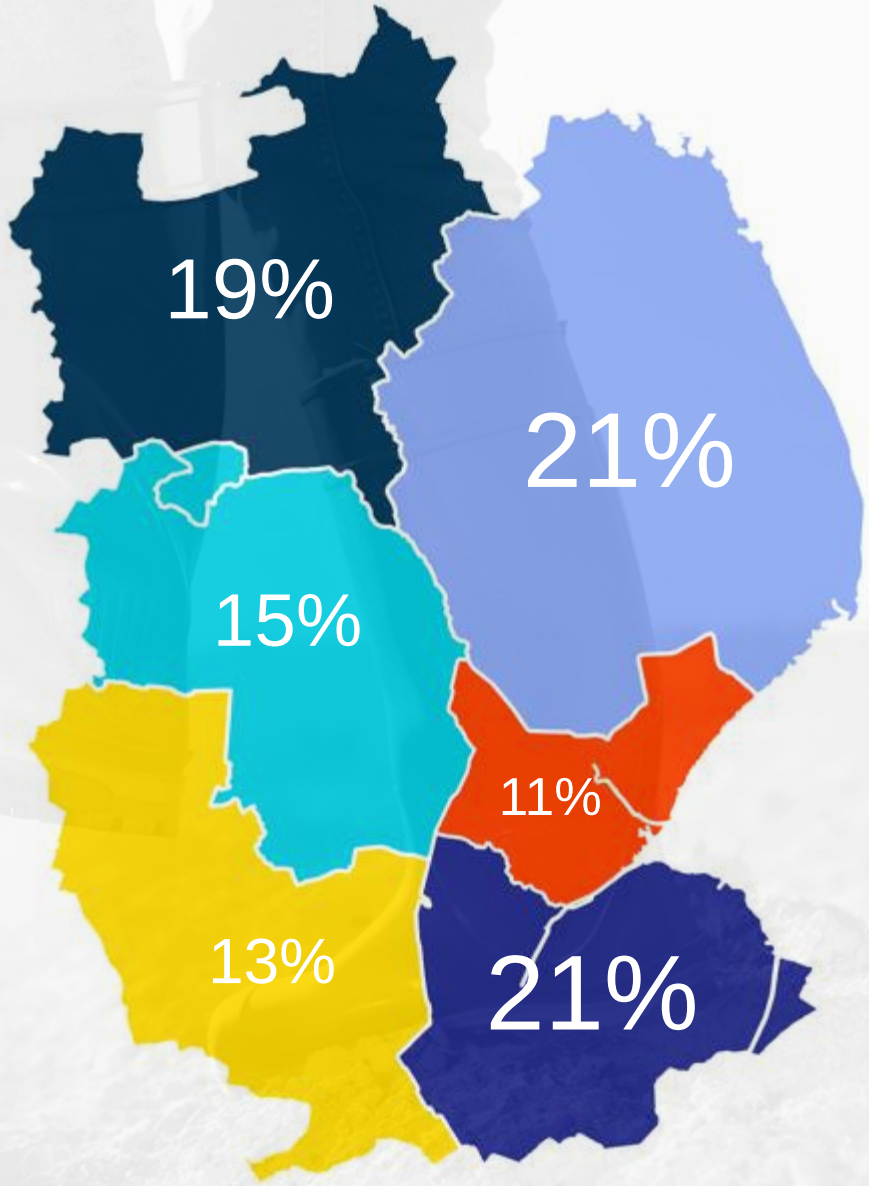
↓ -7.3%

↓ -14.7%

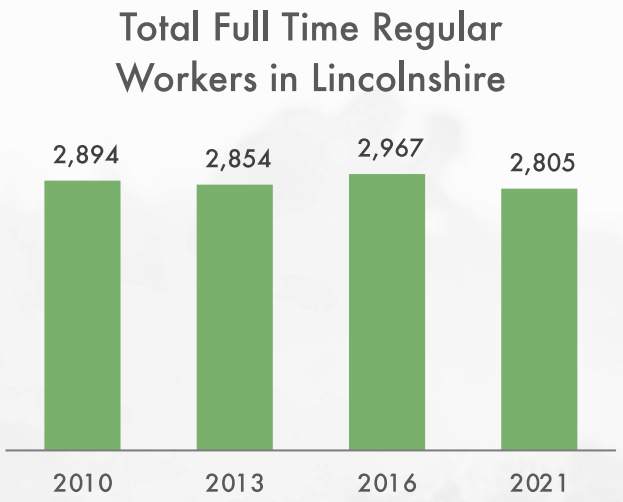
↓ -1.3%

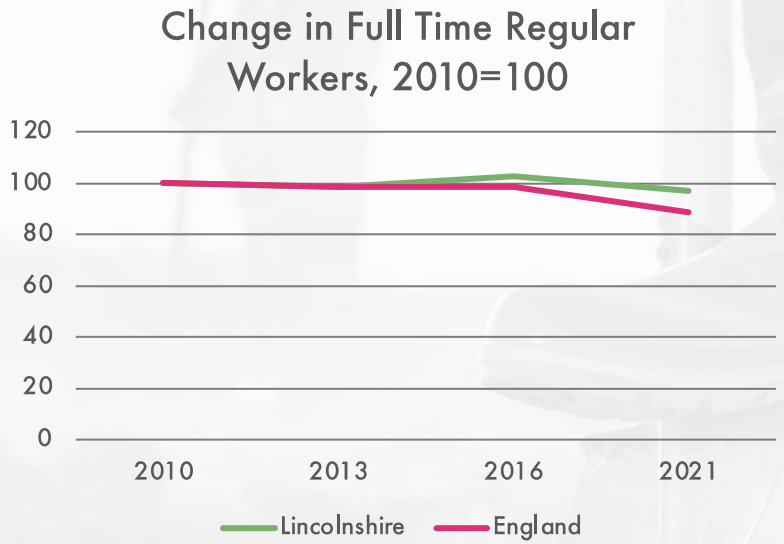
↑ 43.9%

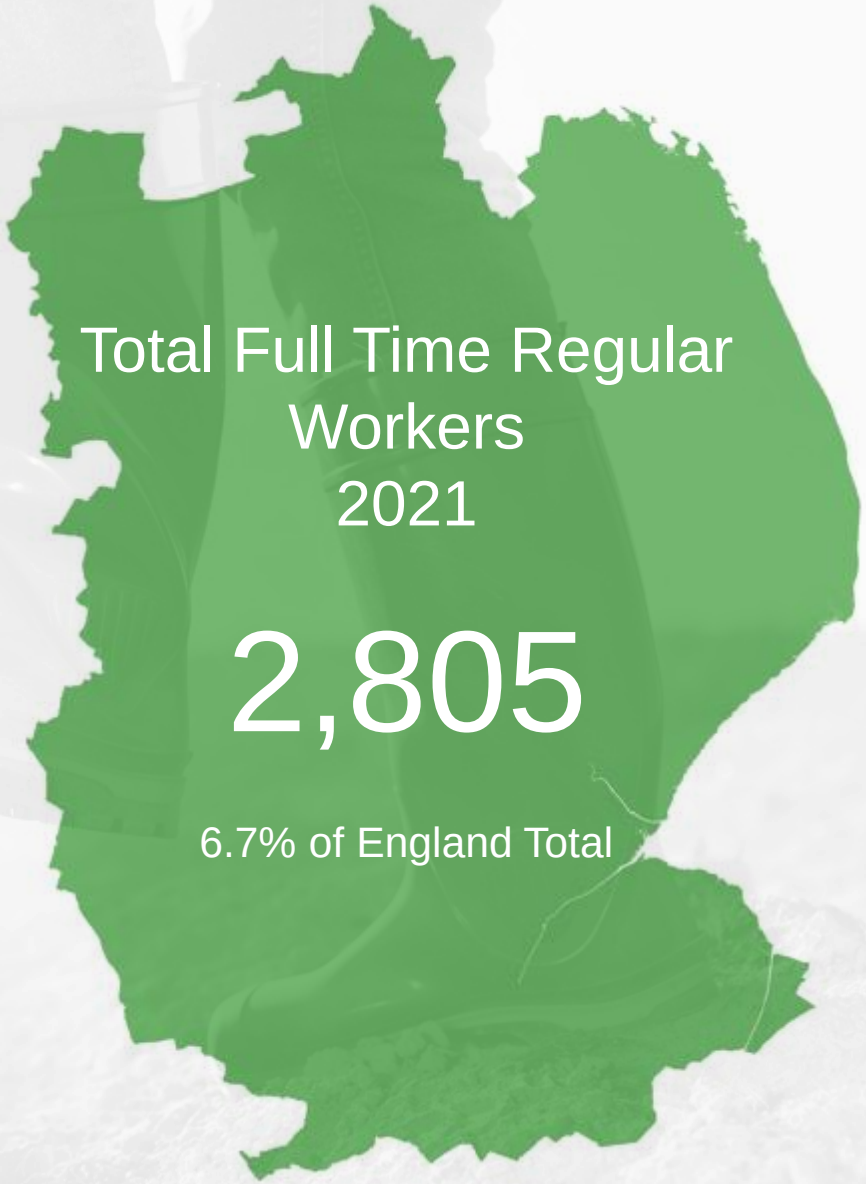
↑ 0.3%



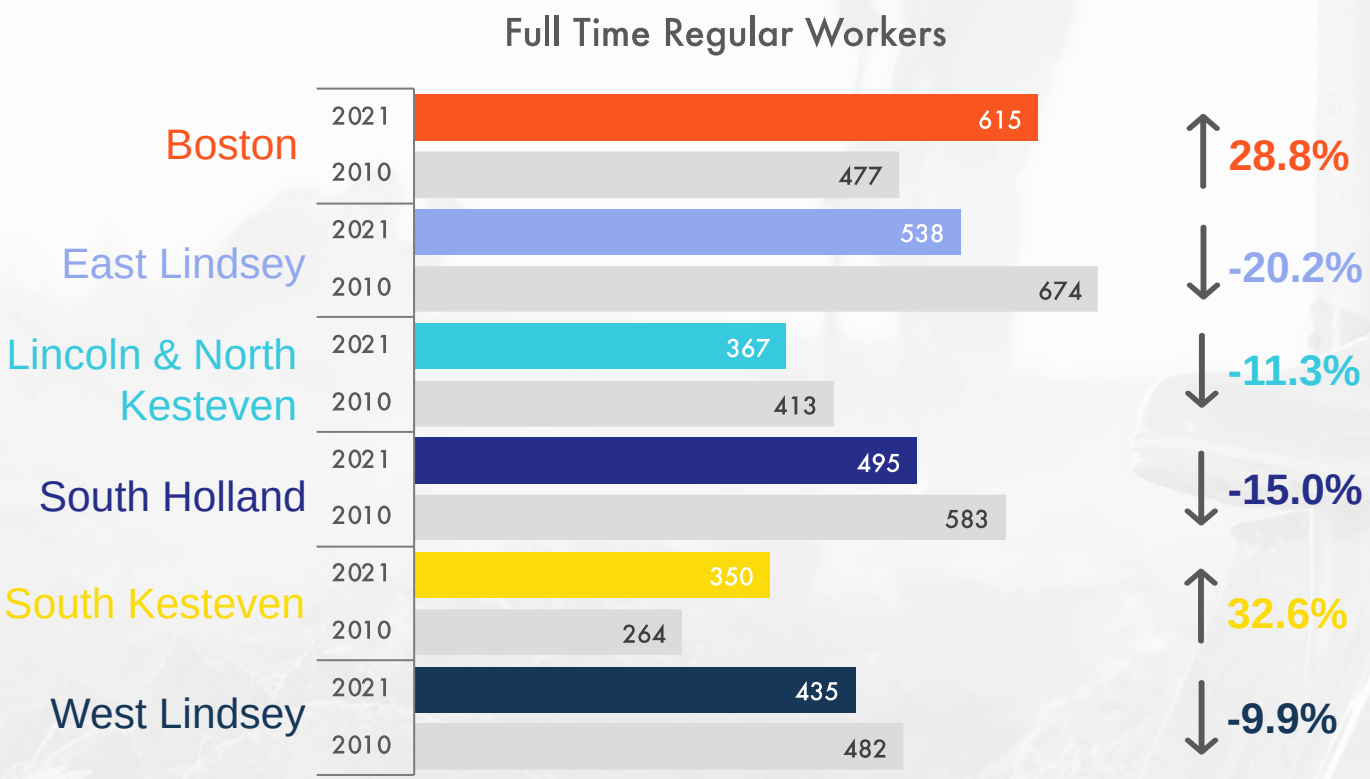
FULL TIME REGULAR WORKERS

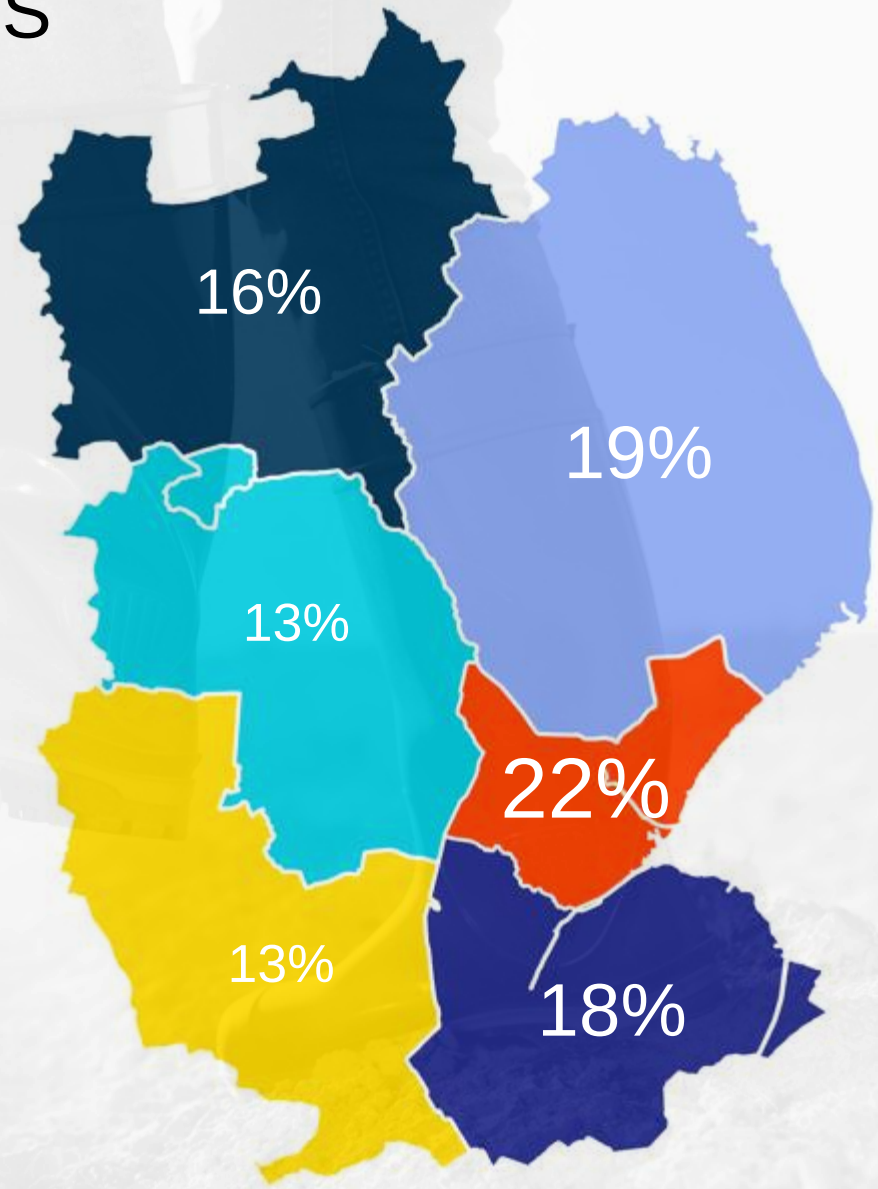




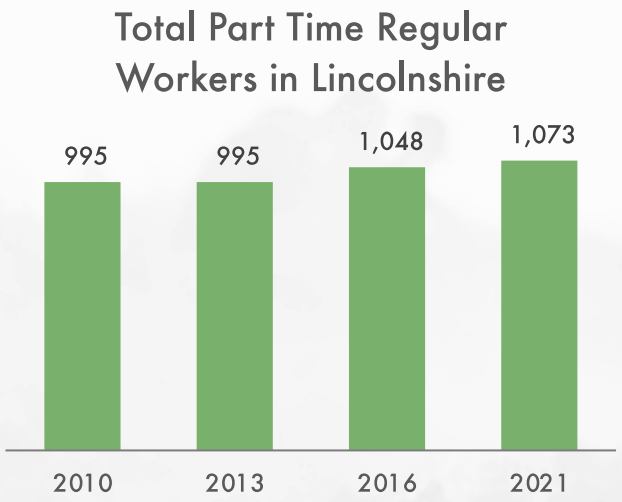


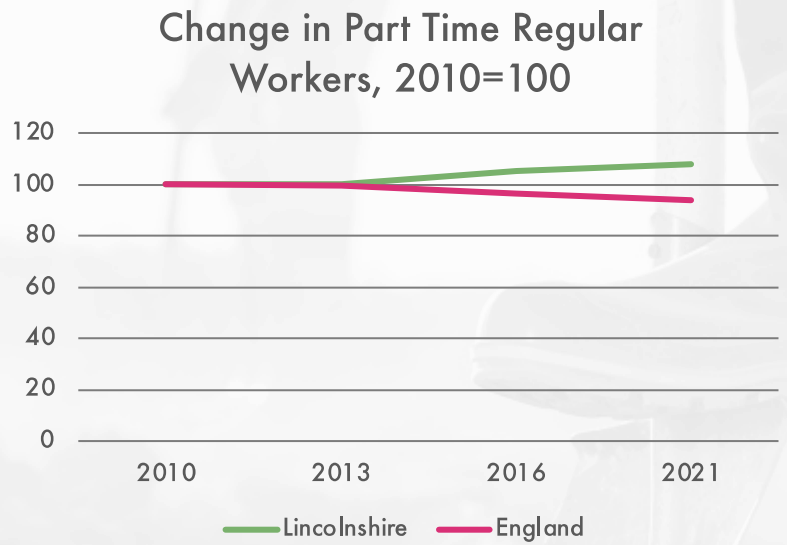
FULL TIME REGULAR WORKERS ACROSS LINCOLNSHIRE



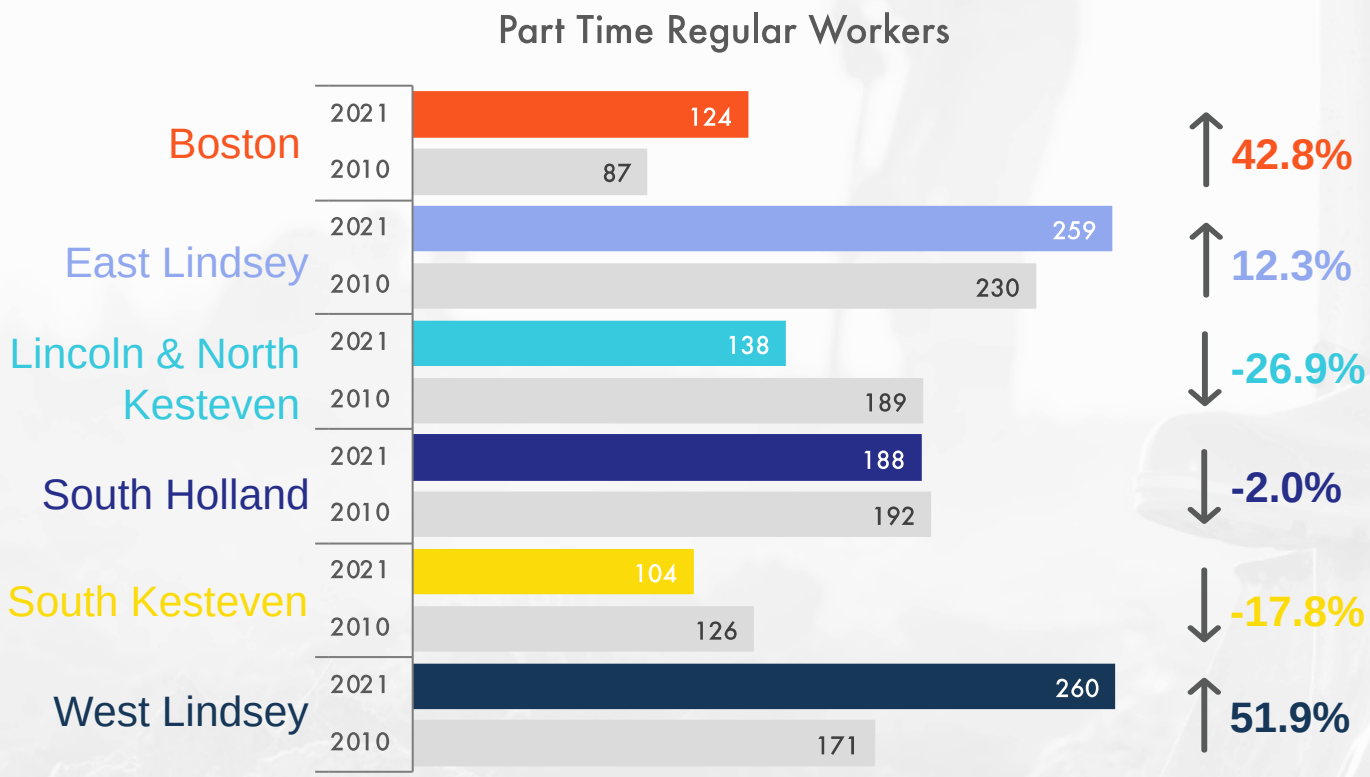


PART TIME REGULAR WORKERS





PART TIME REGULAR WORKERS ACROSS LINCOLNSHIRE



↑ 42.8%

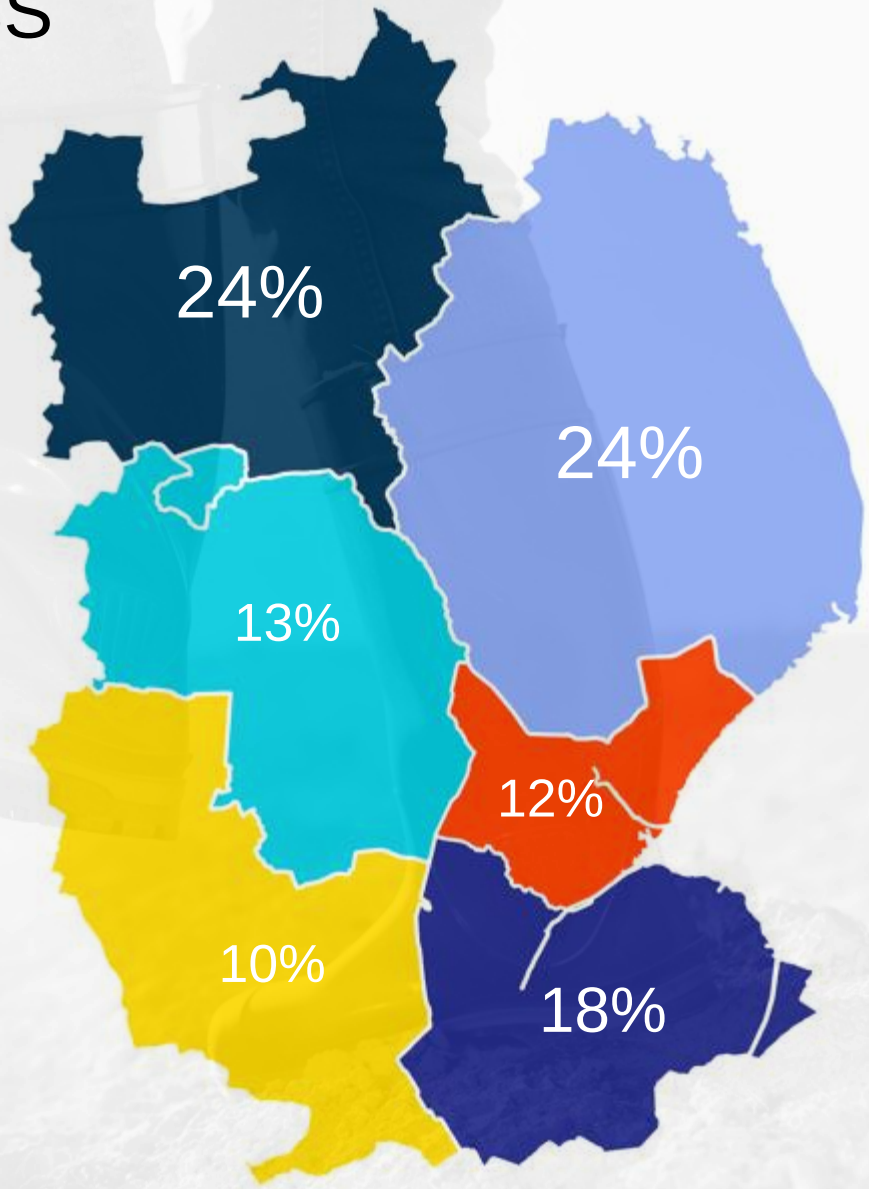
↑ 12.3%

↓ -26.9%

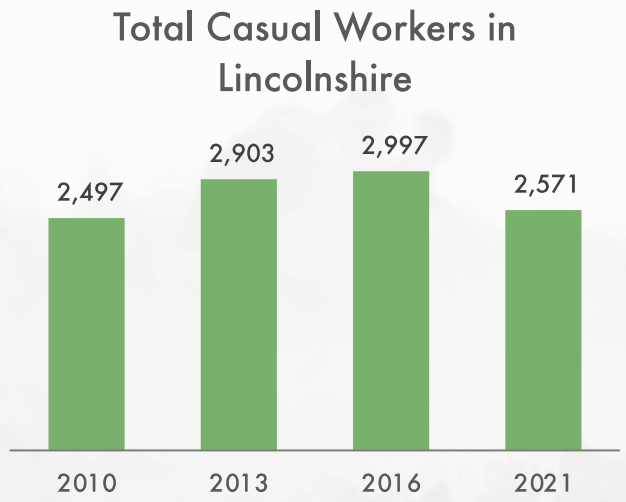
↓ -2.0%

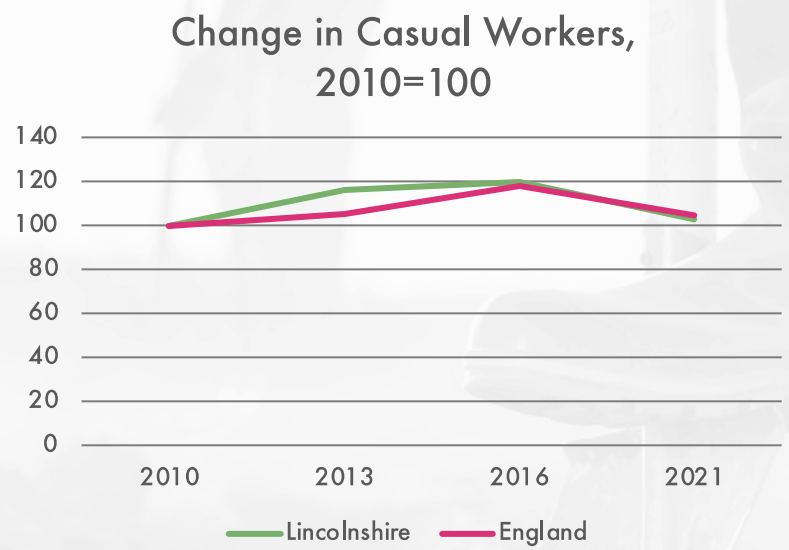
↓ -17.8%

↑ 51.9%

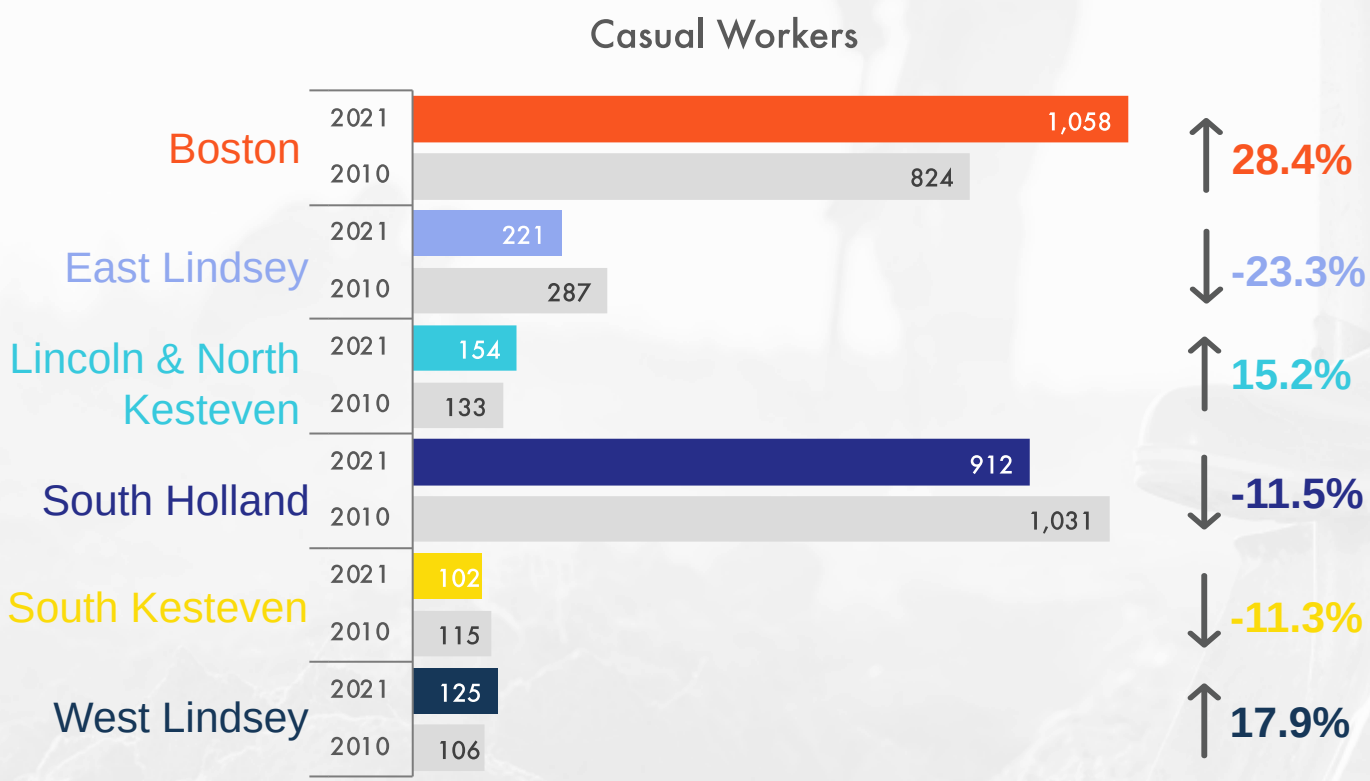


CASUAL WORKERS





CASUAL WORKERS ACROSS LINCOLNSHIRE



28.4%

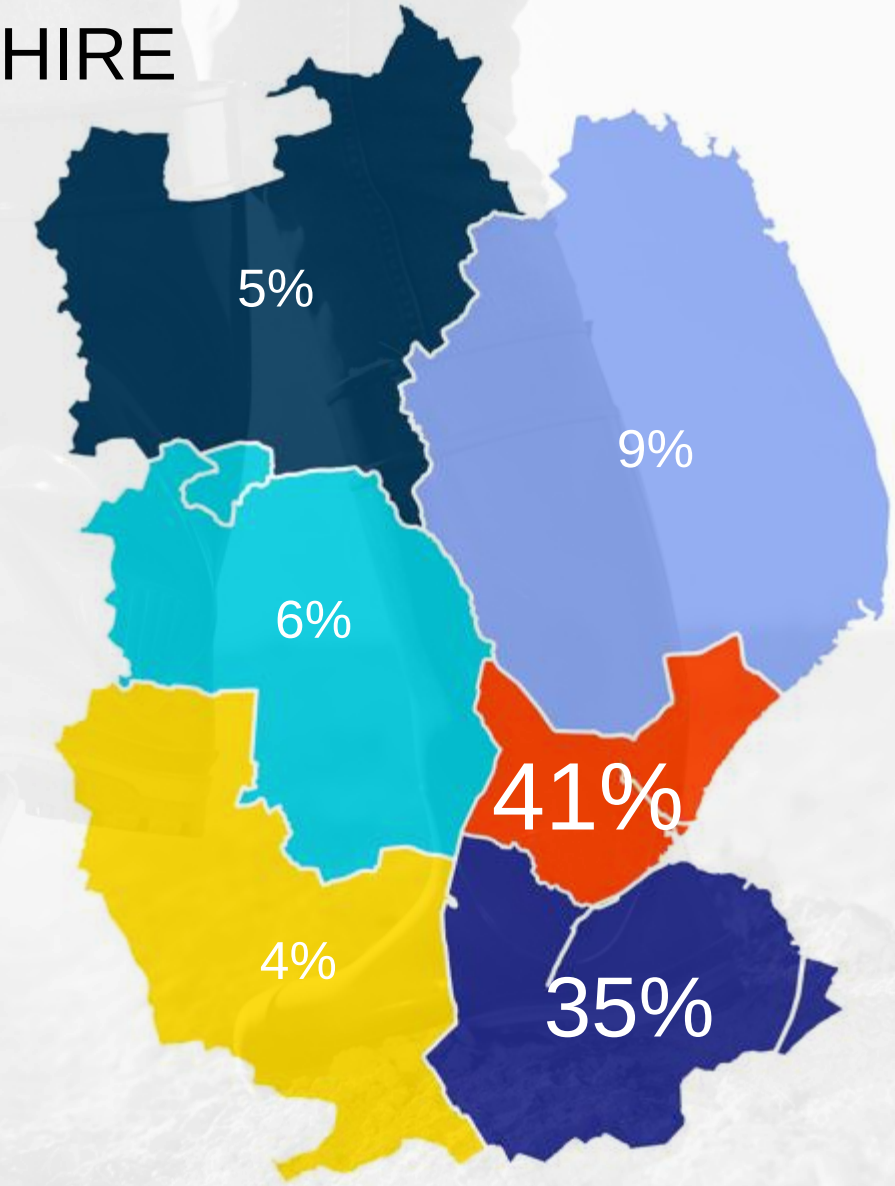
-23.3%

15.2%

-11.5%

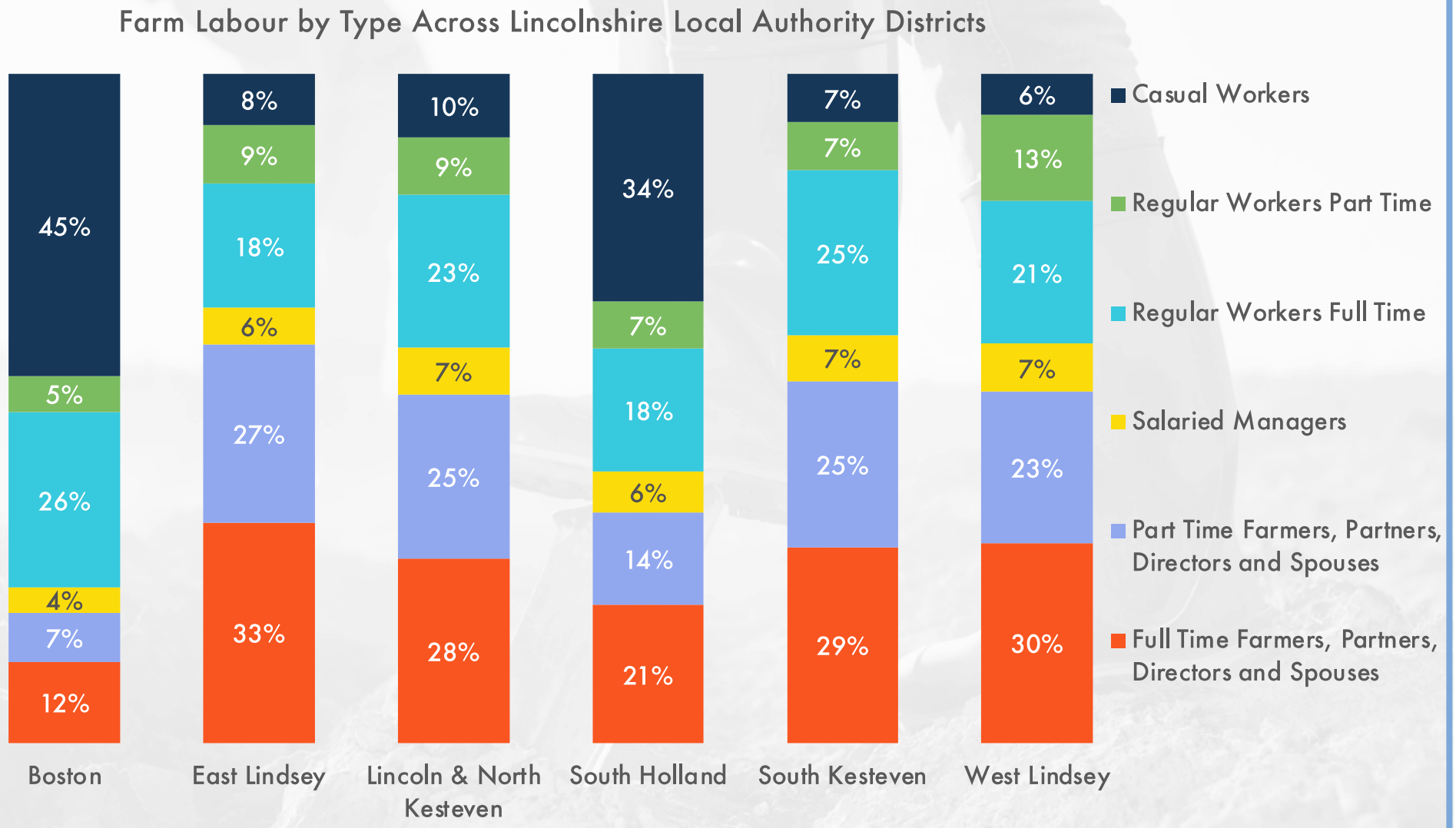
-11.3%

17.9%



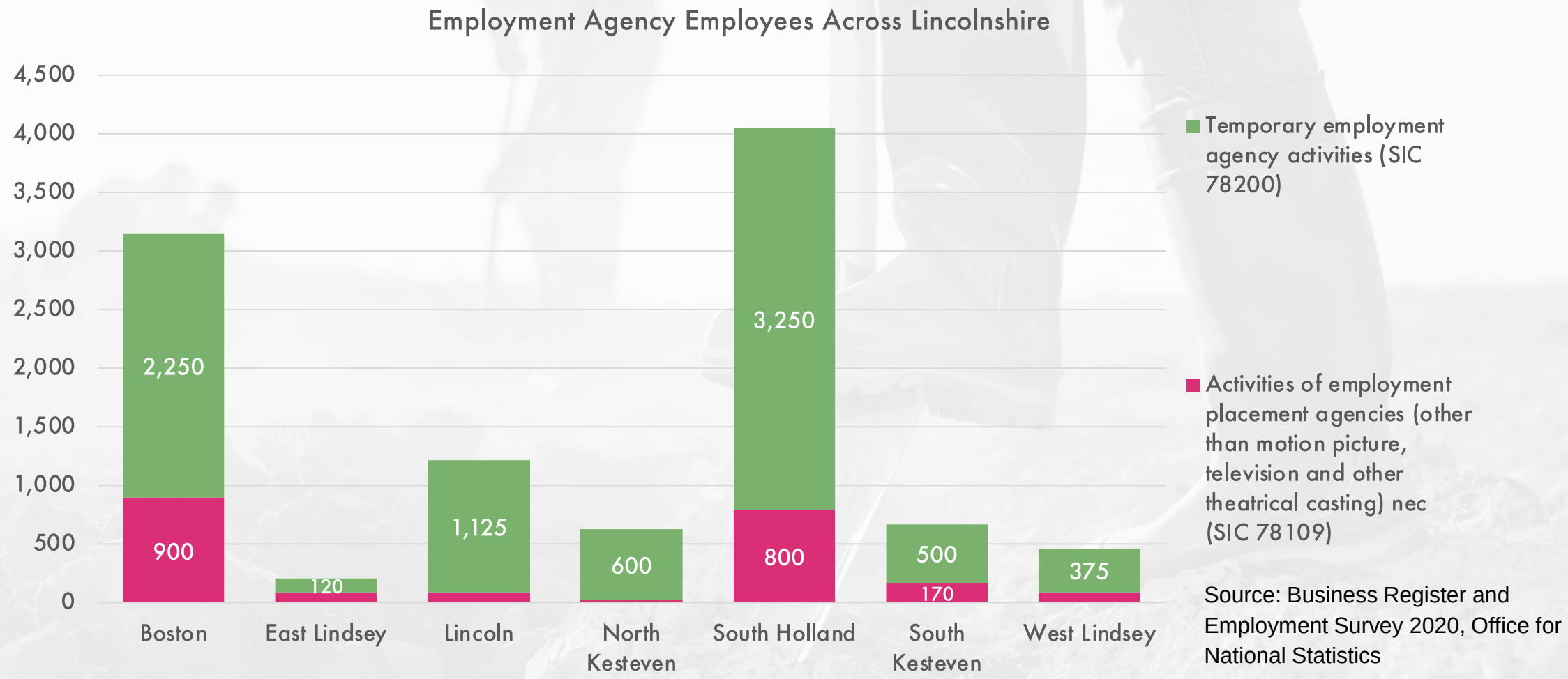
TOTAL FARM LABOUR BY TYPE ACROSS LINCOLNSHIRE, 2021

The chart on the right shows that both Boston and South Holland have casual workers making up much larger proportions of their agricultural workforce than other local authority districts in Lincolnshire. These two districts also have the lowest proportions of full and part-time farmers.



EMPLOYMENT AGENCIES

Latest 2020 data from the Business Register and Employment Survey (Source: Office for National Statistics) shows that employment provided by both temporary employment and employment placement agencies is highest in Boston and South Holland.



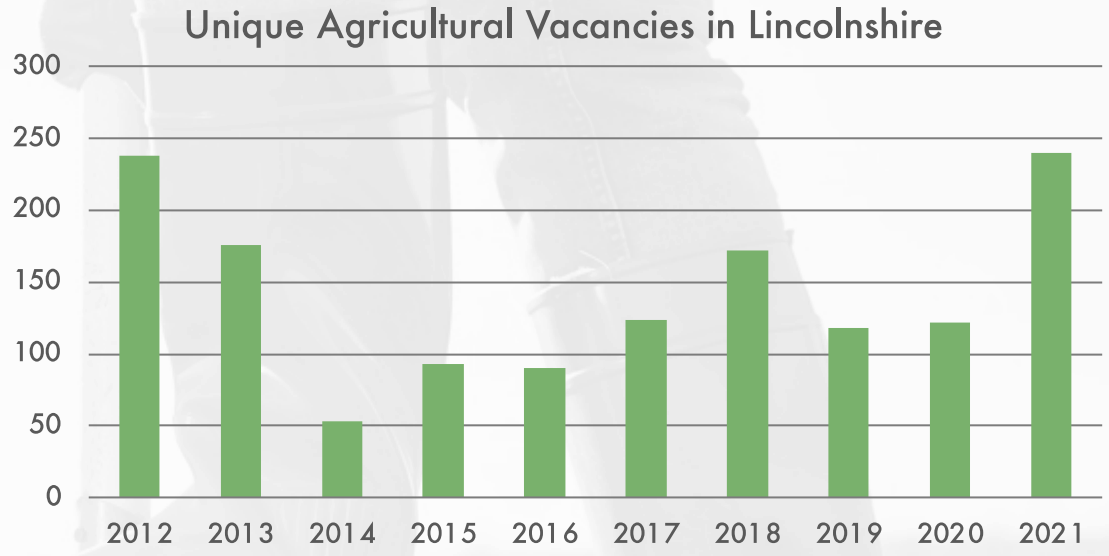
Source: Business Register and Employment Survey 2020, Office for National Statistics

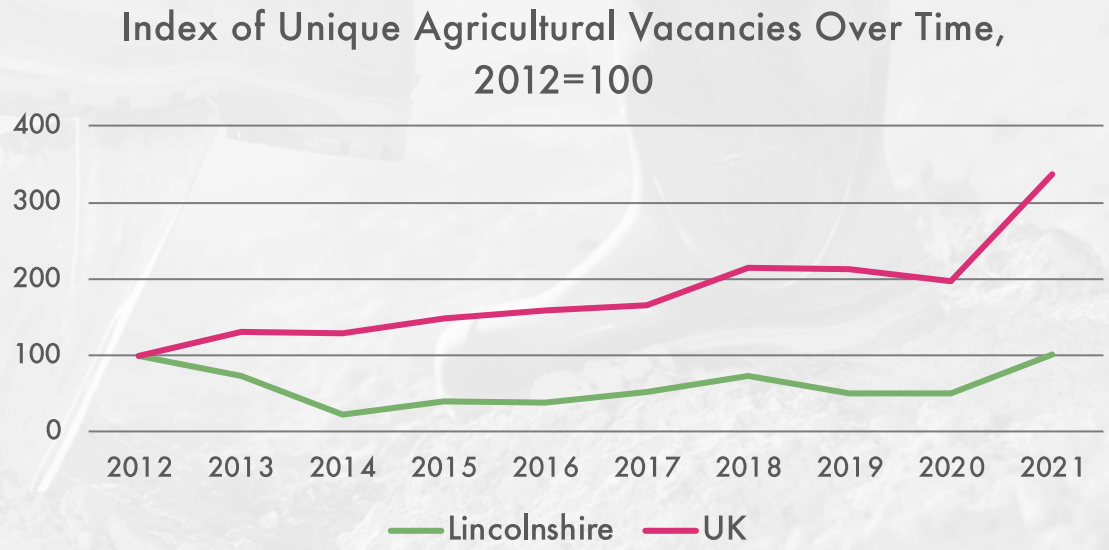
ONLINE JOB VACANCIES IN AGRICULTURE (Source: Burning Glass / Emsi)

Analysis of online job vacancies in the agricultural sector (defined using the Standard Occupation Classes listed below) shows that vacancy listings per year in the sector have grown in Lincolnshire from around 2014, and are currently at levels reached back in 2012. Without data on those currently unemployed who are looking to find work in the sector then it is difficult to determine how tight the agricultural sector labour market is. However, given that we know that vacancies reached record levels across the economy last year, and that many sectors were reporting being unable to fill vacancies, then we can assume here that this sharp increase in vacancies in 2021 meant that agricultural employers were struggling to fill roles.

If we consider how Lincolnshire has faired compared to the national picture then referring to the chart, bottom right, it appears to show that labour market issues have been felt more keenly nationally than locally. However, this is based on a base year of 2012 when vacancy levels (for whatever reason) were particularly high in Lincolnshire. If this analysis were to be moved along and started from 2014 then we can see a similar trend locally to nationally albeit a bit more subdued in its upward trajectory.

The Standard Occupational Classes (SOC) used in this analysis are as follows:
- Managers and Proprietors in Agriculture and Horticulture (1211)
- Managers and Proprietors in Forestry, Fishing and Related Services (1213)
- Farmers (5111)
- Horticultural Trades (5112)
- Agricultural and Fishing Trades n.e.c. (5119)
- Agricultural Machinery Drivers (8223)
- Farm Workers (9111)
- Fishing and Other Elementary Agriculture n.e.c (9119)

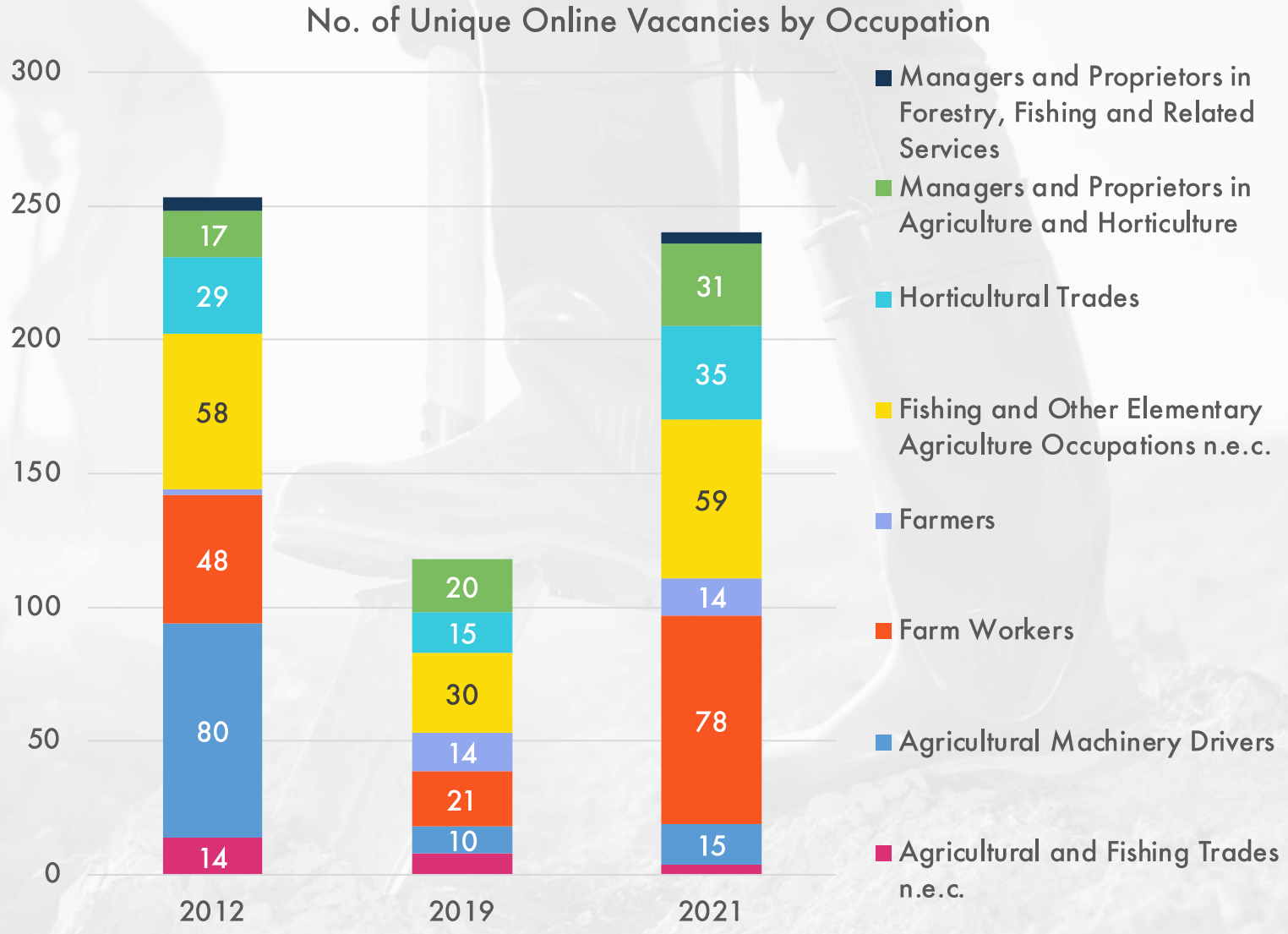




ONLINE JOB VACANCIES IN AGRICULTURE Cont. (Source: Burning Glass / Emsi)

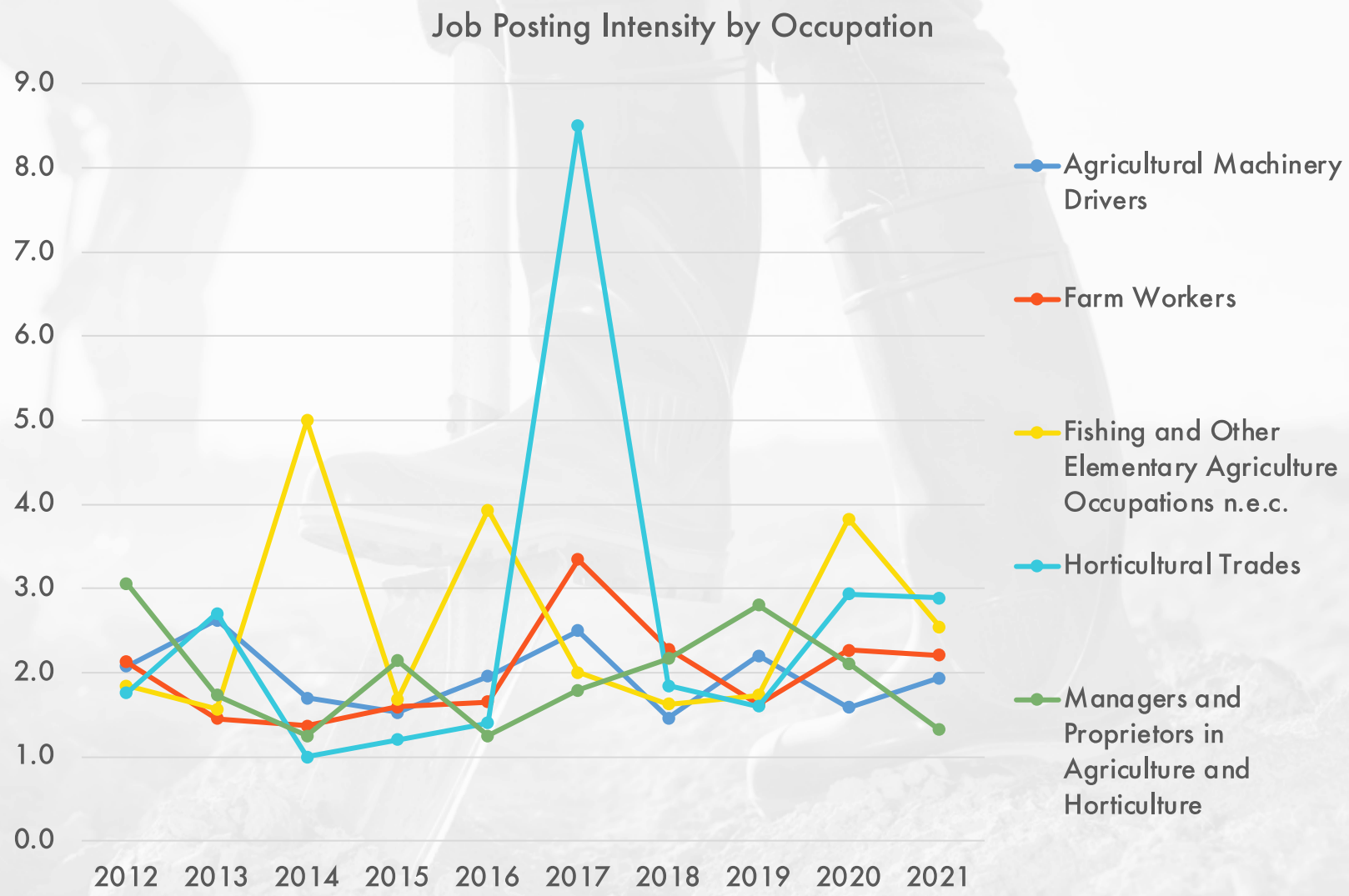
The following analysis looks beneath the vacancy numbers and considers the different occupations that the vacancies were for. The chart on the right looks at this vacancy data by occupation for 2012, 2019 (in order to provide a latest pre-covid comparator), and 2021.

In 2012 we can see that the largest proportion of vacancies were for 'Agricultural Machinery Drivers', followed by the more physical occupations of 'Fishing and Other Elementary Agricultural Occupations n.e.c' and 'Farm Workers'. We know from earlier analysis that vacancy numbers drop after 2012 and have only get close to these total numbers in 2021. As such 2019 shows much lower numbers overall across all these occupations though vacancies in 'Fishing and Other Elementary Agriculture Occupations n.e.c' remain reasonably high. By 2021 we can see that vacancy levels in 'Agricultural Machinery Drivers' have remained low, whilst those in 'Fishing and Other Elementary Agriculture Occupations n.e.c' have returned to 2012 levels. The largest gain in vacancy numbers between 2012 and 2021 can be seen in 'Farm Worker' occupations. As a result, vacancies in 2021 appear to be dominated more by "casual worker" roles i.e., occupations at lower skill and pay levels, when compared with vacancies in 2012.



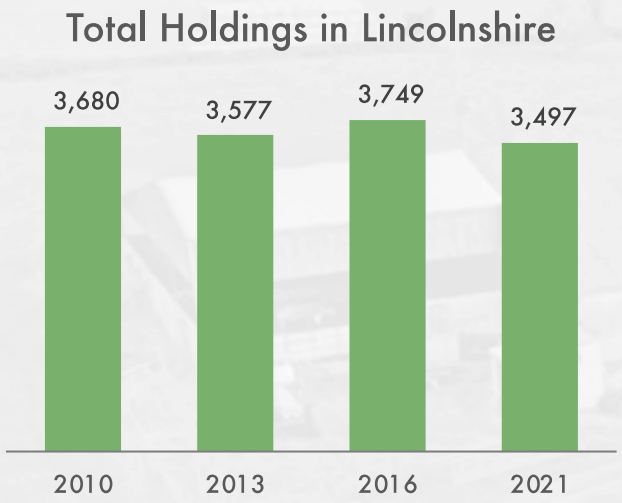
ONLINE JOB VACANCIES IN AGRICULTURE Cont. (Source: Burning Glass / Emsi)

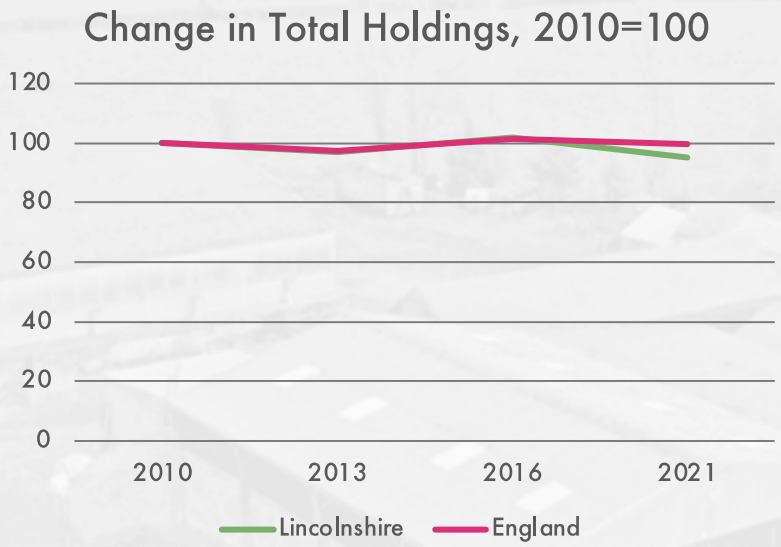
Whereas previous analysis of vacancies in this report has focused on unique vacancies, the following analysis takes a look at total vacancy numbers. For example, an employer wants to recruit to a single role so this creates a unique vacancy. However, the employer may choose to post this vacancy across numerous job sites, and if unsuccessful in recruitment the first time or maybe due to a lack of candidates, the employer may choose to advertise again for the role. All of this recruitment activity would sum to produce a total vacancy number for a single position. Comparing this number with the corresponding unique vacancy number creates a ratio of job posting intensity i.e., a high ratio indicates more effort has gone into the recruitment process. The chart on the right looks at the job posting intensity for the top five occupations (based on unique vacancy numbers) between 2012 and 2021. Concentrating on the two occupations highlighted previously then the job posting intensity for 'Farm Workers' in 2021 remains at a similar level to what it was back in 2012, around 2:1, though it did increase to over 3:1 in 2017. The job posting intensity for 'Fishing and Other Elementary Agriculture Occupations n.e.c' has fluctuated over time and in 2021 is above its 2012 level though it is not historically high.

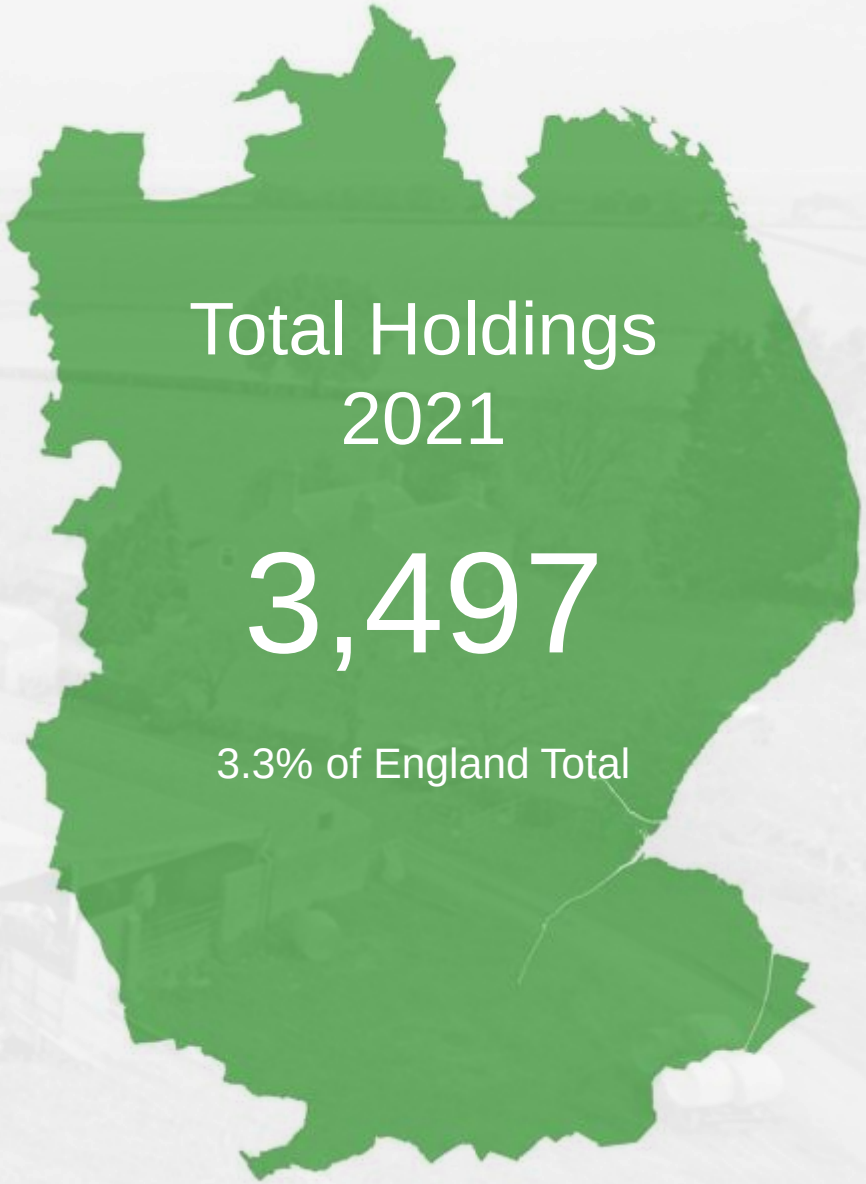


FARM HOLDINGS BY SIZE

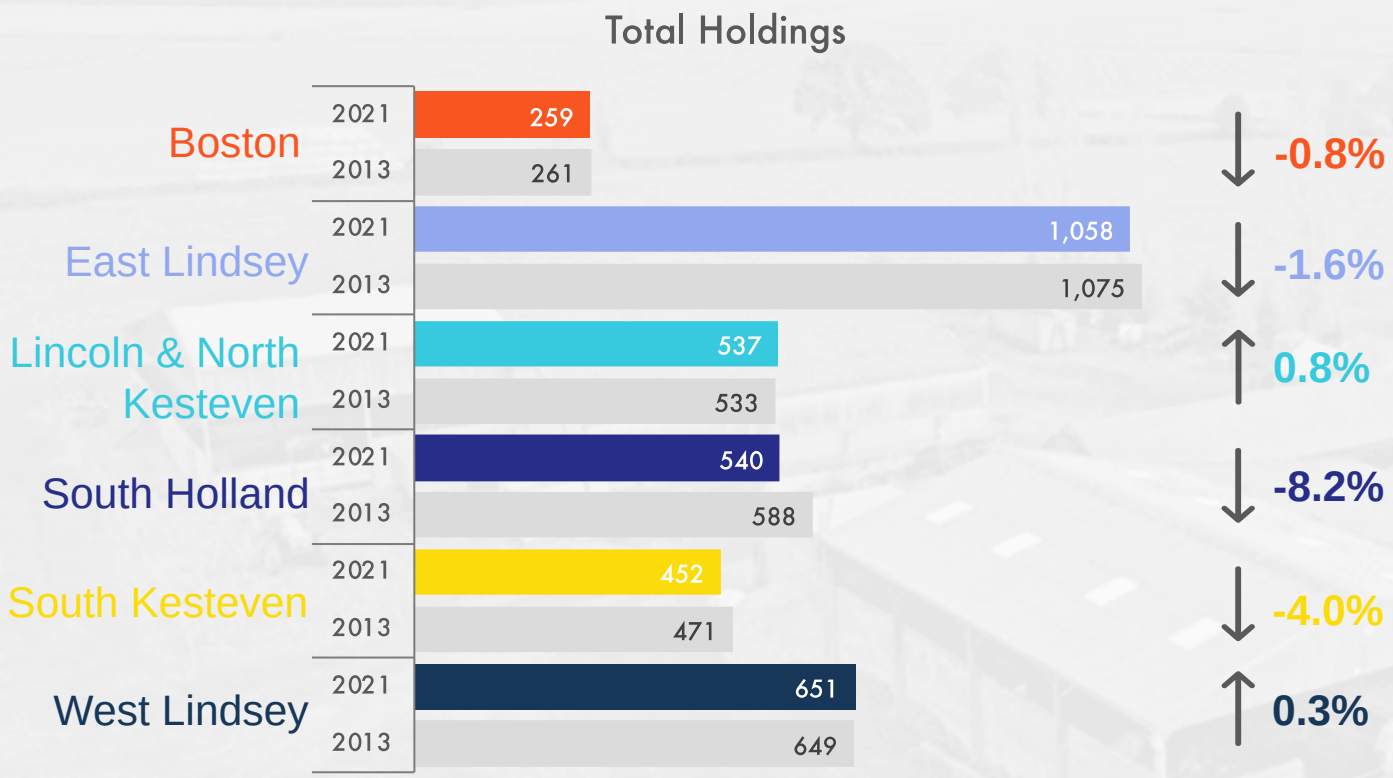
TOTAL HOLDINGS







TOTAL HOLDINGS ACROSS LINCOLNSHIRE



-0.8%

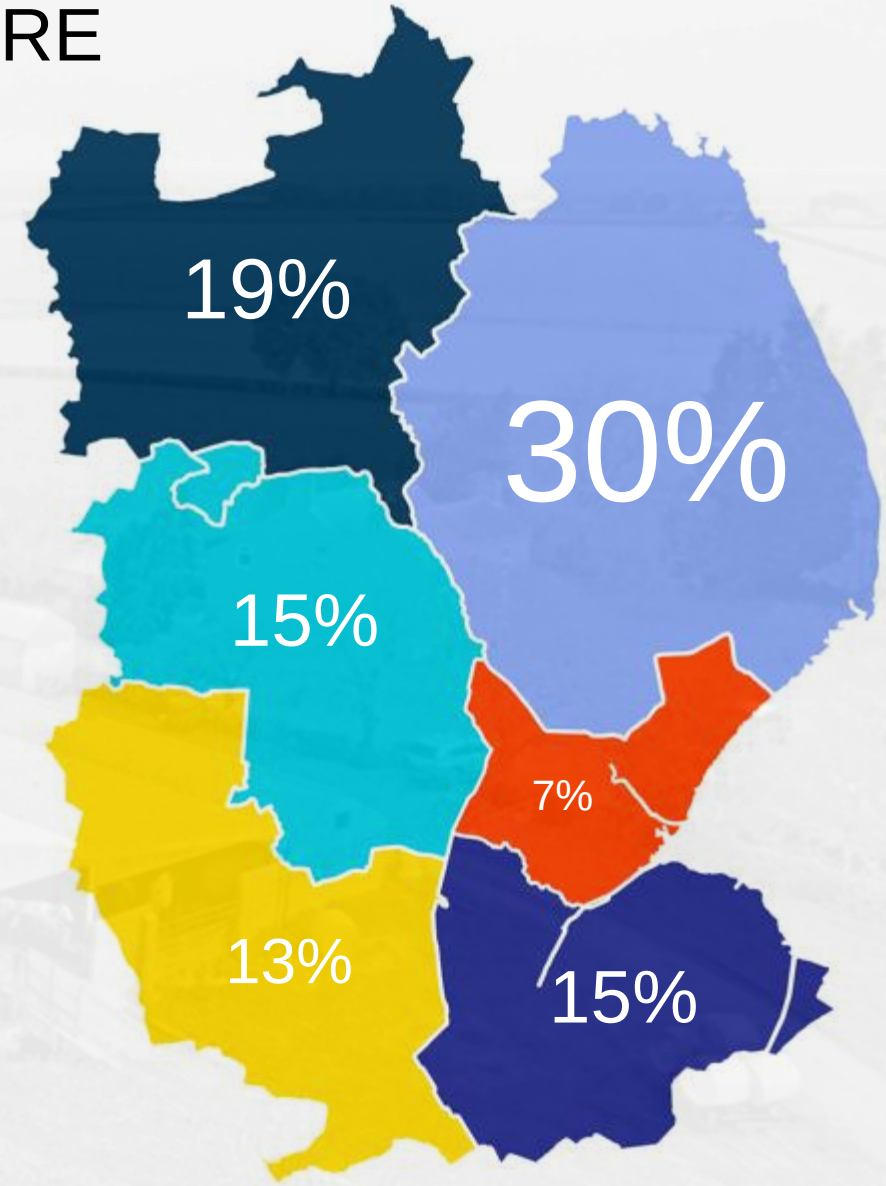
-1.6%

0.8%

-8.2%

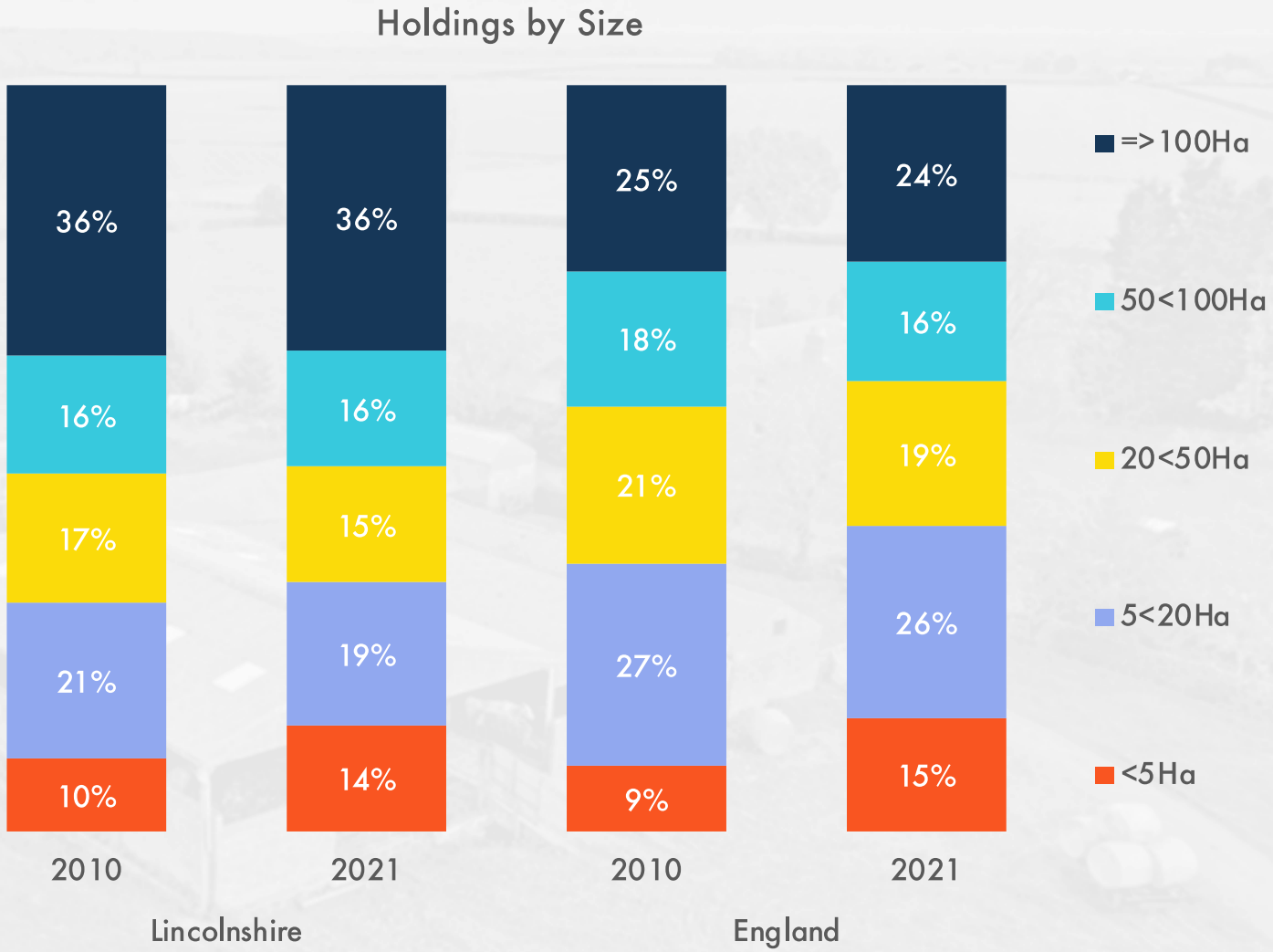
-4.0%

0.3%

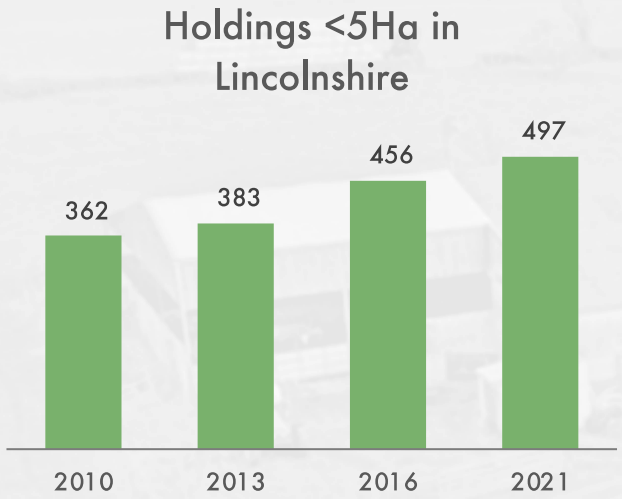


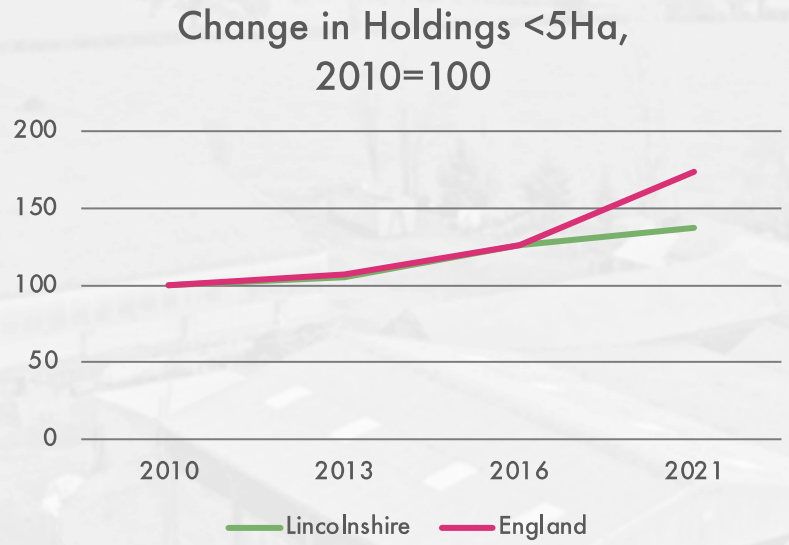
TOTAL HOLDINGS BY SIZE (Ha), 2021

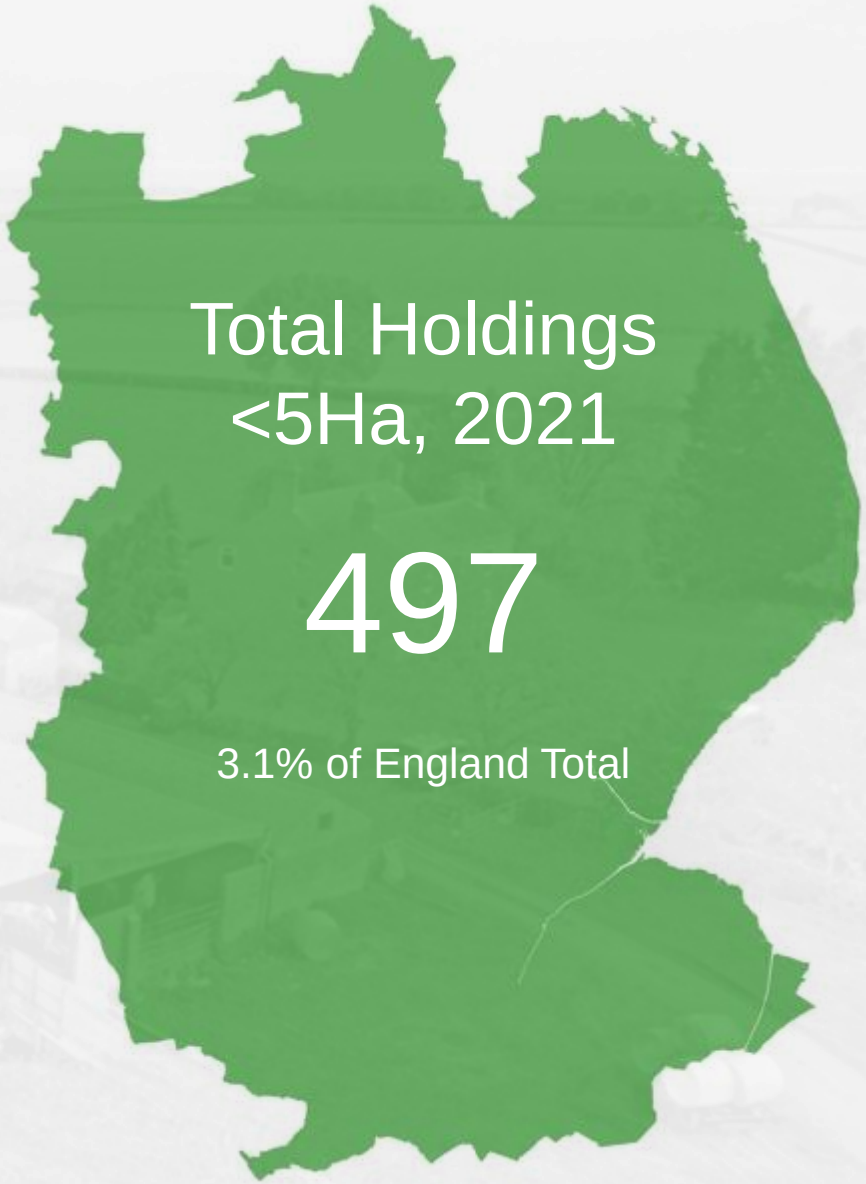
Larger farm holdings with over 100 hectares of land make up over a third of all holdings in Lincolnshire compared to a quarter nationally. There has also been very little change in farm holdings by size over time though there has been some growth in the smallest holdings (those with less than 5 hectares) both locally and nationally.



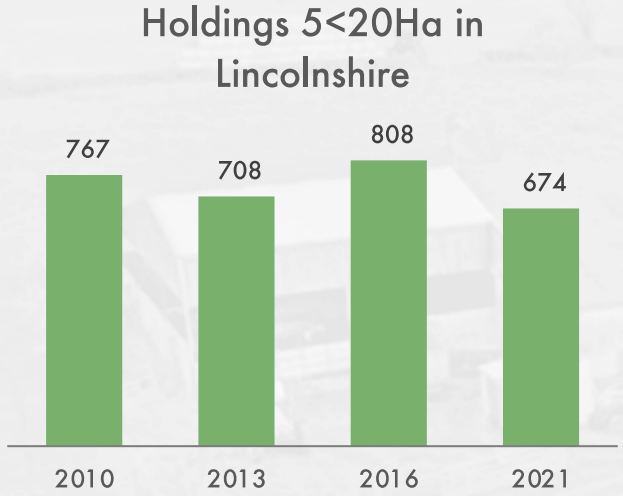
TOTAL HOLDINGS <5Ha

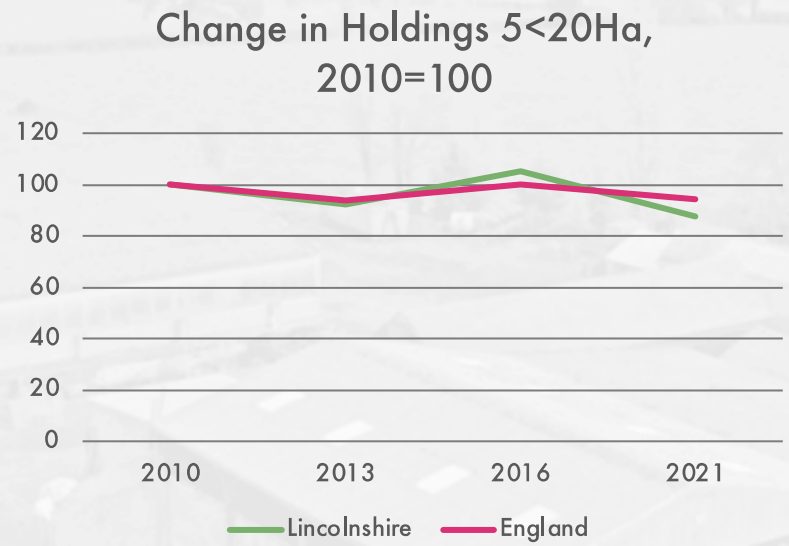


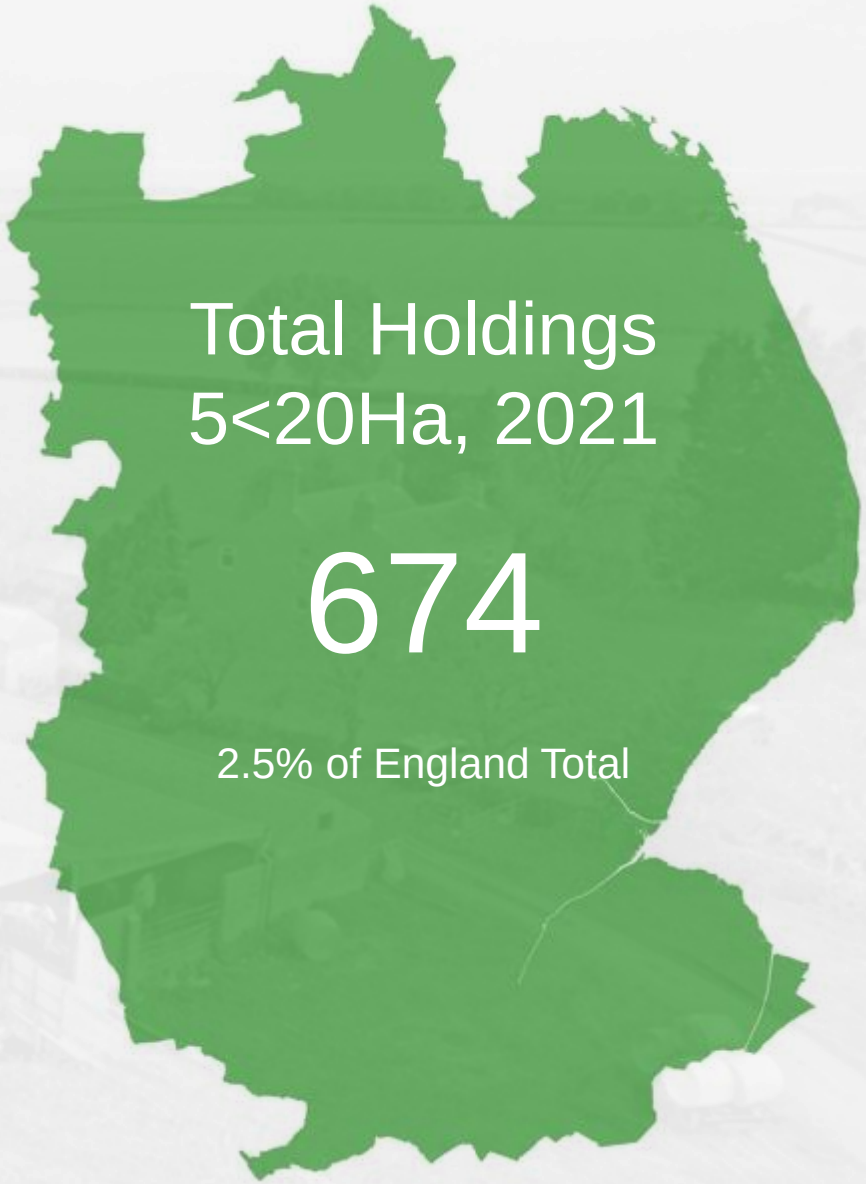




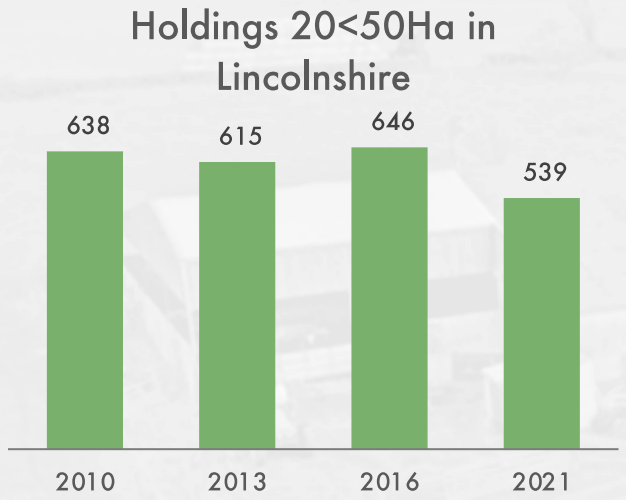
TOTAL HOLDINGS 5<20Ha

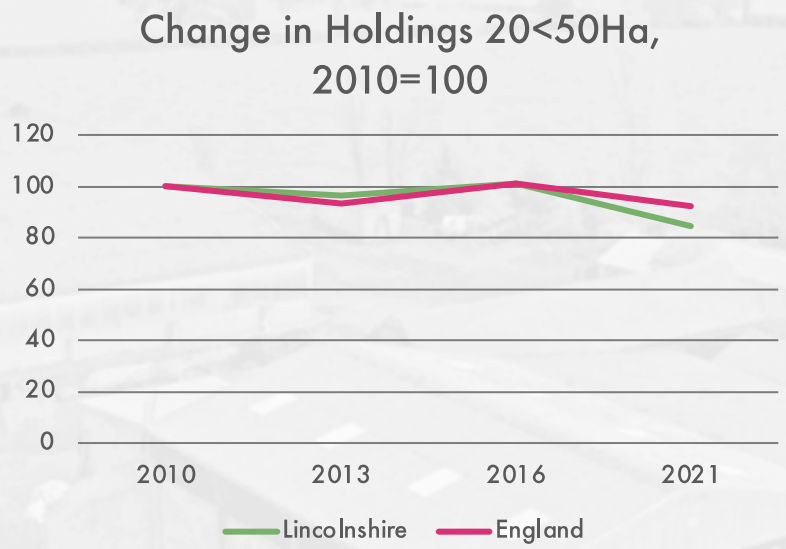


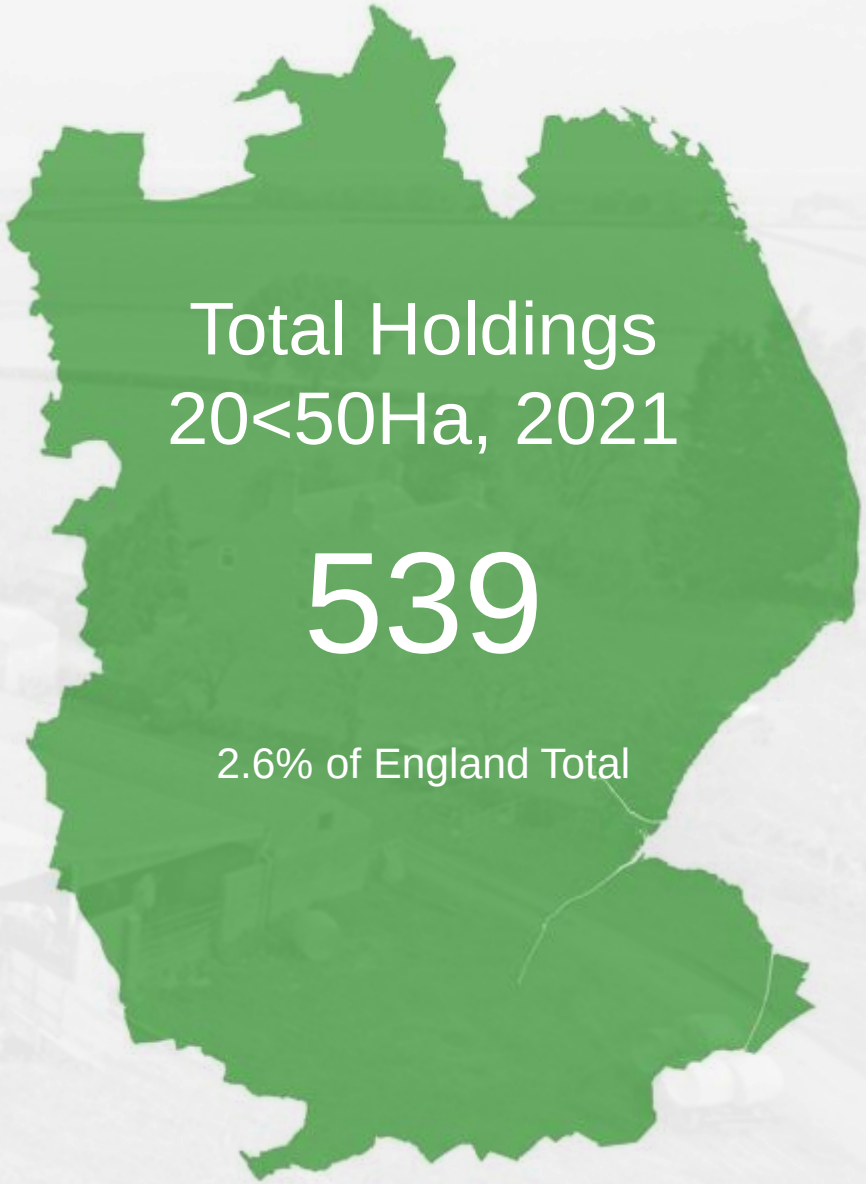




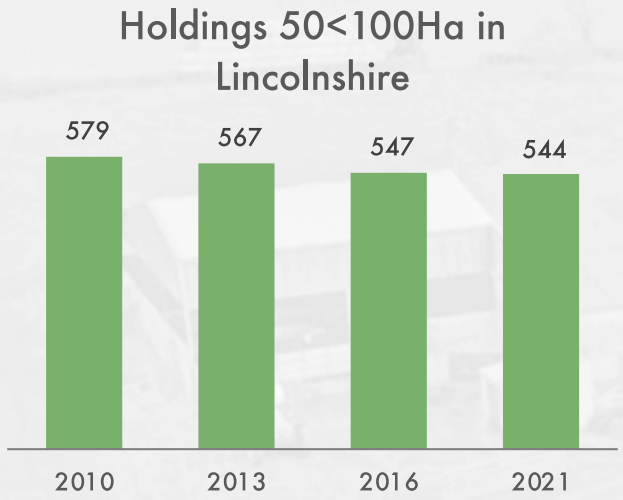
TOTAL HOLDINGS 20<50Ha

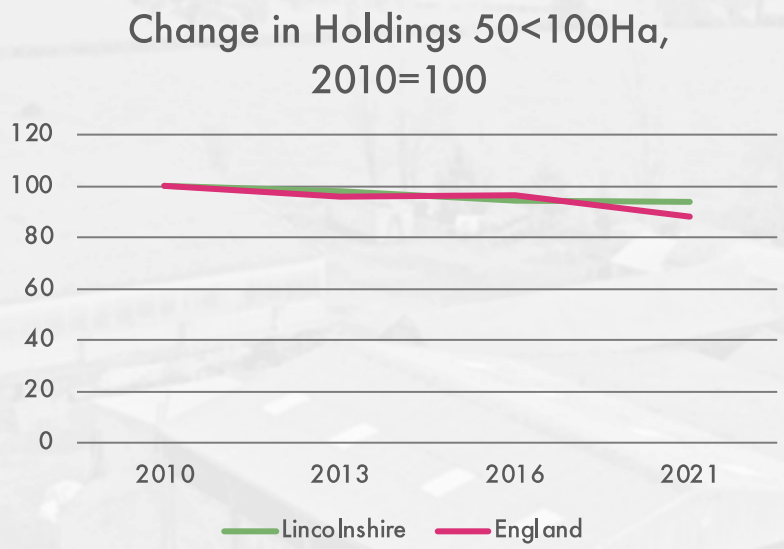


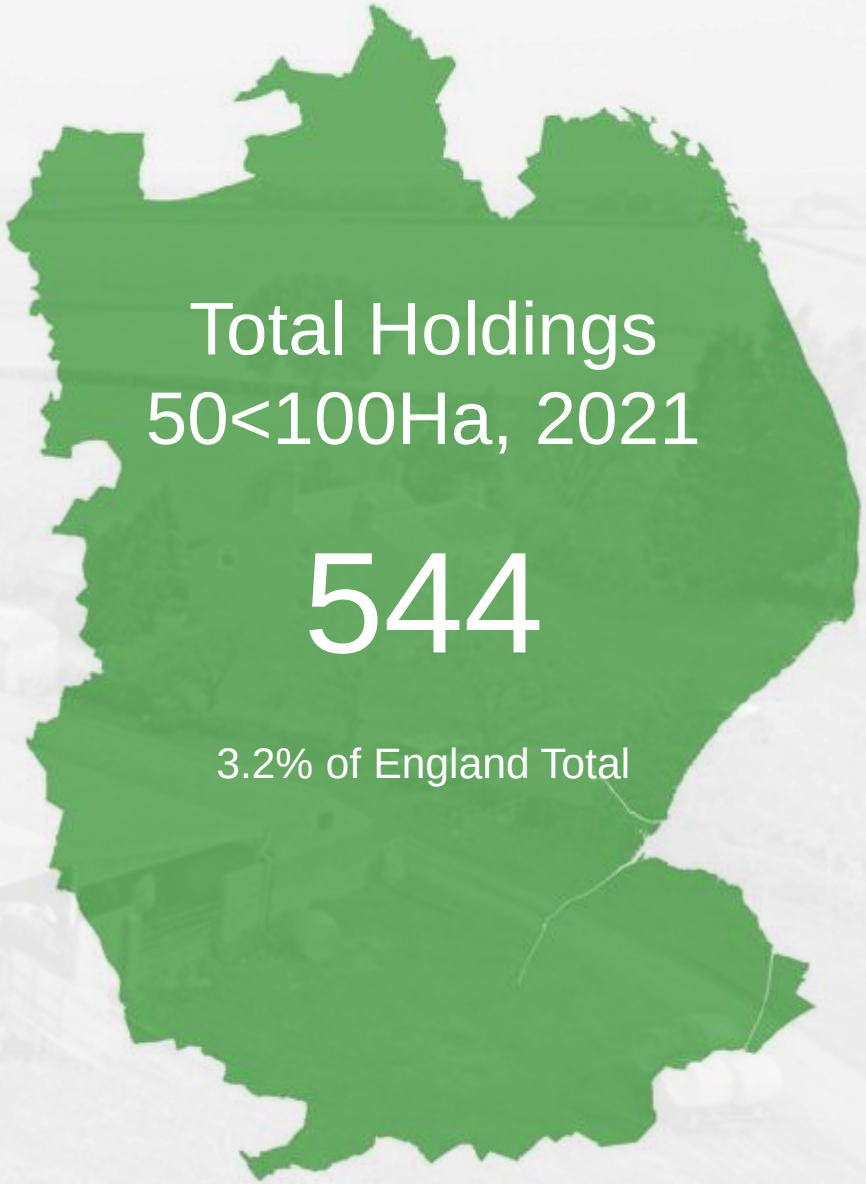




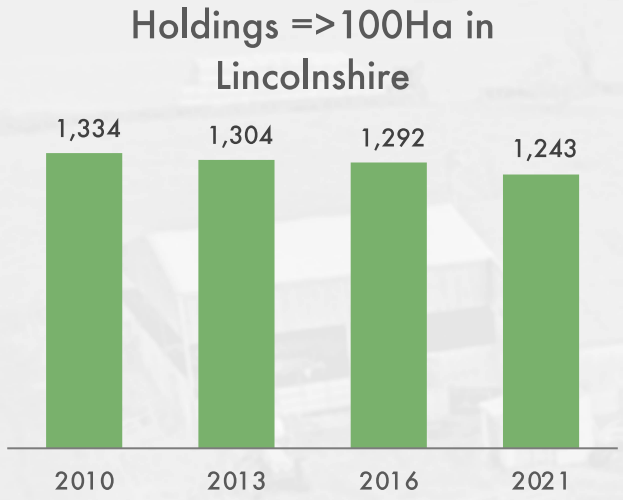
TOTAL HOLDINGS 50<100Ha

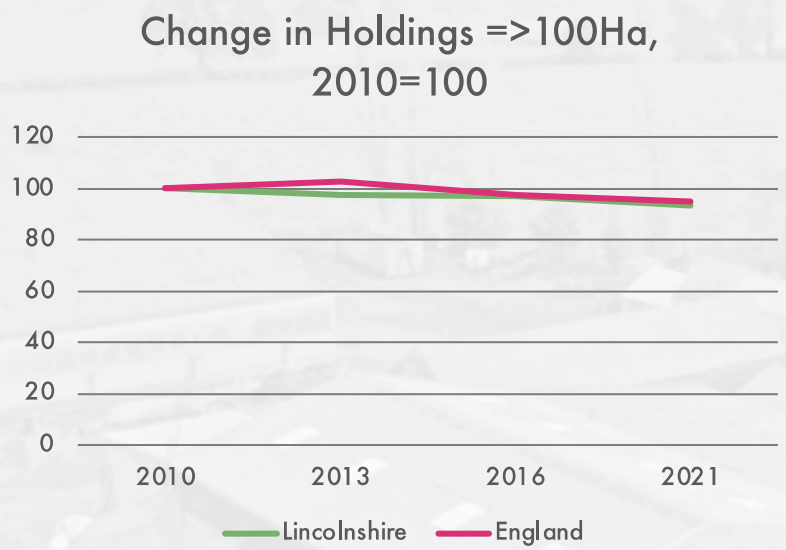


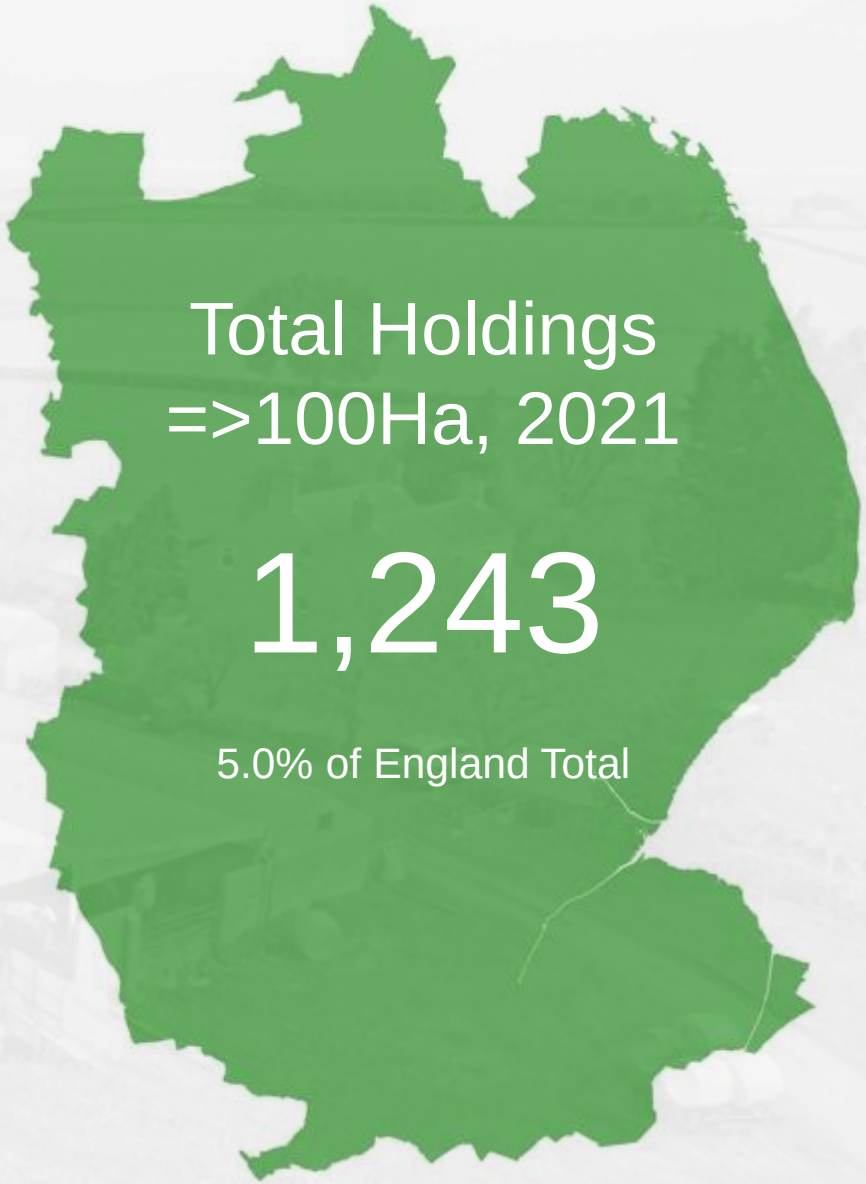




TOTAL HOLDINGS =>100Ha



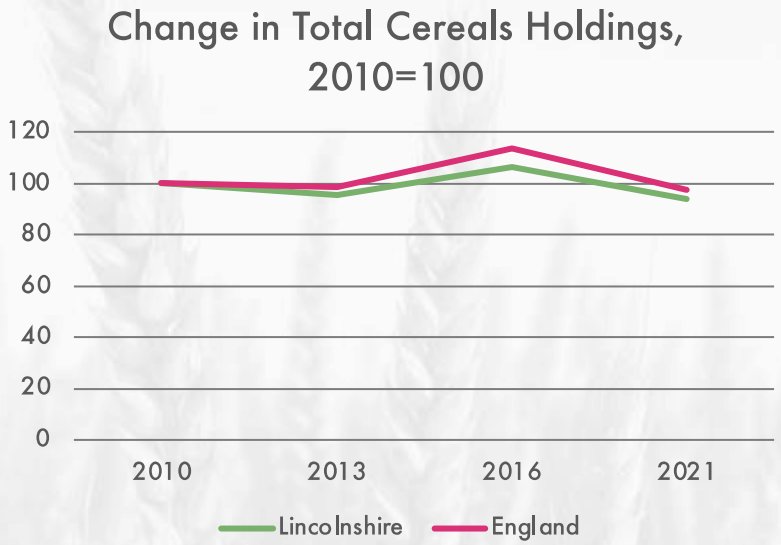


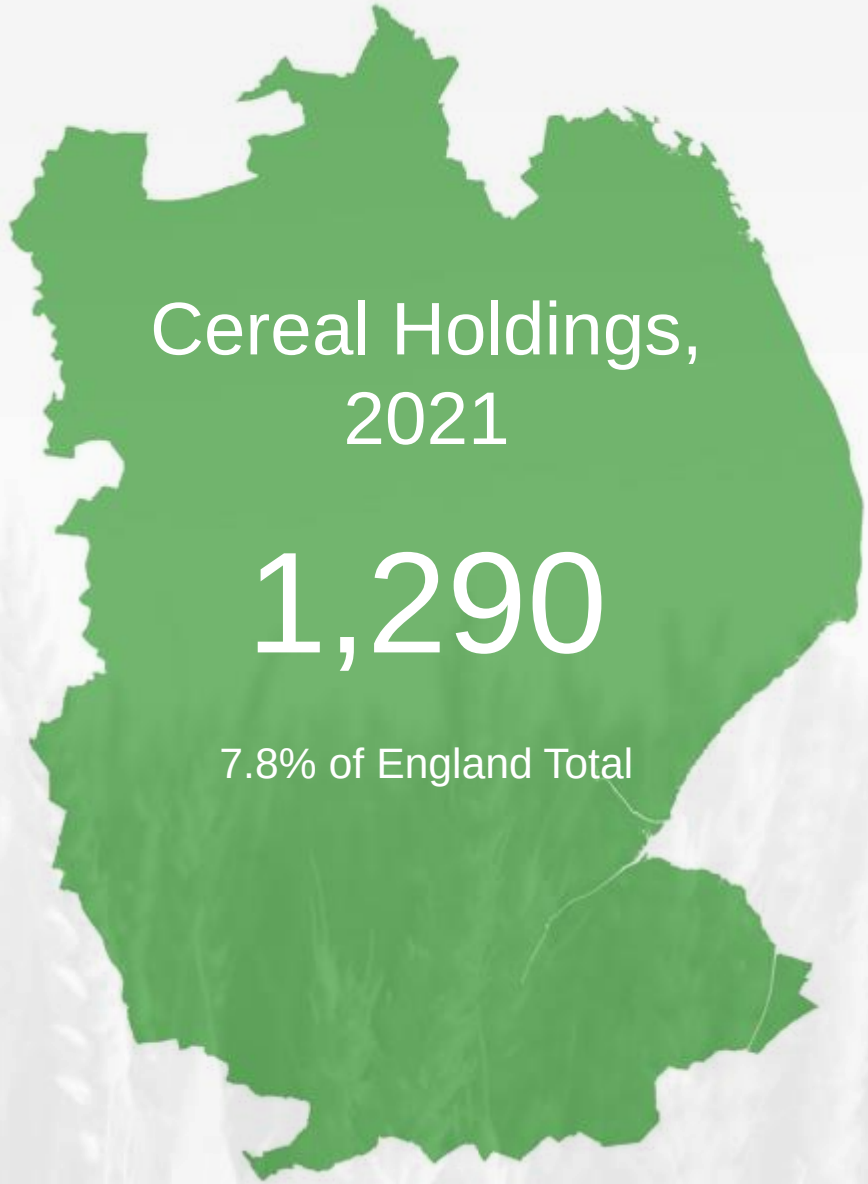


FARM HOLDINGS BY TYPE

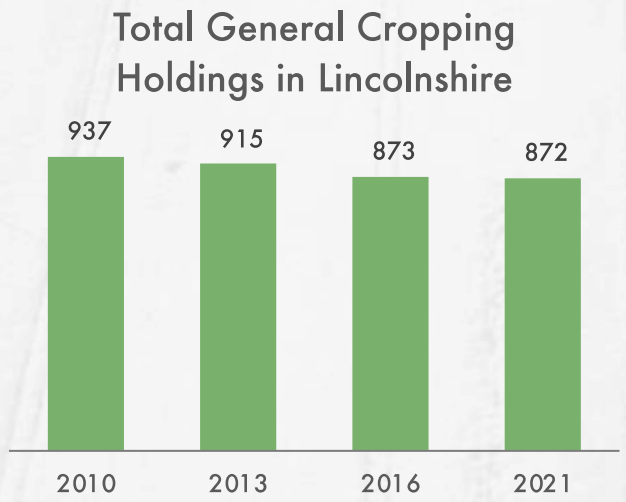
Note: Pre 2010 farm type was classified by the predominant farming activity taking place on the holdings, based on economic measure and profitability (Standard Gross Margin, SGM). The farm type is defined as the activity which contributes more than two thirds of the total SGM for the holding. For 2010 onwards the methodology for classifying farms has changed to one based on Standard Outputs. Up until 2012 standard outputs were based on a five year average centred around 2007. From 2013 onwards the five year average was changed to centre on 2010.

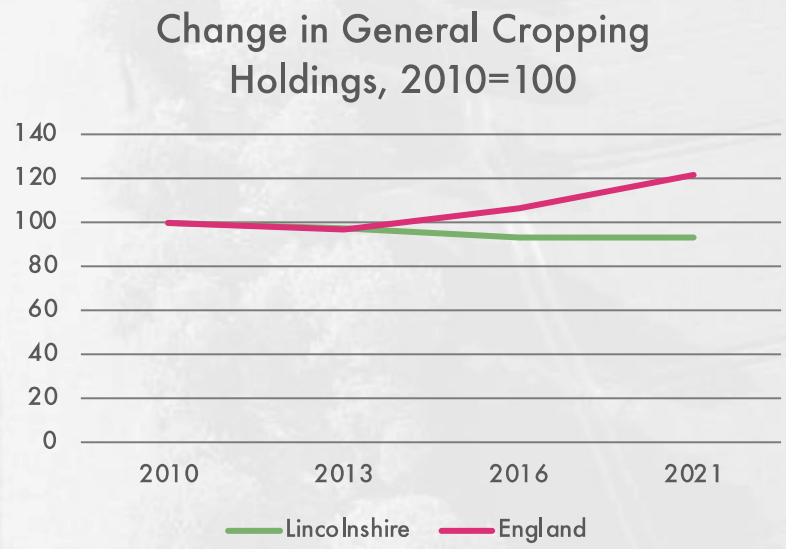
CEREAL HOLDINGS

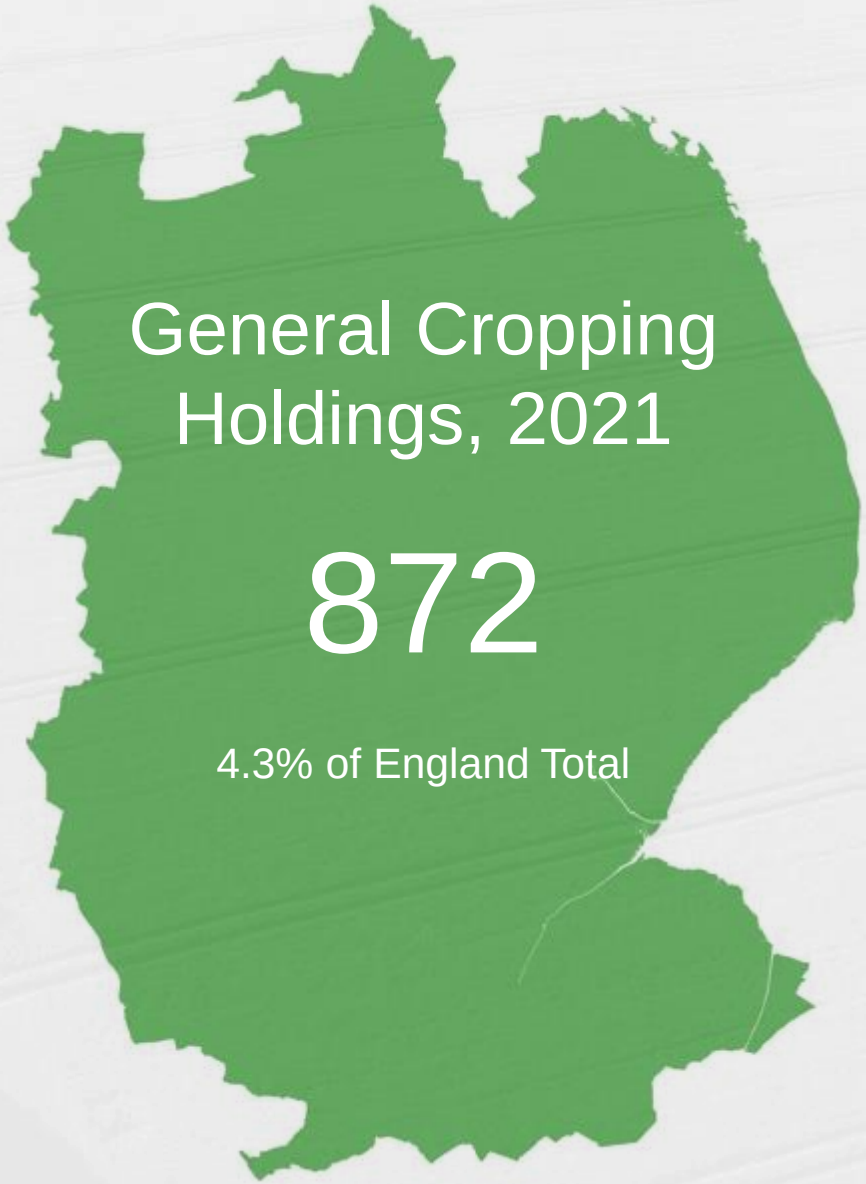




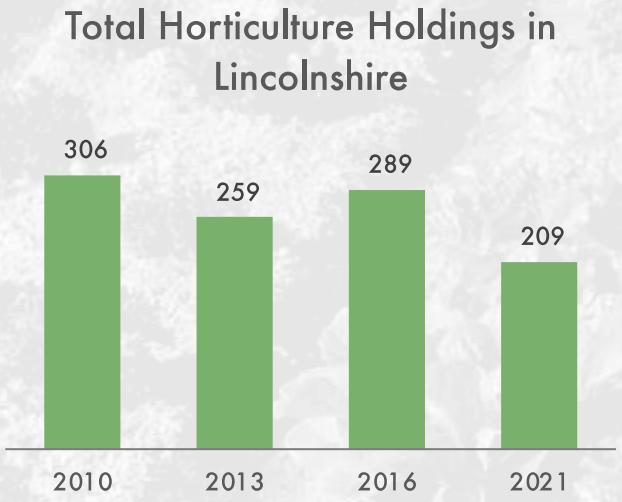
GENERAL CROPPING HOLDINGS

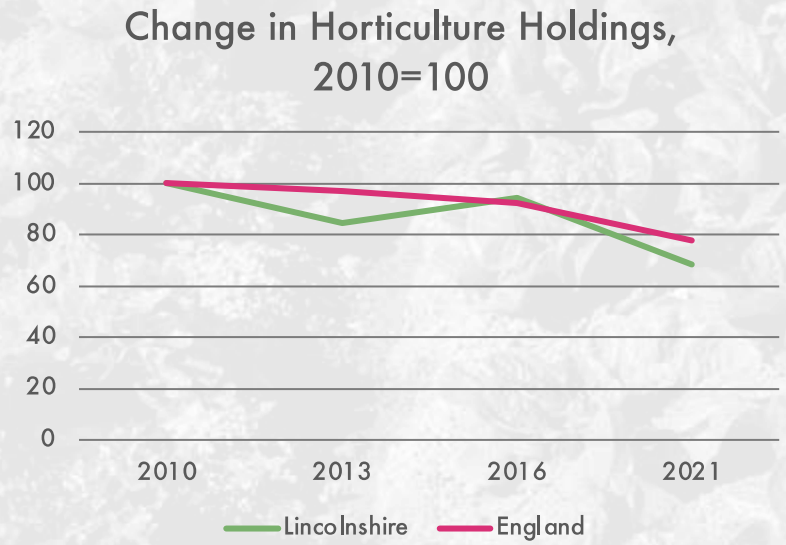




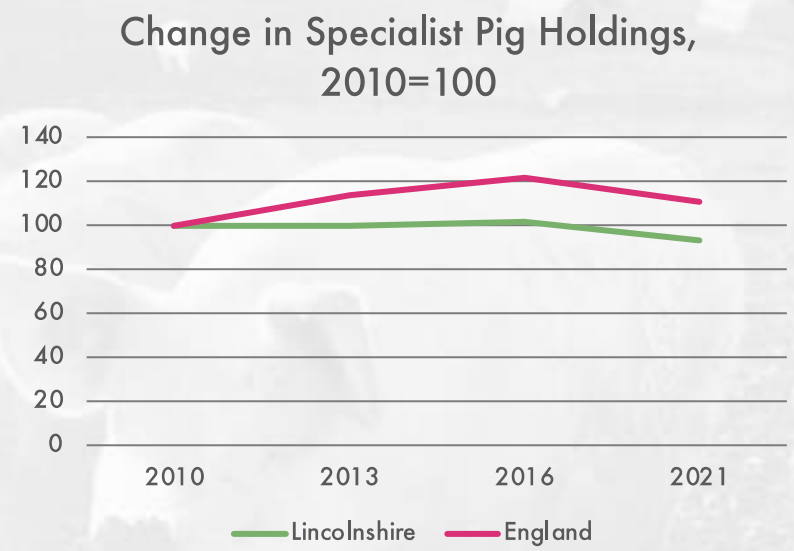


HORTICULTURAL HOLDINGS

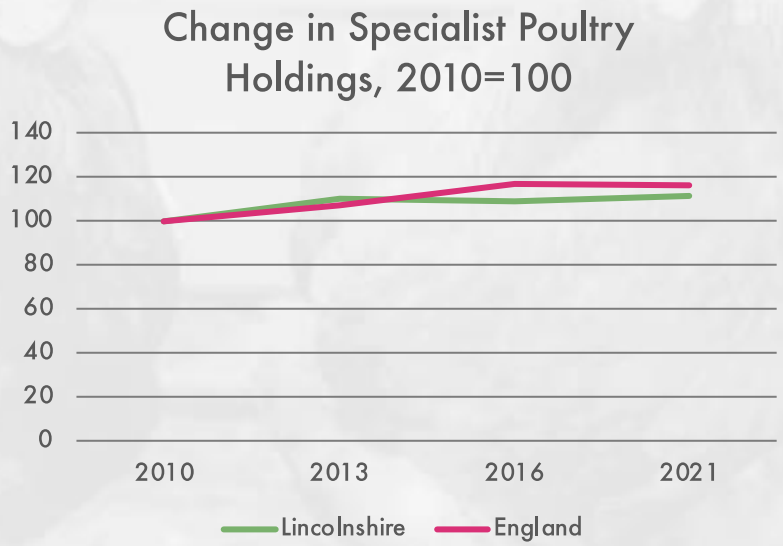




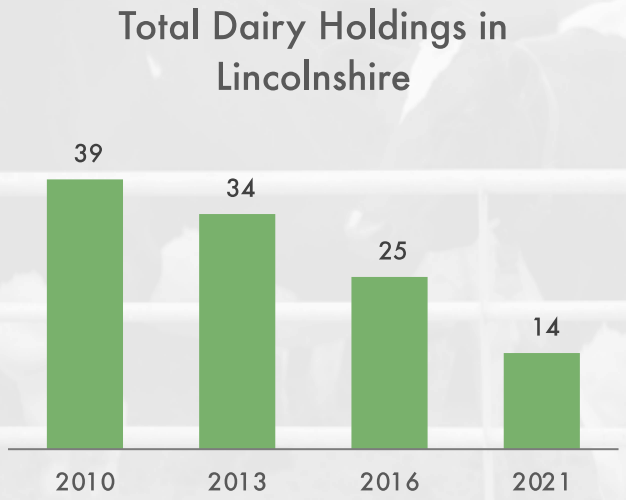
SPECIALIST PIG HOLDINGS

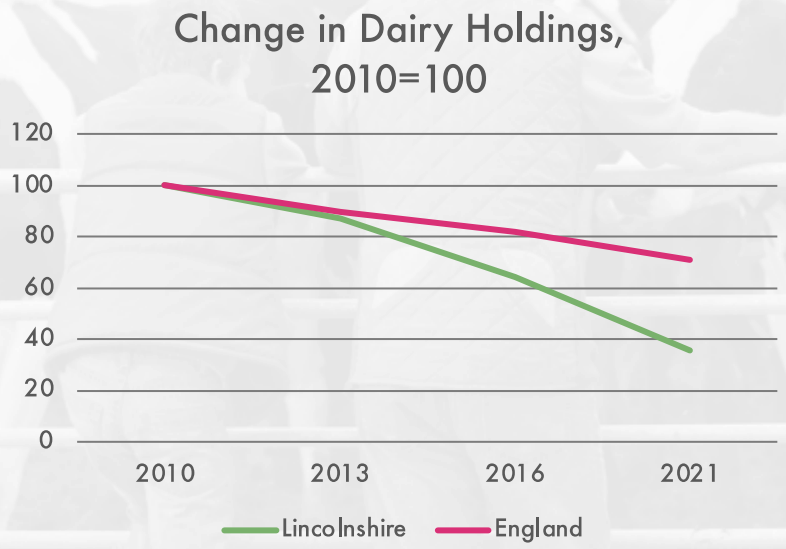


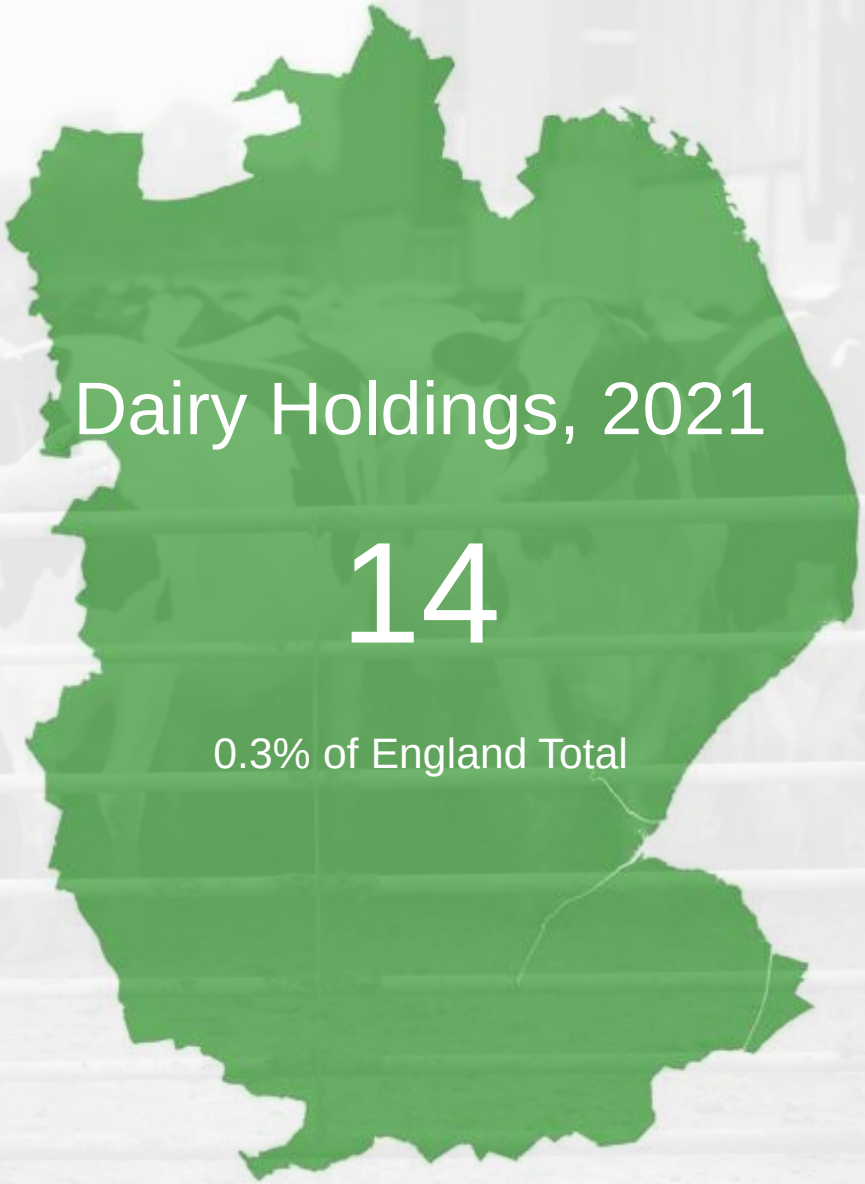
SPECIALIST POULTRY HOLDINGS



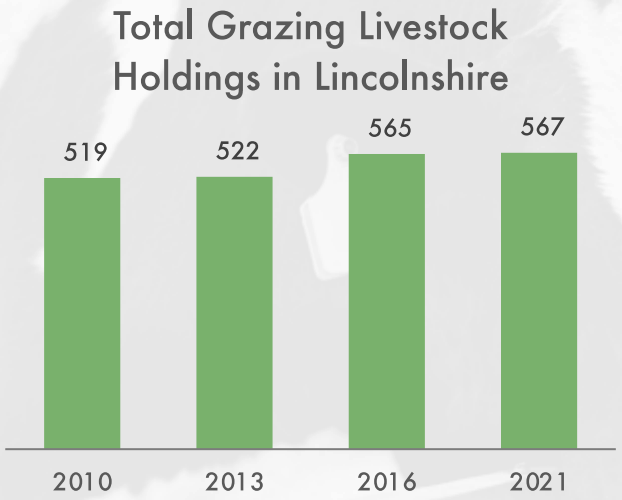
DAIRY HOLDINGS

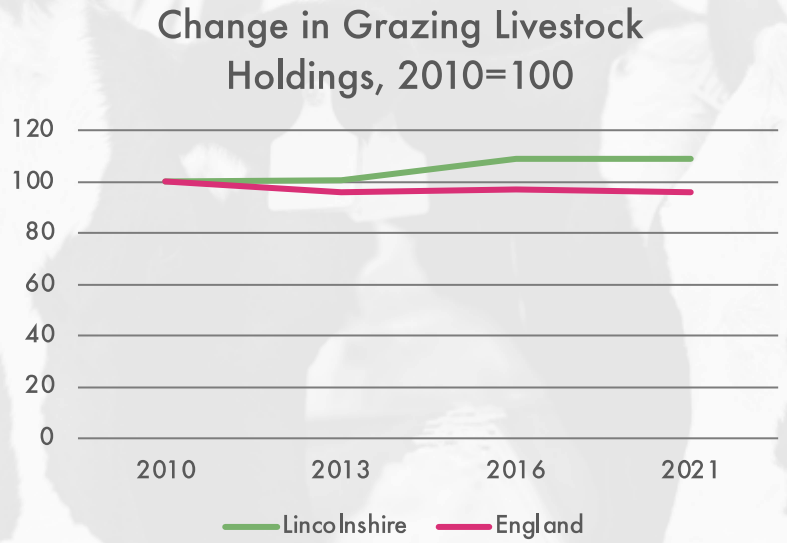


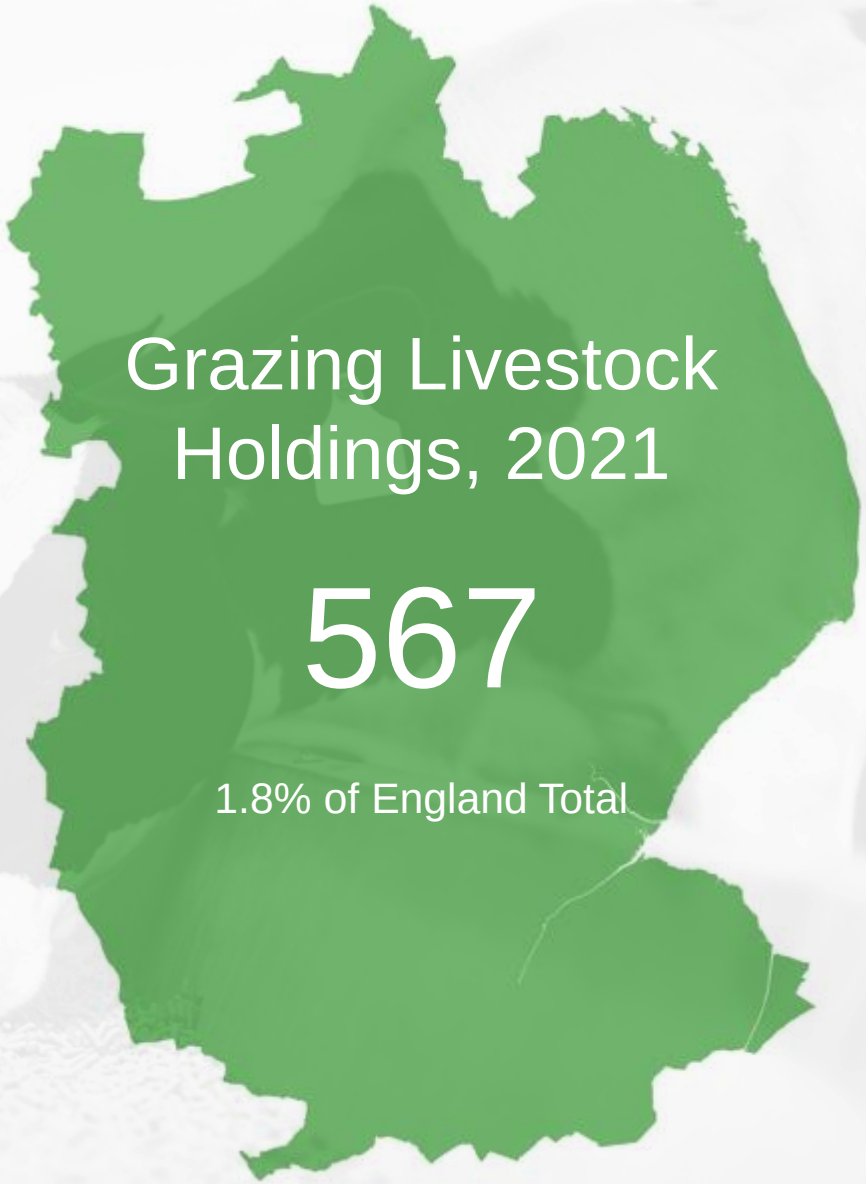




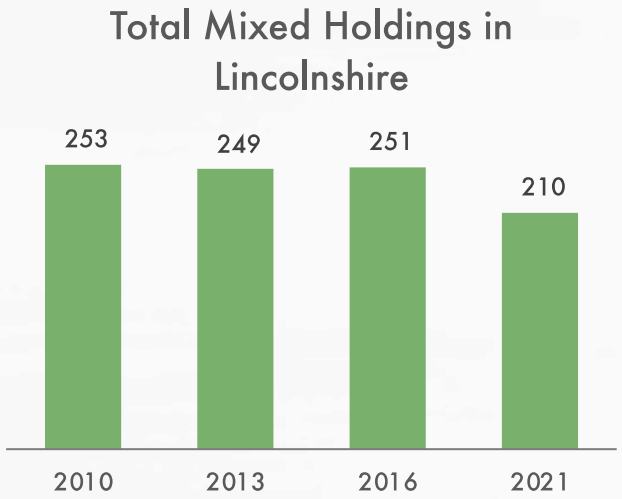
GRAZING LIVESTOCK HOLDINGS

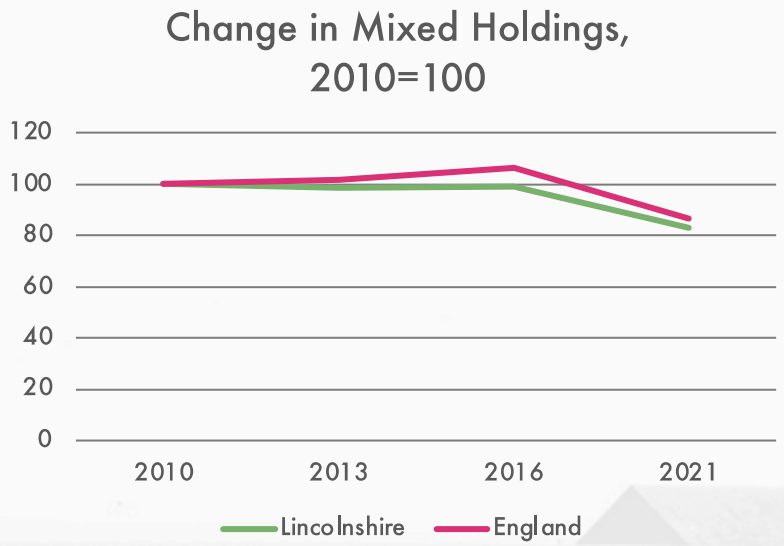




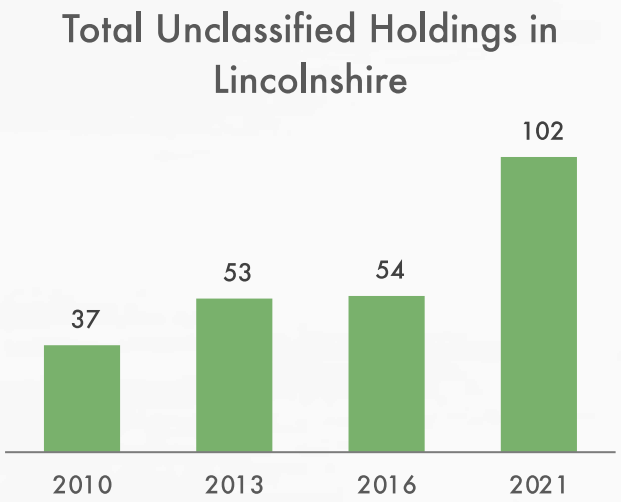


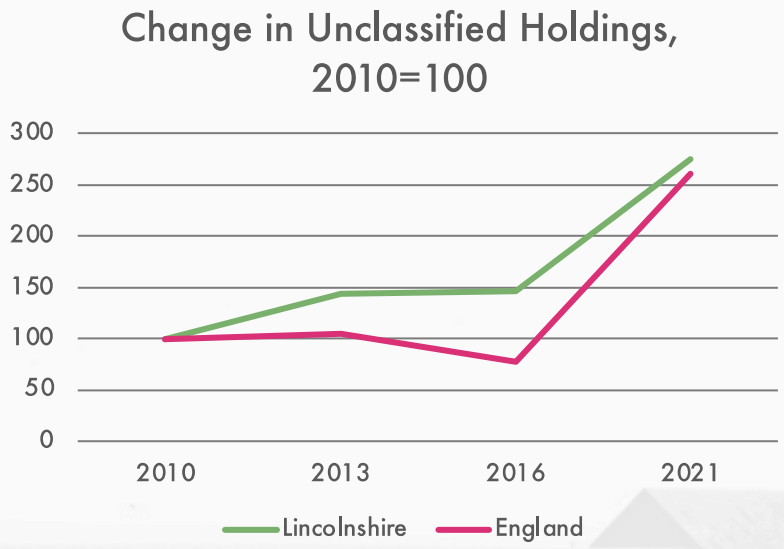
MIXED HOLDINGS





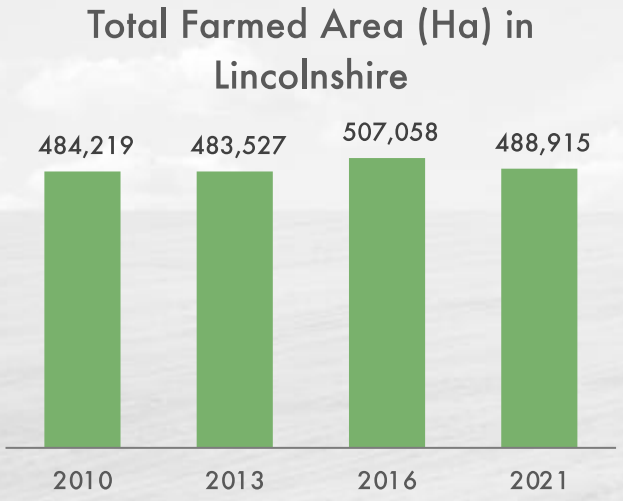
UNCLASSIFIED HOLDINGS

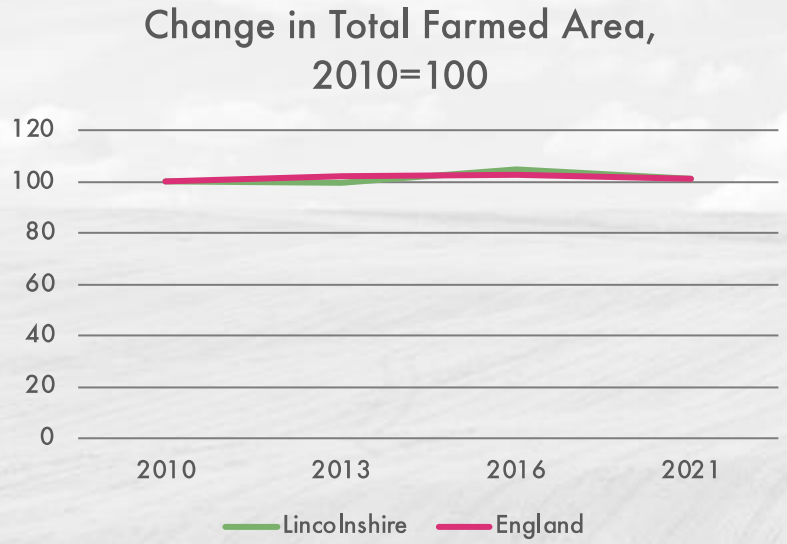


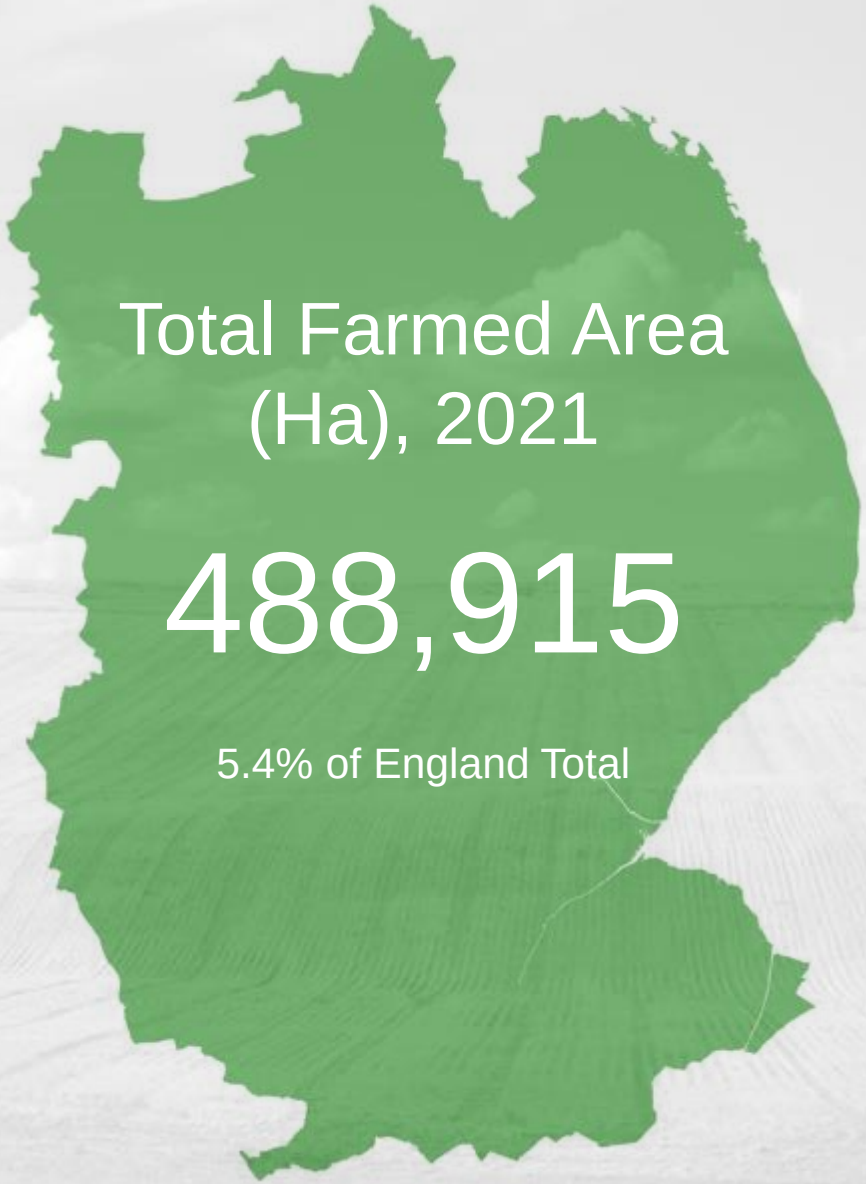


FARMED AREA BY FARM SIZE

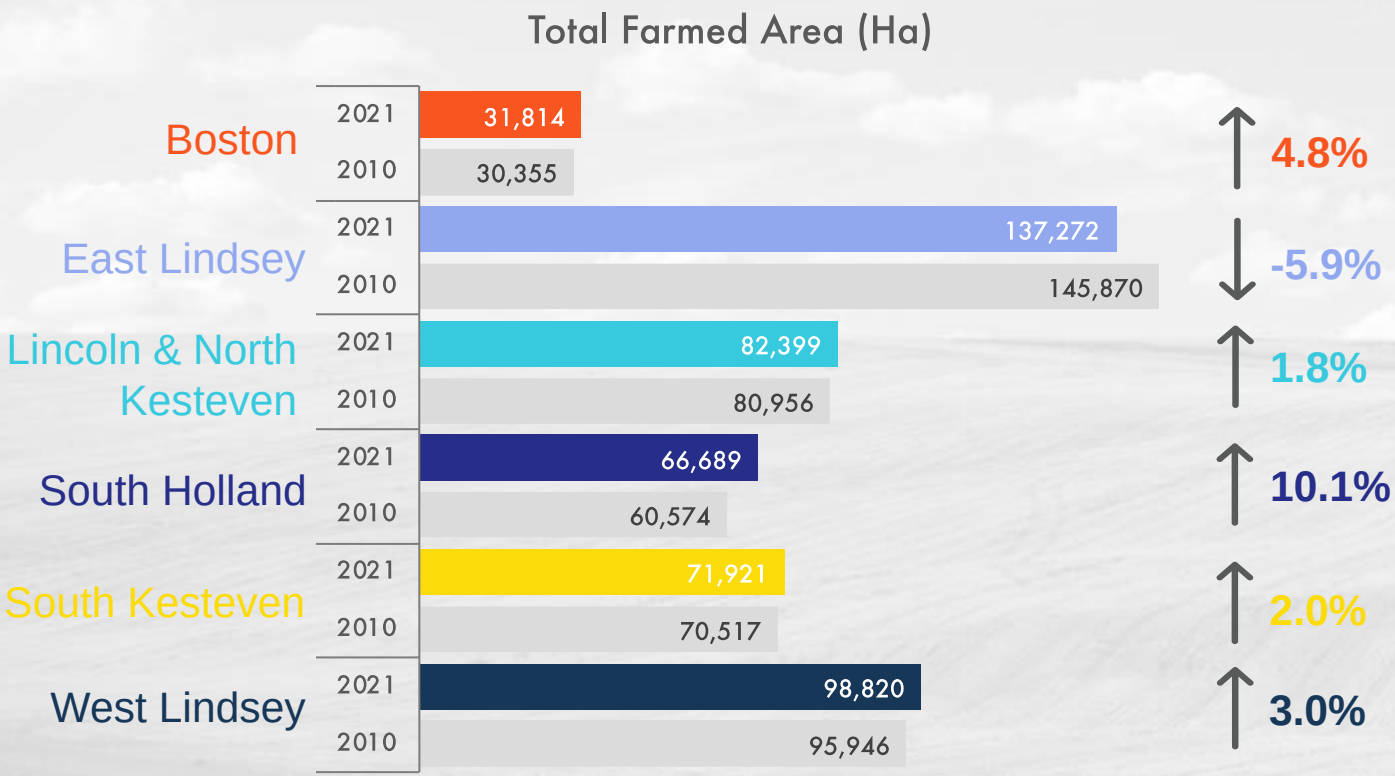
TOTAL FARMED AREA

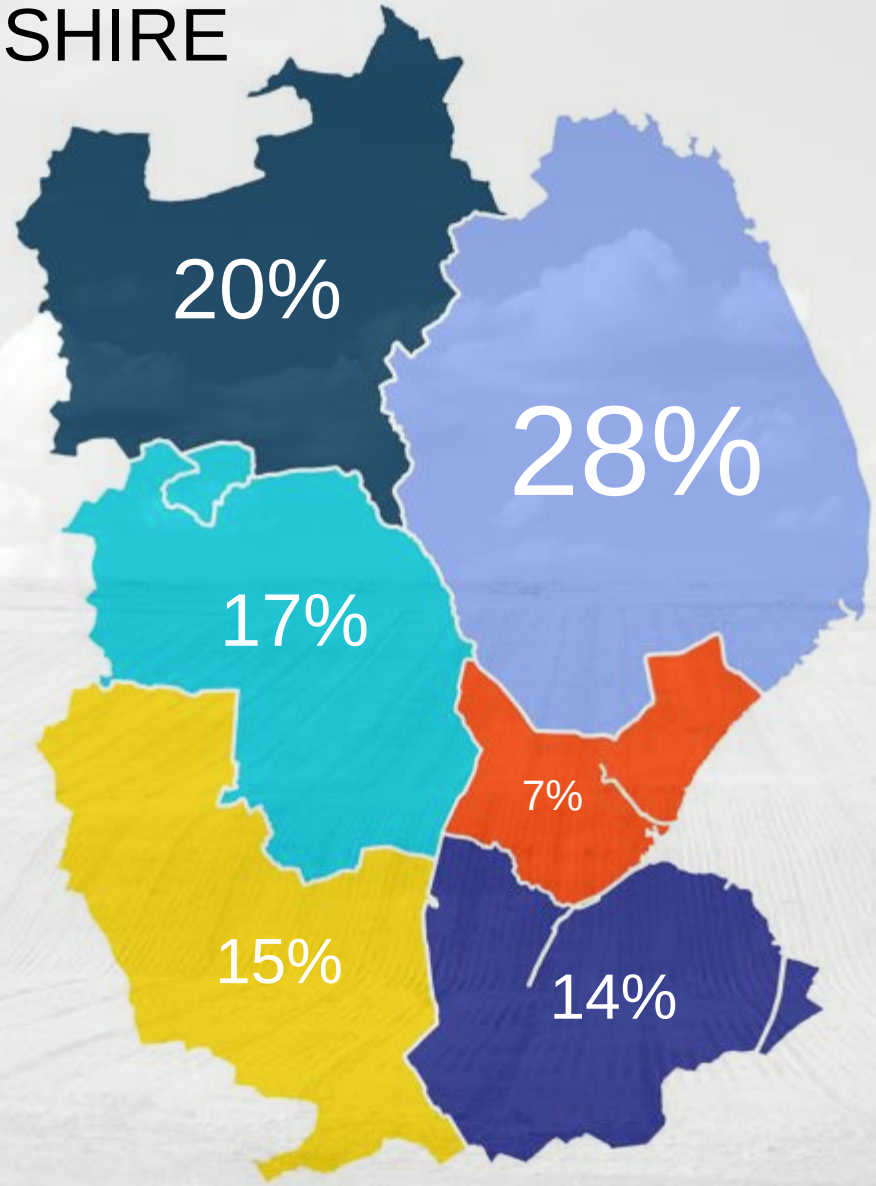






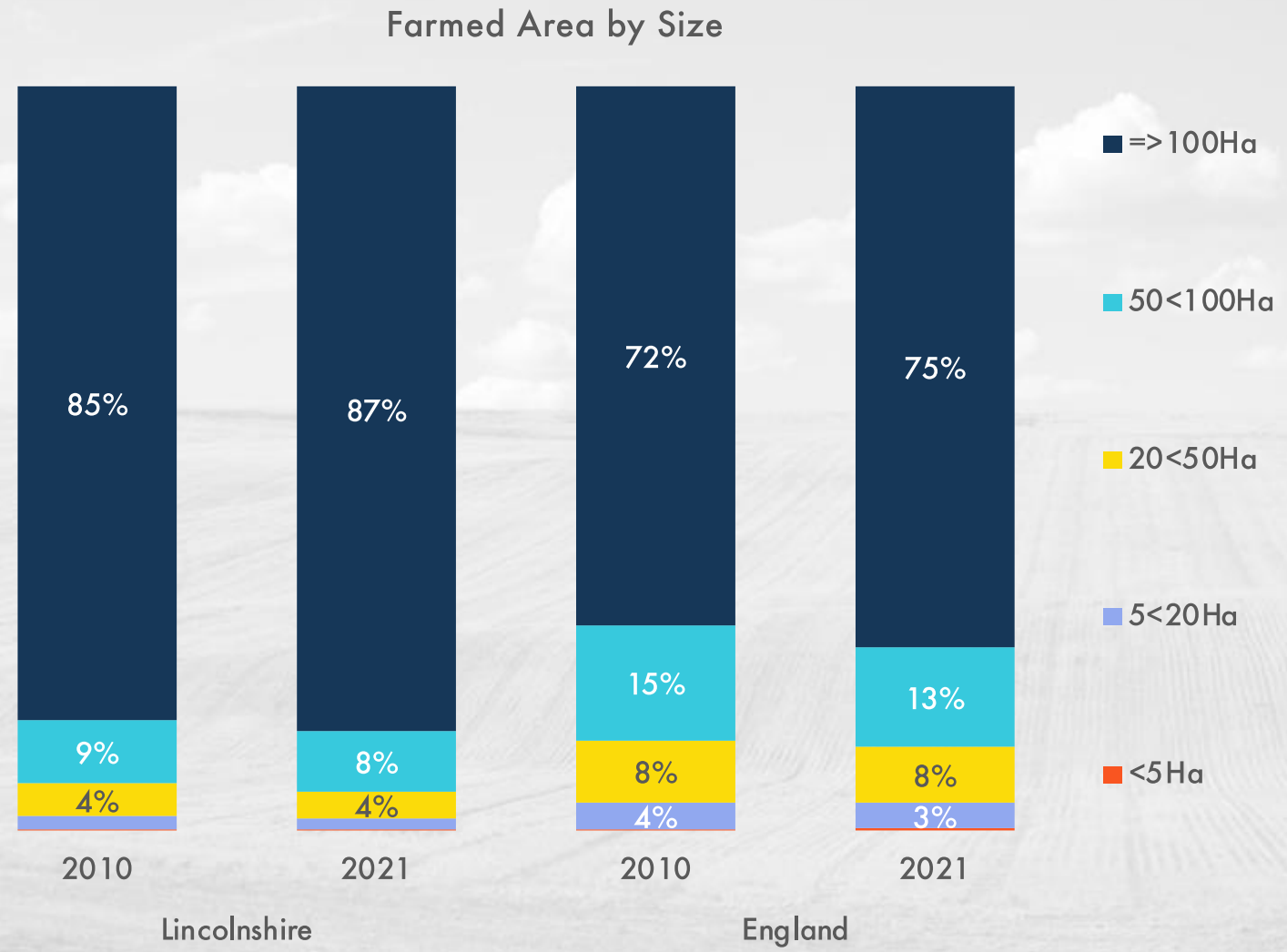
TOTAL FARMED AREA ACROSS LINCOLNSHIRE



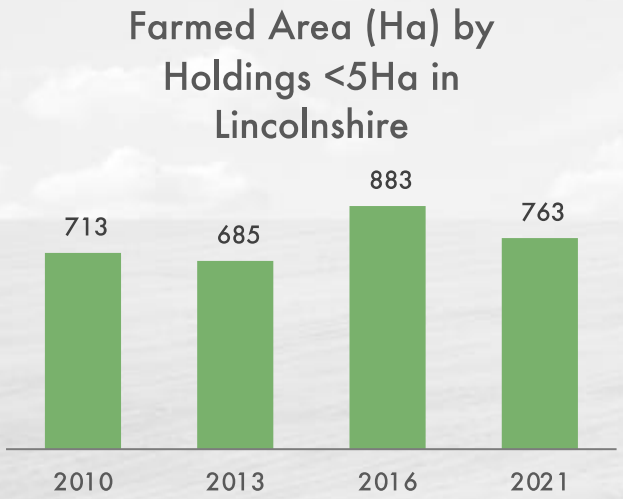


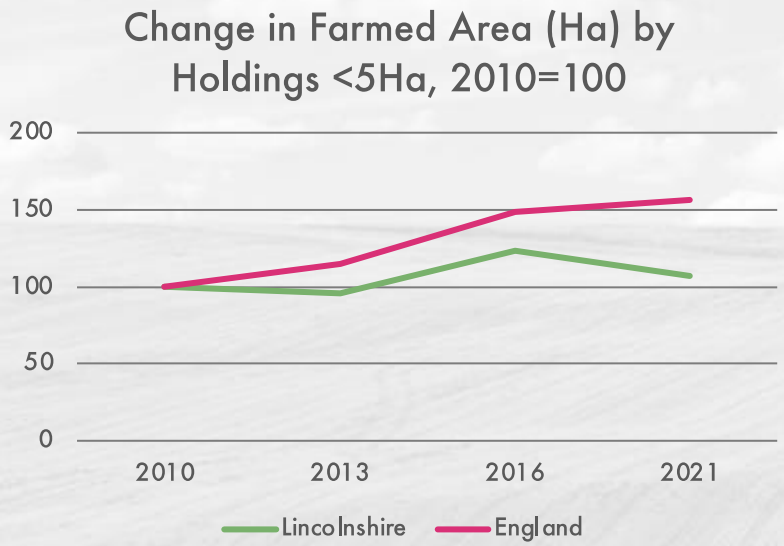
FARMED AREA BY FARM SIZE (Ha), 2021

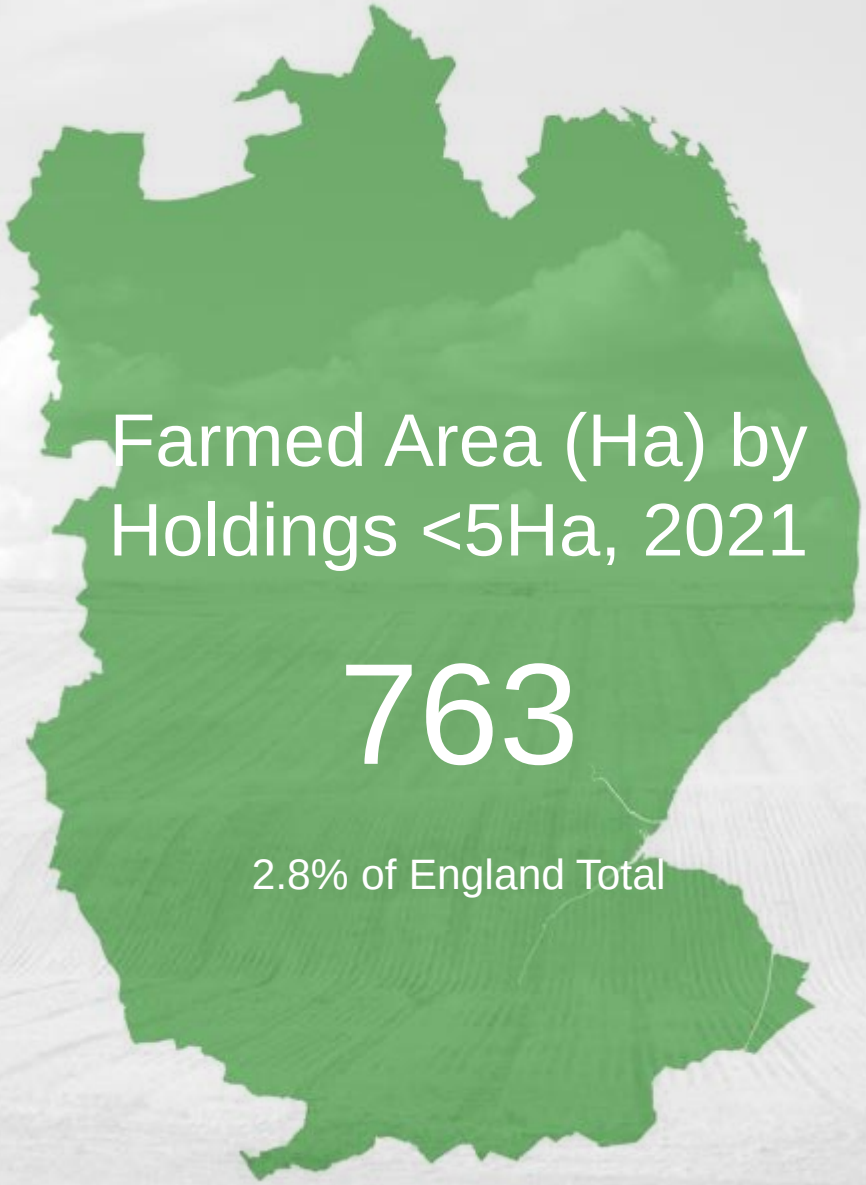
In Lincolnshire, the largest farms (those with over 100 hectares) are responsible for farming the largest proportion (87%) of the total farmed area. This already large proportion has increased slightly over the last decade. This compares with 75% nationally, further demonstrating the importance of these largest holdings locally when it comes to the sector.



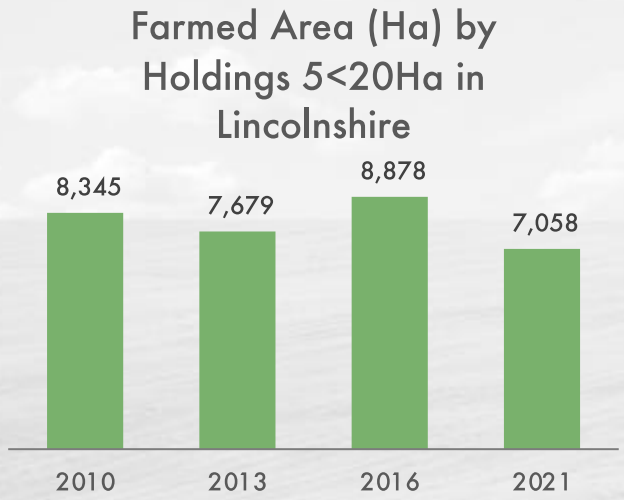
FARMED AREA BY HOLDINGS <5Ha

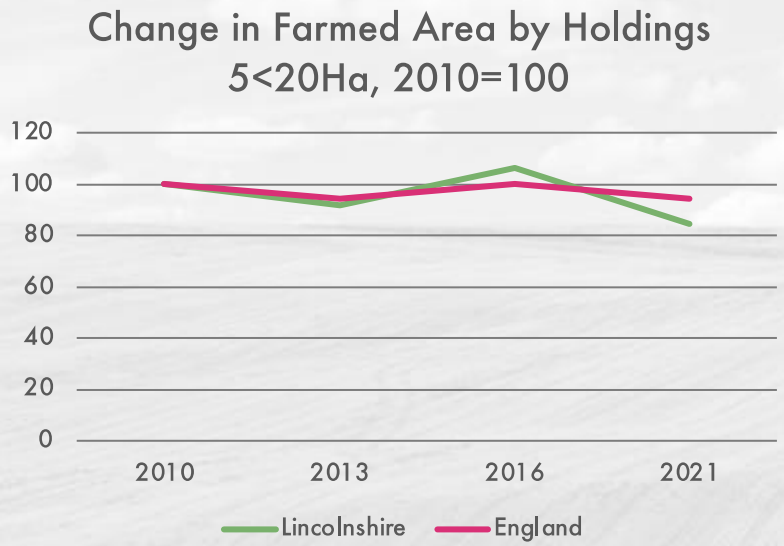


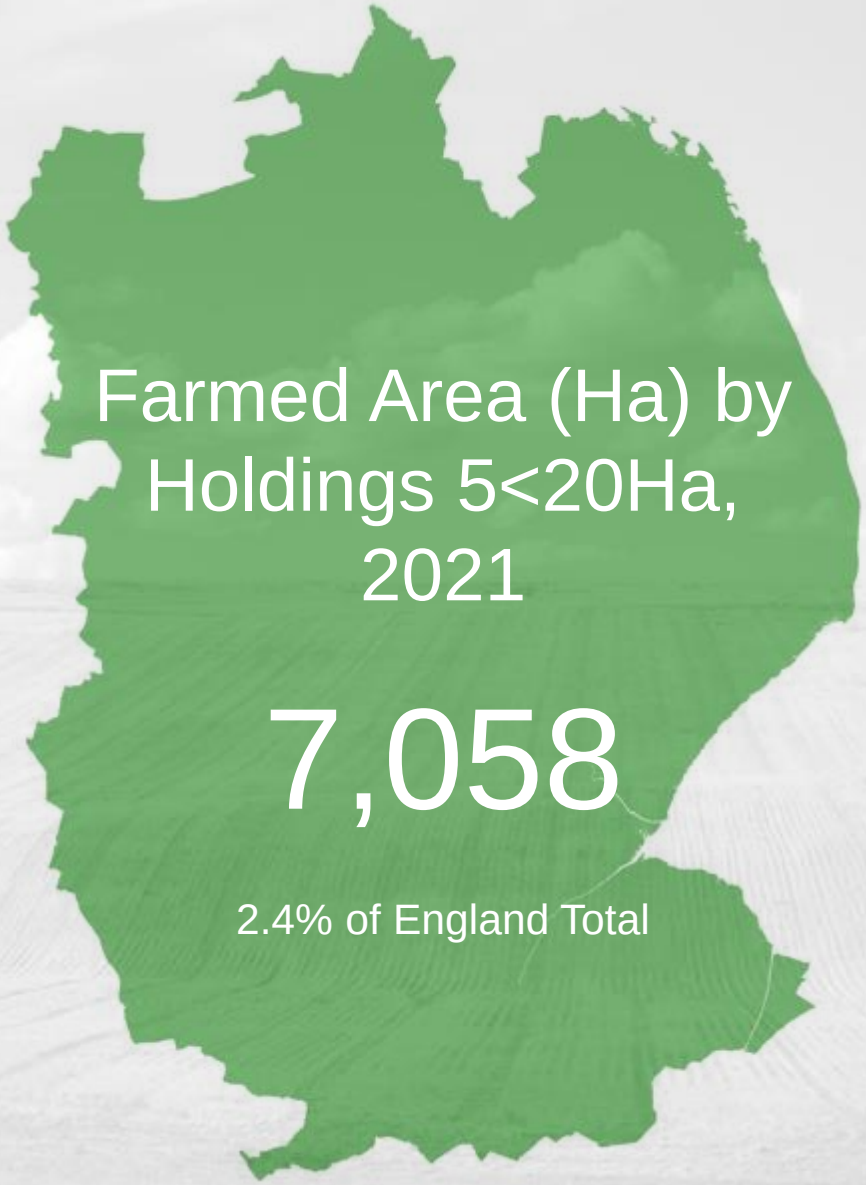




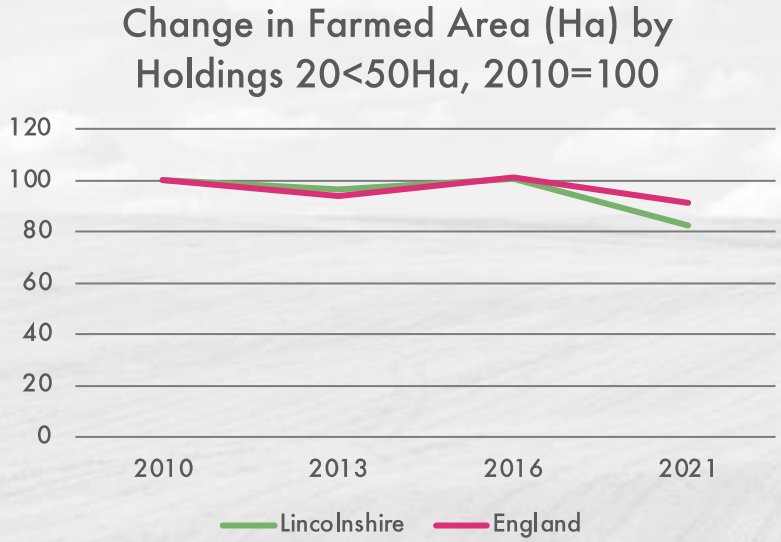
FARMED AREA BY HOLDINGS 5<20Ha

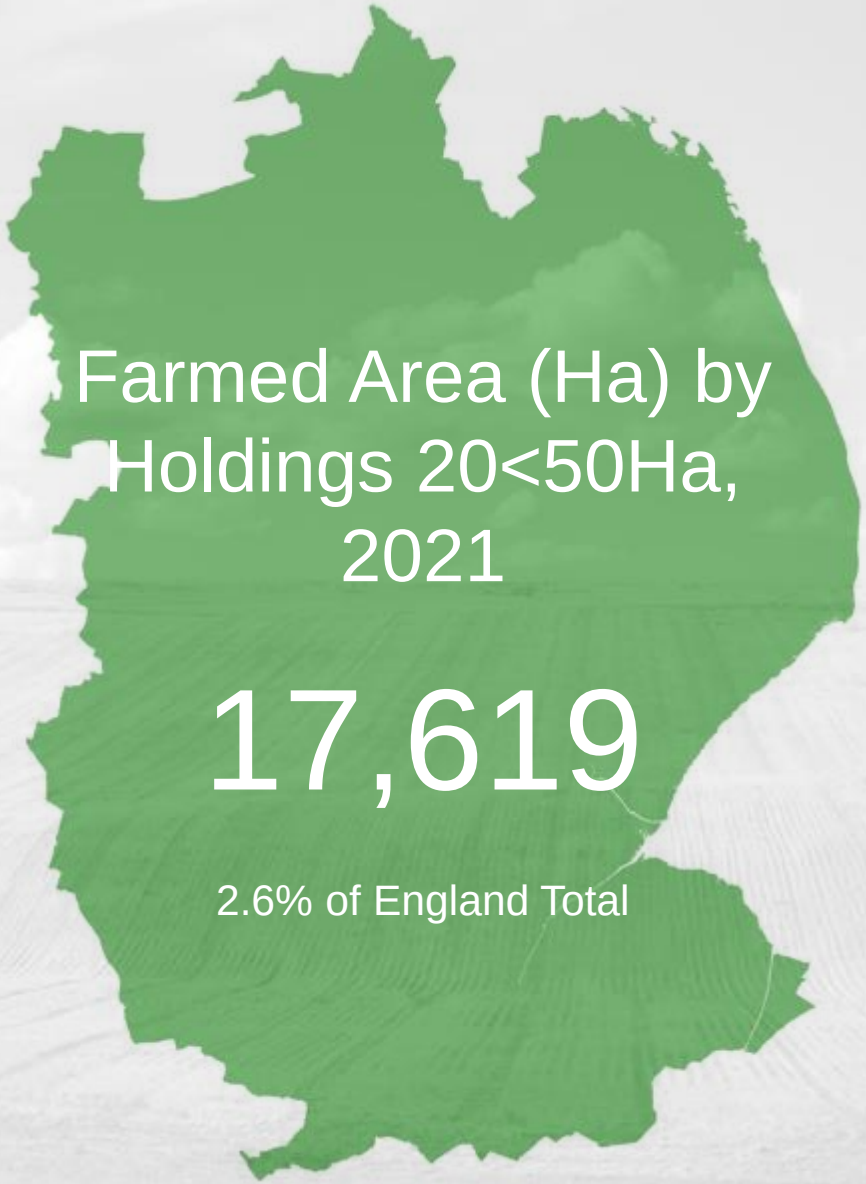




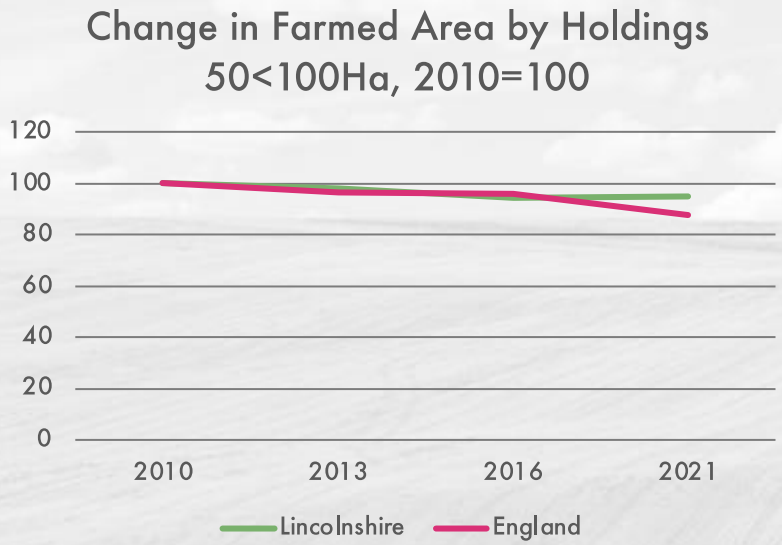


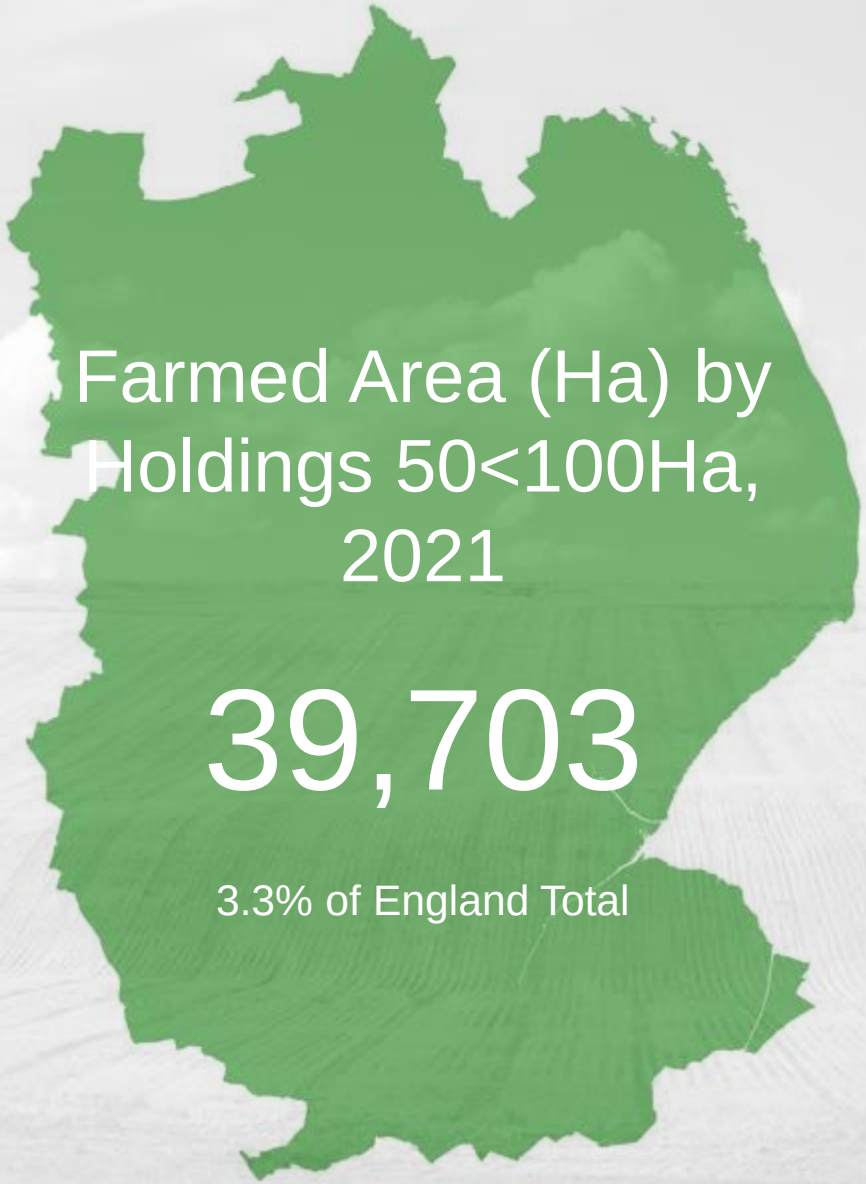
FARMED AREA BY HOLDINGS 20<50Ha



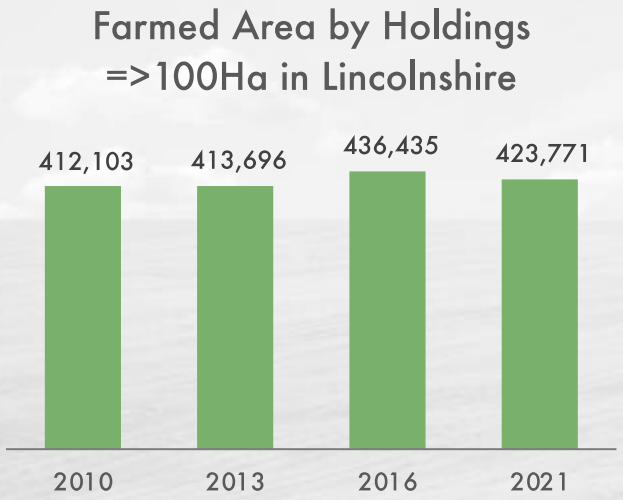


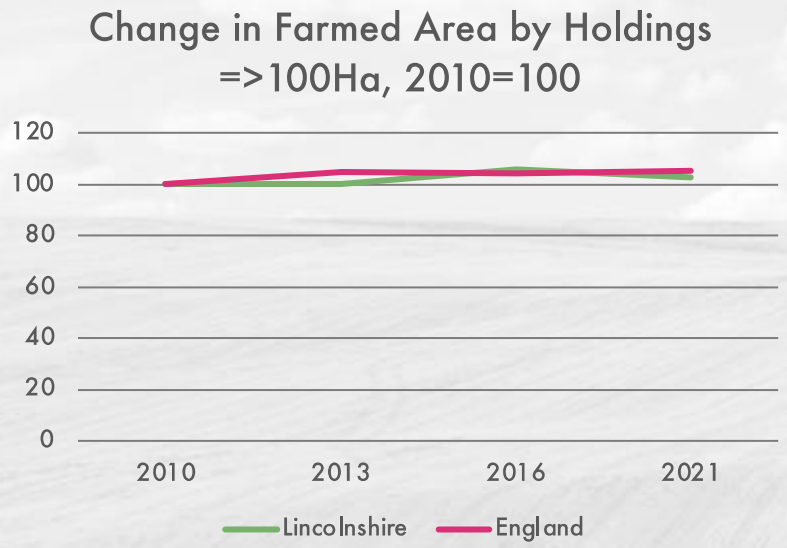
FARMED AREA BY HOLDINGS 50<100Ha

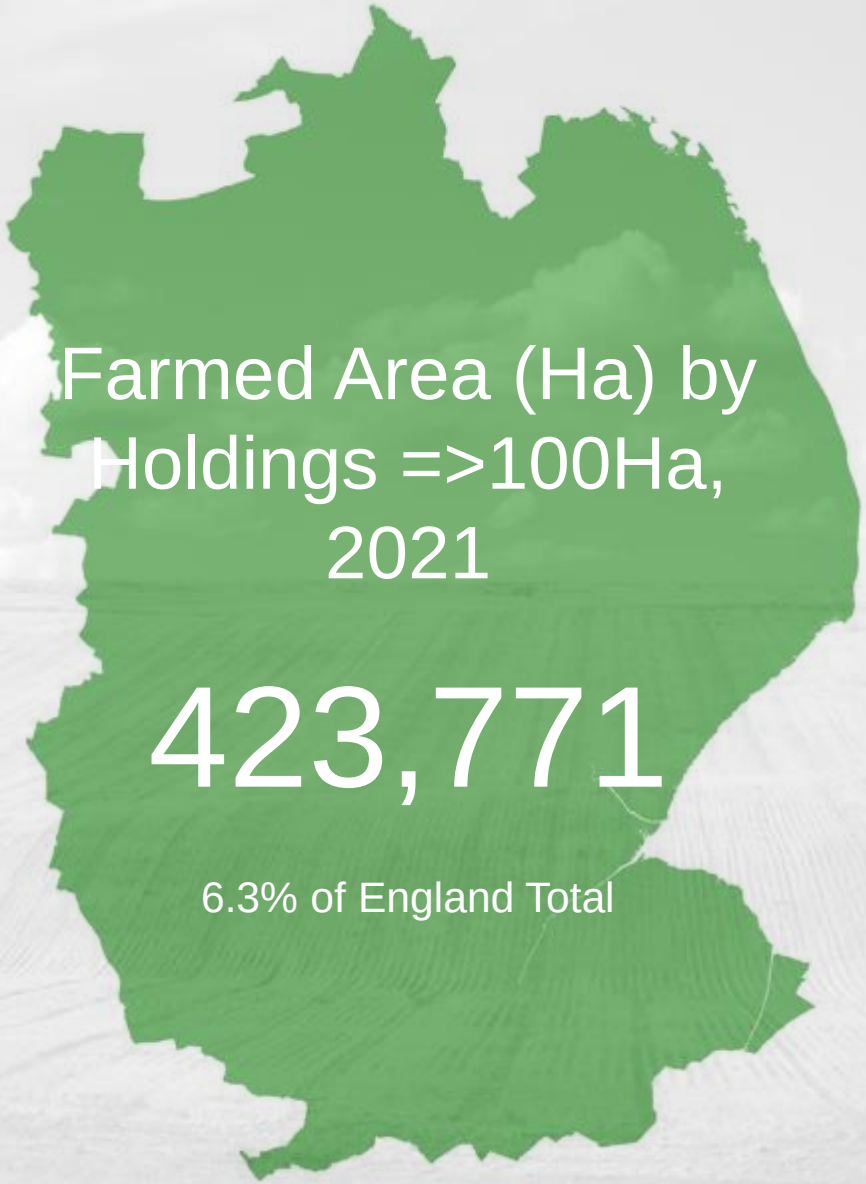




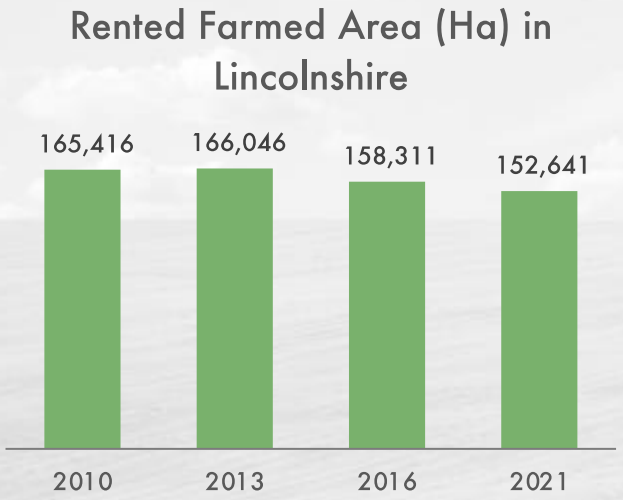
FARMED AREA BY HOLDINGS =>100Ha

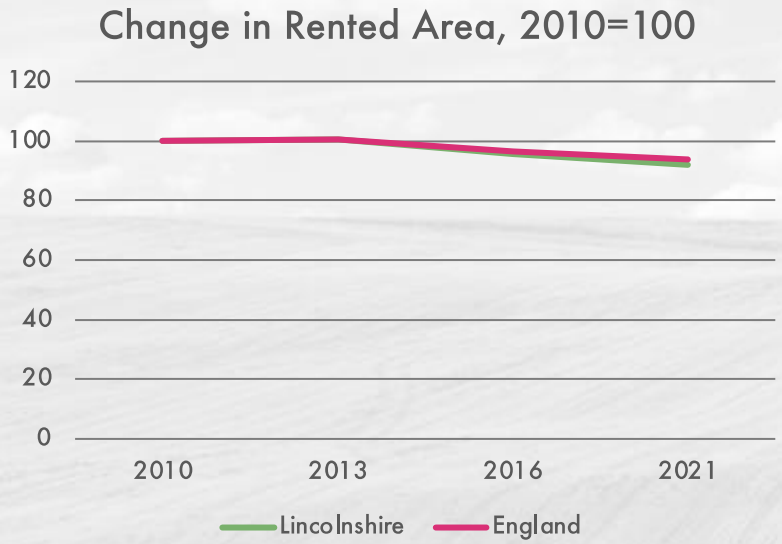


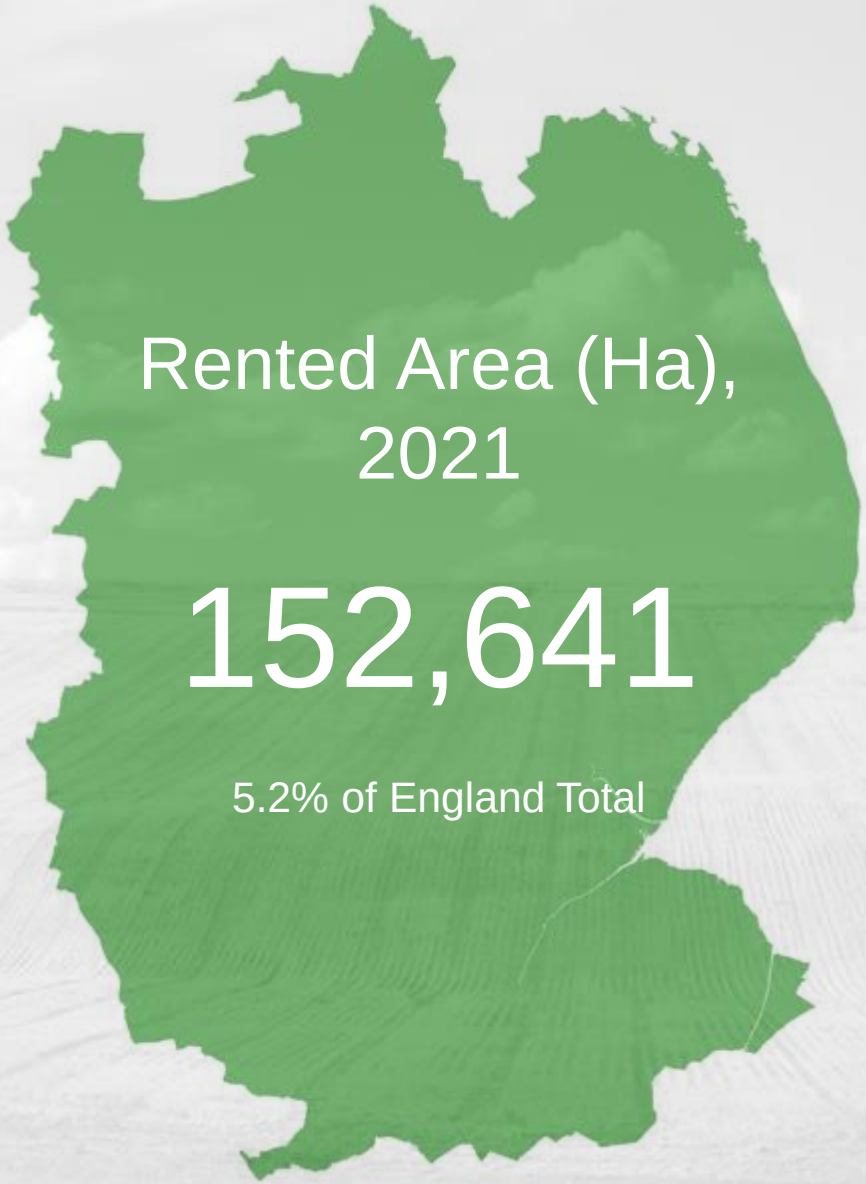




RENTED FARMED AREA

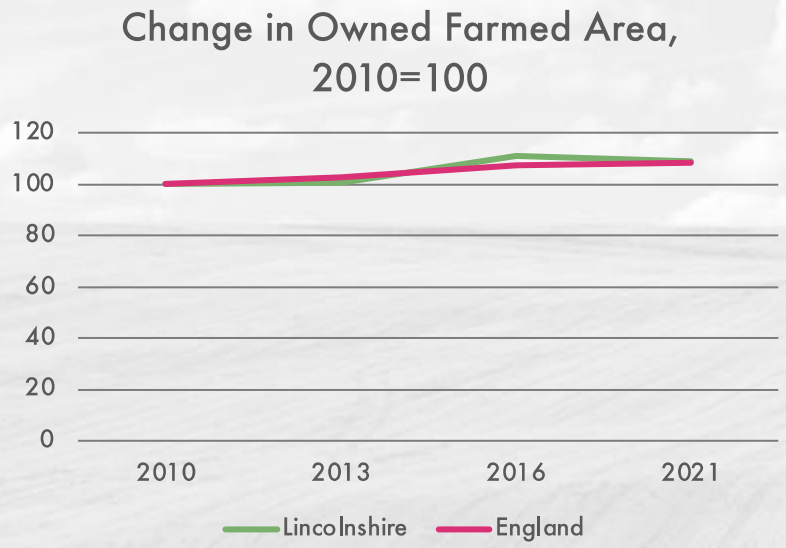


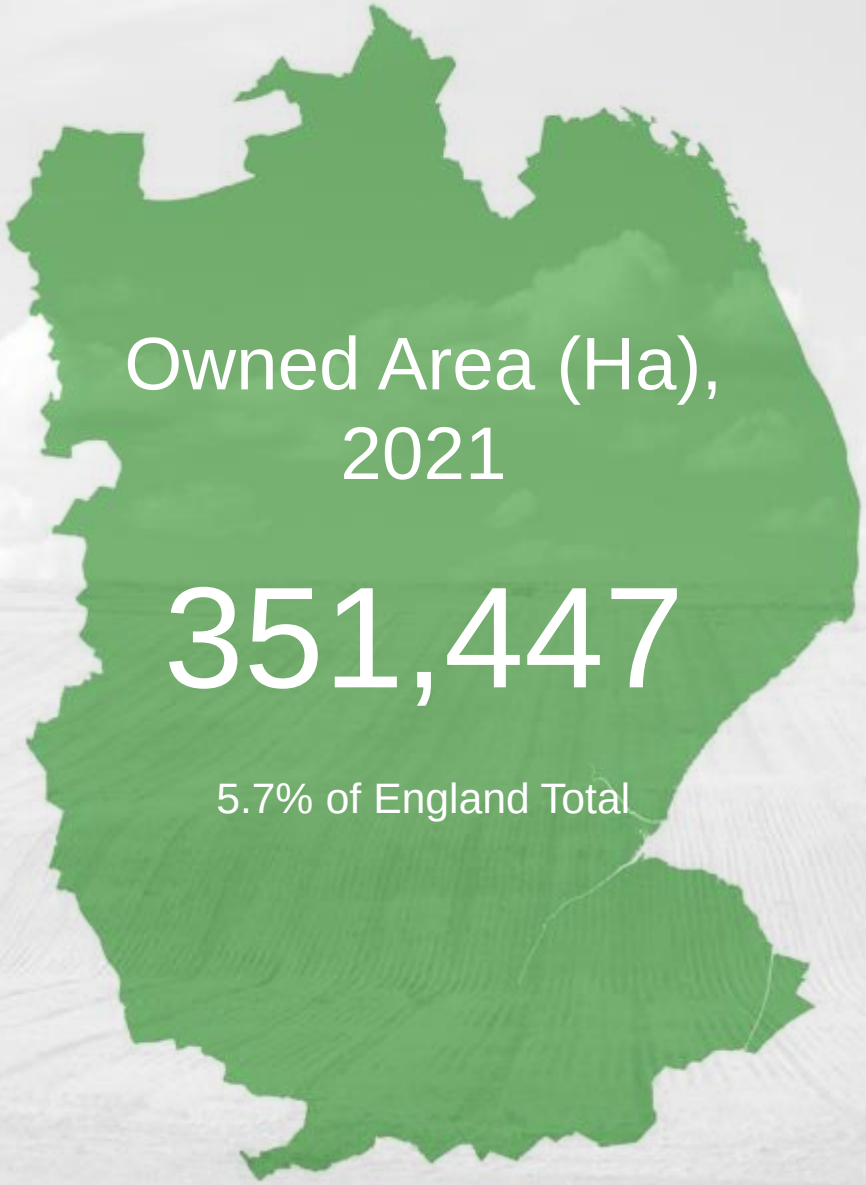




Note: Only includes land rented in for at least 1 year.

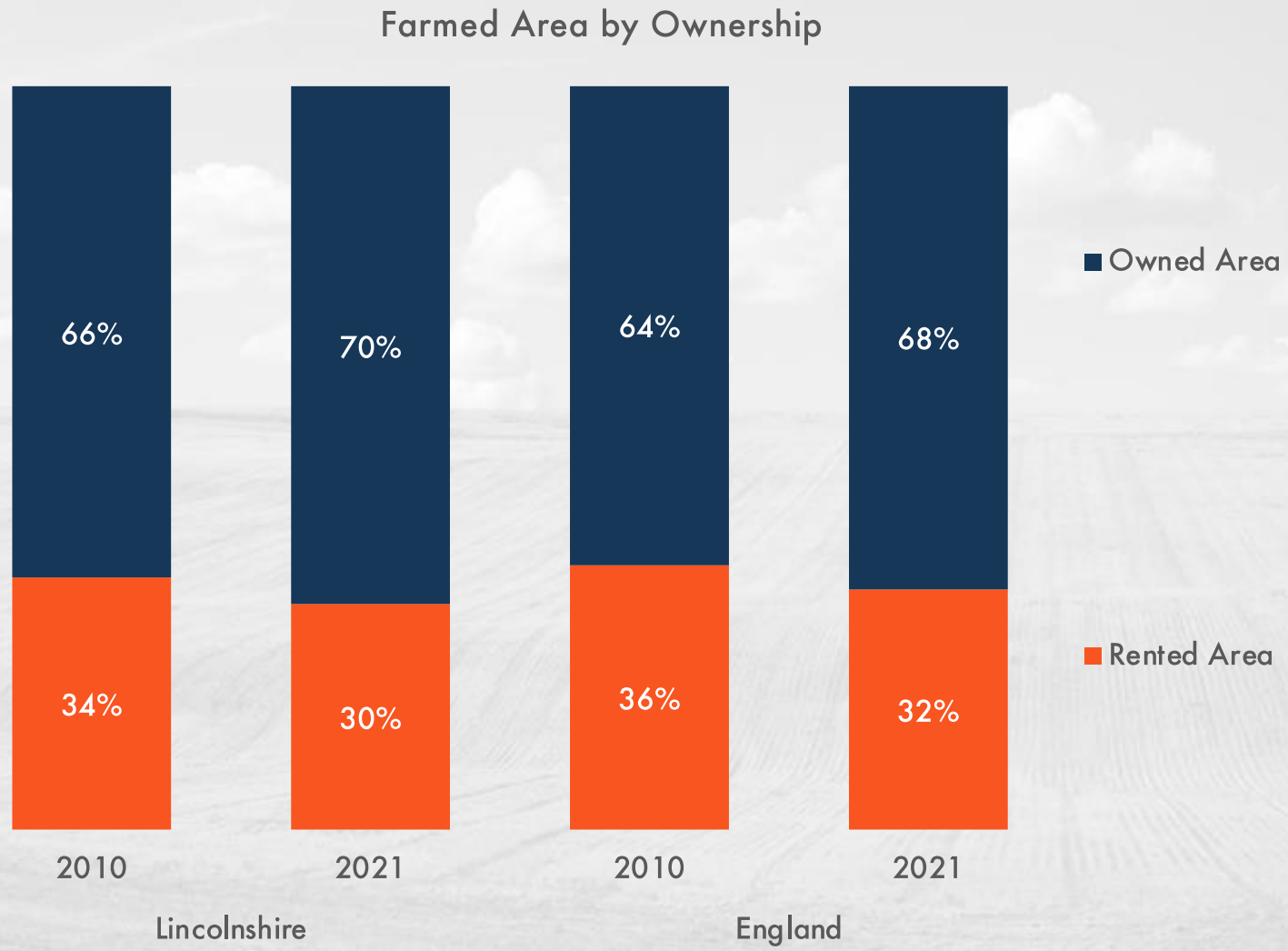
OWNED FARMED AREA





FARMED AREA BY OWNERSHIP, 2021

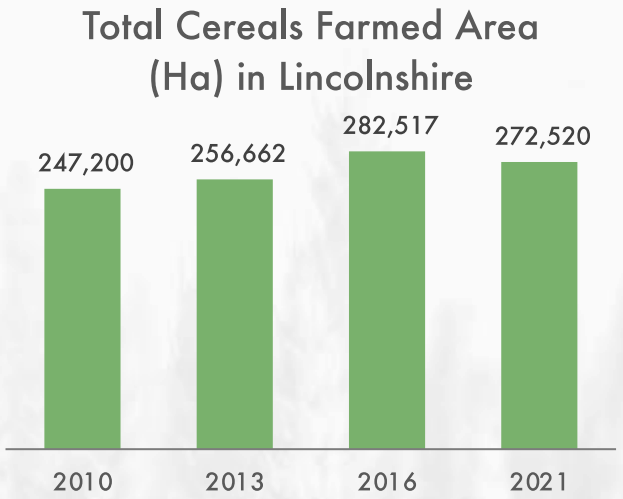
At both Lincolnshire and national level, we can see over time that total farmed area has moved more into ownership, with less land being rented. Lincolnshire is marginally ahead of the national picture in terms of this trend.

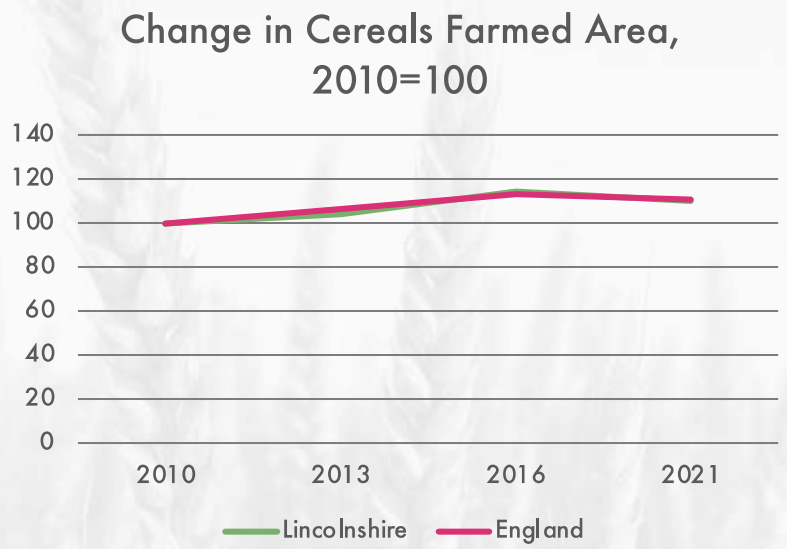


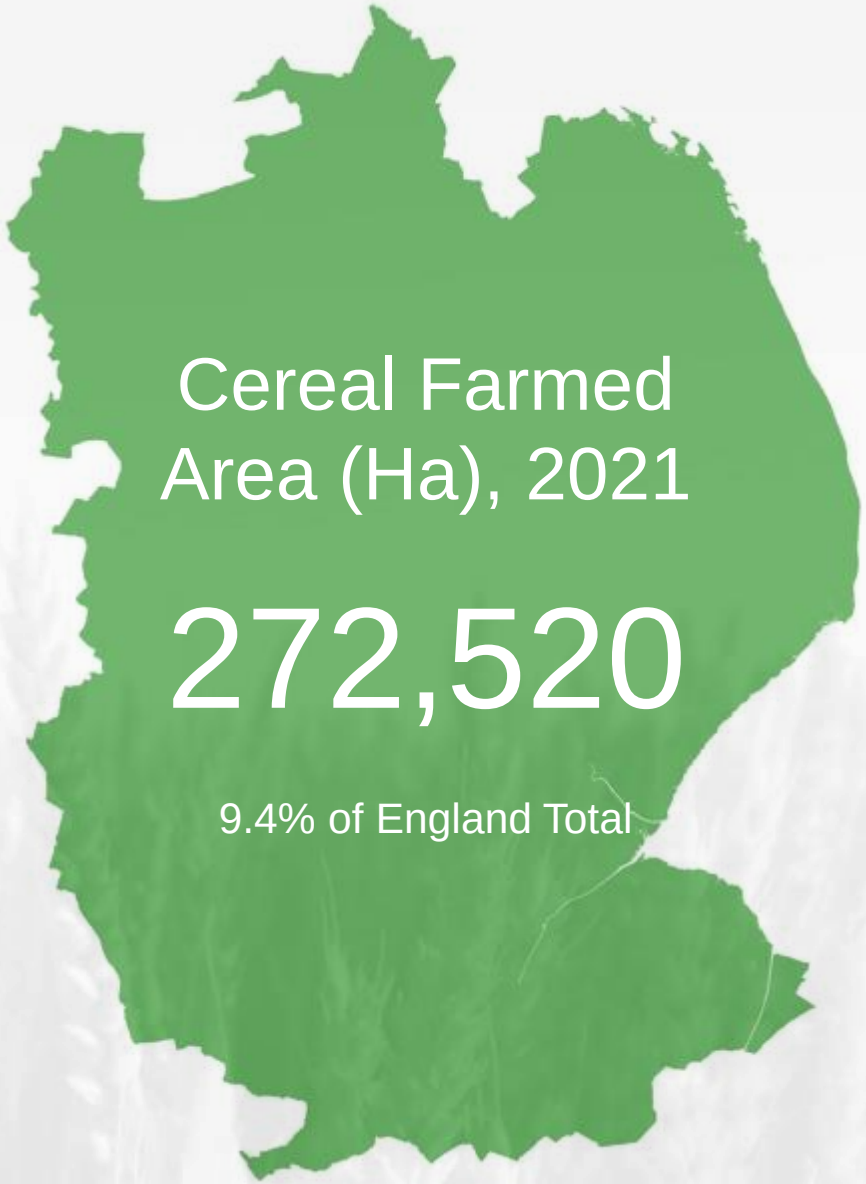
FARMED AREA BY FARM TYPE

CEREALS FARMED AREA

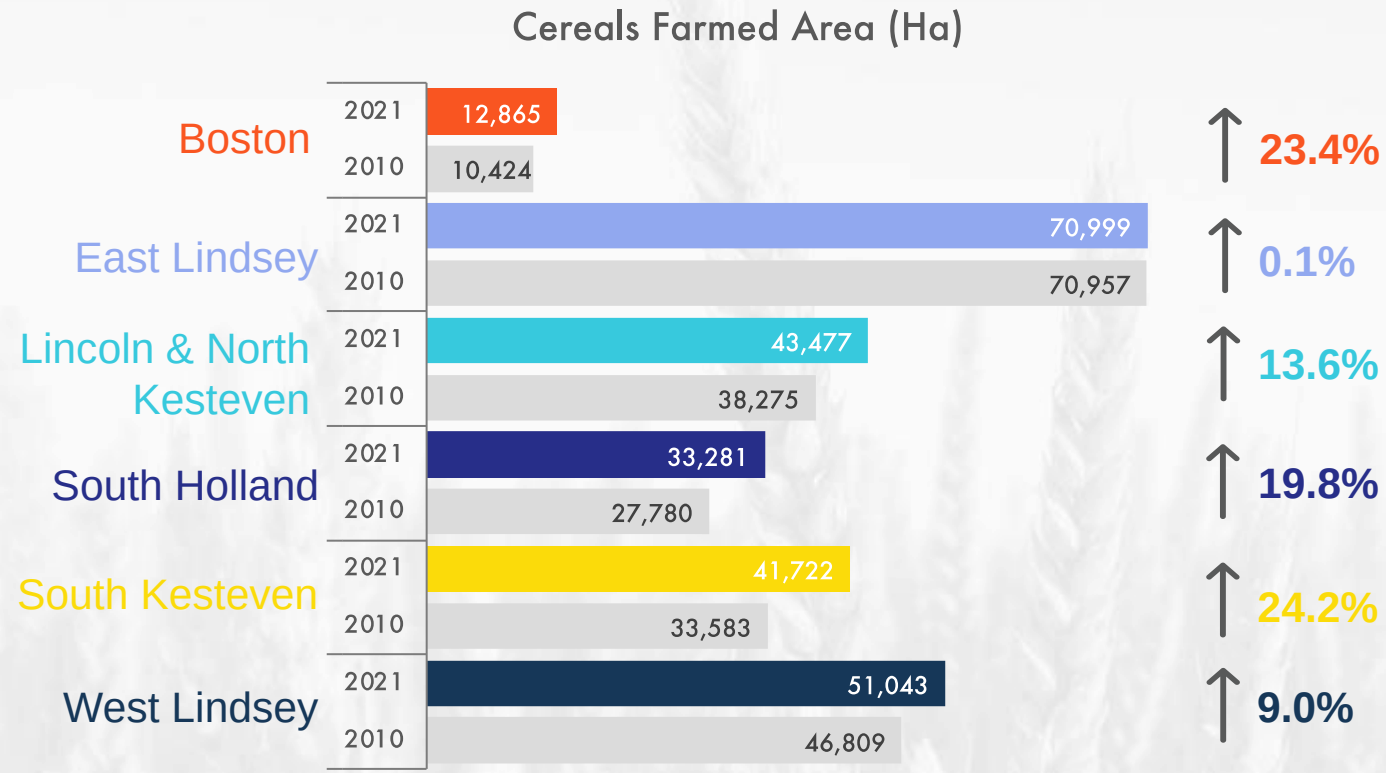
Text







CEREALS FARMED AREA ACROSS LINCOLNSHIRE



↑ 23.4%

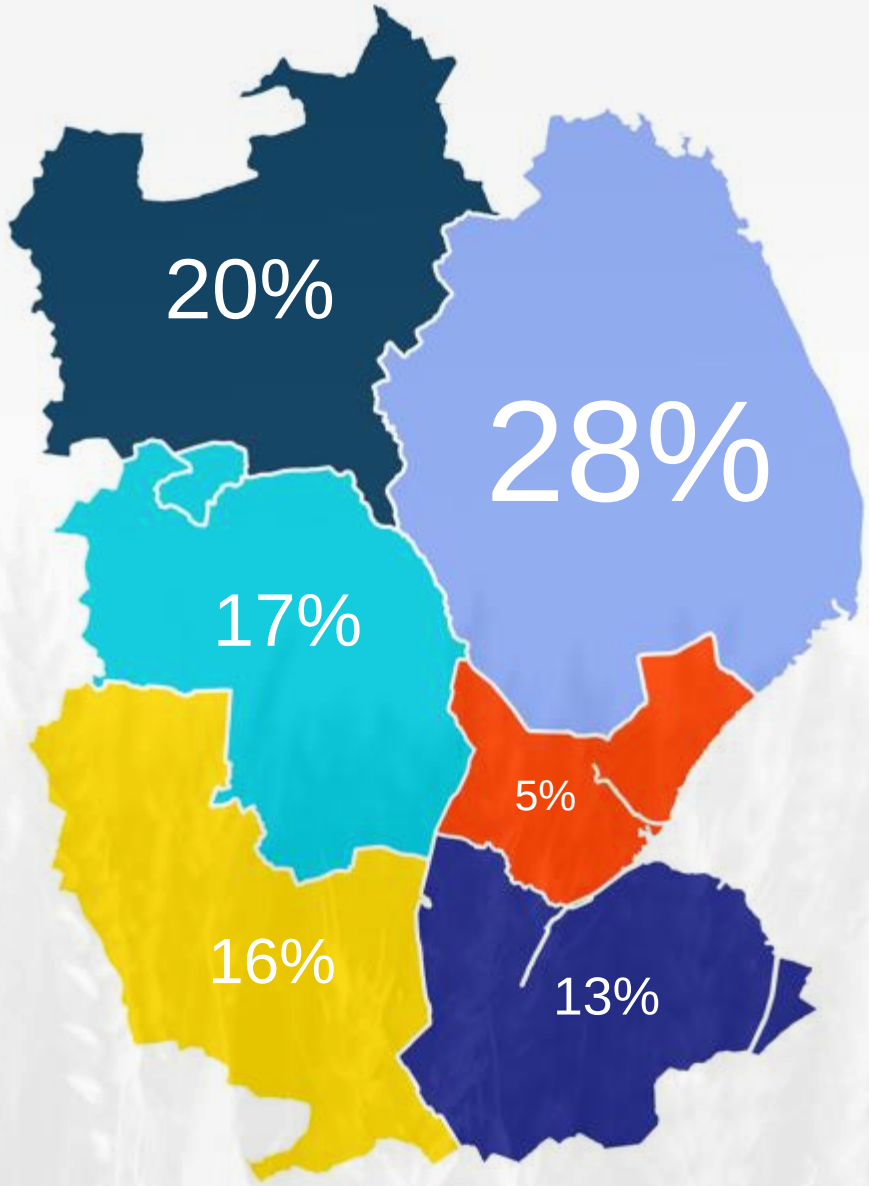
↑ 0.1%

↑ 13.6%

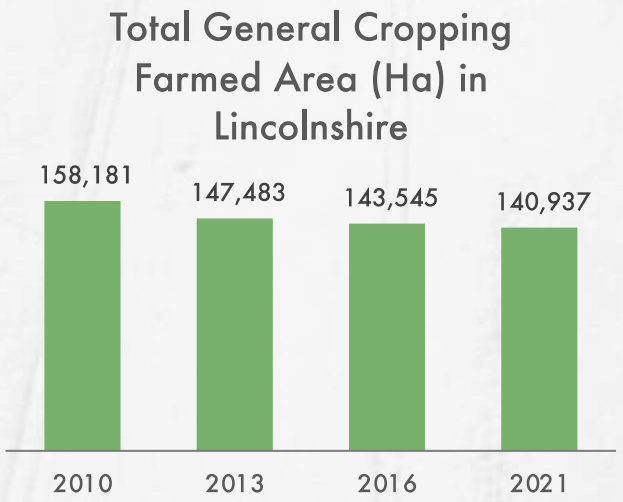
↑ 19.8%

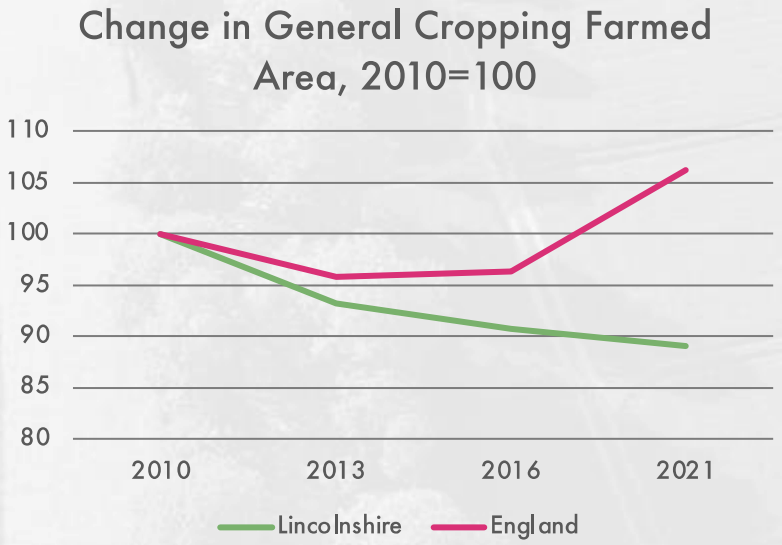
↑ 24.2%

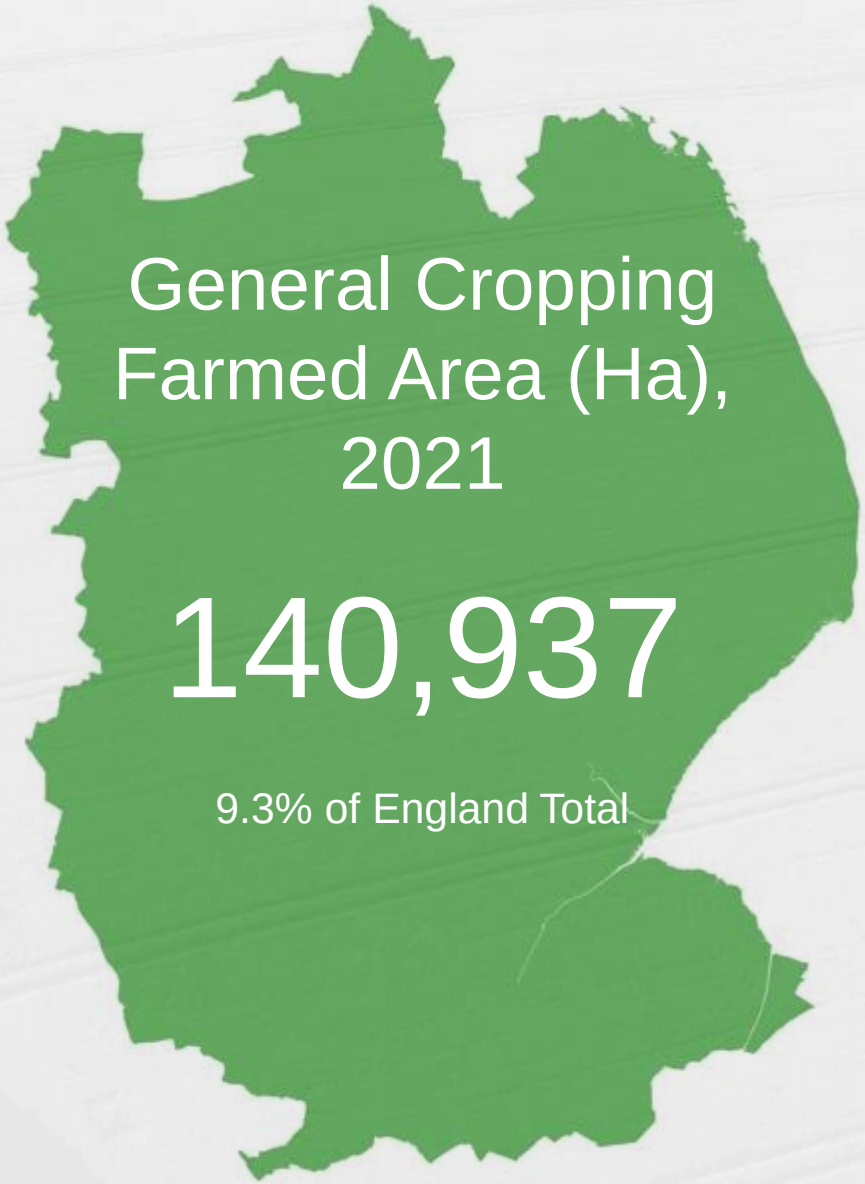
↑ 9.0%



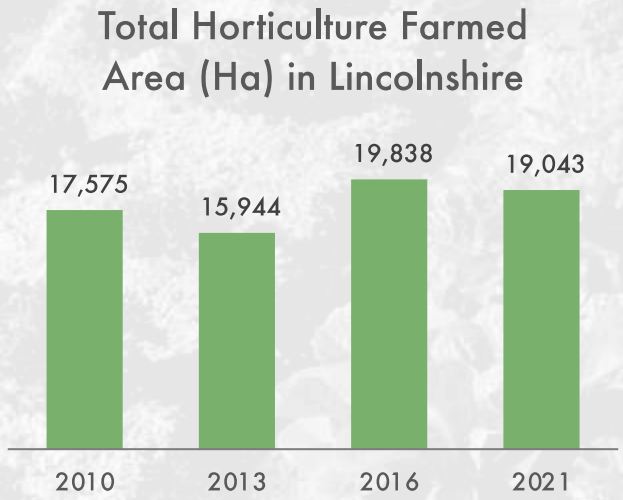
GENERAL CROPPING FARMED AREA

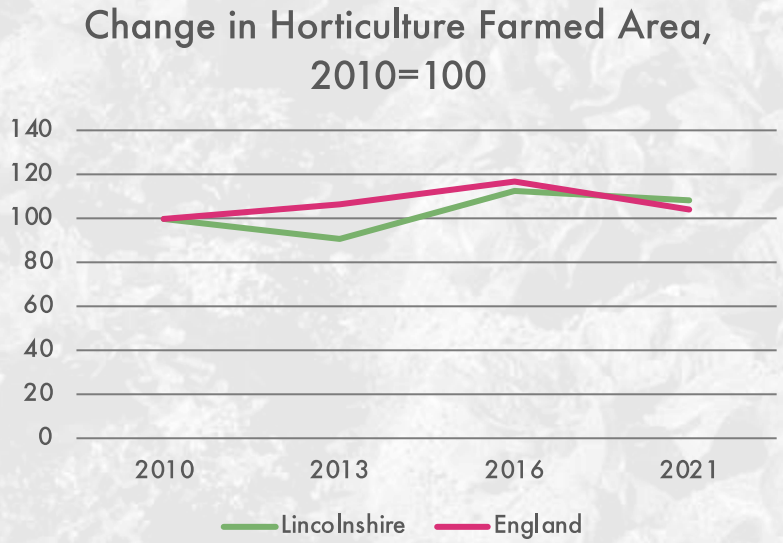


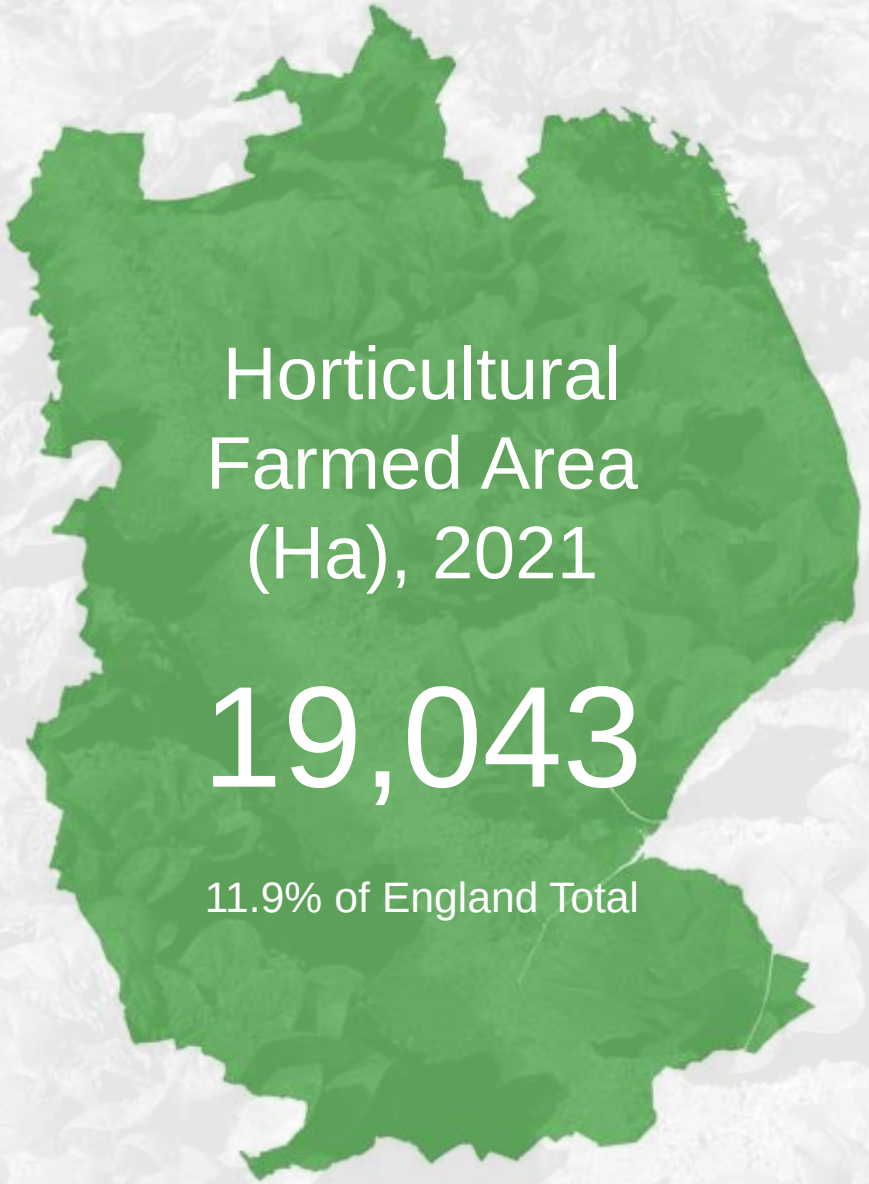




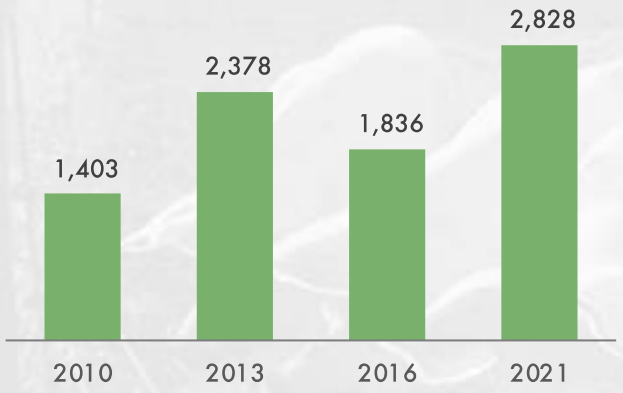
HORTICULTURAL FARMED AREA

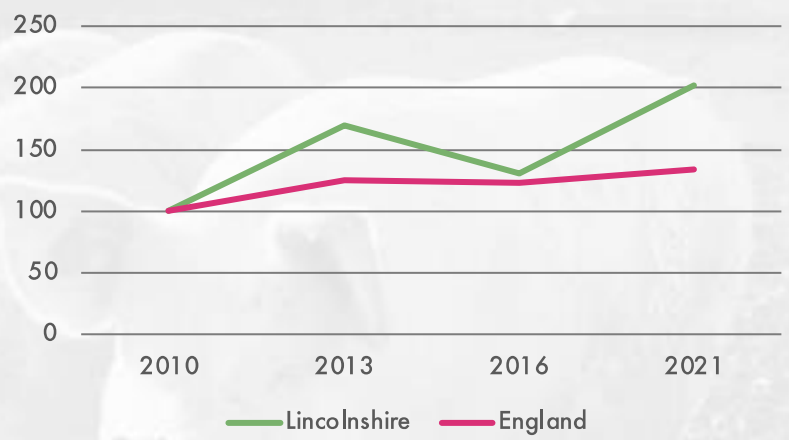




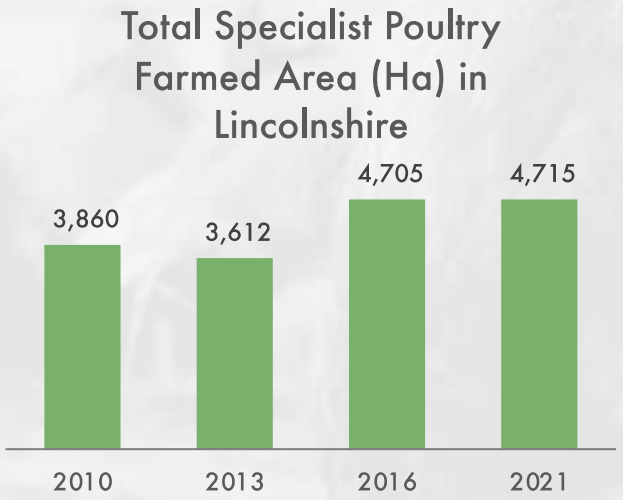


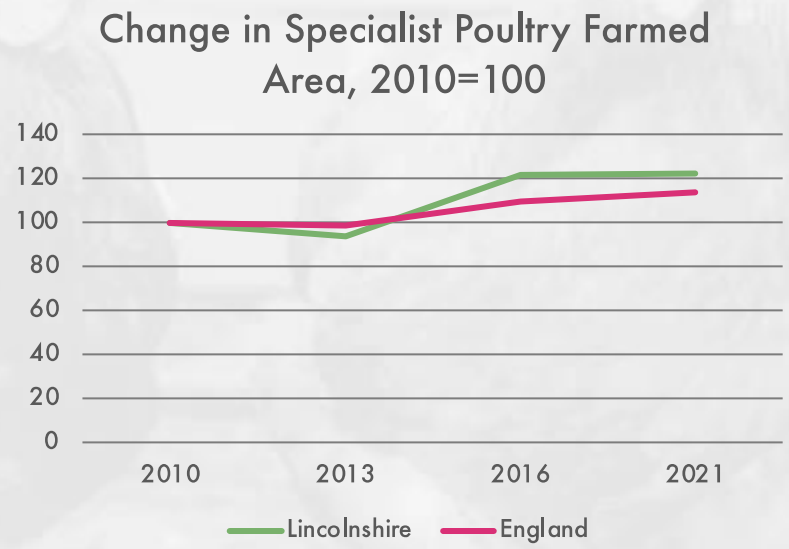
SPECIALIST PIG FARMED AREA

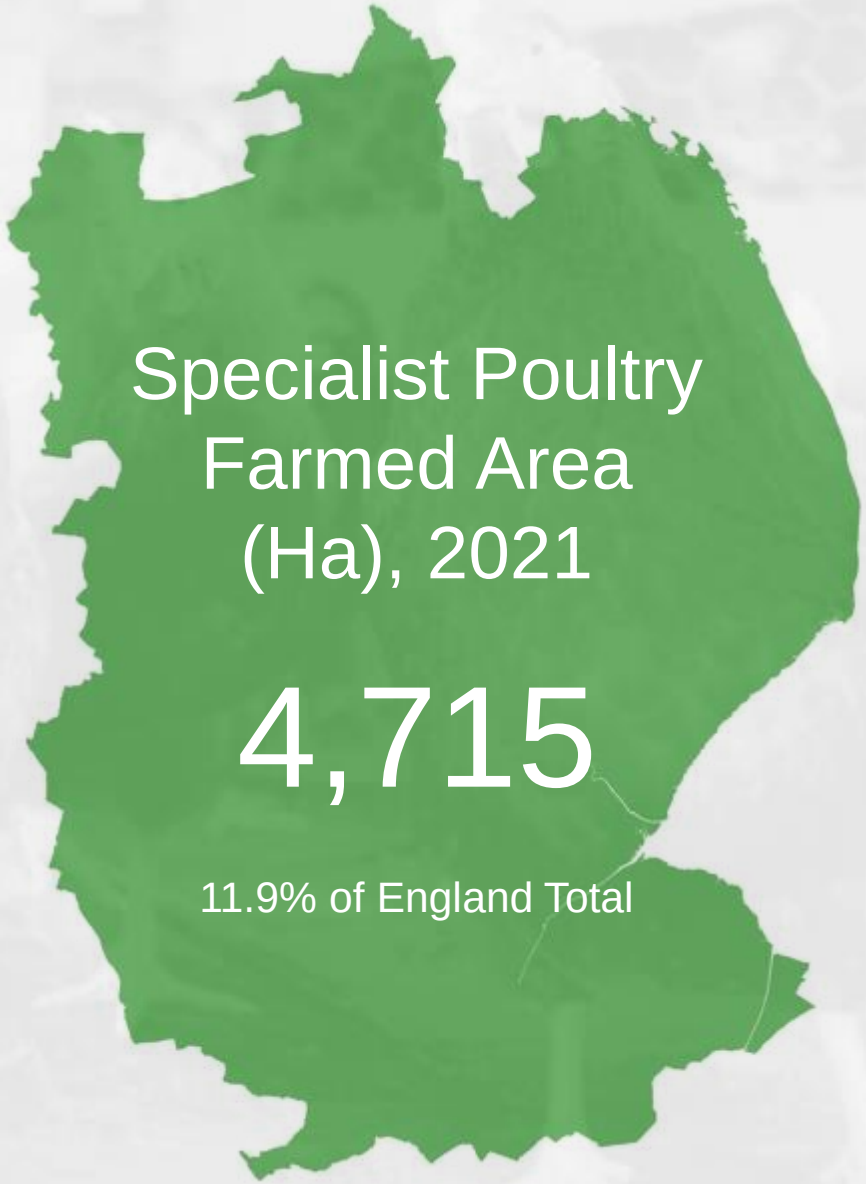




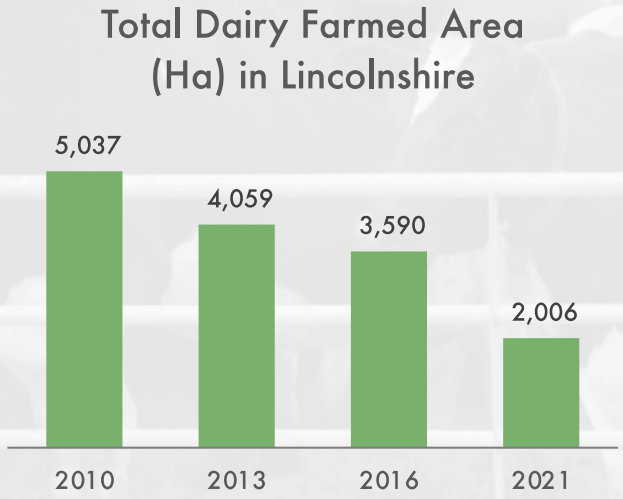
SPECIALIST POULTRY FARMED AREA

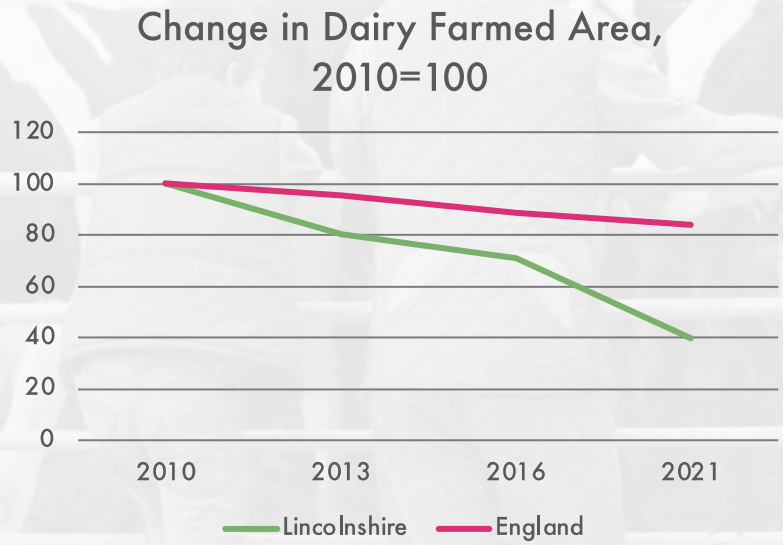


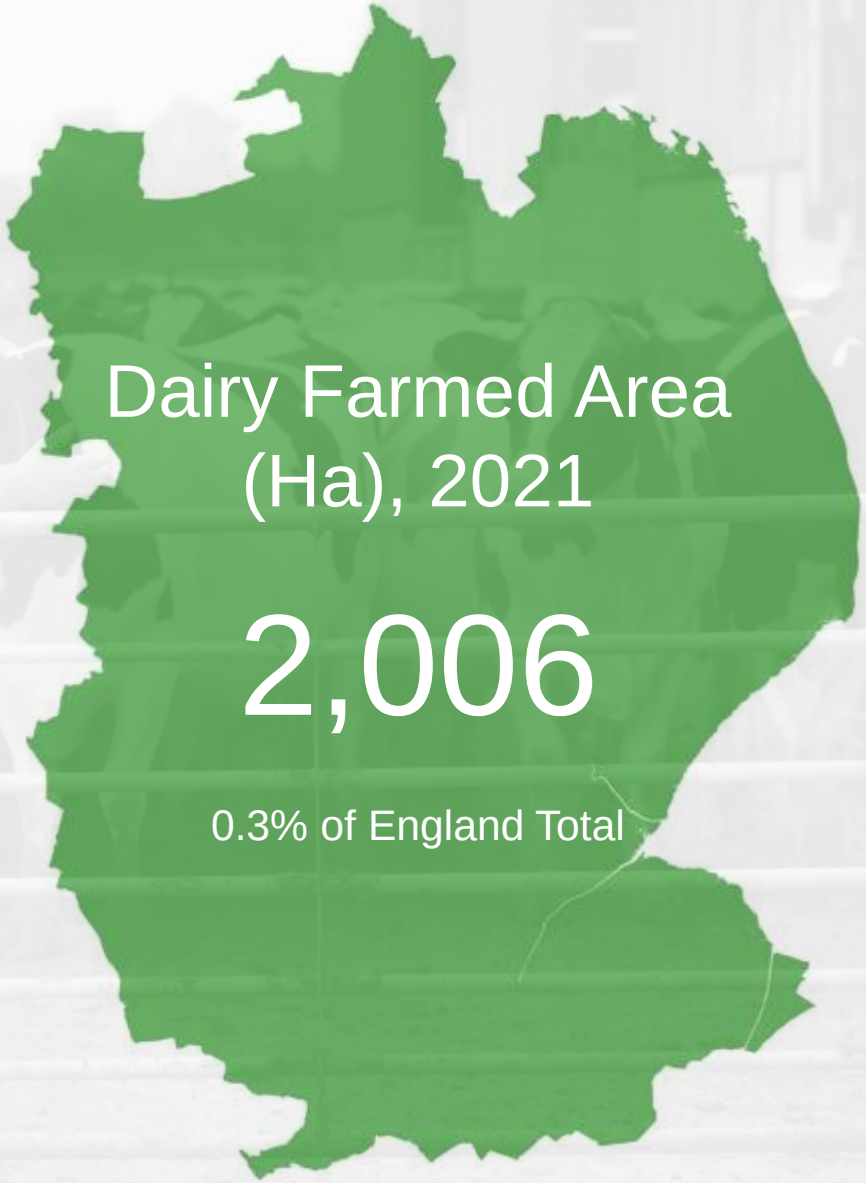




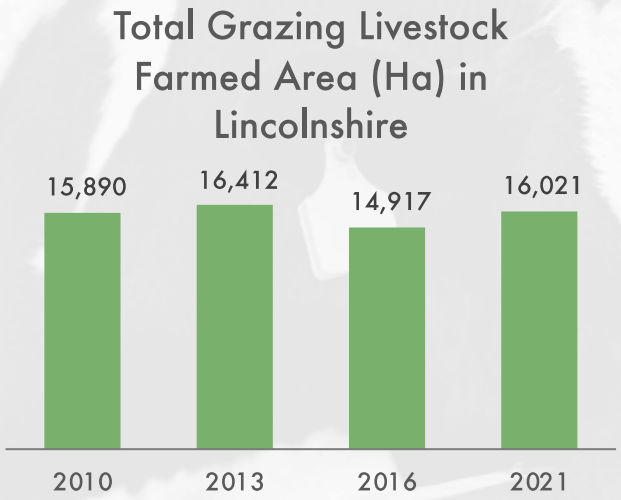
DAIRY FARMED AREA

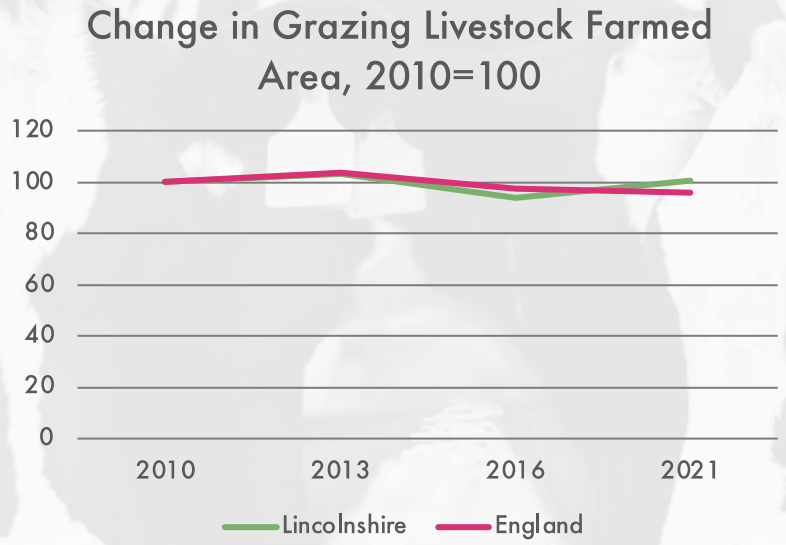


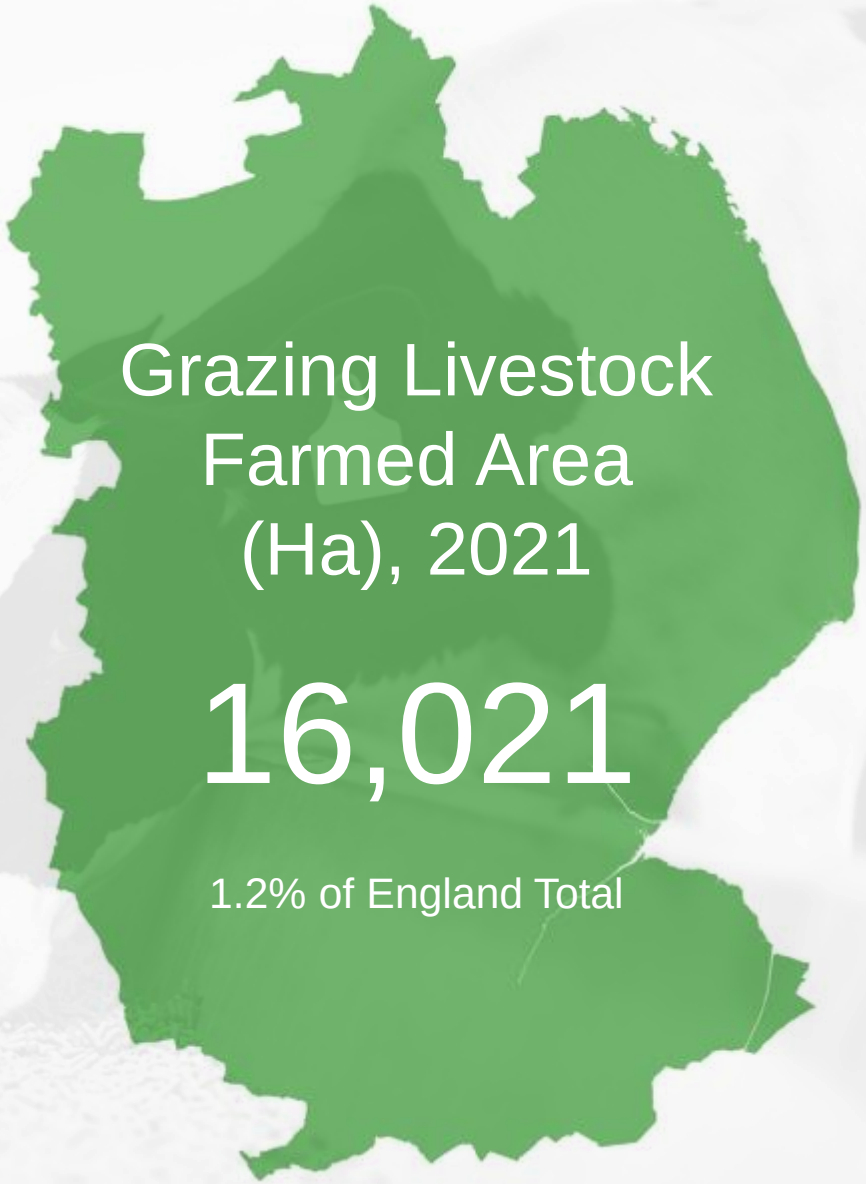




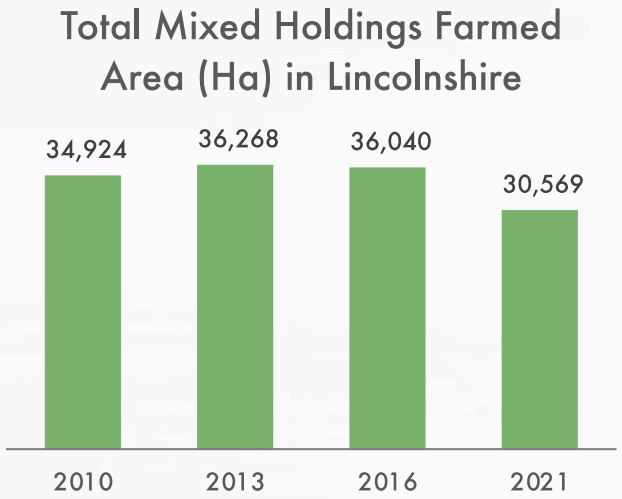
GRAZING LIVESTOCK FARMED AREA

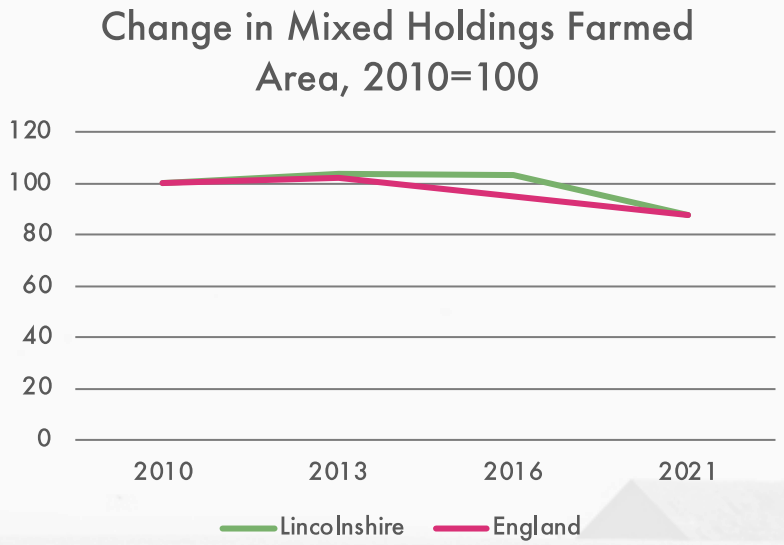


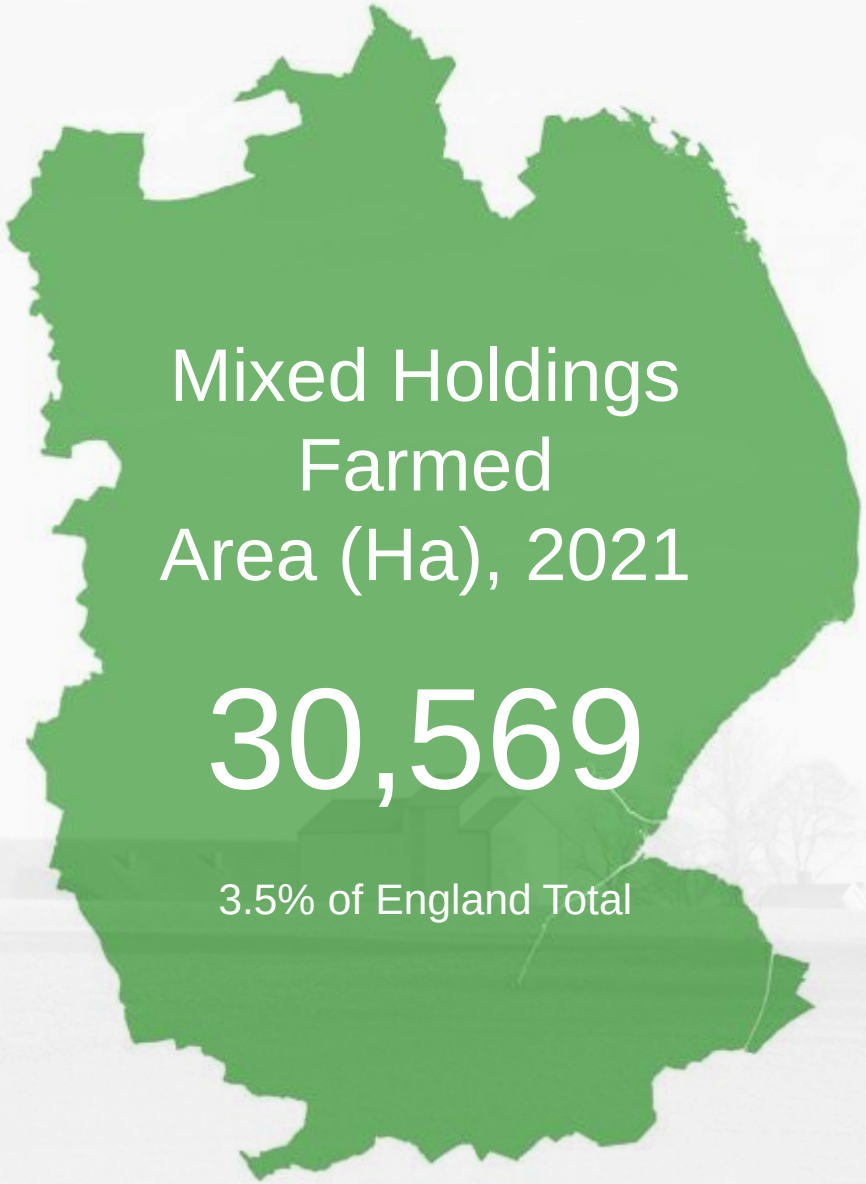




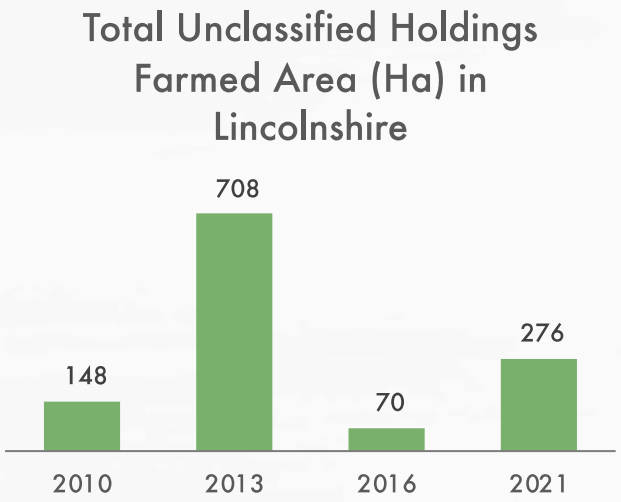
MIXED HOLDINGS FARMED AREA

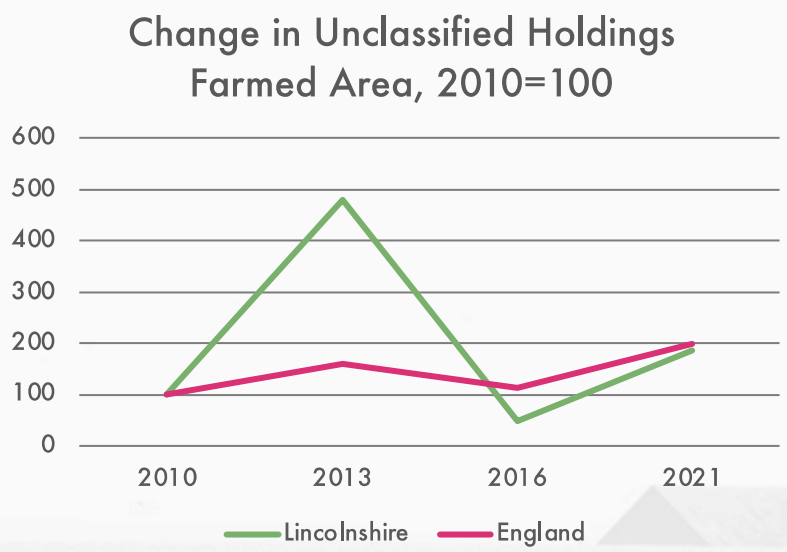


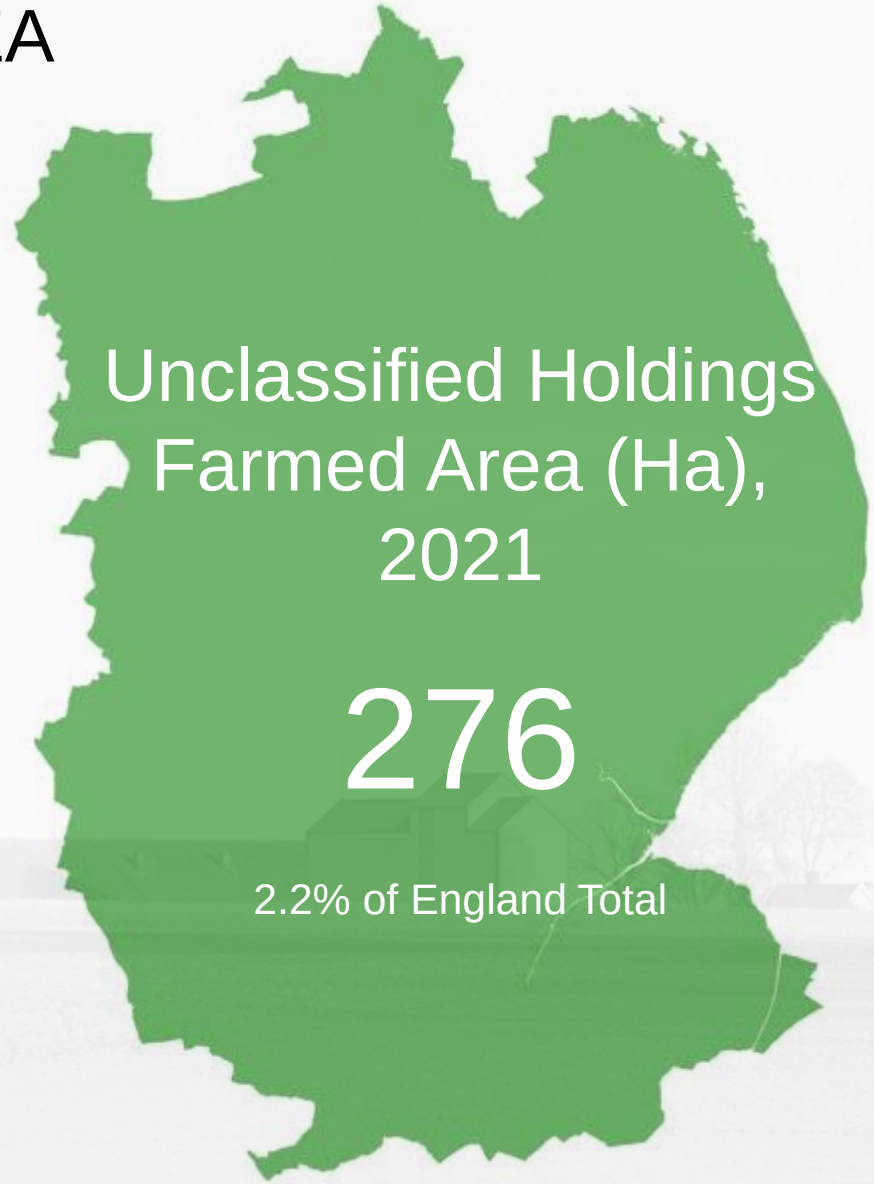




UNCLASSIFIED HOLDINGS FARMED AREA



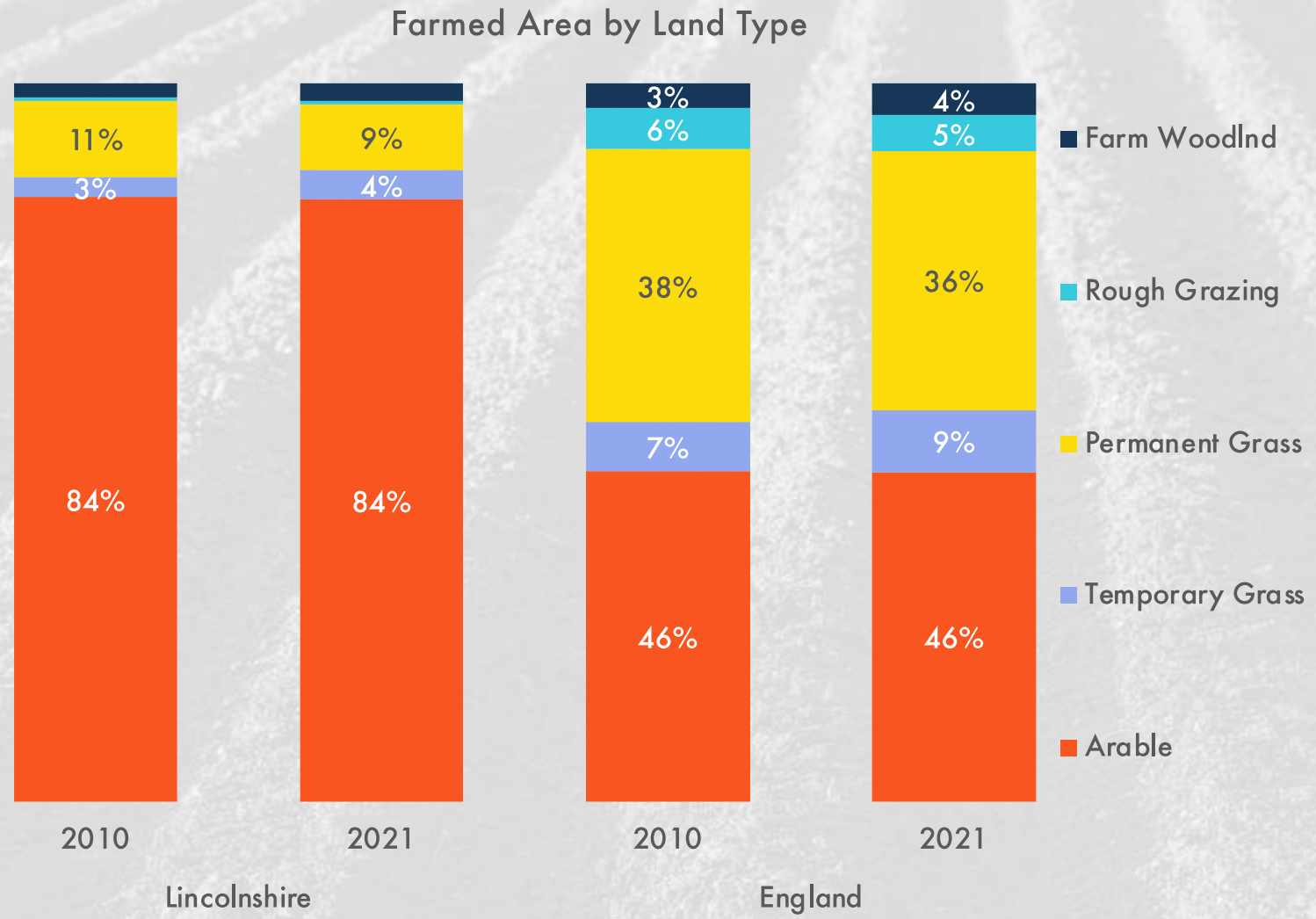




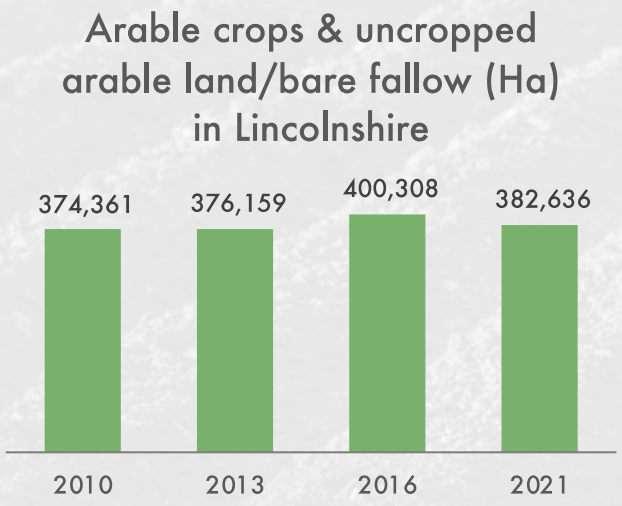
FARMED AREA BY LAND TYPE

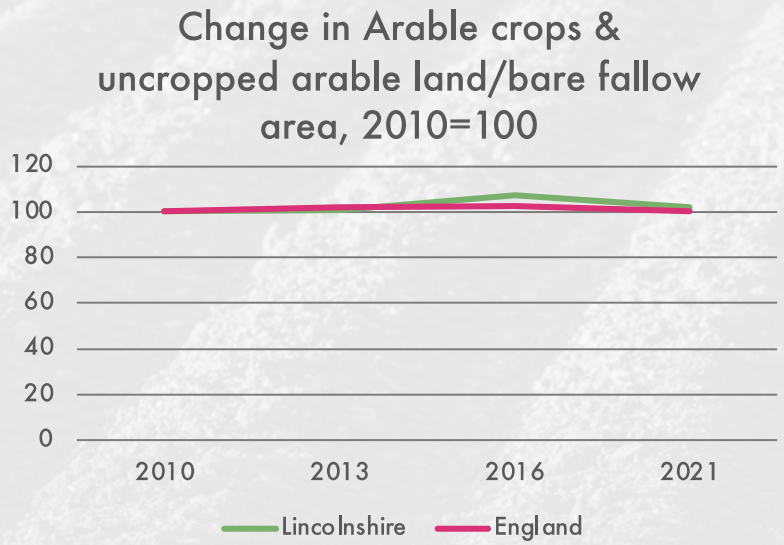
FARMED AREA BY LAND TYPE

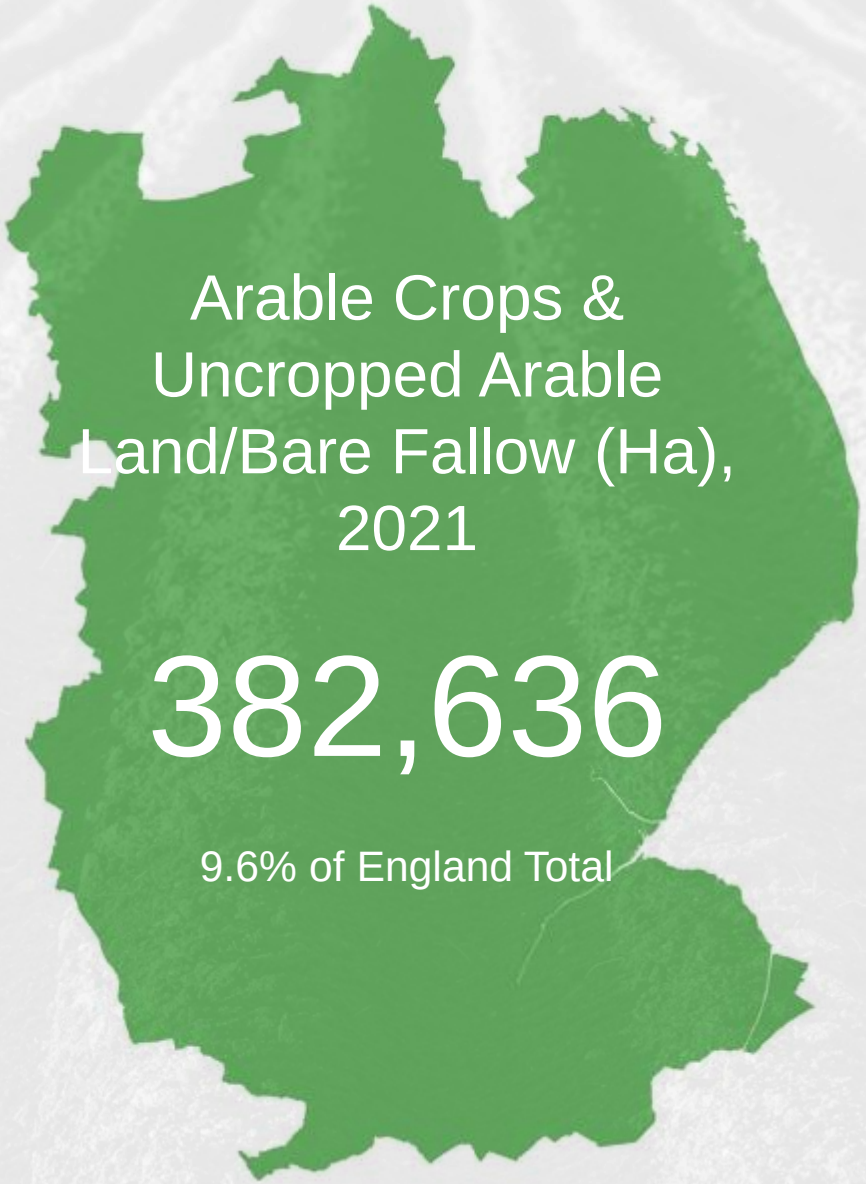
Farming in Lincolnshire is dominated by arable farming, and the make-up of farmed area across Lincolnshire by land type has changed very little over the last decade. This lack of change is also apparent at national level.



ARABLE CROPS & UNCROPPED ARABLE LAND/BARE FALLOW

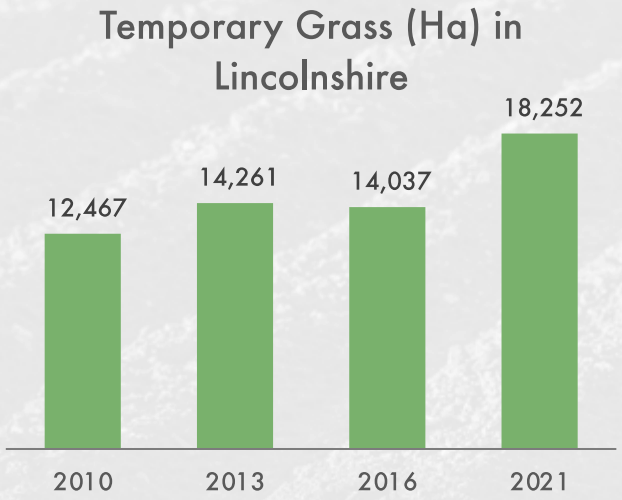


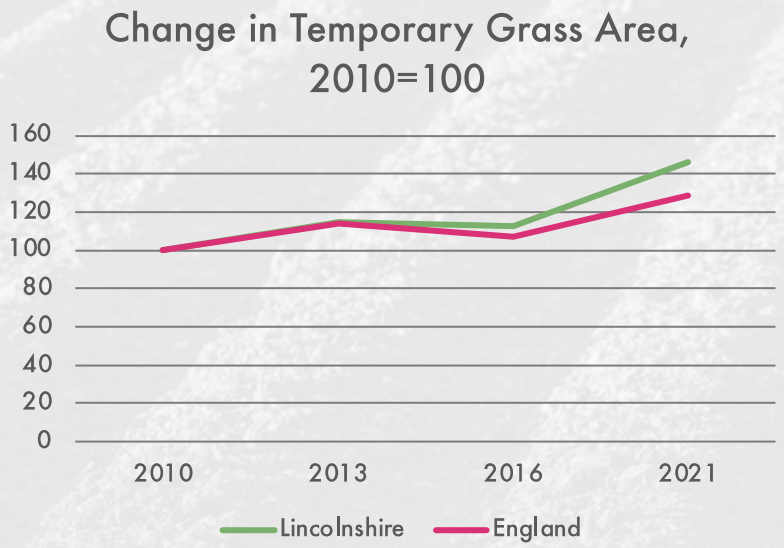


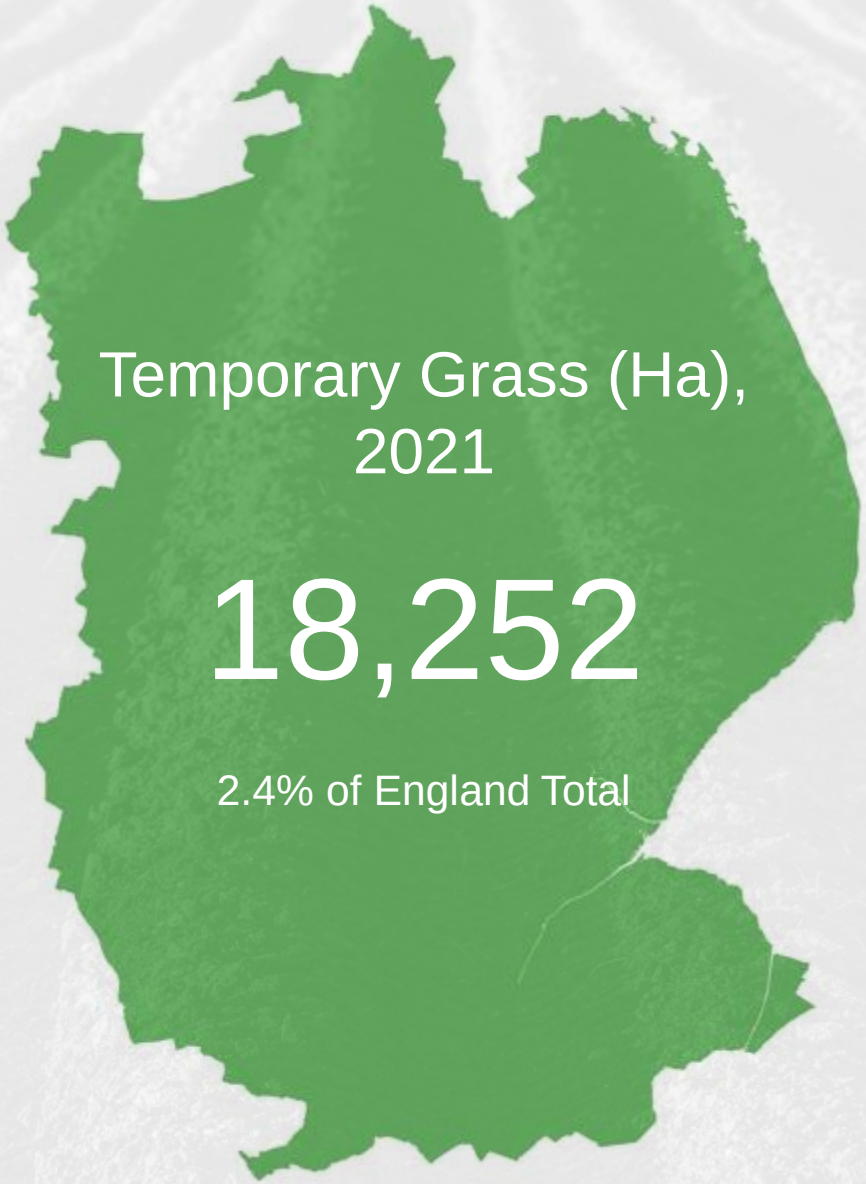


Note: All horticultural crops are excluded.

TEMPORARY GRASS

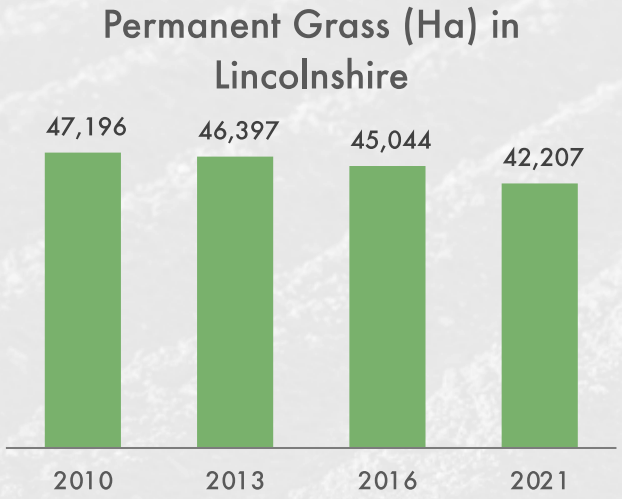


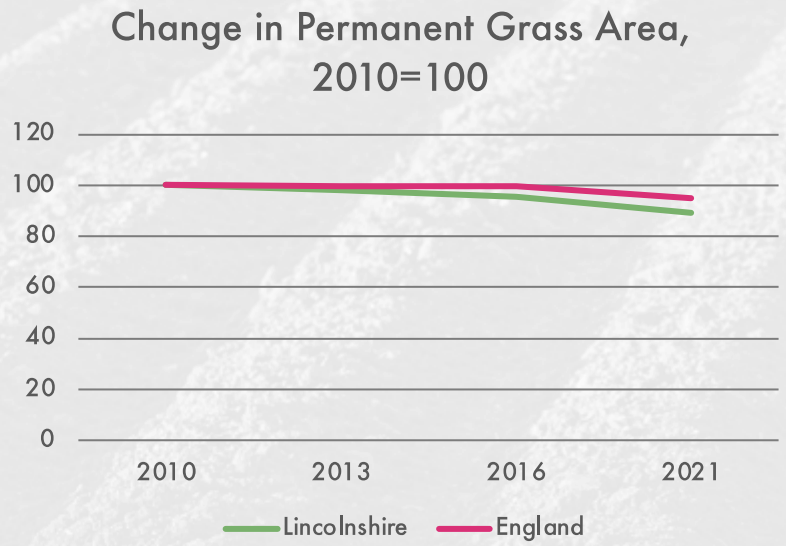


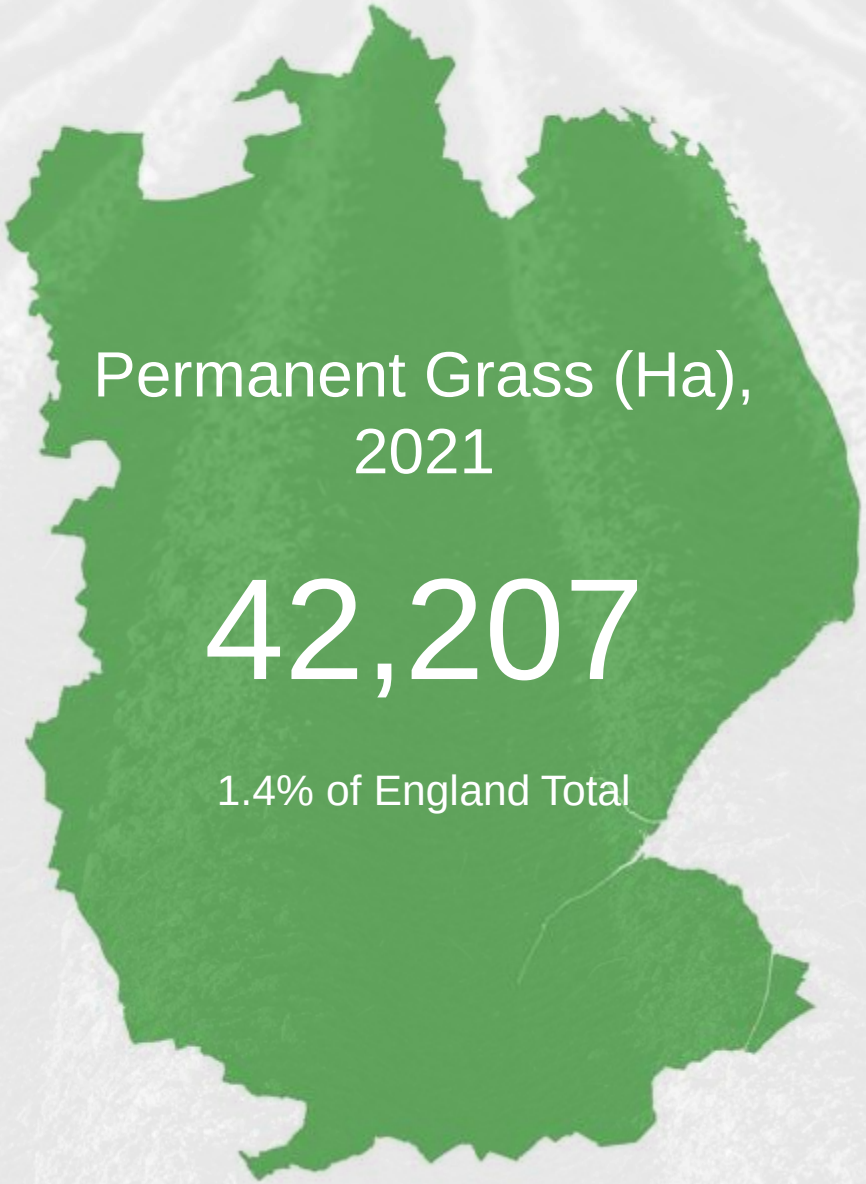


Note: All temporary grass or grass sown within the past 5 years.

PERMANENT GRASS

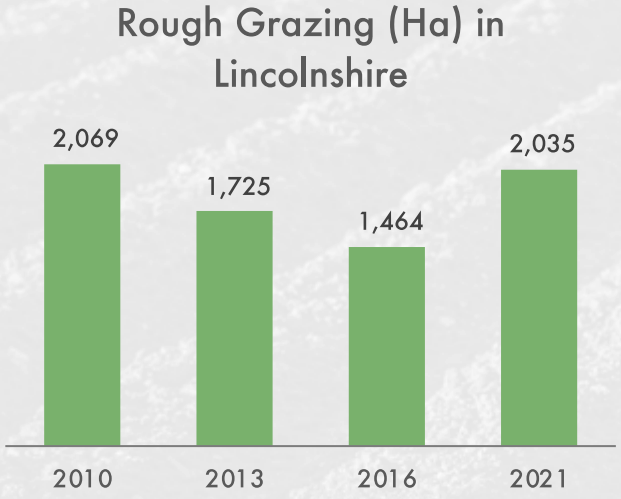


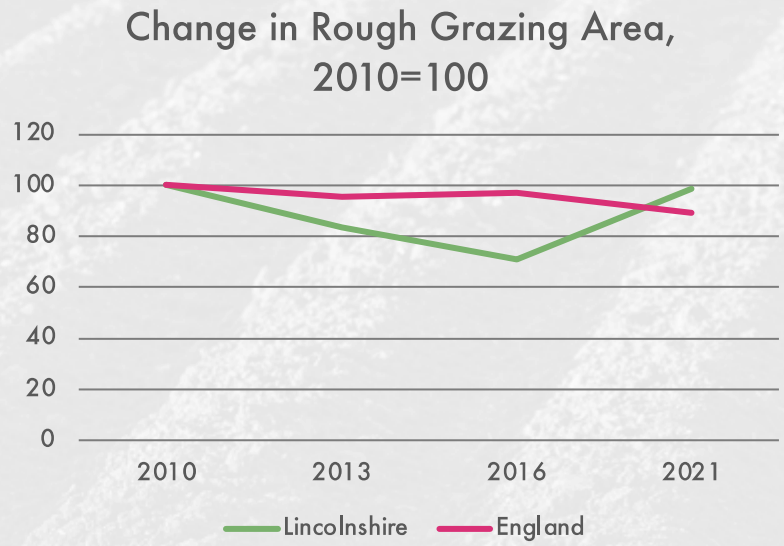


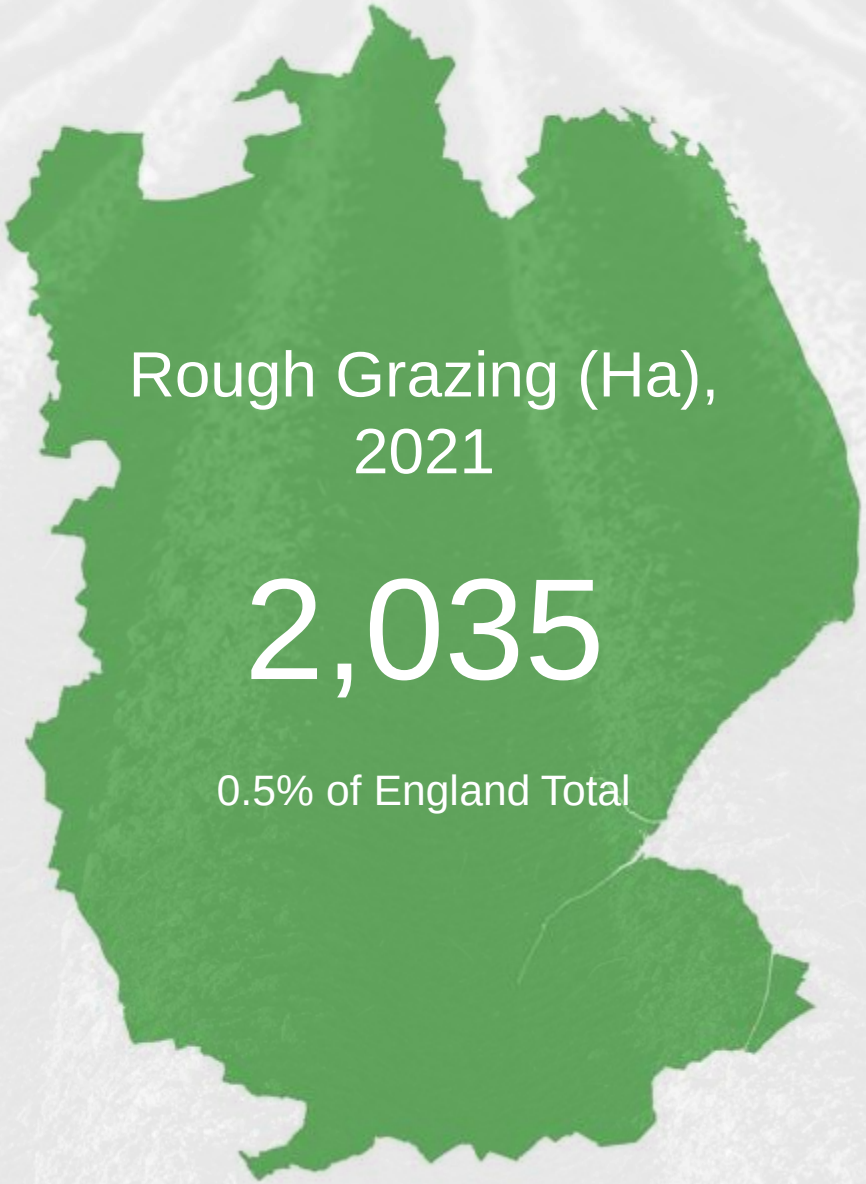


Note: All grasses over 5 years old and including permanent pasture, meadows and improved grassland.

ROUGH GRAZING

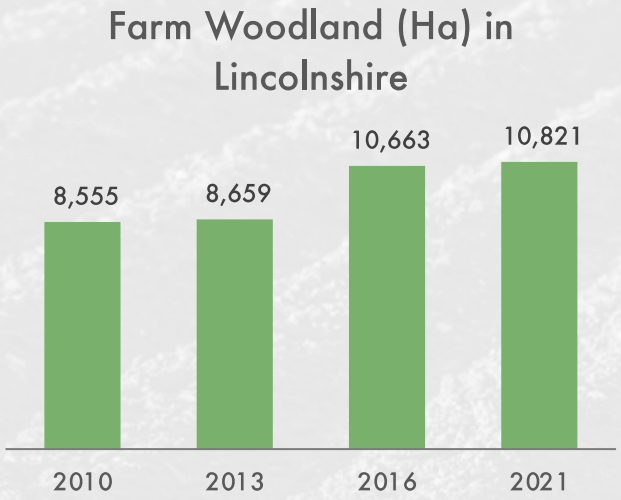


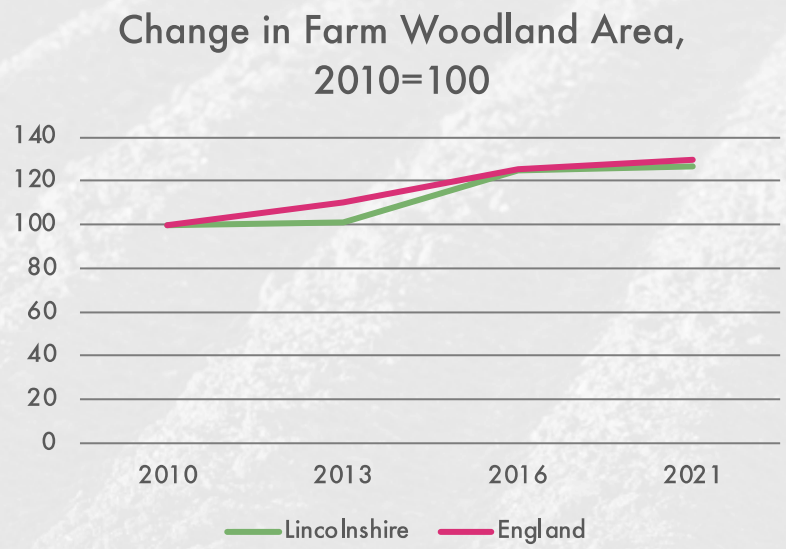




Note: Only includes sole-rights rough grazing. Rough grazing is lower quality grazing land including heathland, moors, hills and scrub.

FARM WOODLAND



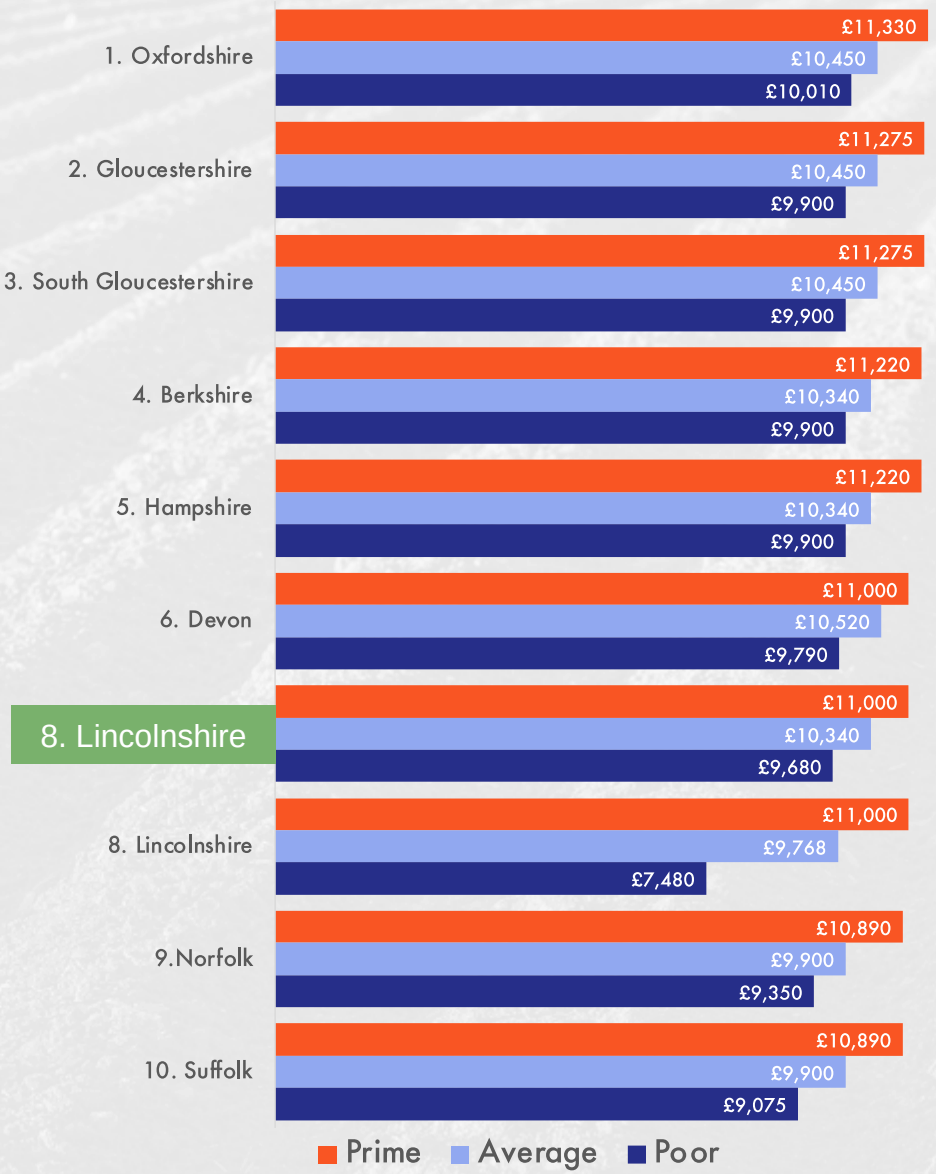


LAND VALUES

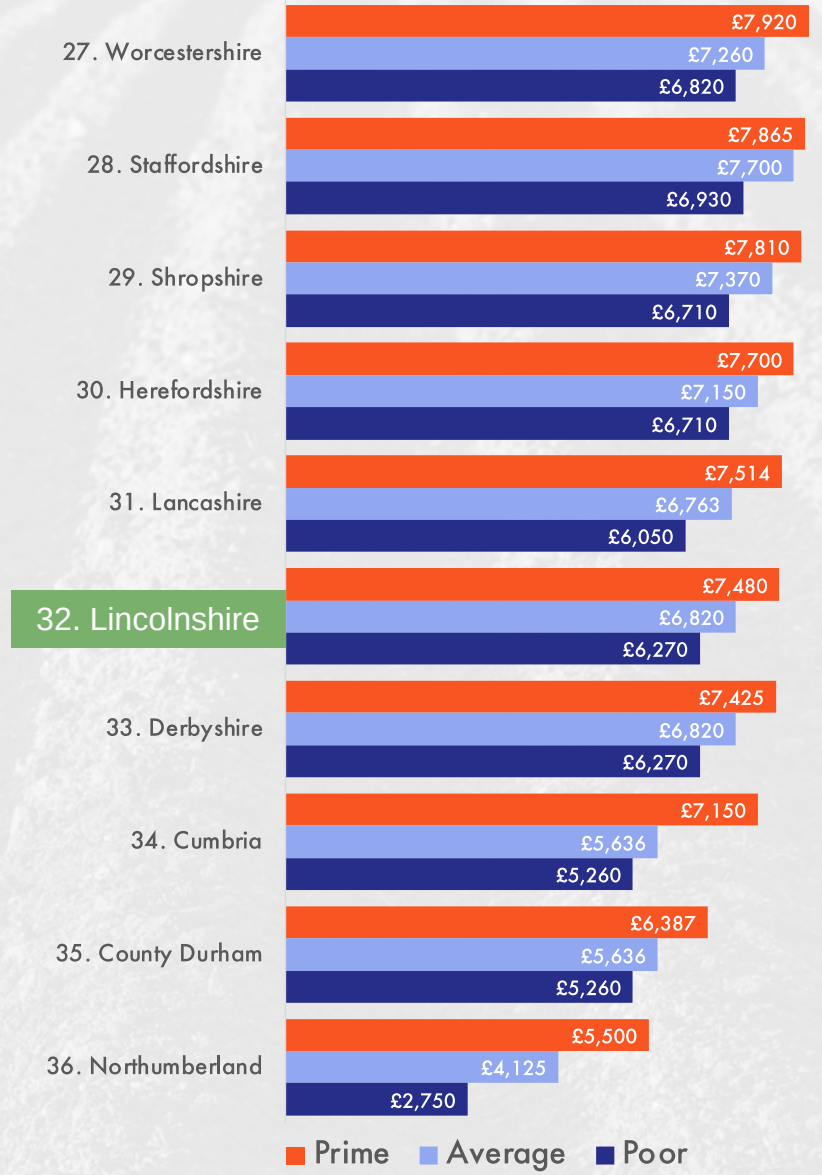
The figures shown in the charts on the right are taken from the Knight Frank's opinion-based survey of its agents across the country and covers the last six months of 2021 (Source: https://www.fwi.co.uk/business/markets-and-trends/land-markets/find-out-average-farmland-prices-where-you-live). Across all 36 English counties, Lincolnshire appears in the top 10 for arable land values but in the bottom 10 for pasture land values.

In their latest quarter 2 2022 English Farmland Index, Knight Frank report that the average value of bare farmland in England and Wales increased by a further 4% to £8,190/acre in the second quarter of 2022. Prices have risen by 8% so far this year and 16% over the past 12 months. This is the strongest rate of annual growth since 2014. A lack of supply and strong demand continue to support values (Source: https://www.knightfrank.com/research/report-library/english-farmland-index-q2-2022-9158.aspx)

Top 10 English Counties for Arable Land Values Per Acre, 2021

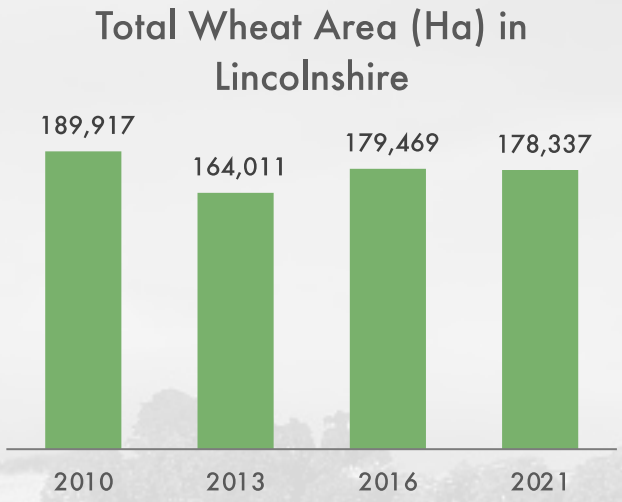


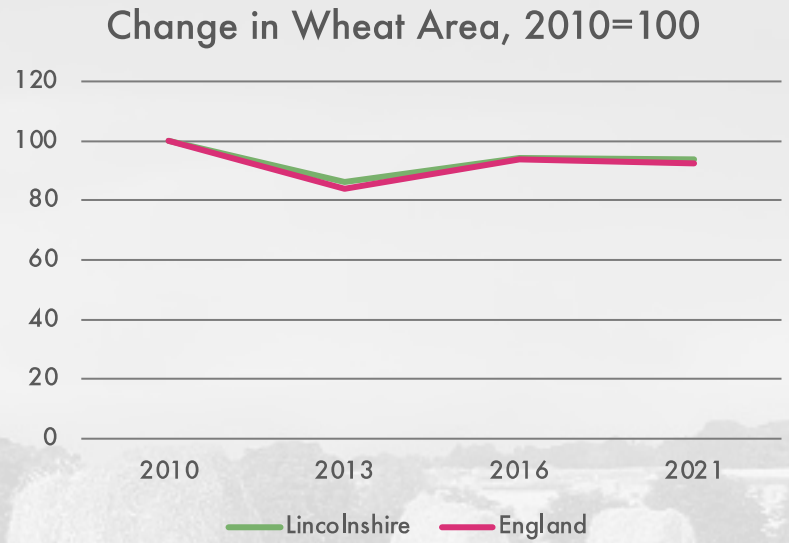
Bottom 10 English Counties for Pasture Land Values Per Acre, 2021

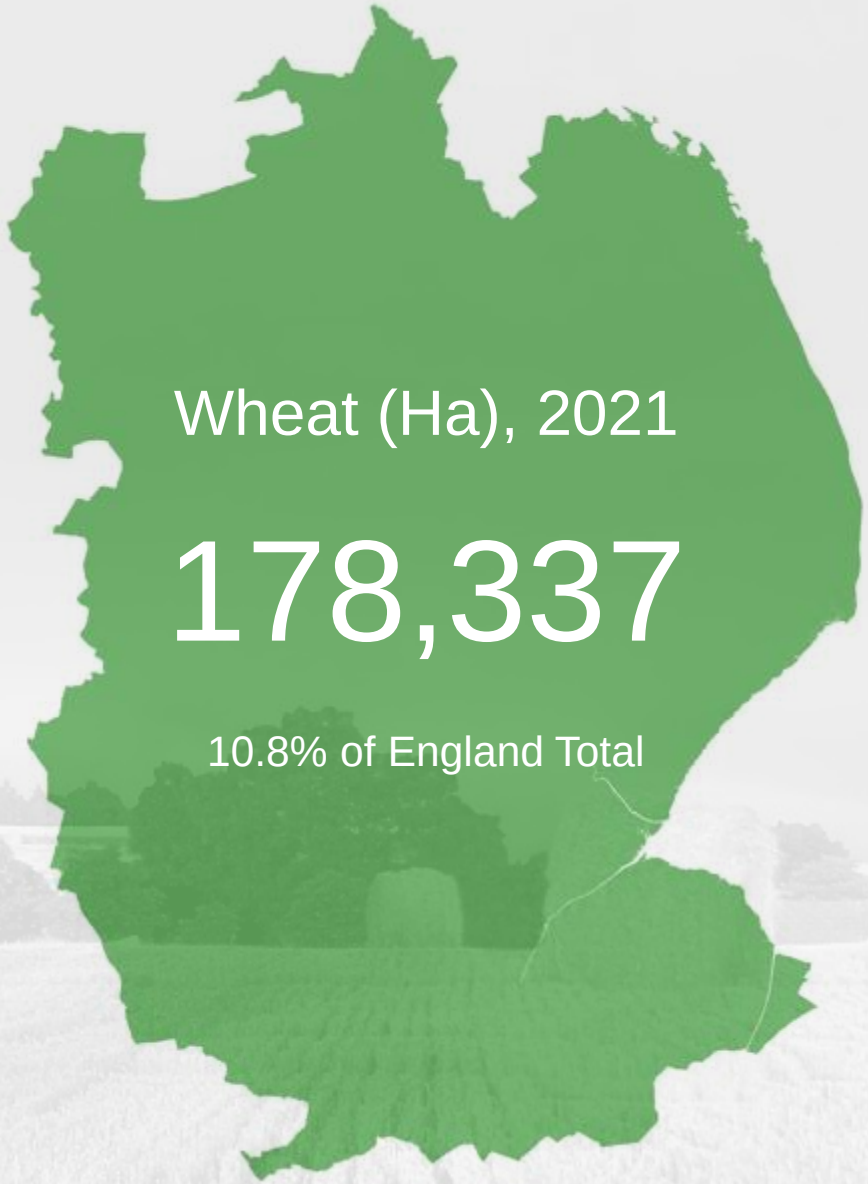


ARABLE CROPS

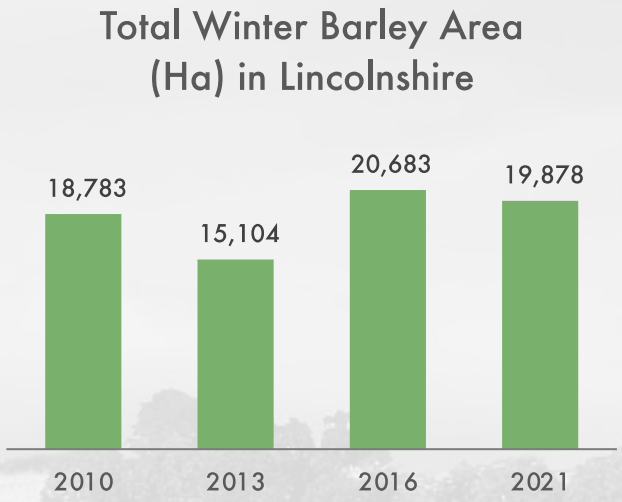
WHEAT

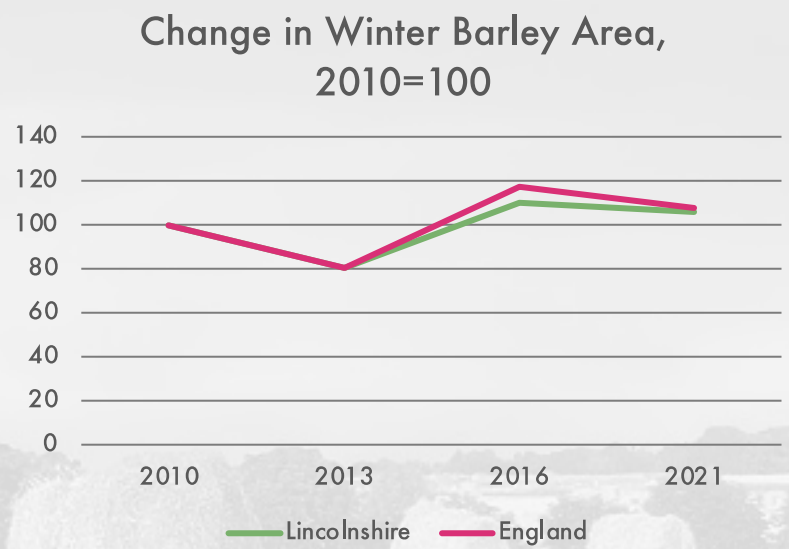

Total Wheat Area (Ha) in Lincolnshire
189,917
164,011
179,469
178,337
2010
2013
2016
2021

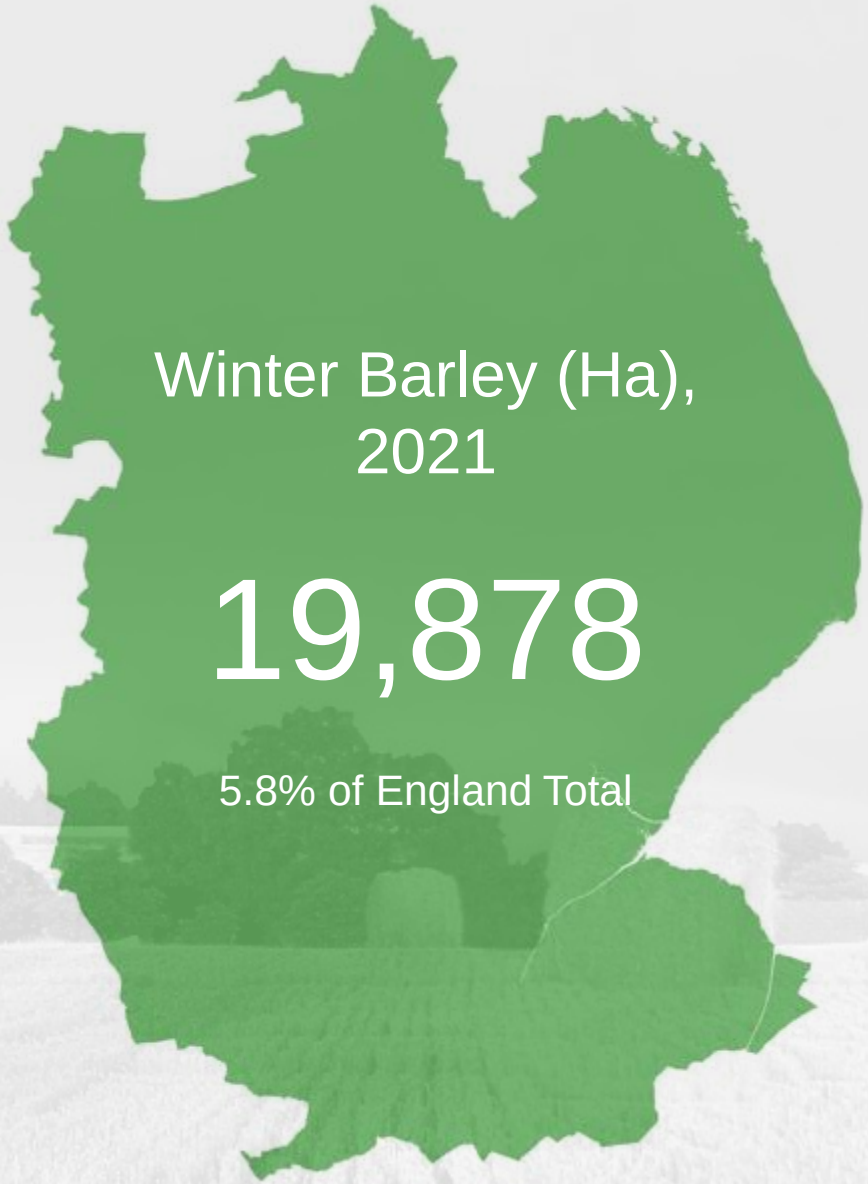

Change in Wheat Area, 2010=100
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England


Wheat (Ha), 2021
178,337
10.8% of England Total

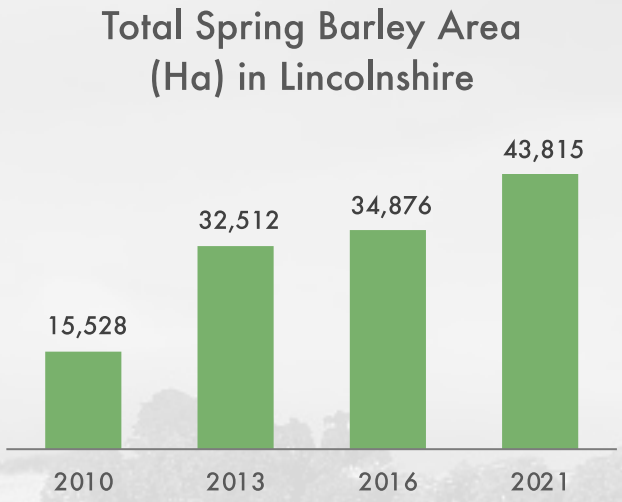
WINTER BARLEY

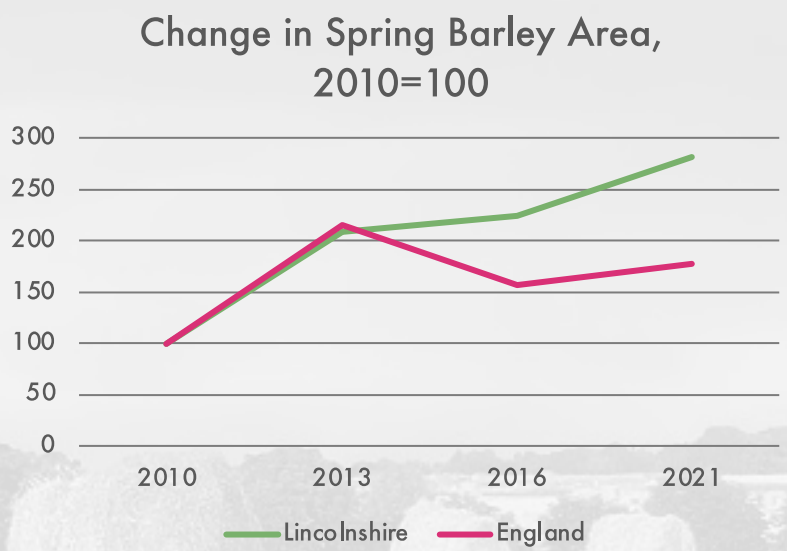


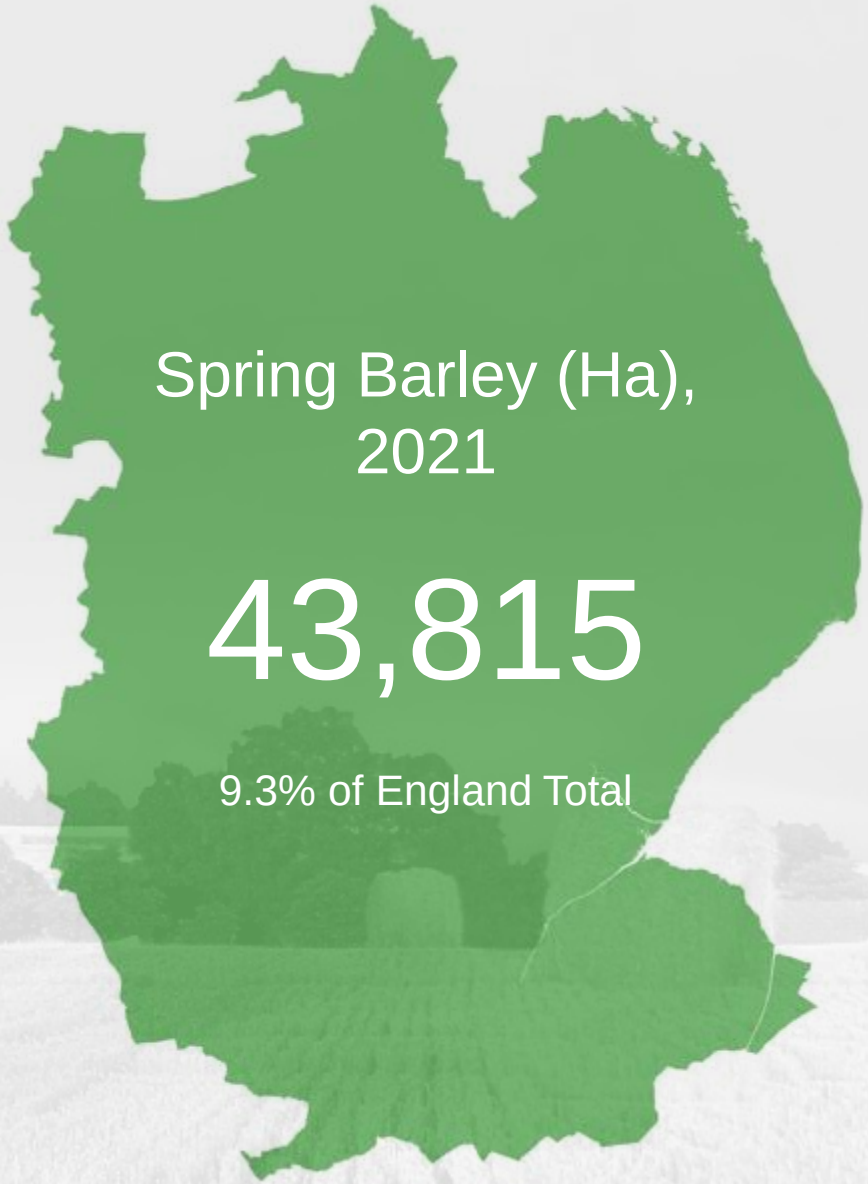




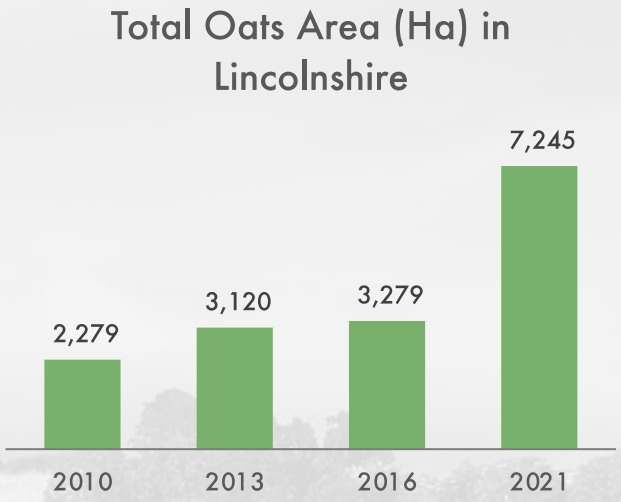
SPRING BARLEY

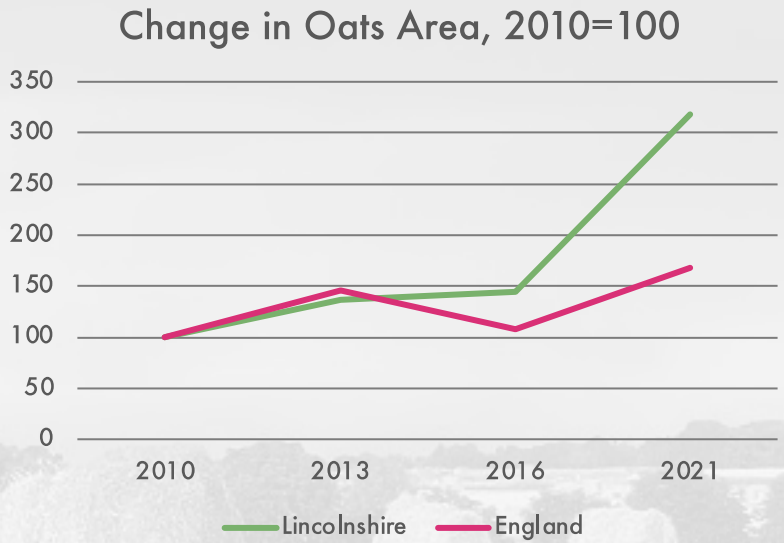


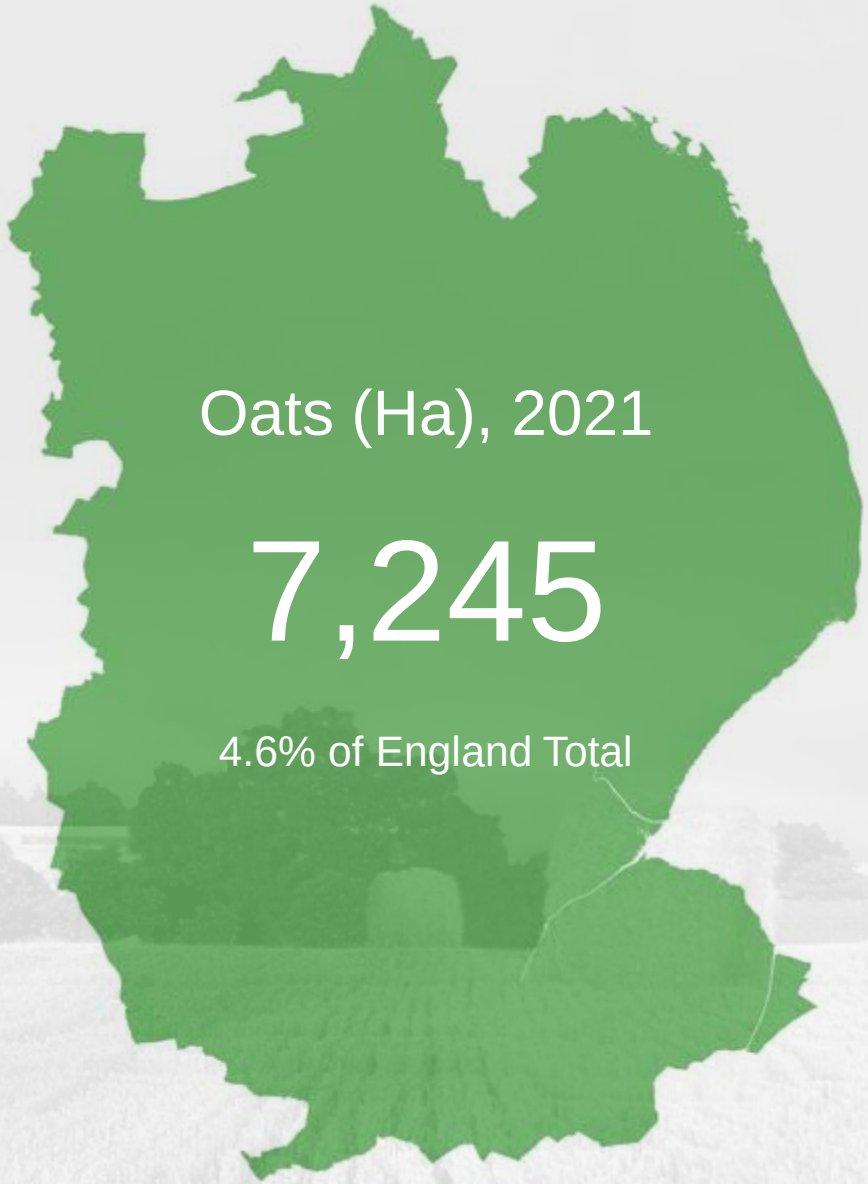




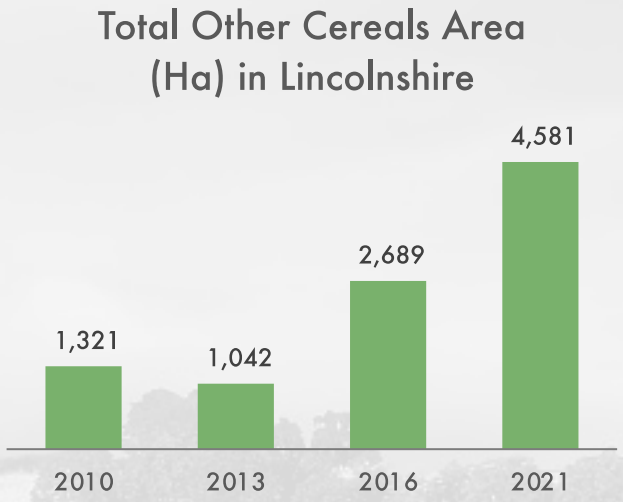
OATS

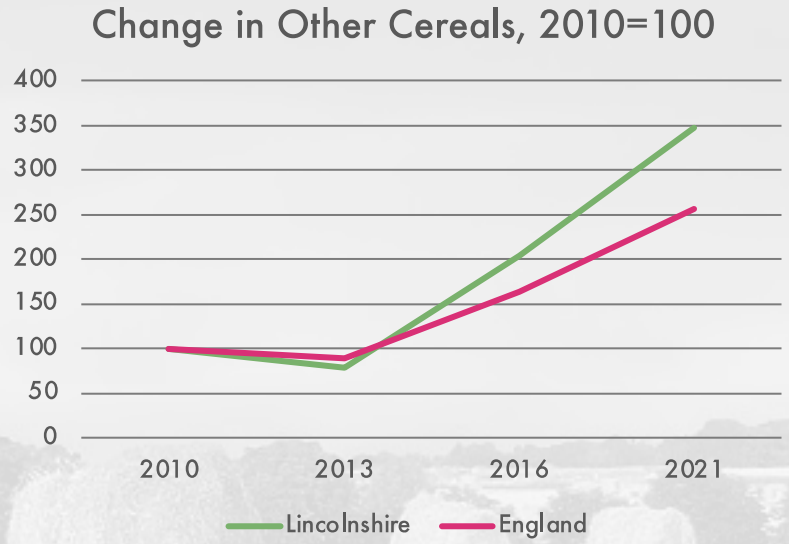

Total Oats Area (Ha) in Lincolnshire
2,279
3,120
3,279
7,245
2010
2013
2016
2021

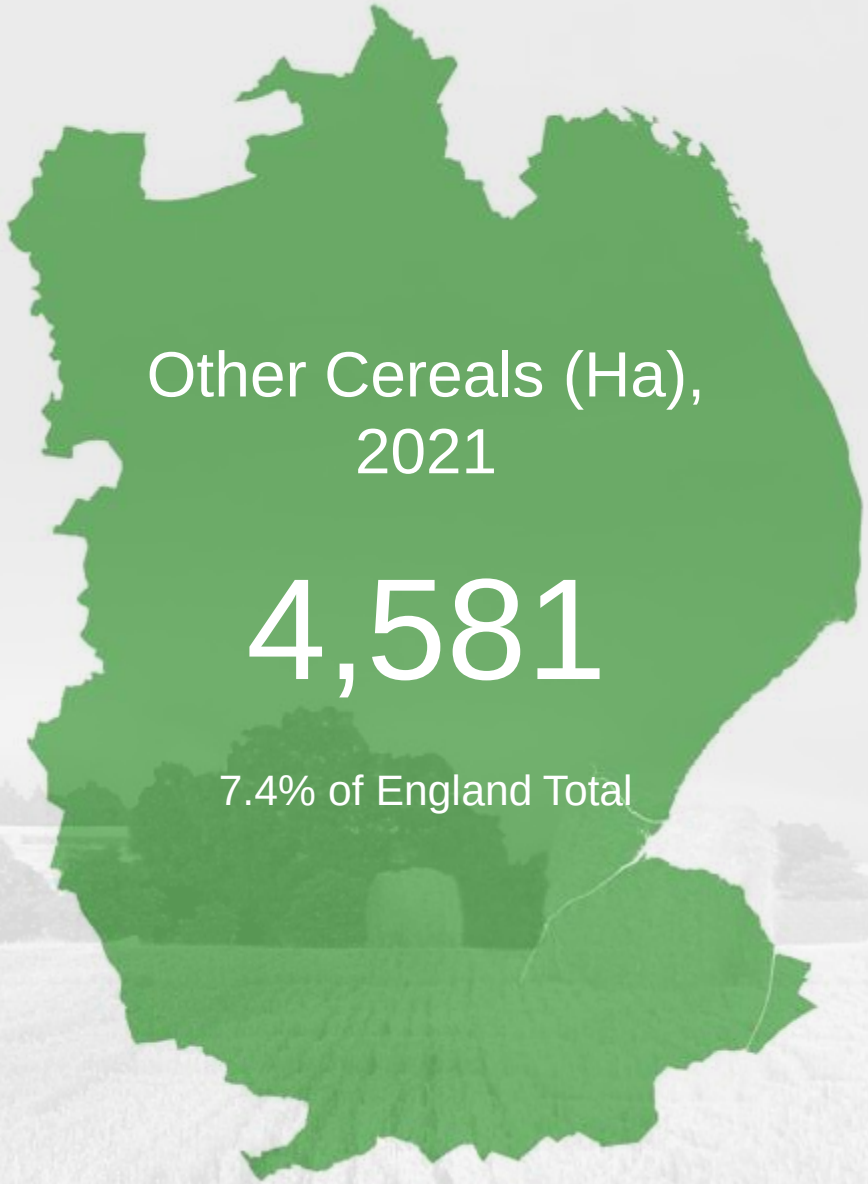

Change in Oats Area, 2010=100
350
300
250
200
150
100
50
0
2010
2013
2016
2021
Lincolnshire
England


Oats (Ha), 2021
7,245
4.6% of England Total

OTHER CEREALS



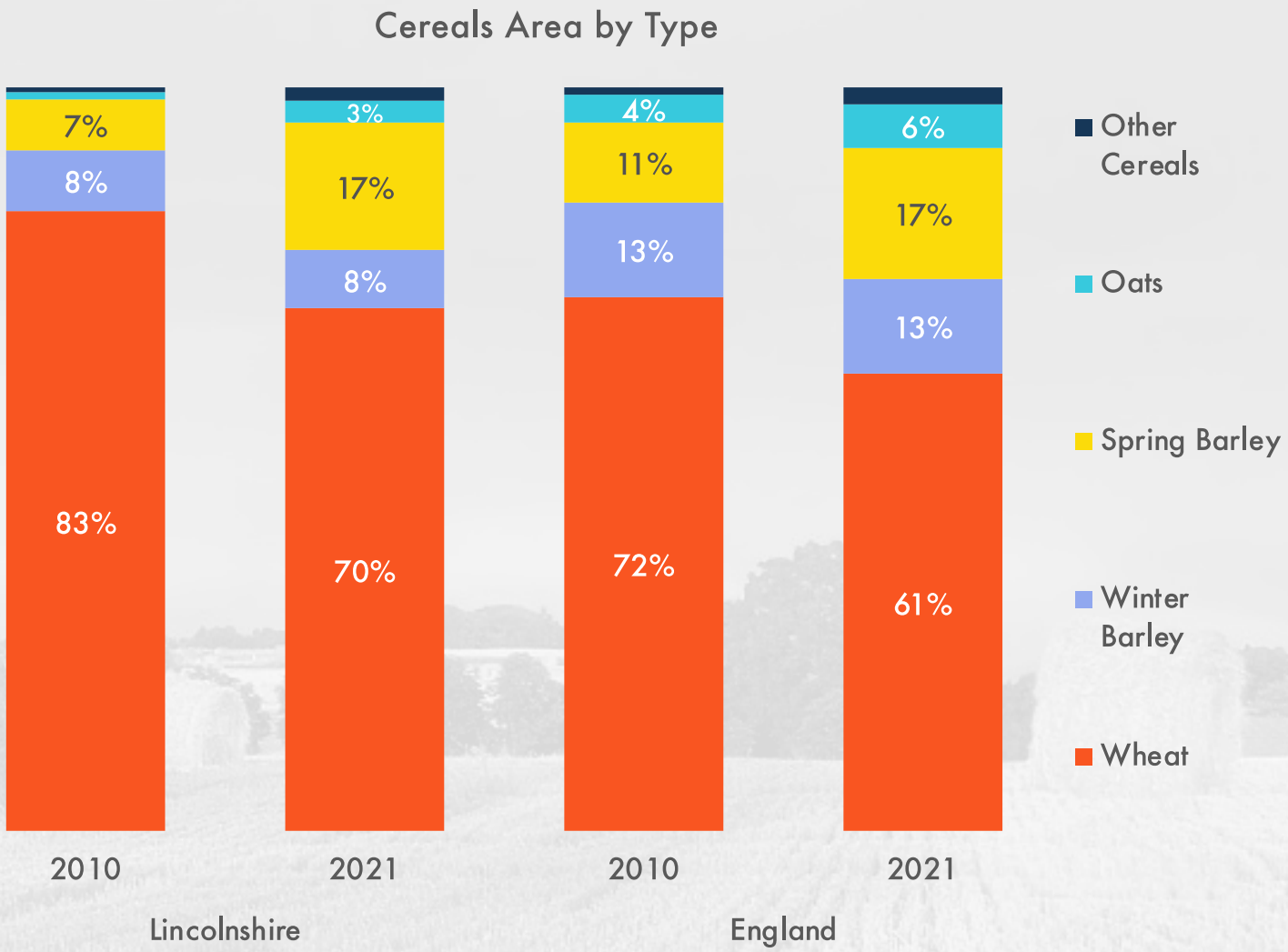




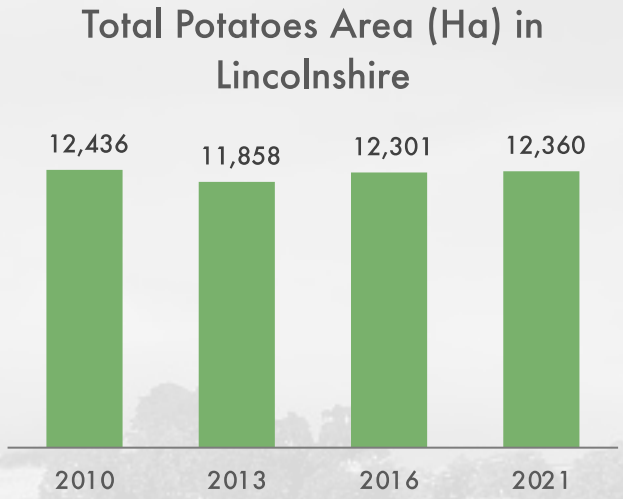
CEREALS AREA BY TYPE

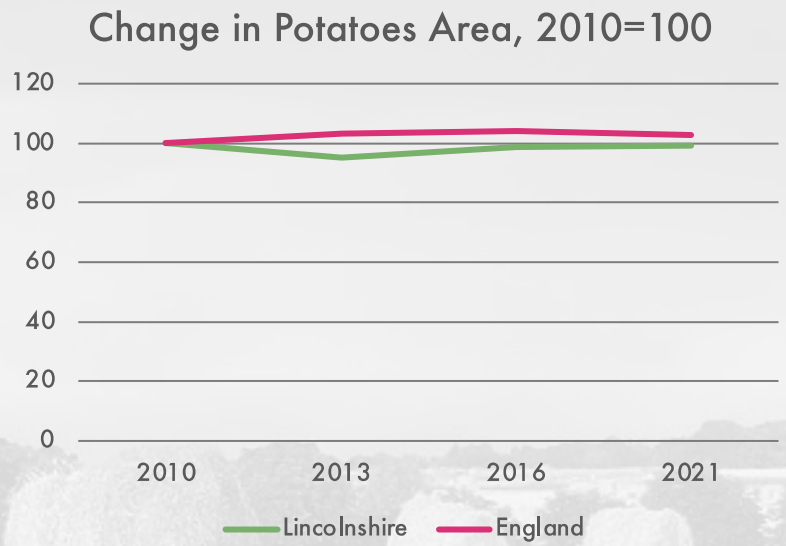
Whilst the wheat crop has fallen as a proportion of the total cereal crop across Lincolnshire, it remains the largest at 70%, and continues to make up a greater proportion of the cereals crop than nationally.

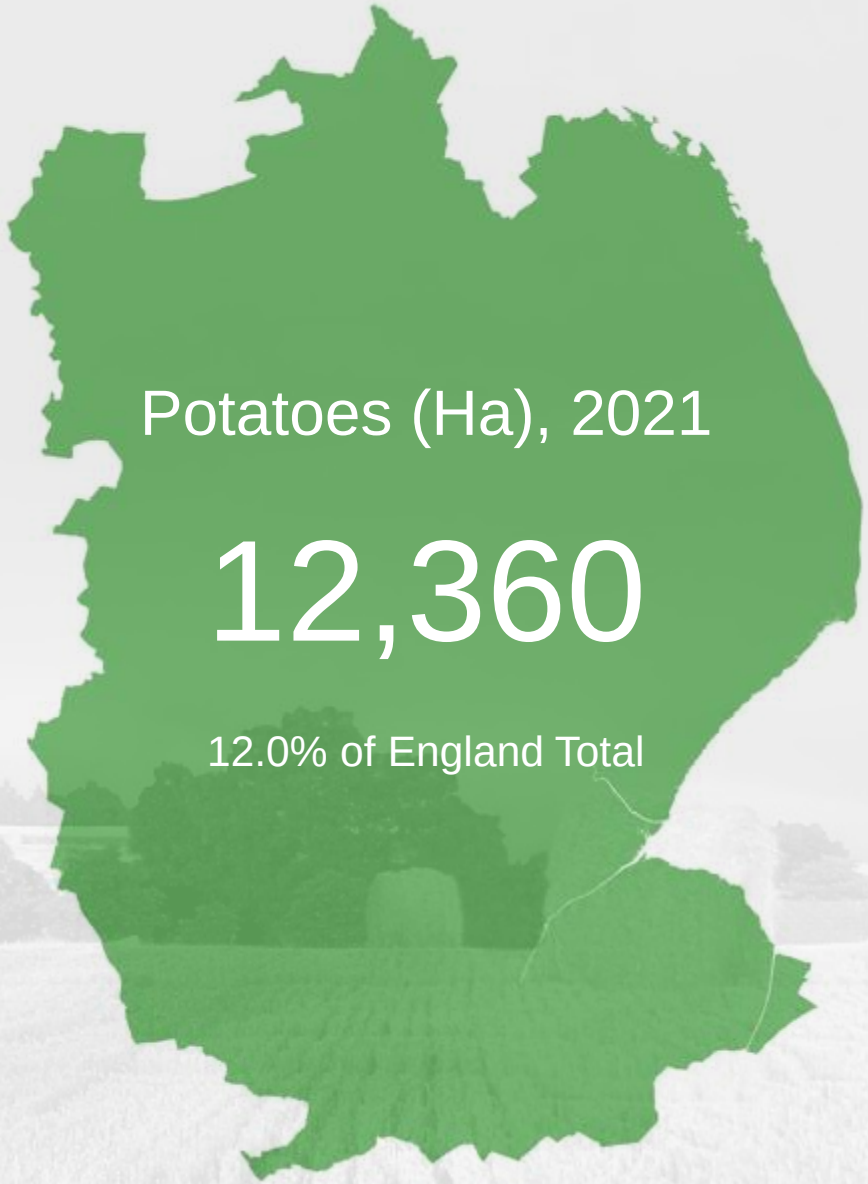
The winter barley crop has remained static as a proportion of the cereals crops over time across both Lincolnshire and England whereas the spring barley has increased.



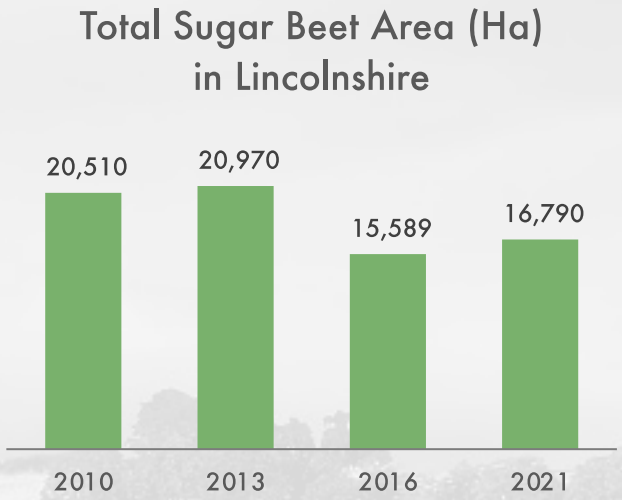
POTATOES

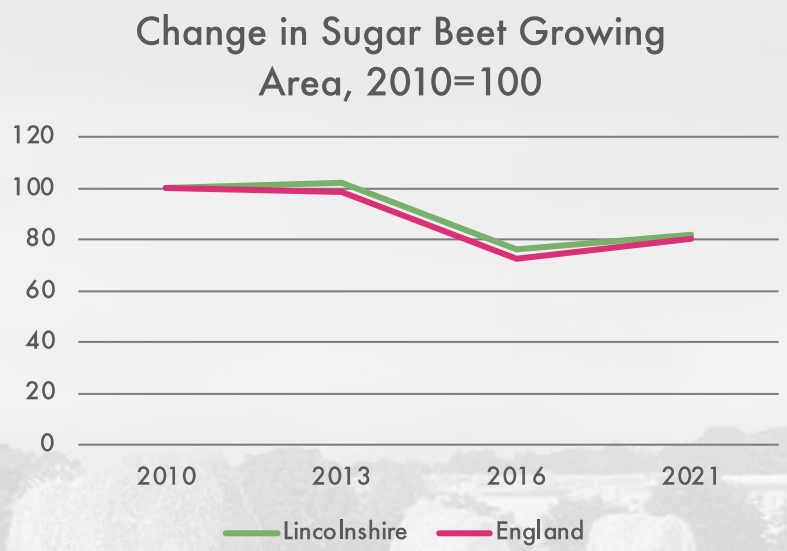

Total Potatoes Area (Ha) in Lincolnshire
12,436
11,858
12,301
12,360
2010
2013
2016
2021

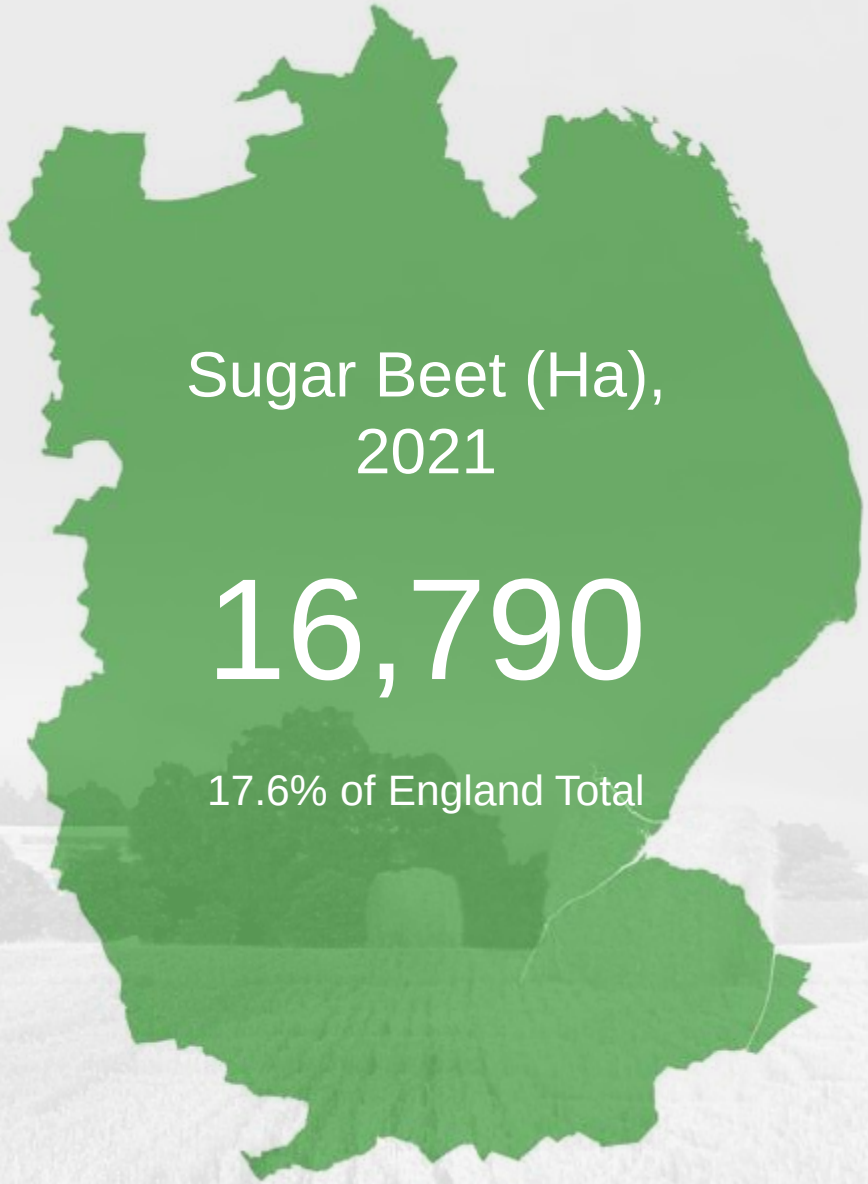

Change in Potatoes Area, 2010=100
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England


Potatoes (Ha), 2021
12,360
12.0% of England Total

SUGAR BEET

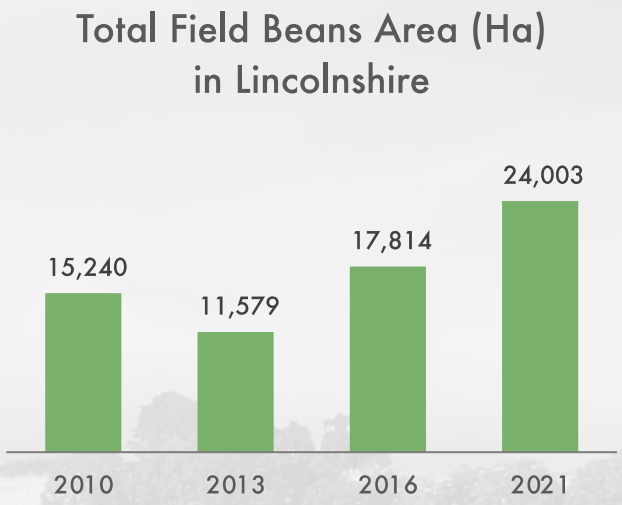


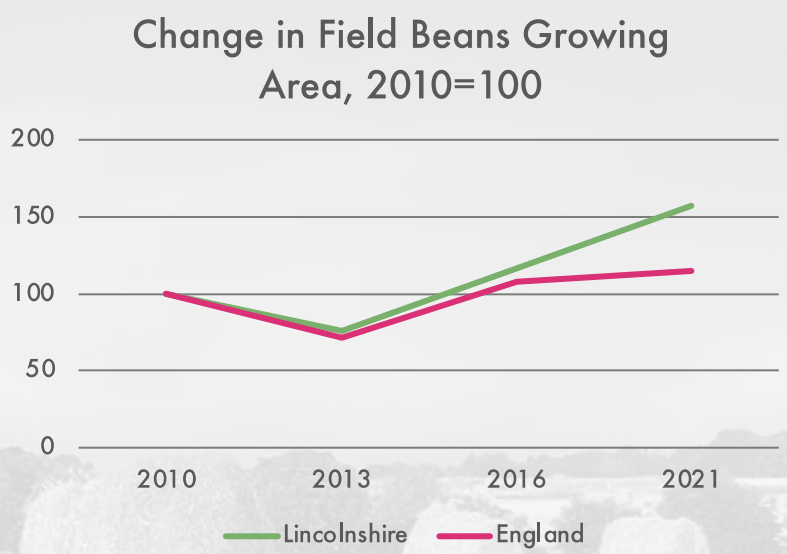


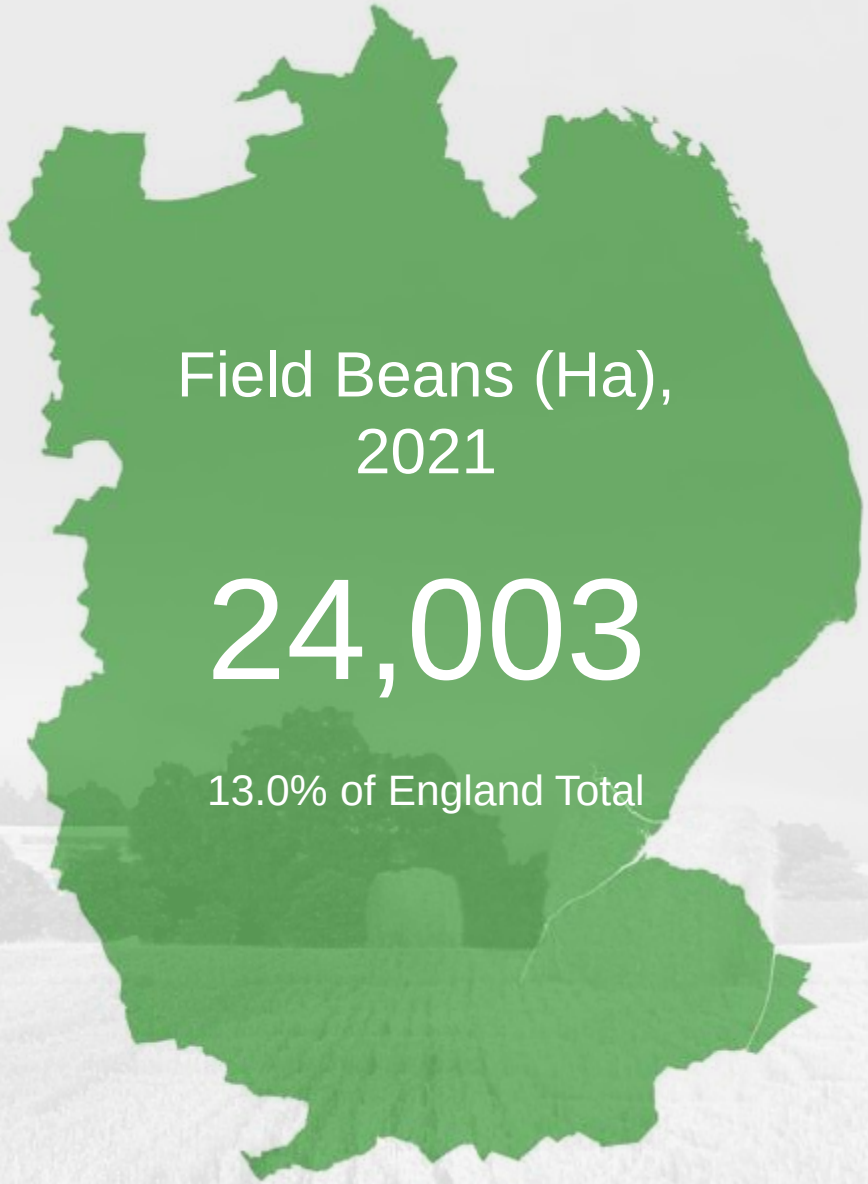


Note: Sugar beet that is not for stock feeding.

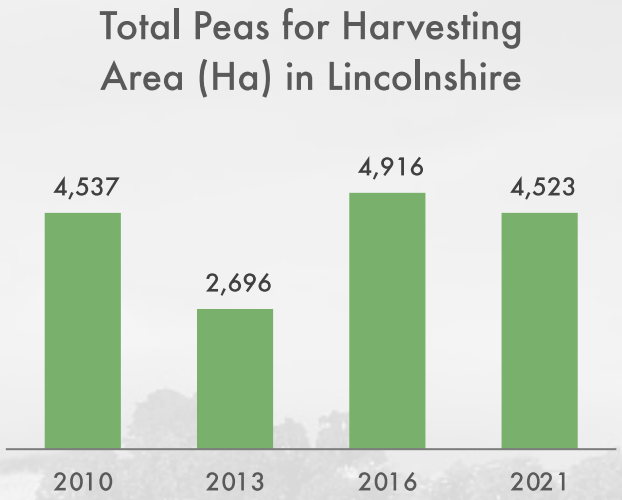
FIELD BEANS

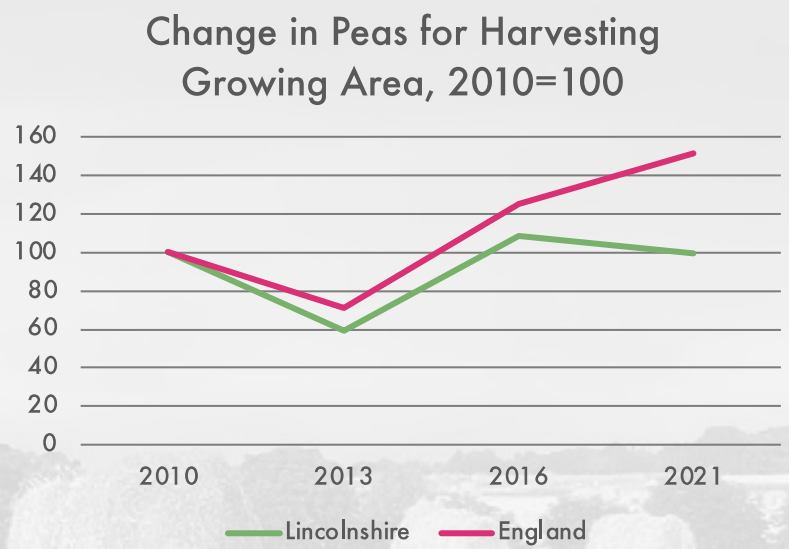

Total Field Beans Area (Ha) in Lincolnshire
15,240
11,579
17,814
24,003
2010
2013
2016
2021

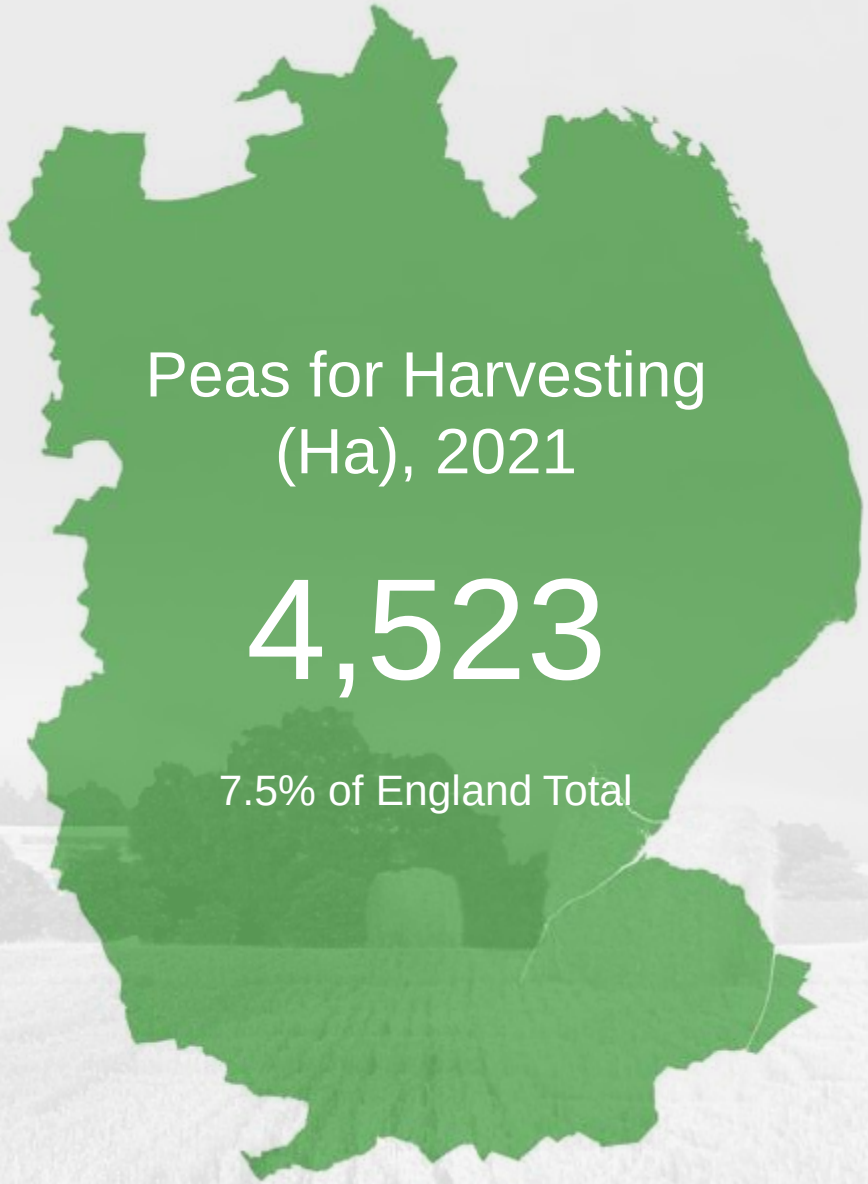

Change in Field Beans Growing Area, 2010=100
200
150
100
50
0
2010
2013
2016
2021
Lincolnshire
England


Field Beans (Ha), 2021
24,003
13.0% of England Total

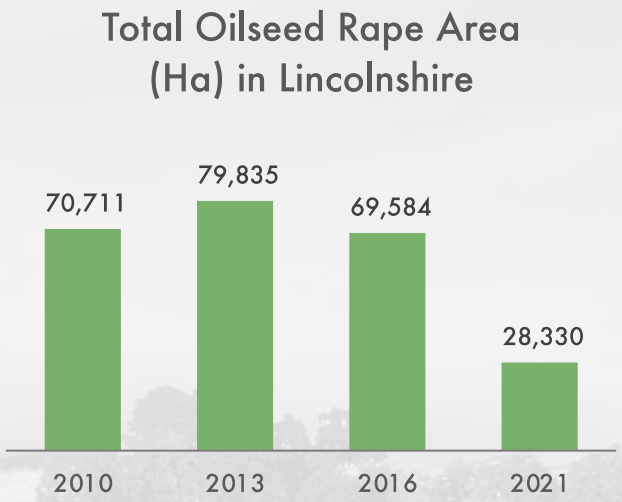
PEAS FOR HARVESTING

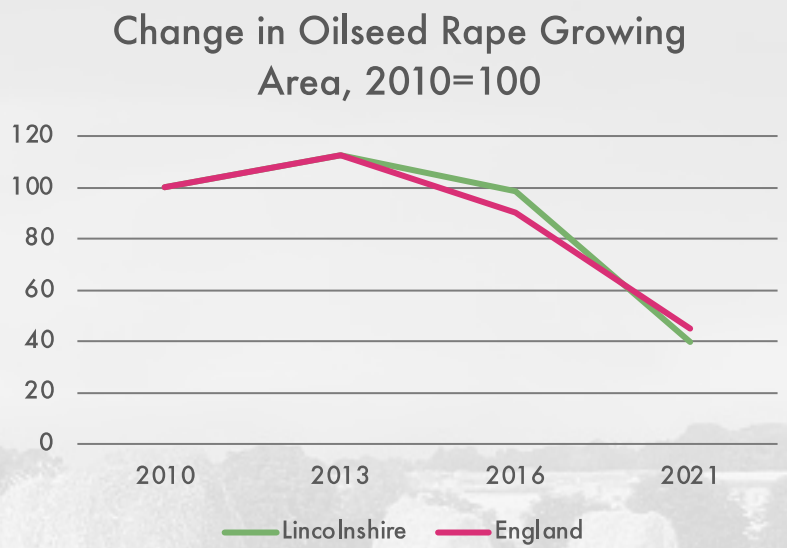


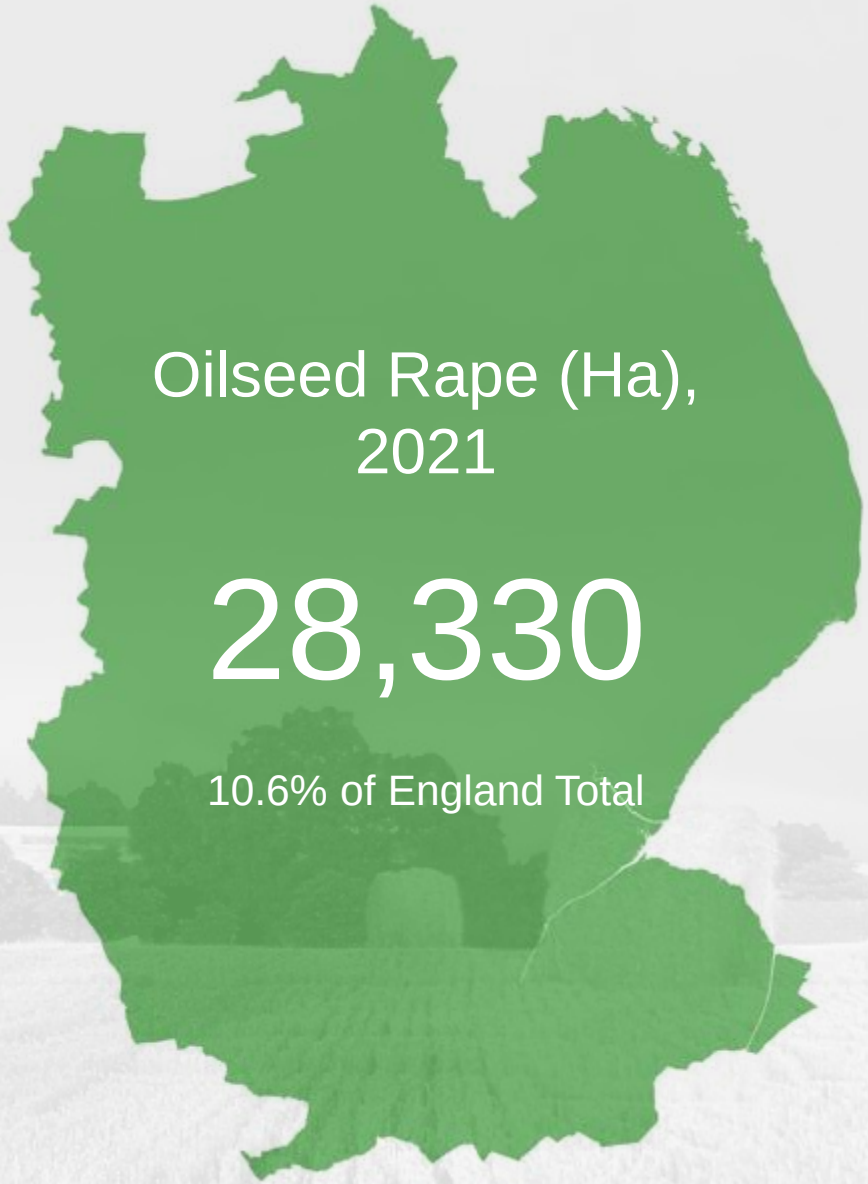




OILSEED RAPE

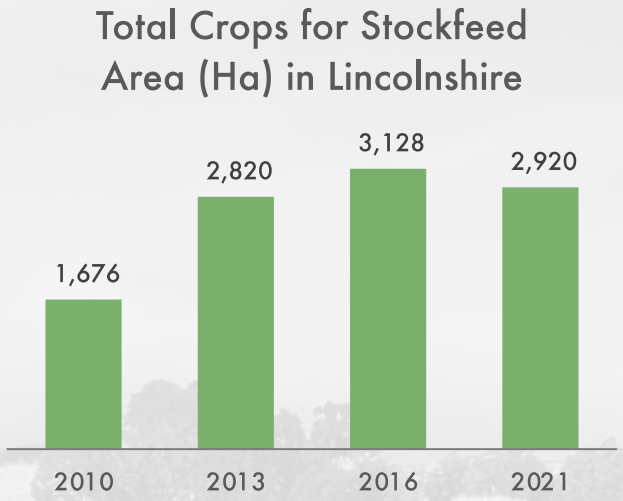


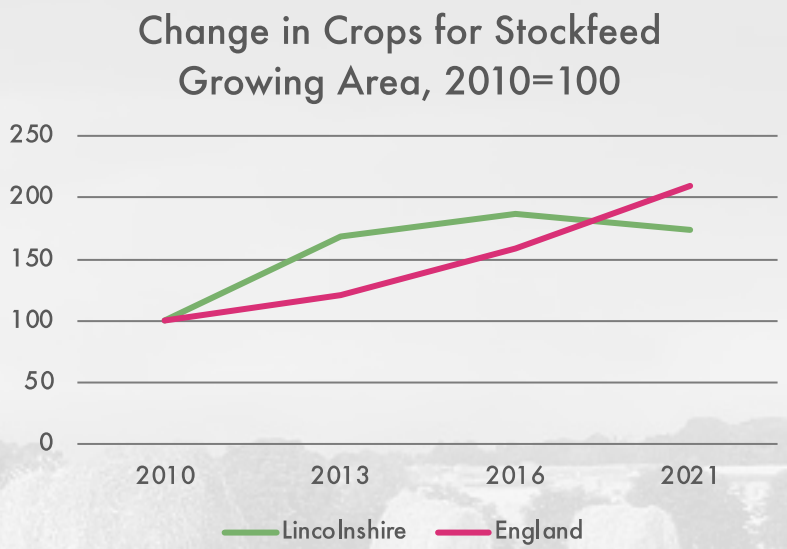


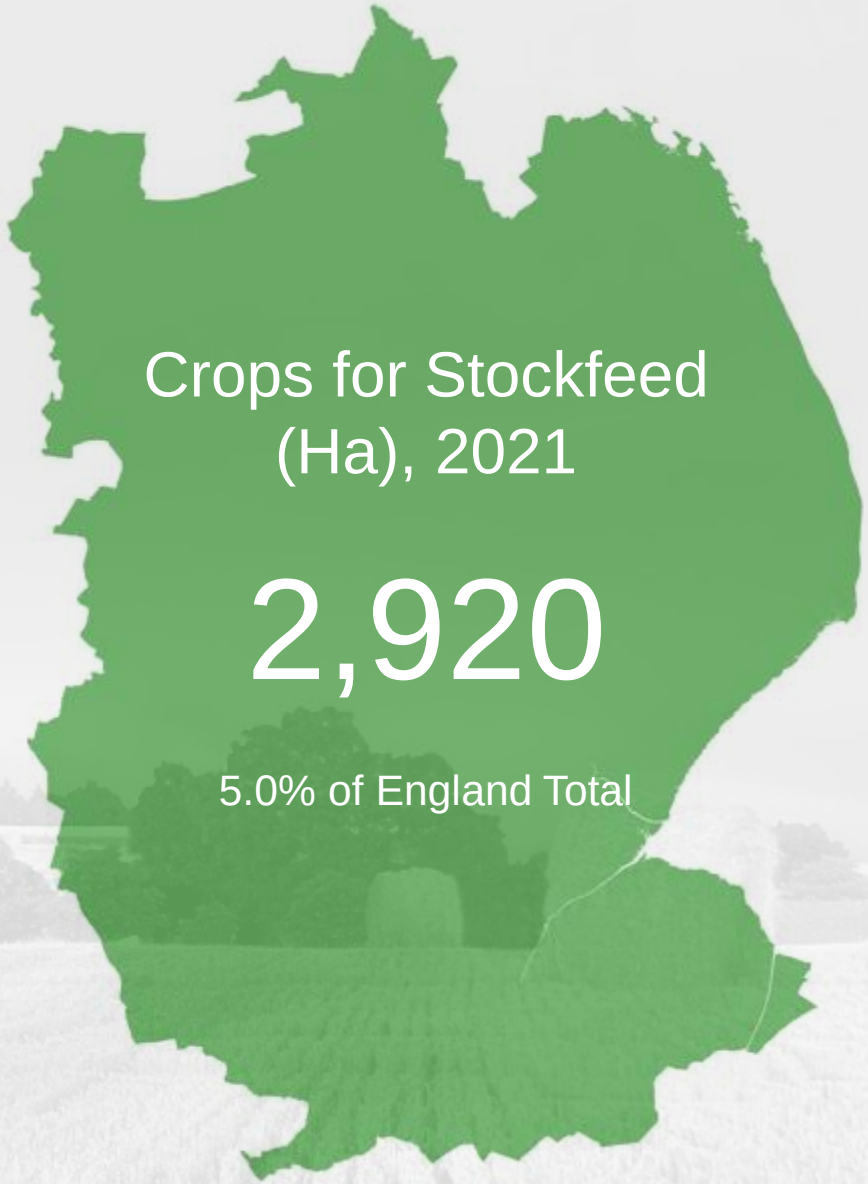


Note: Includes both spring and winter oilseed rape.

CROPS FOR STOCKFEED

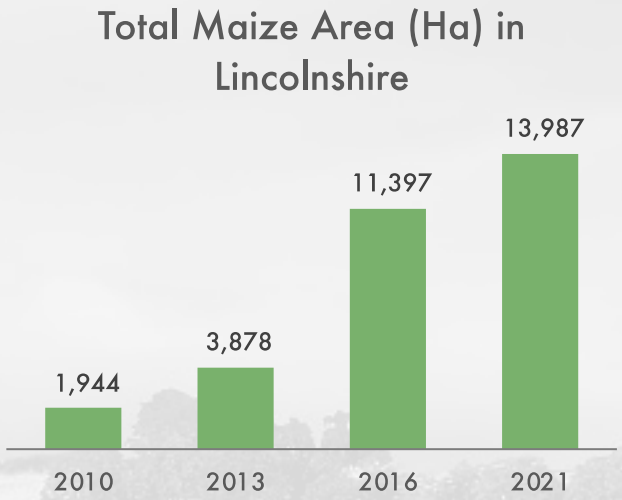


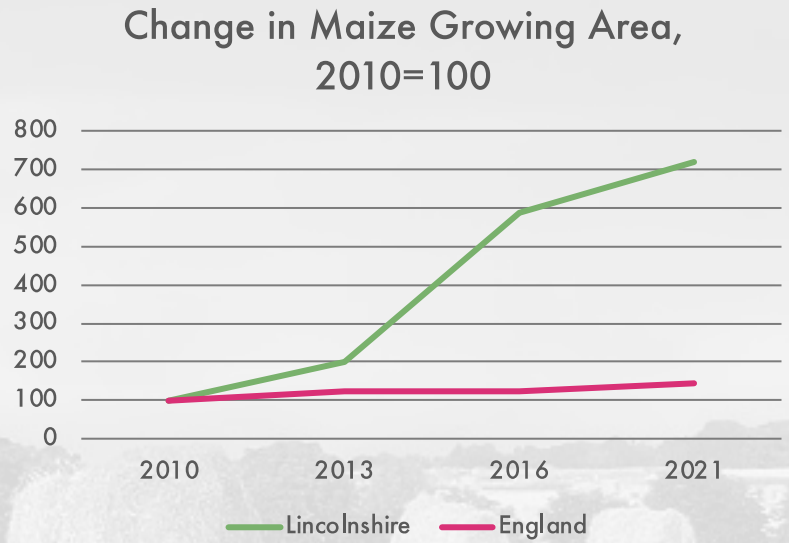


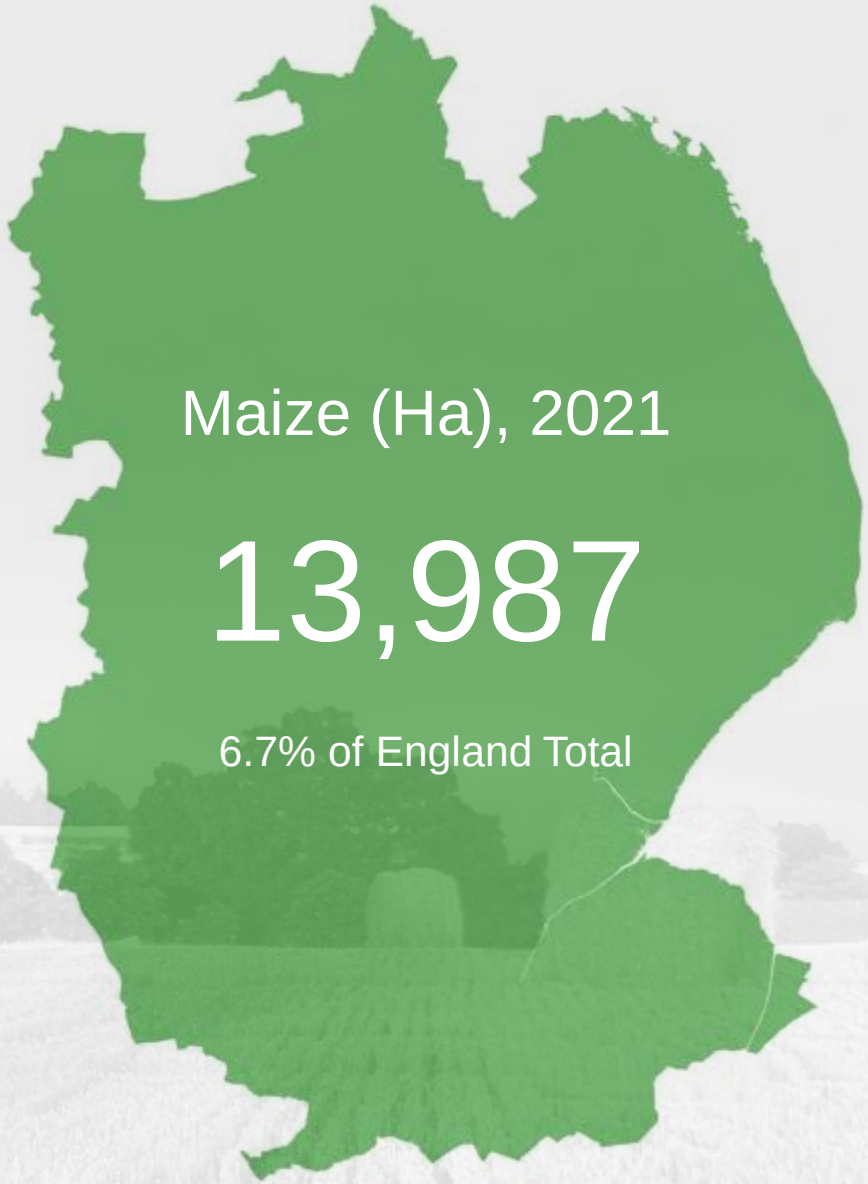


Note: The figure now includes leguminous forage crops.

MAIZE

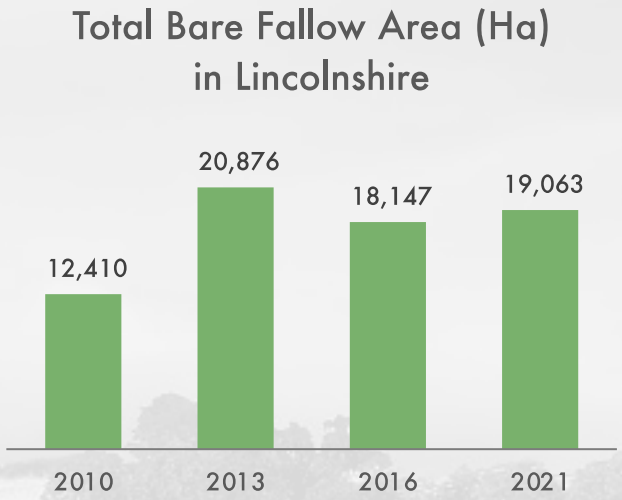


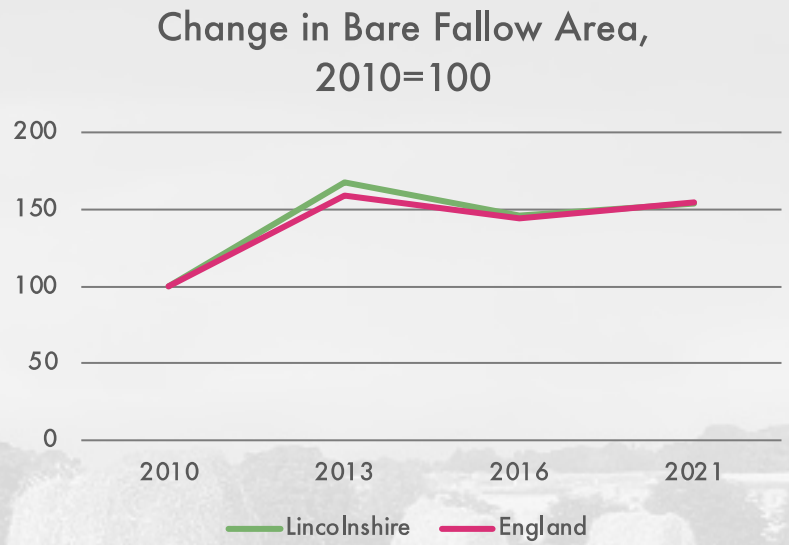


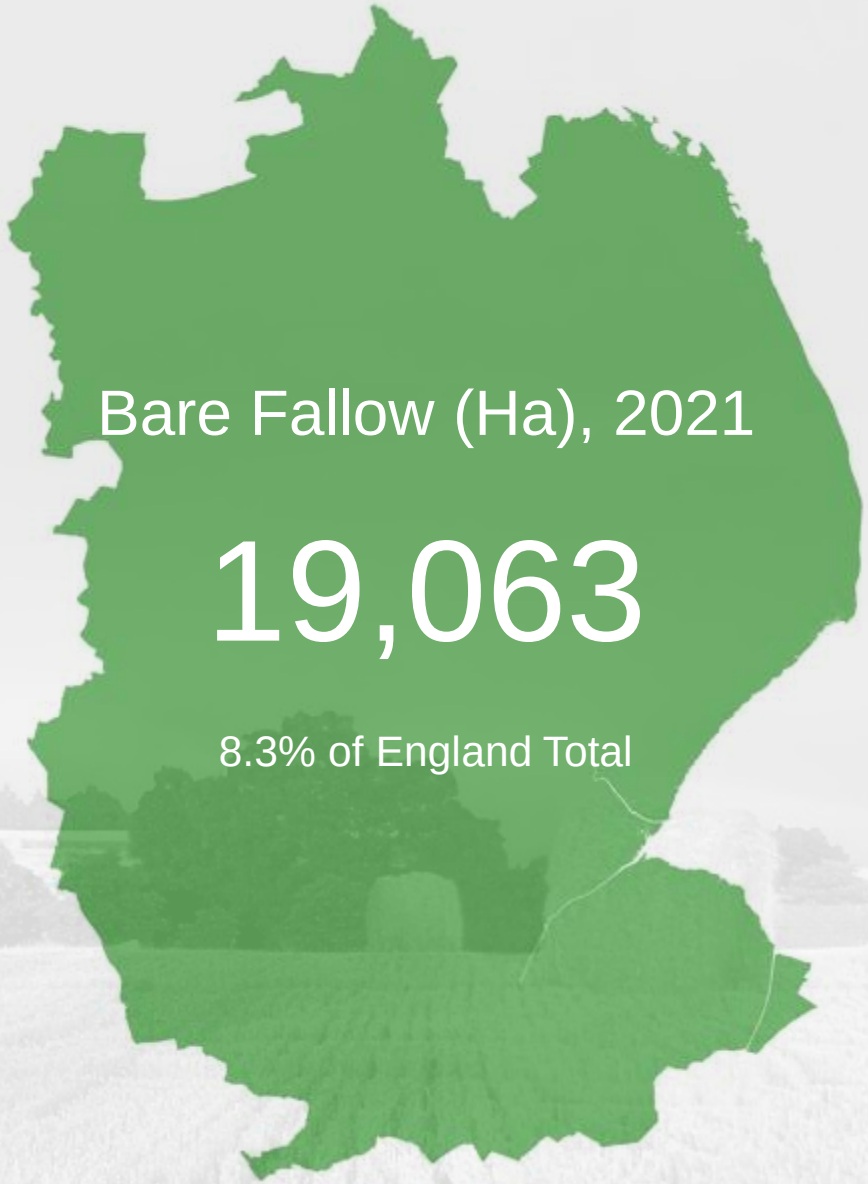


Notes: Includes fodder and grain and maize for anaerobic digestion. Anecdotally, then the increase in maize growing in Lincolnshire is almost entirely due to anaerobic digestion production growth.

BARE FALLOW



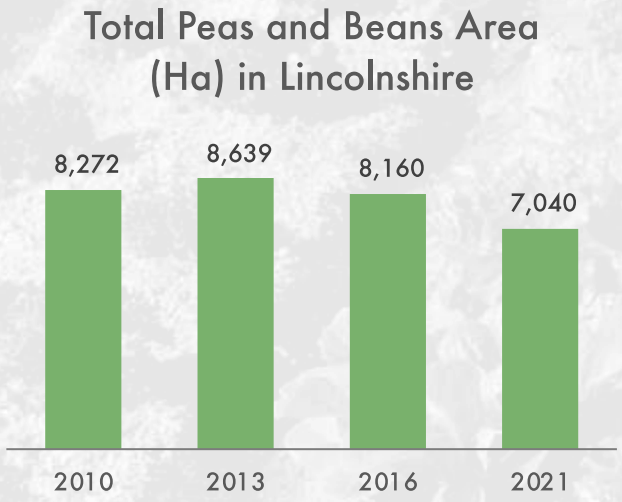


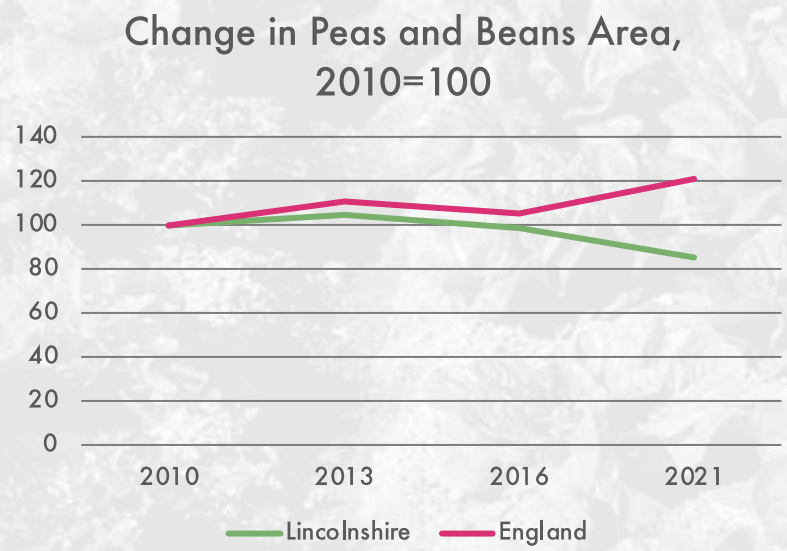


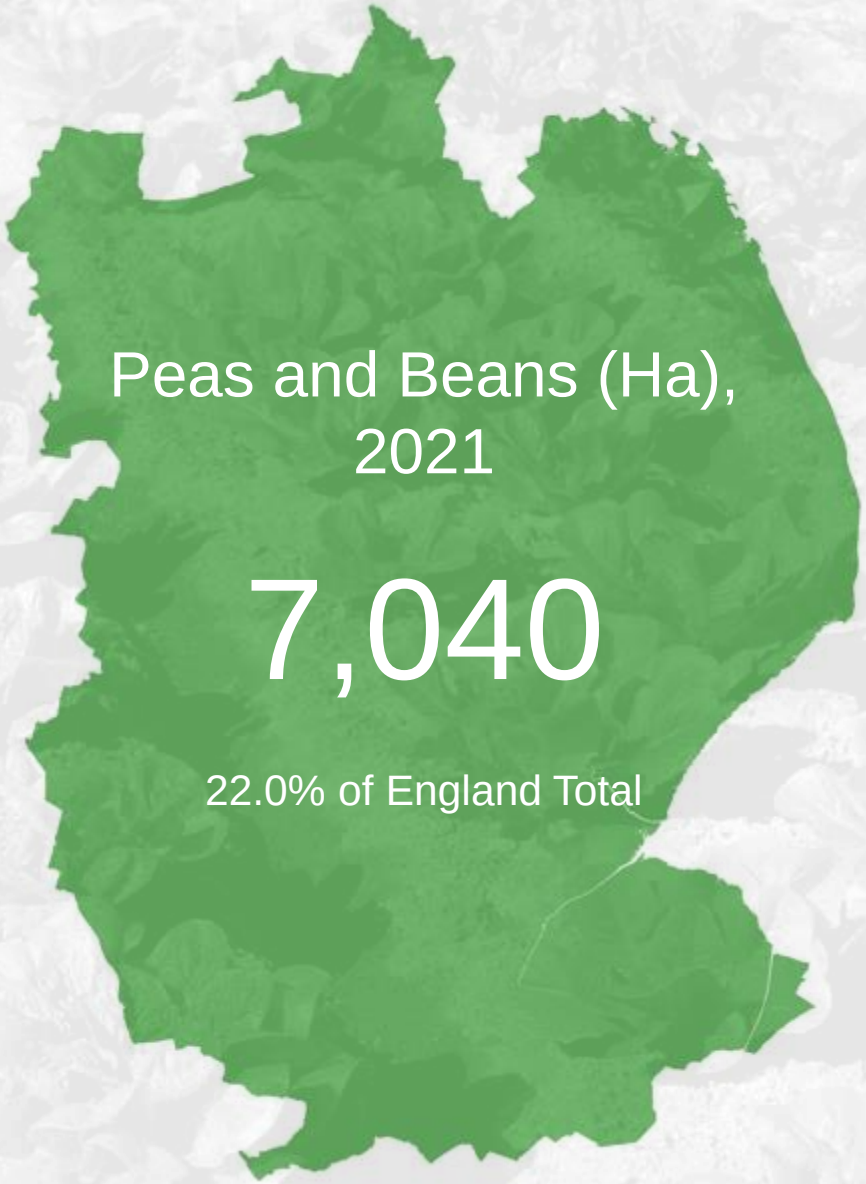
Note: Uncropped arable land/Bare fallow. Includes all arable land not in production, including wild bird cover and game cover.

HORTICULTURAL CROPS

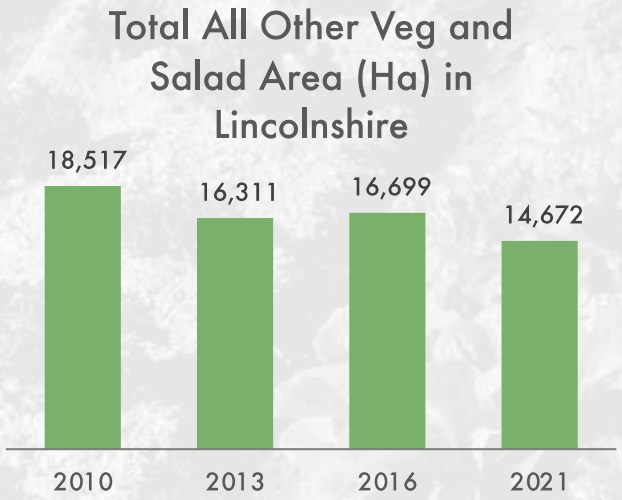
PEAS AND BEANS

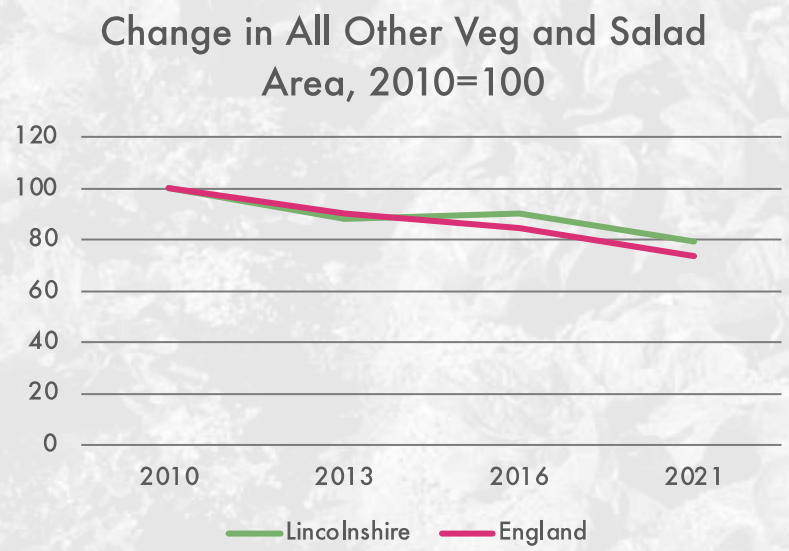


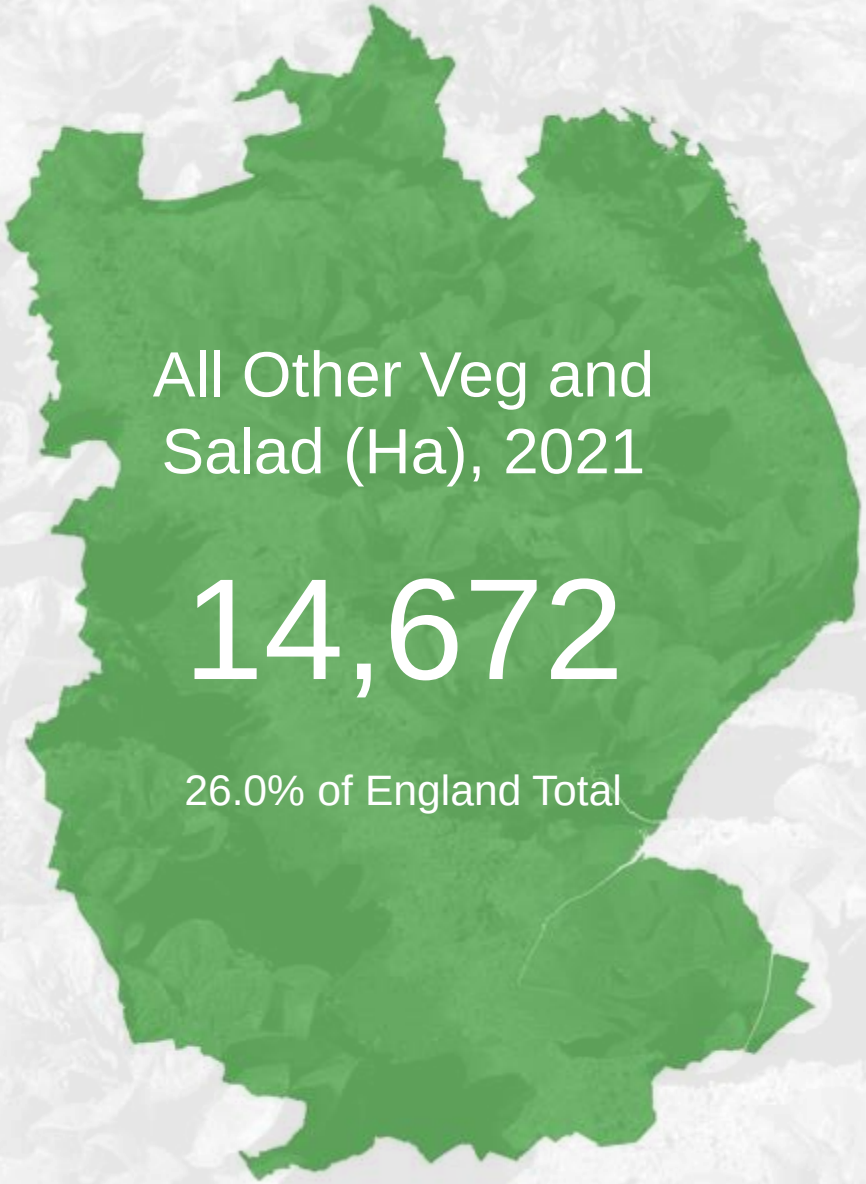




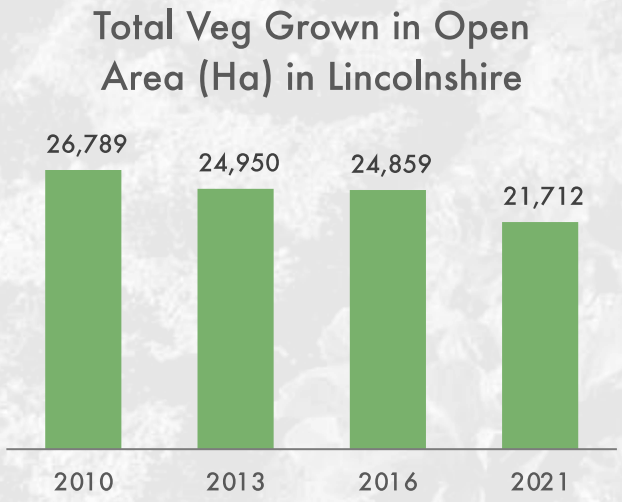
ALL OTHER VEG AND SALAD

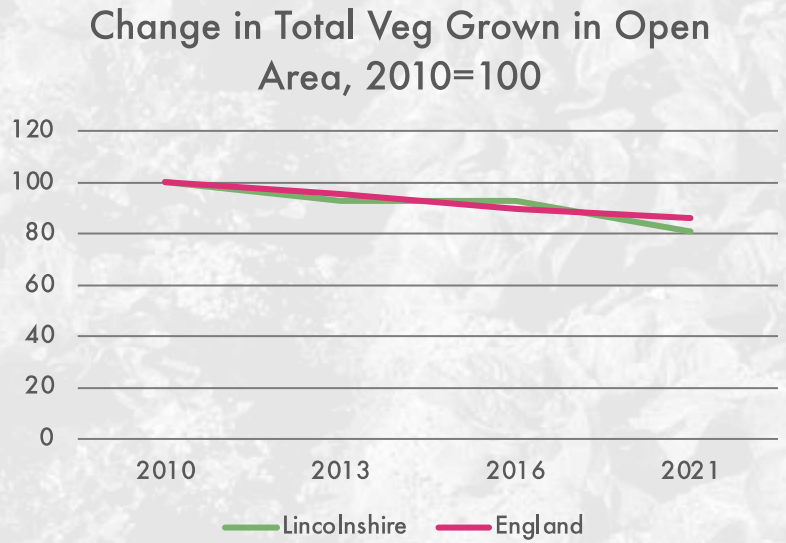


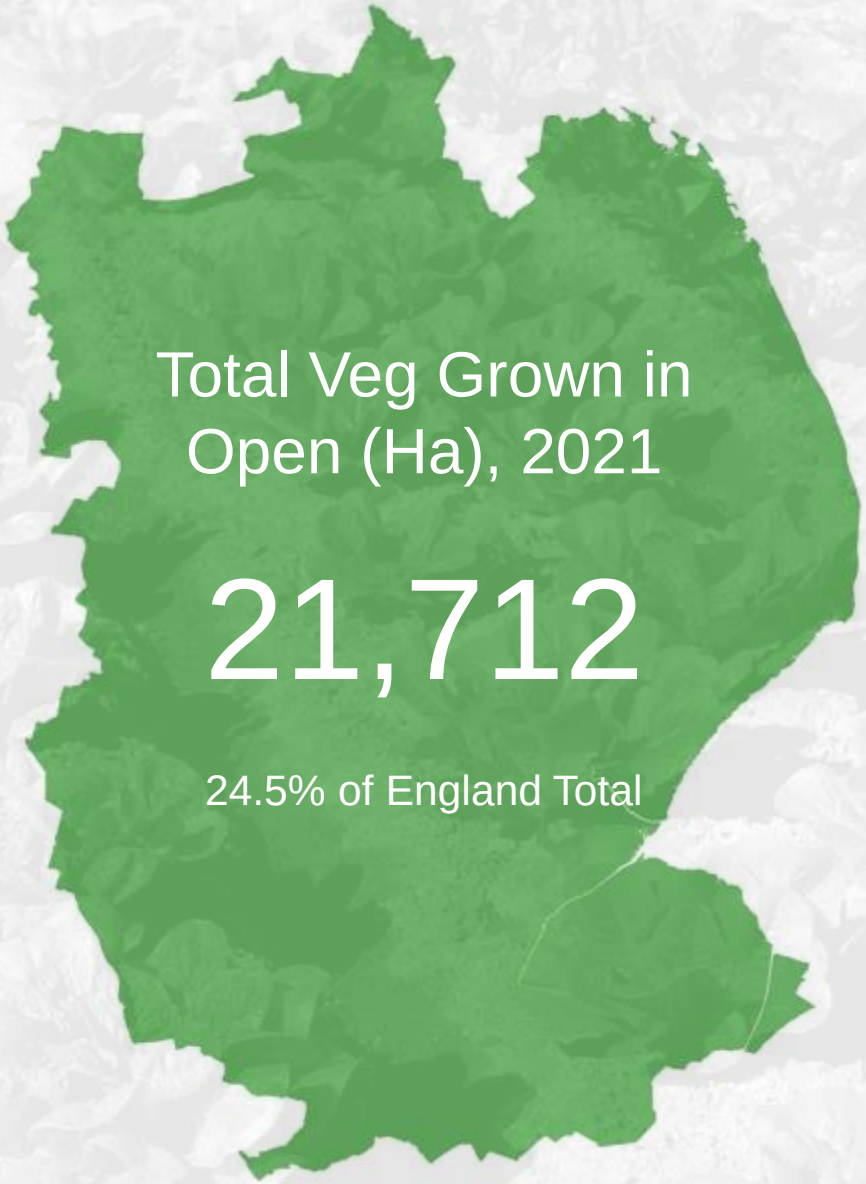




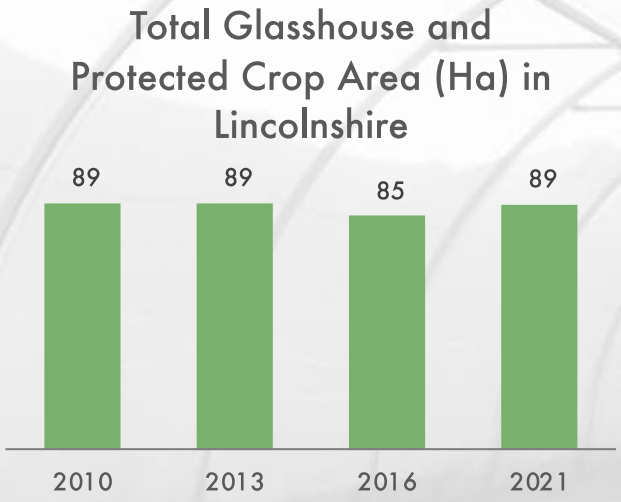
TOTAL VEG GROWN IN OPEN

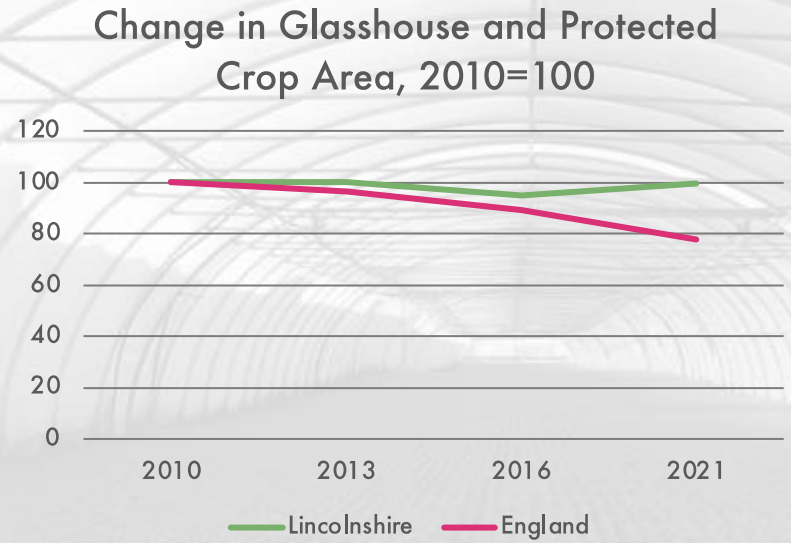


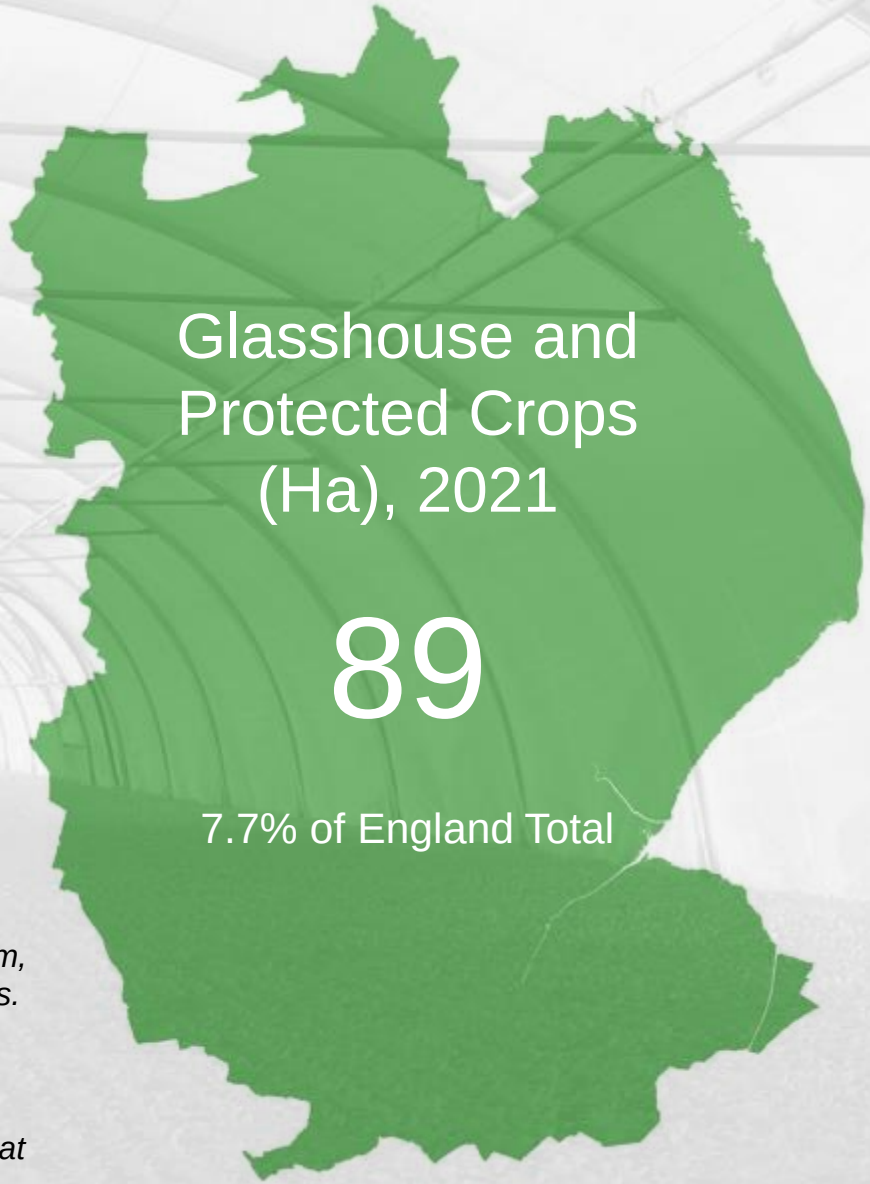




GLASSHOUSE AND PROTECTED CROPS



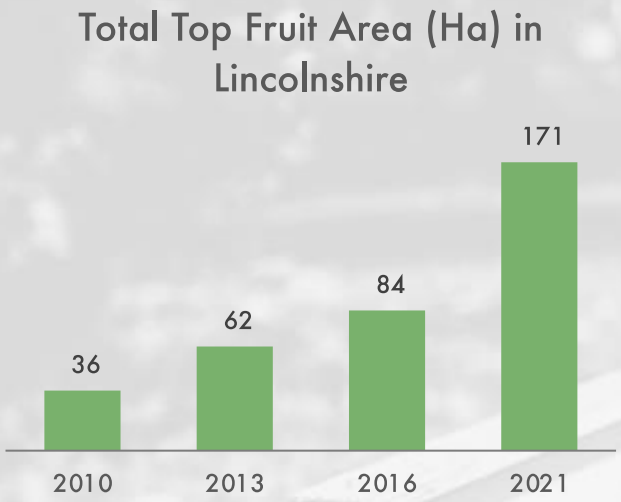


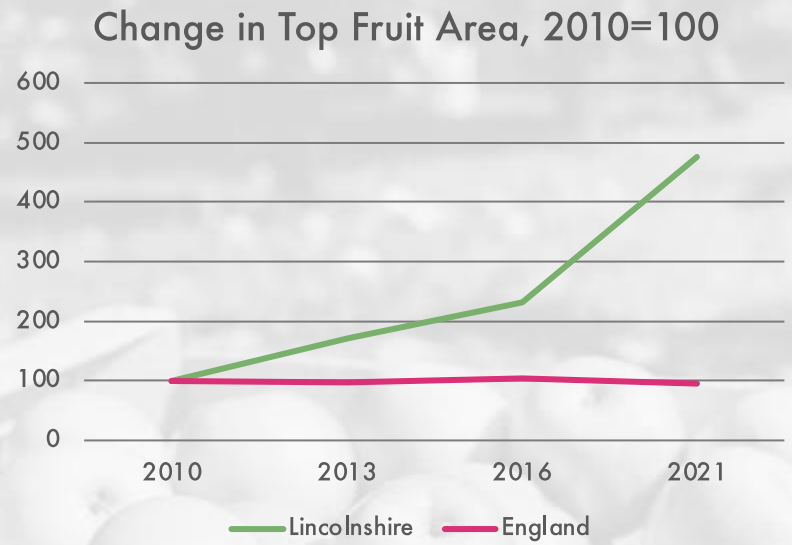


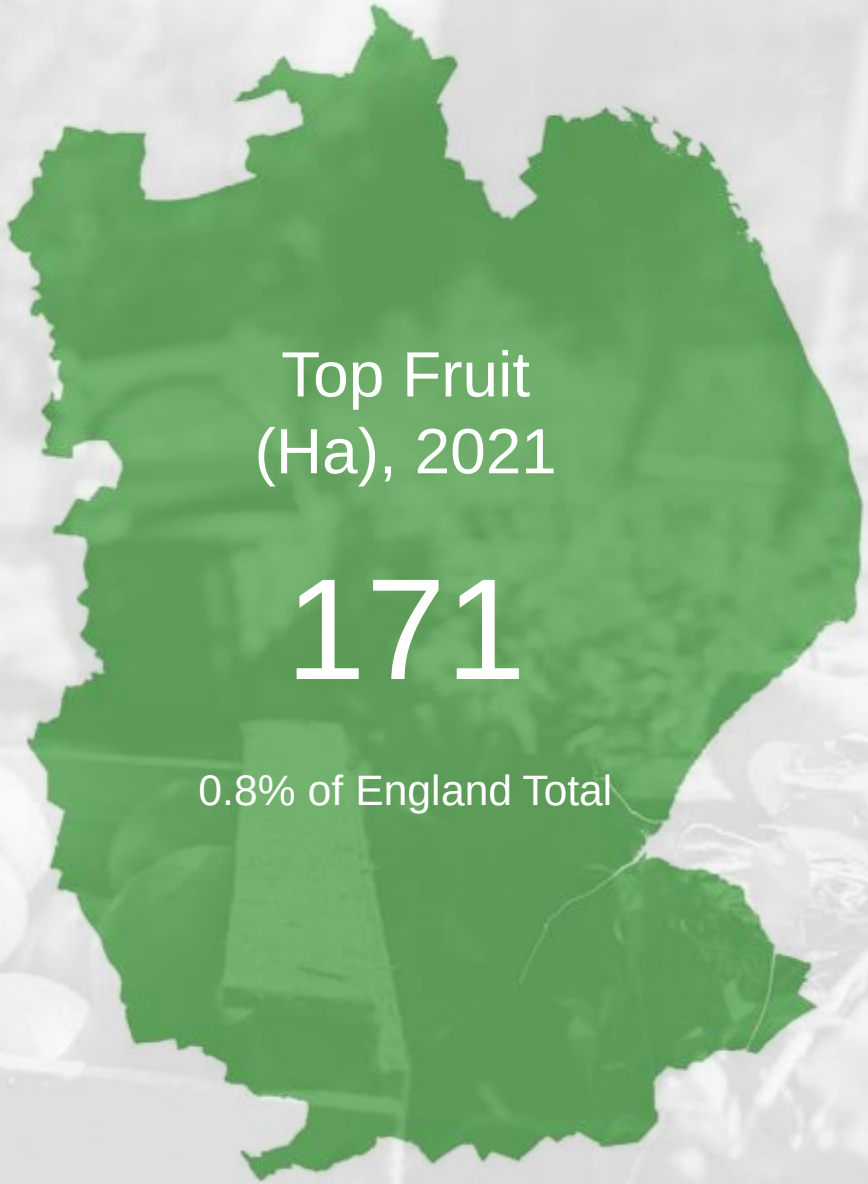
Notes: Includes any fixed or mobile structure high enough to walk through which is glazed or clad with film, rigid plastics or other glass substitutes. It excludes lights, low plastic tunnels, French and Spanish tunnels. Mushroom sheds are included from 2013 onwards.

Glasshouses becoming operational since 2021 include those at Bridge Farm, Spalding (17ha), and Carrington (6ha – courtesy of Dyson Farming). Planned glasshouses include 10ha near Holbeach, 14ha at Crowland, 3ha near Spalding, 6ha near Boston, plus proposals for 32ha north of Lincoln.

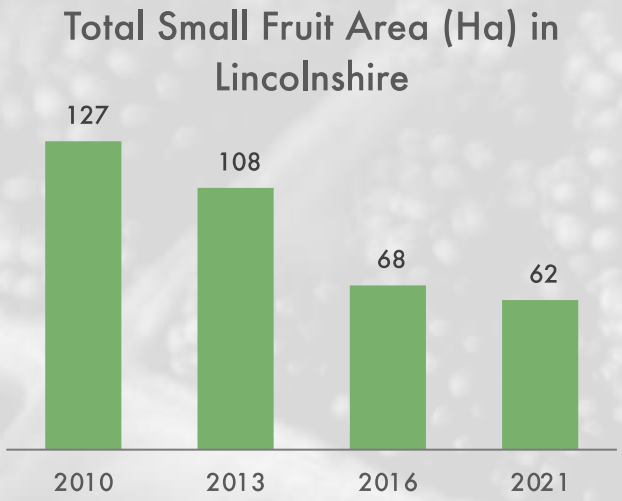
TOP FRUIT

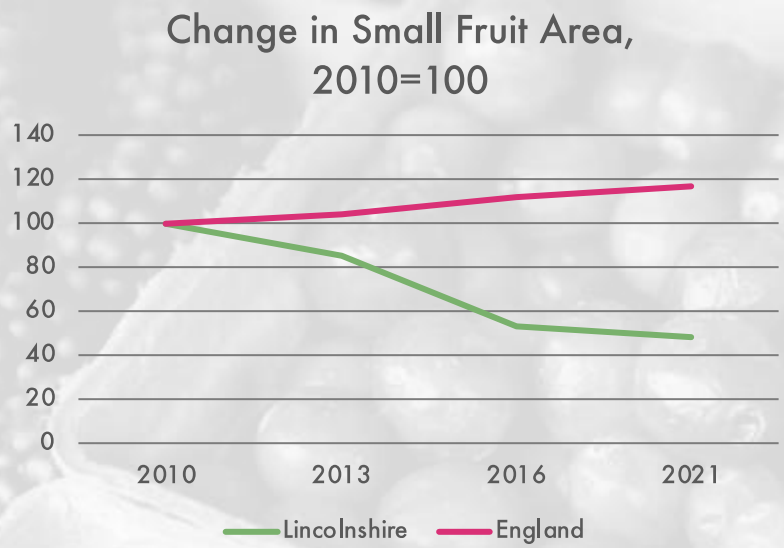

Total Top Fruit Area (Ha) in Lincolnshire
36
62
84
171
2010
2013
2016
2021

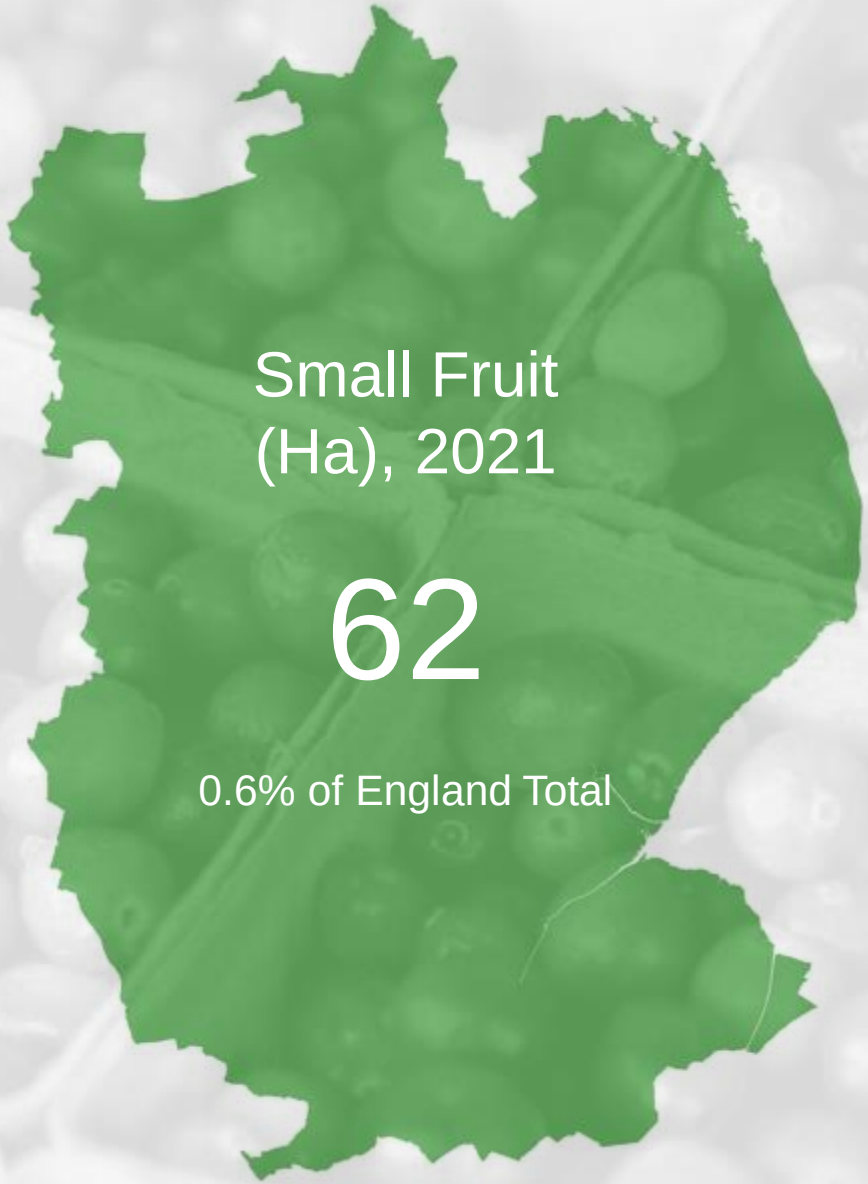

Change in Top Fruit Area, 2010=100
600
500
400
300
200
100
0
2010
2013
2016
2021
Lincolnshire
England


Top Fruit (Ha), 2021
171
0.8% of England Total

SMALL FRUIT

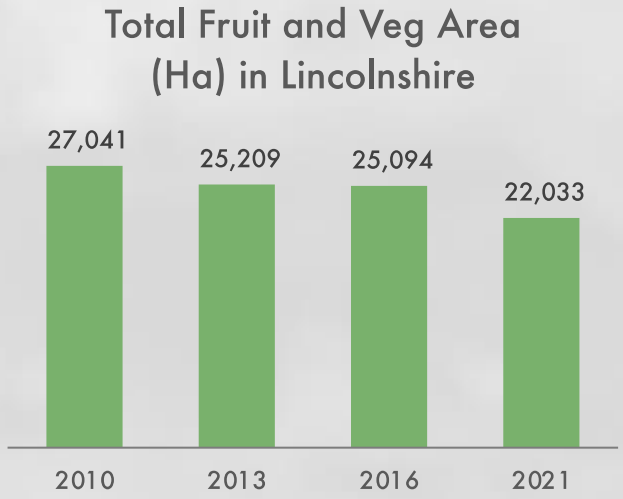


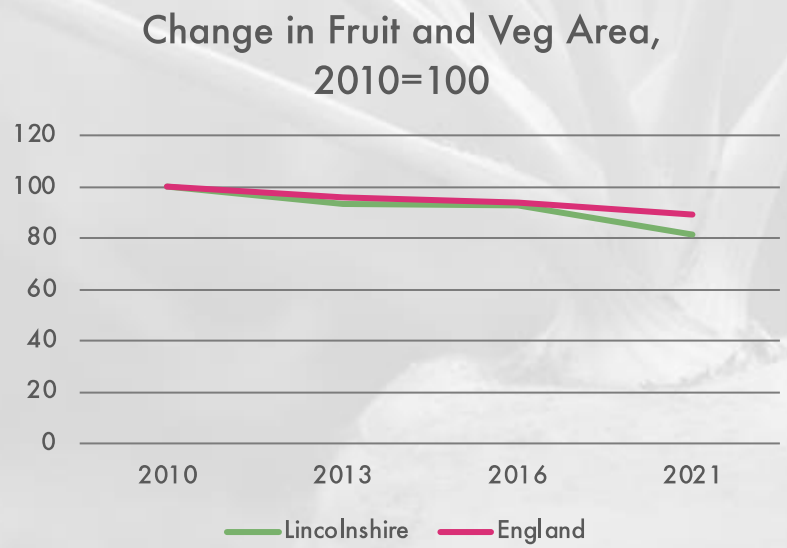


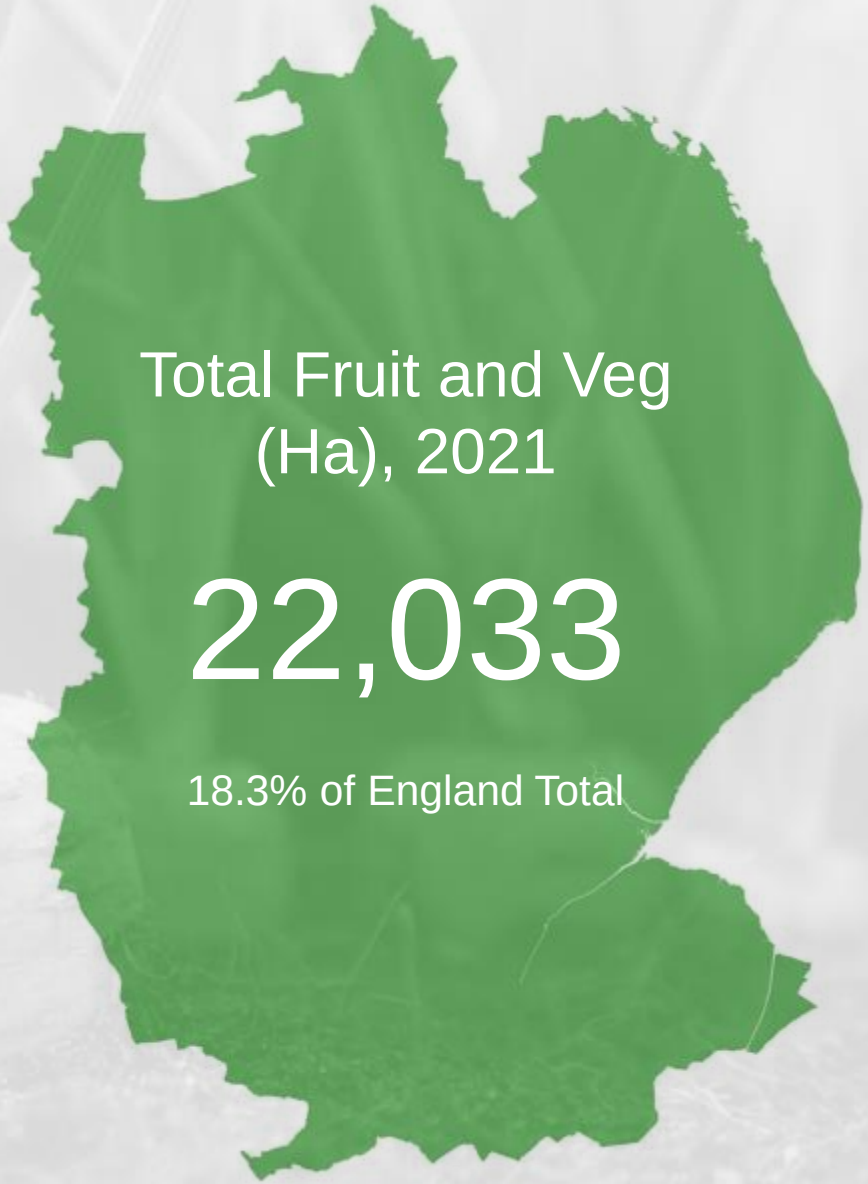


Note: Includes crops grown in Spanish tunnels.

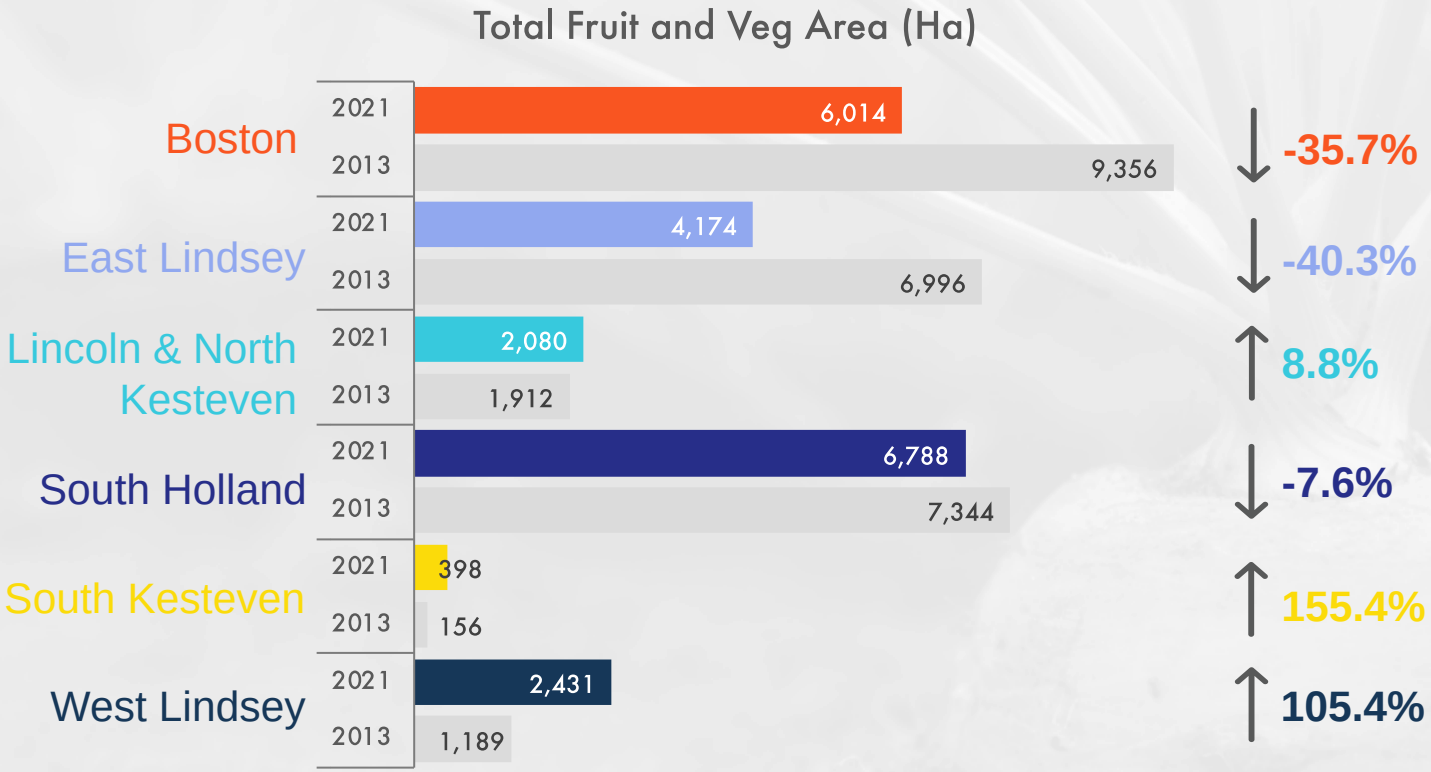
TOTAL FRUIT AND VEG







TOTAL FRUIT AND VEG ACROSS LINCOLNSHIRE



-35.7%

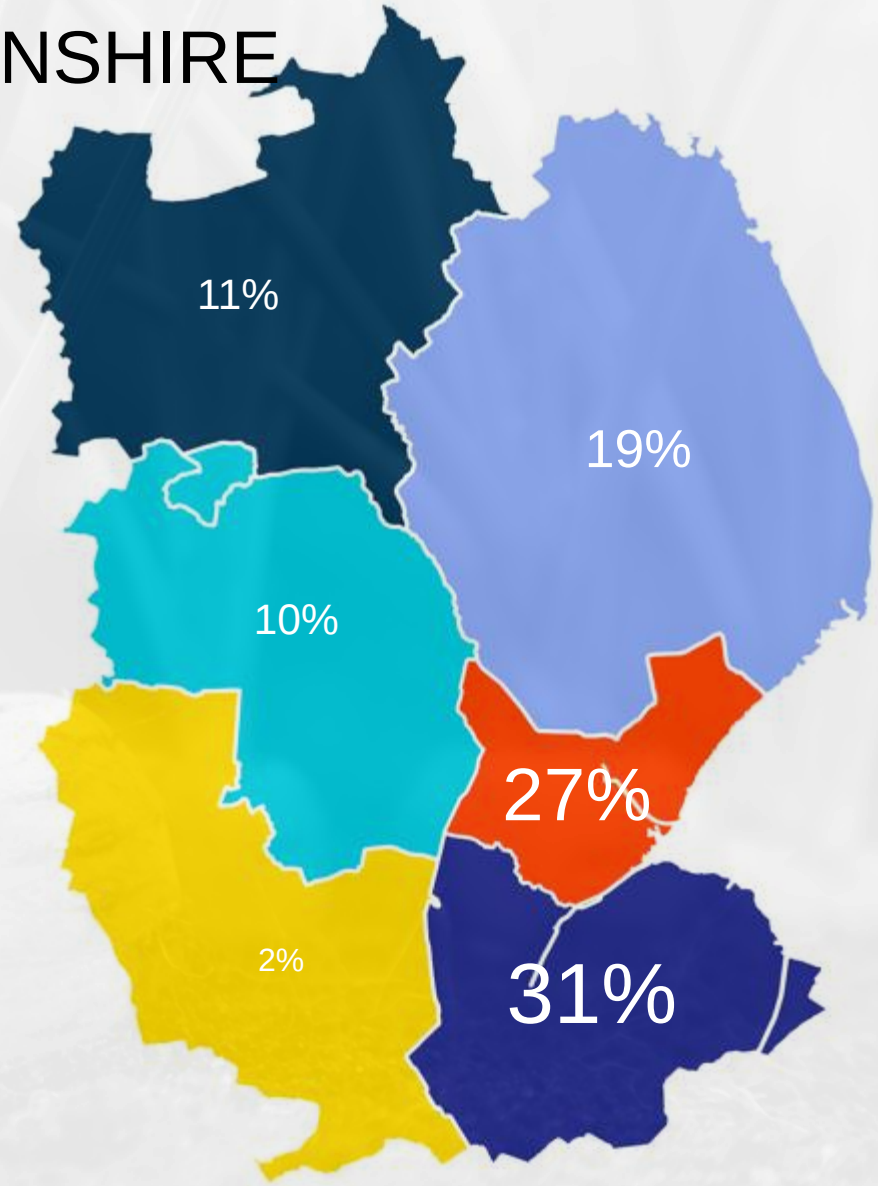
-40.3%

8.8%

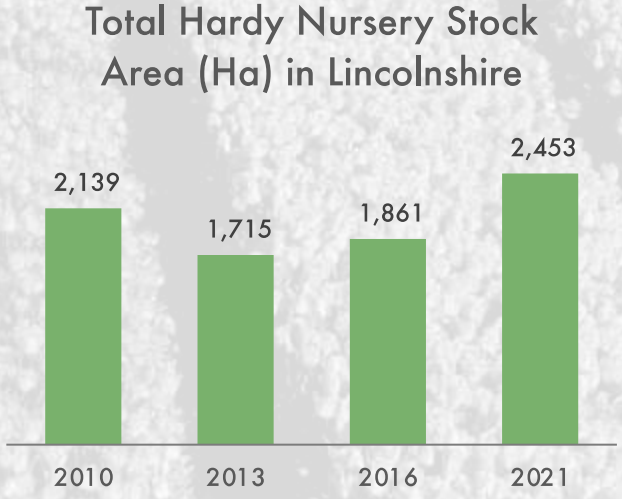
-7.6%

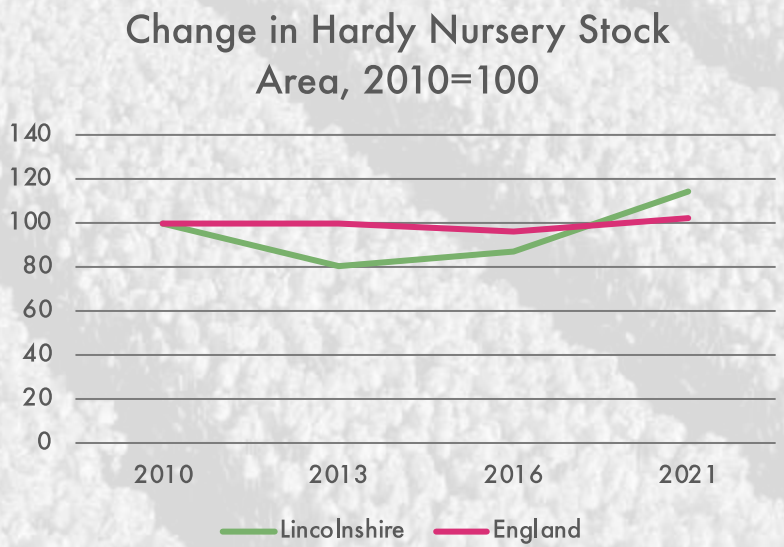
155.4%

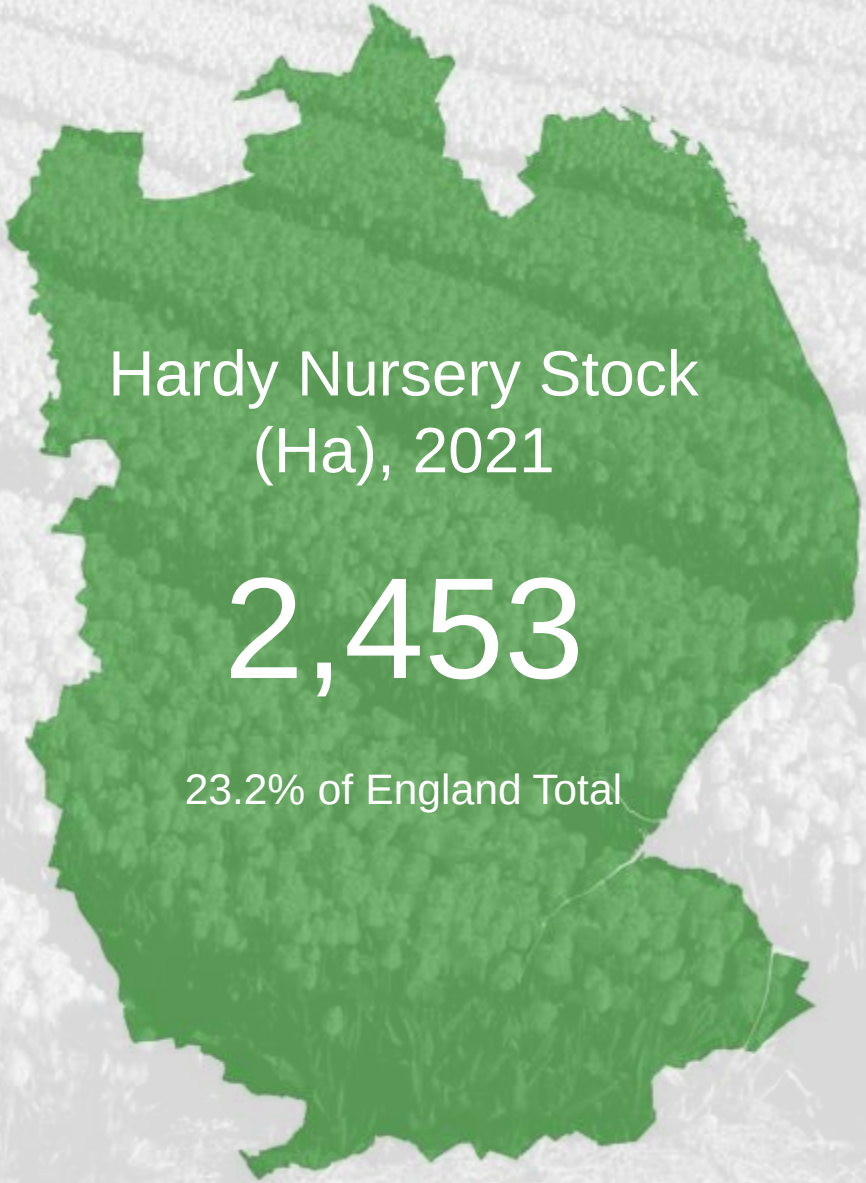
105.4%



HARDY NURSERY STOCK



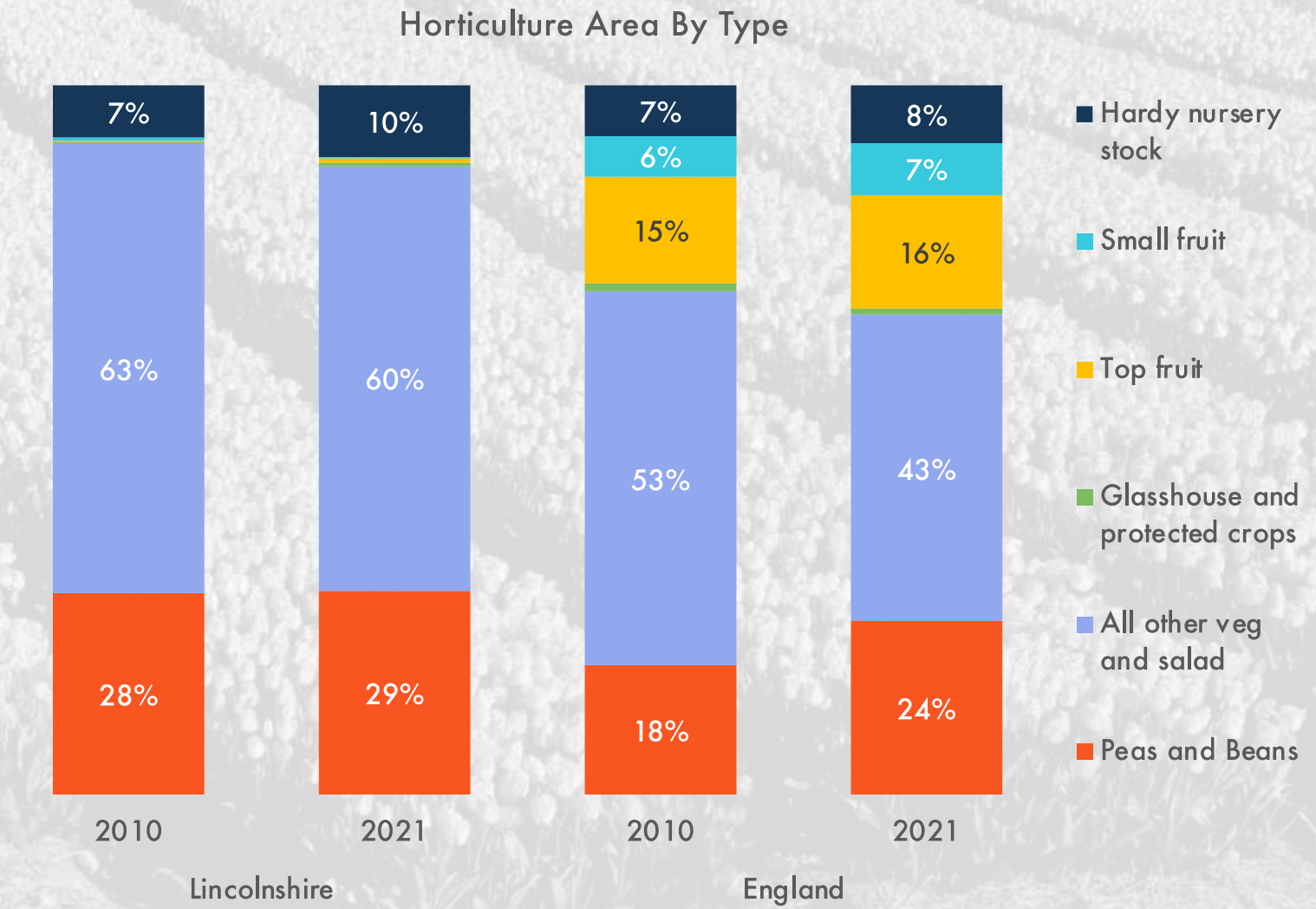




Note: Includes bulbs and flowers grown in the open.

HORTICULTURAL AREA BY TYPE

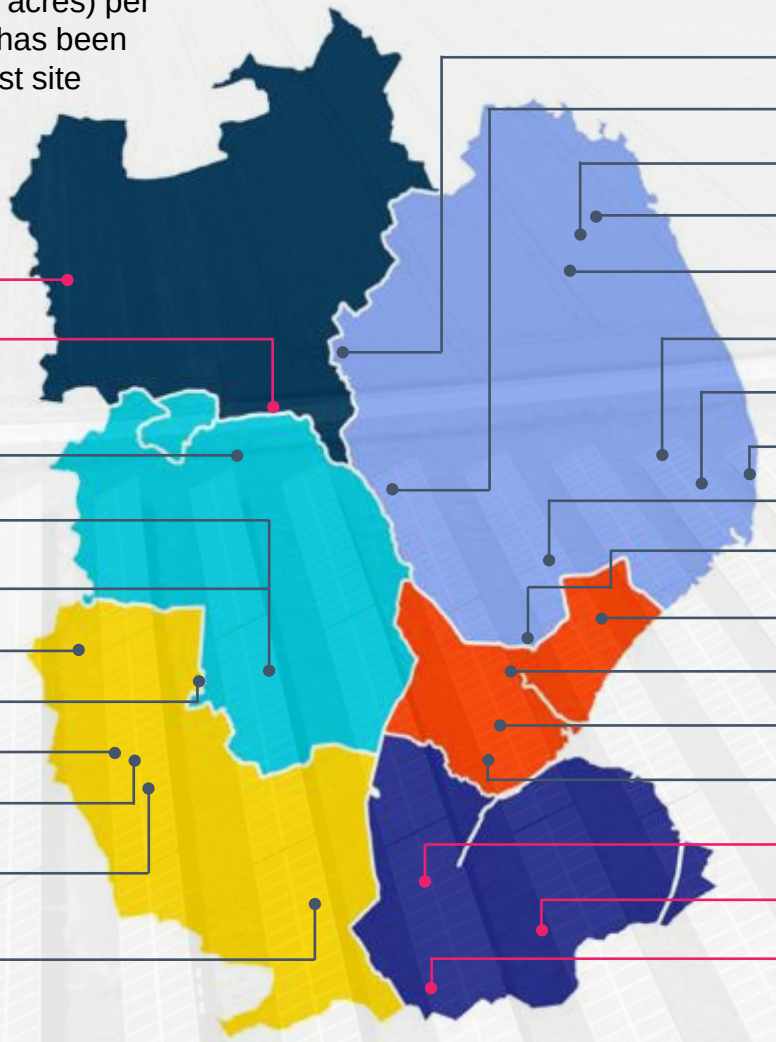
All other veg and salad crops dominate horticulture in Lincolnshire with 60% of the crop compared to just 43% nationally. The pea and bean crop is also significant in Lincolnshire at 29%, and again higher than the proportion nationally at 24%. Conversely, Lincolnshire is less geared towards fruit crops than nationally.



LANDUSE FOR ENERGY

OPERATIONAL SOLAR PHOTOVOLTAIC SITES

Typically, developers require about 2 hectares of land (5 acres) per megawatt of power* and it is on this basis that land use has been estimated for these sites. In total, and based on this latest site information, solar photovoltaic sites currently cover 606 hectares of land across Lincolnshire.



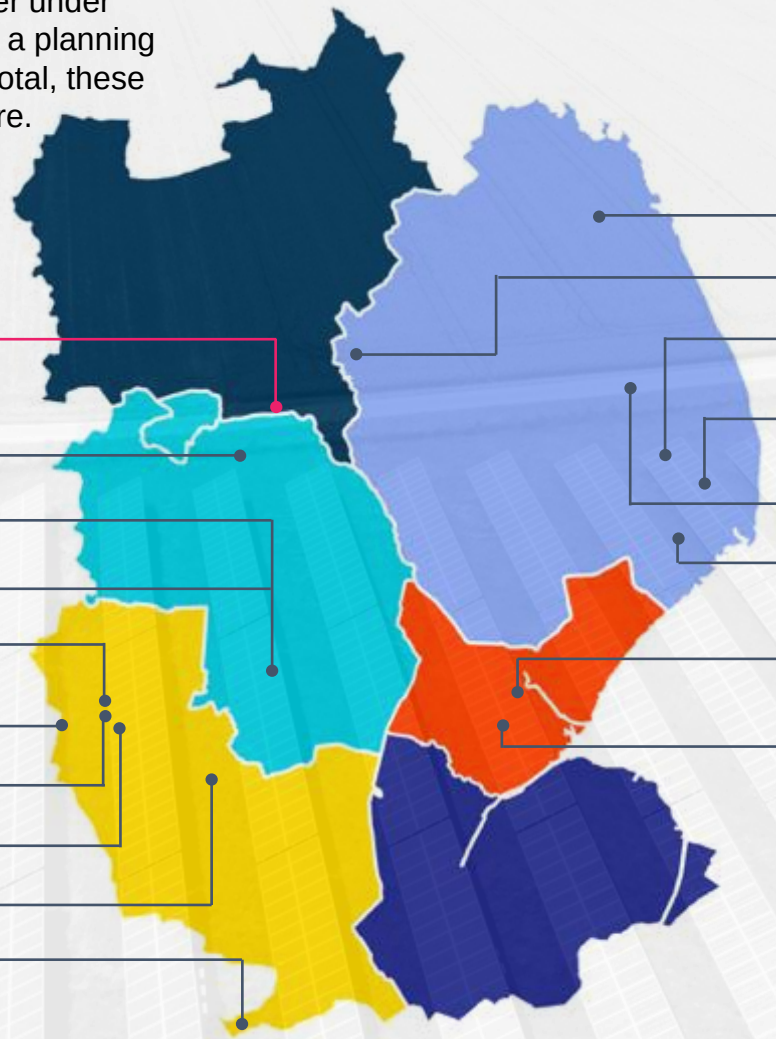
	MW Generated	Estimated Ha
Freewatt Renewable Energy, Stow	32.70	66
NESF (formerly Lark Energy), Fiskerton	25.30	51
Inazin Energy Ltd, Branston	18.90	38
Deepdale Farm Solar Ltd, Sleaford	8.00	16
NESF (formerly Lark Energy), Sleaford	15.00	30
TGC Renewables, Claypole	30.00	60
Octopus Investments, Ancaster	32.50	70
British Solar Renewables, Foston	5.00	10
NESF (formerly Lark Energy), Marston	4.90	10
Island Green Power, Woodnock	5.00	10
NESF (formerly Lark Energy), Bourne	4.60	10
Sun & Soil, Wragby	3.70	7
Solar Park Developments, Kirby on Bain	19.00	38
Foresight, Yarburgh	8.10	16
Ecotricity, Conisholme	1.00	2
European Energy Photovoltaics, South Reston	6.50	13
Juwi Renewables Energies, Irby in the Marsh	11.40	23
The Hollies Solar Park, Croft	8.60	17
Skegness Solar Park, Skegness	4.90	10
Solar Century/ Bluefield Solar, Stickney	5.00	10
Countryside Renewables, Frith Bank	5.00	10
Hazel Capital LLP, Leverton	12.00	24
NESF (formerly Lark Energy), Boston	1.40	3
Ethical Power, Kirton	3.20	6
Estover Energy, Sutterton	8.10	16
Moor Solar, Spalding	2.70	5
Green Switch Solutions, Sutton St James	12.70	25
Push Energy/NESF, Crowland	5.00	10

*NFU Briefing https://www.nfuonline.com/archive?treeid=21480

Source: Renewable Energy Planning Database, July 2022, Department for Business, Energy & Industrial Strategy

PLANNED AND PROPOSED SOLAR PHOTOVOLTAIC SITES

The solar photovoltaic sites shown on this slide are either under construction (UC), awaiting construction (AC), have had a planning application submitted (AS), or are being scoped (S). In total, these sites will cover 1,347 hectares of land across Lincolnshire.



	MW Generated	Estimated Ha
Grey Street Solar Ltd, The Old Airfield, Fiskerton (AC)	49.90	100
Ethical Power, Branston (UC)	40.00	80
Next Power, Sleaford (UC)	25.00	50
Elgin Energy Esco, Sleaford (UC)	20.00	40
By-Pass Farm Solar Ltd, Foston (AC)	49.99	100
JBM Solar Projects Ltd, Belvoir Estate Solar Farm, Muston (AS)	49.90	100
NESF (formerly Lark Energy), Allington (AC)	4.90	10
Lightsource BP, Great Gonerby (AC)	TBC	TBC
Ridge Clean Energy Ltd, Folkingham Airfield (S)	240.00	480
NESF (formerly Lark Energy), Stamford (AC)	3.90	8

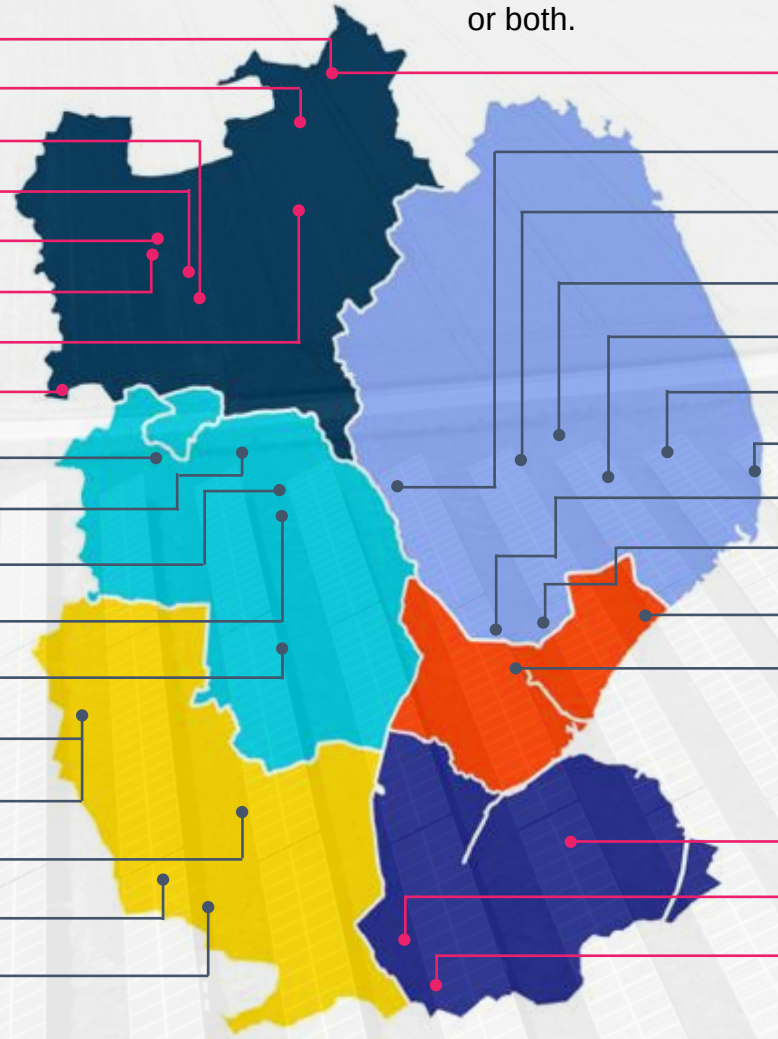
	MW Generated	Estimated Ha
Ecotricity, Fen Farm Solar Park Extension, Conisholme (AC)	5.00	10
Push Energy, Hatton Solar Farm, Sotby (AS)	49.90	100
Innova Renewables Ltd, Irby in the Marsh (UC)	22.00	44
Juwi Renewable Energies, The Hollies Solar Park Extension, Croft (AC)	1.40	3
Marriages Specialist Foods, Alford (AC)	1.50	3
Anesco Ltd, Low Farm Solar, Wainfleet (AS)	49.90	100
Infinis Solar Developments Ltd, Boston landfill, Wyberton (AC)	9.70	19
Renewable Connections Developments Ltd, Bicker (AC)	49.90	100

Source: Renewable Energy Planning Database, July 2022, Department for Business, Energy & Industrial Strategy

ANAEROBIC DIGESTION SITES

We note that currently only two sites shown here provide biomethane into the national grid (FKB at Holdingham, and Lockwood Estates/Future Biogas at Spridlington) The rest generate biogas which is burned on-site to generate heat, power or both.

	KW Generated
Brockelsby Energy Company Ltd, Great Limber	480
Qila Energy, Clixby	475
Lockwood Estates/Future Biogas, Spridlington	440
Ermine Farms Ltd, Normanby Cliff	112
Ermine Farms Ltd, Grayingham	112
Singleton Birch, Willoughton	475
Freewatt Renewable Energy, Usselby	194
Furrowland Energy, Newton on Trent	500
H&S Roe & Sons Farms Ltd, South Hykeham	475
Branston Potatoes, Branston	380
Beeswax Farming, Nocton	2,000
Future Biogas, Metheringham Heath	498
FKB, Holdingham Bioenergy, Holdingham	6,500
AV Sheardown & Sons, Sedgebrook	153
Grange Farm, Sedgebrook	165
Villa Farm, Keisby	155
Adjuvo Energy, Colsterworth	179
PH Bioenergy, Castle Bytham	199



	KW Generated
Ringwood Energy Ltd, Great Limber	236
Witham Trading Company, Kirkstead	200
Qila Energy, Scrivelsby	475
Qila Energy, Ashby Puerorum	475
AEL Biogas, East Kirby	8.10
RHJ Farms, Spilsby	237
Qila Energy, Skegness	180
Qila Energy, Langrick	475
Staples Vegetables, Sibsey	480
Staples Vegetables, Wrangle	2,810
Beeswax Farming, Boston	2,972
Biogen, Holbeach	1,427
R Turner, Barr Farm, Deeping St Nicholas	146
Organic Recycling, Crowland	1,800

Sources: Anaerobic Digestion Deployment in the UK April 2021, NNFCC; Renewable Energy Planning Database, July 2022, Department for Business, Energy & Industrial Strategy

ENERGY CROPS

121,000 hectares (ha) of agricultural land was used for bioenergy crops in the UK in 2020 comprising:

- 29,000 ha of wheat and 7,000 ha of sugar beet used for biofuels

- 75,000 ha of maize used for anaerobic digestion

- 8,000 ha of miscanthus and 2,000 ha of short rotation coppice used in biomass

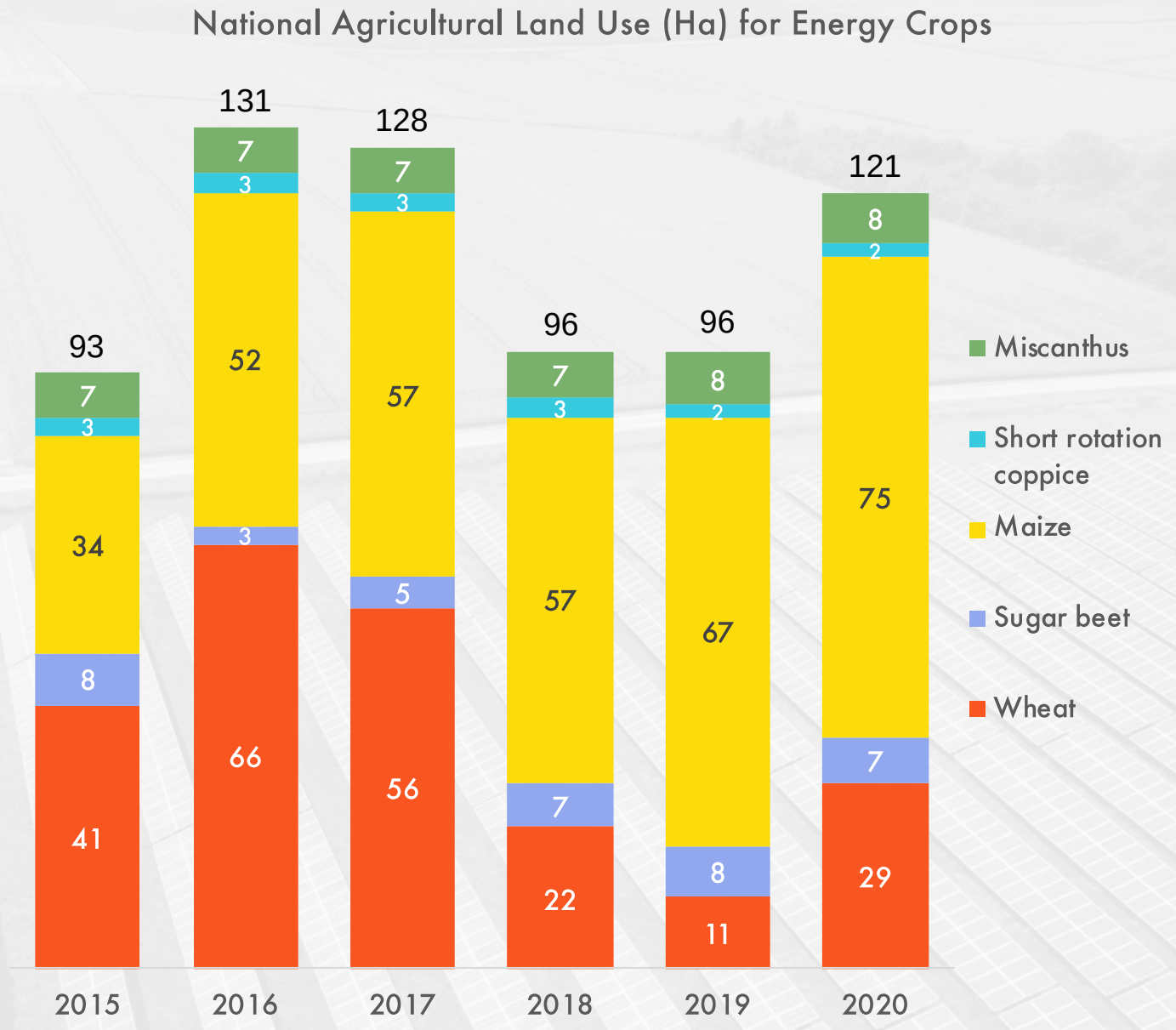
In 2020 Arable land used for bioenergy crops in the UK equated to 2.1% of the total arable area. This was an increase from 1.6% in 2019.

30% of land used for bioenergy in 2020 was for biofuel (biodiesel and bioethanol) crops for the UK road transport market, with the remainder used mostly for heat and power production.

293 million litres/kilograms of biofuel for the UK road transport market were produced from UK grown crops.

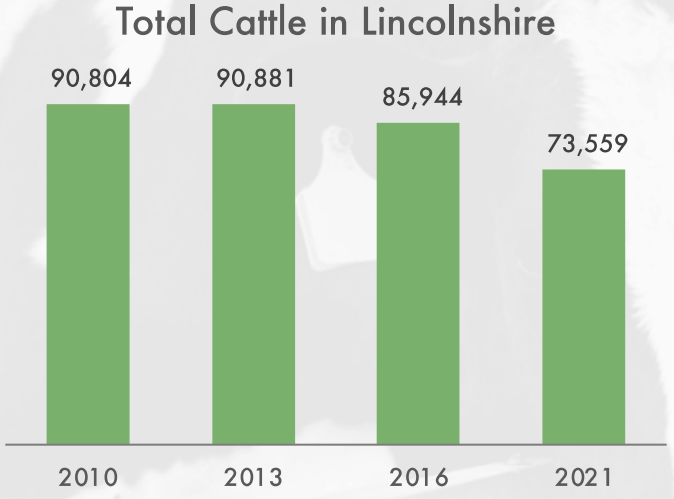
Just under 7.2 million tonnes oil equivalent of plant biomass were used to produce electricity and heat in the UK.

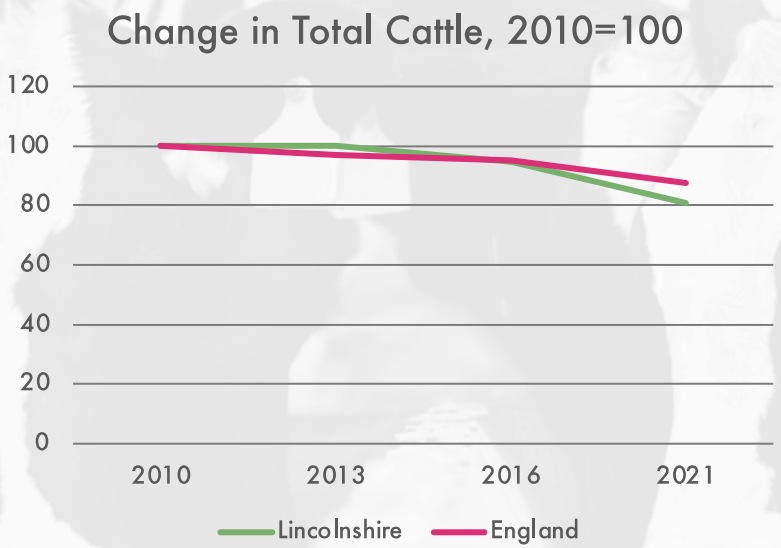
Source: https://www.gov.uk/government/statistics/area-of-crops-grown-for-bioenergy-in-england-and-the-uk-2008-2020

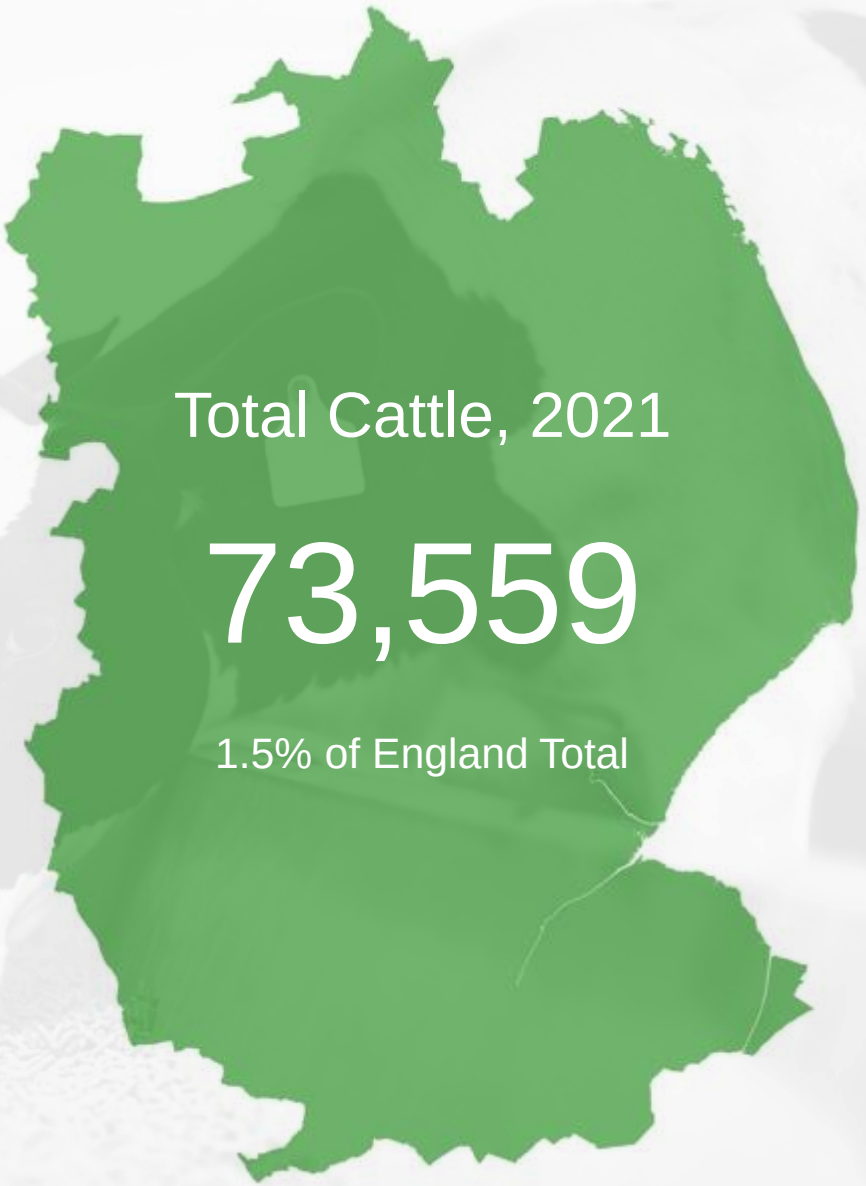


CATTLE

TOTAL CATTLE

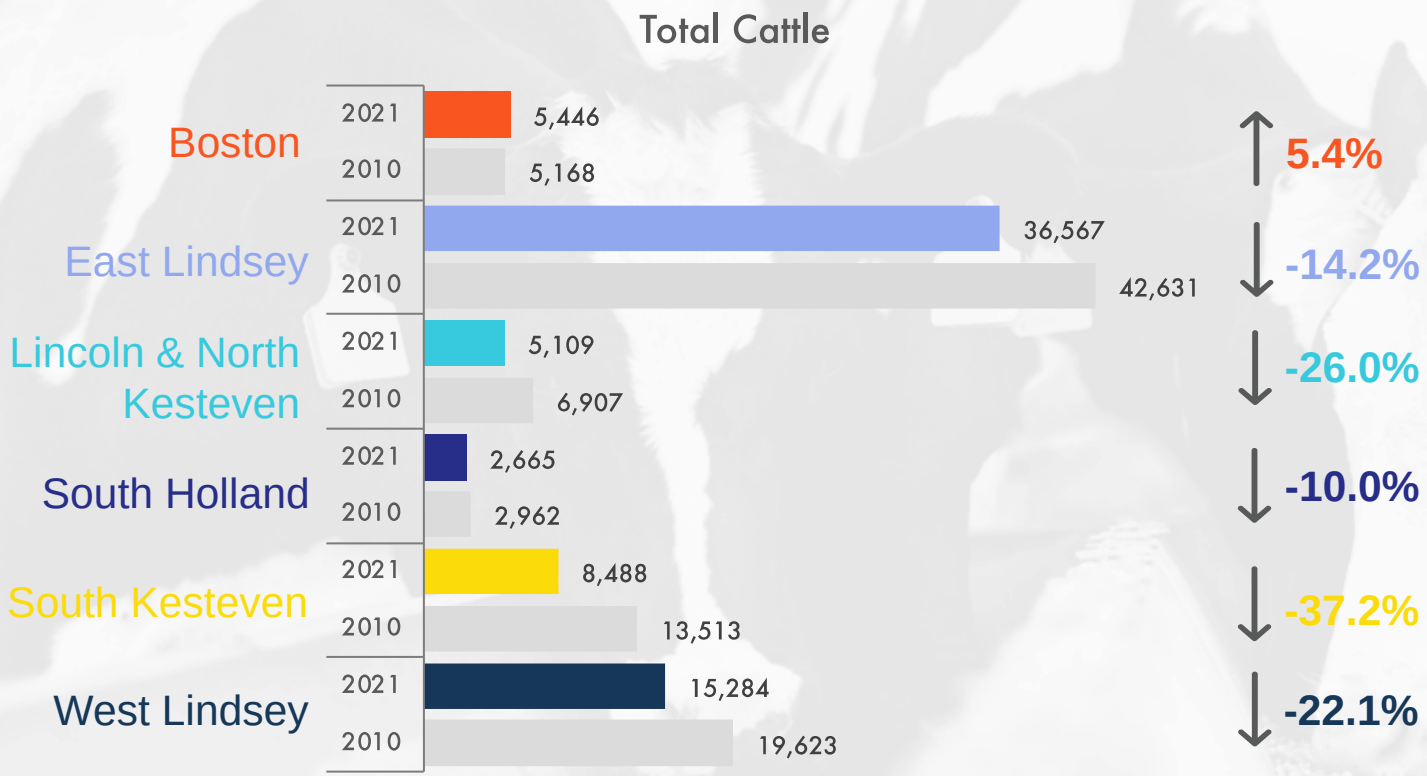


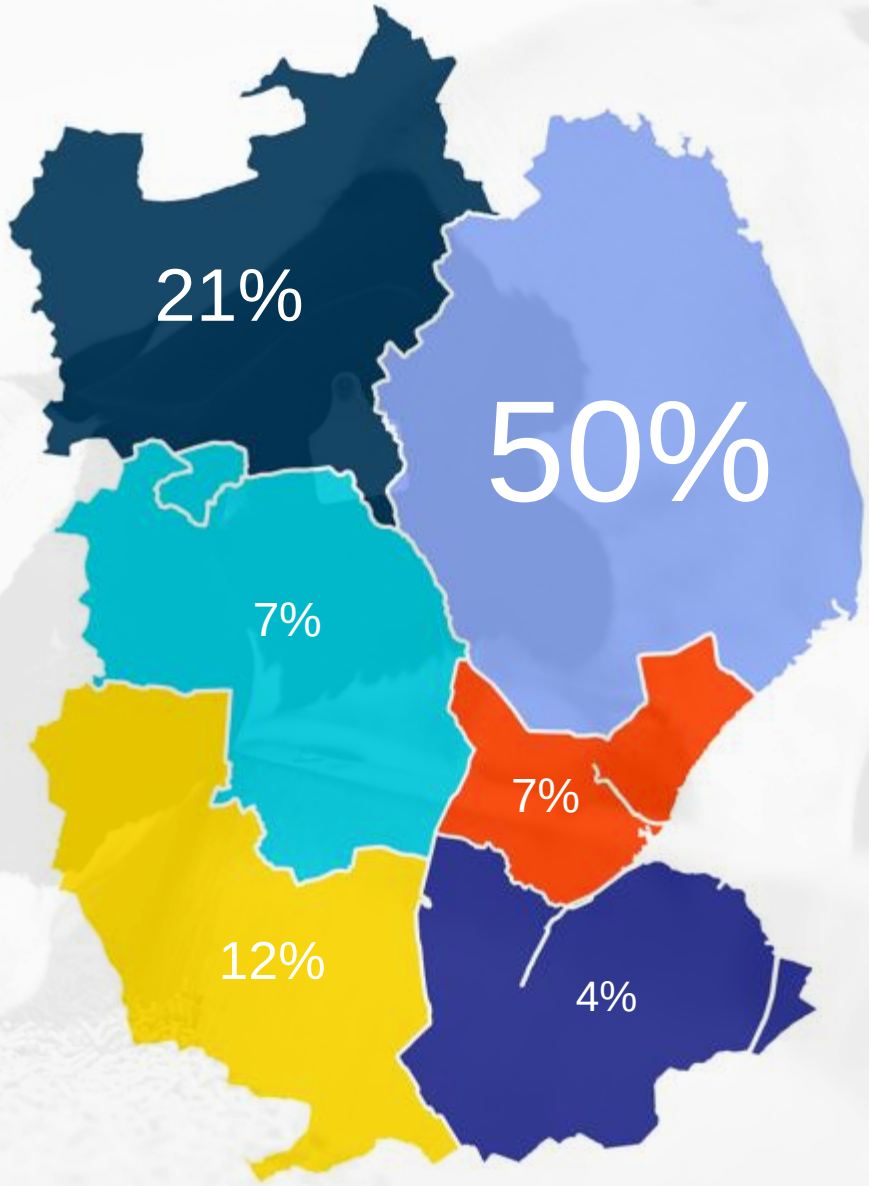




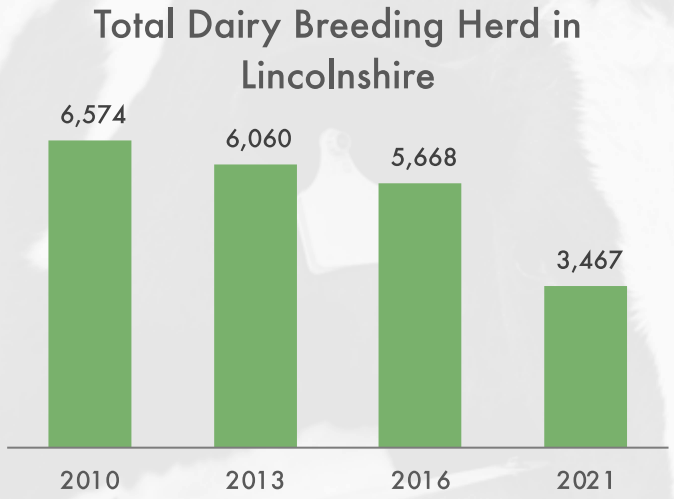
Note: Cattle figures relate to commercial holdings only.

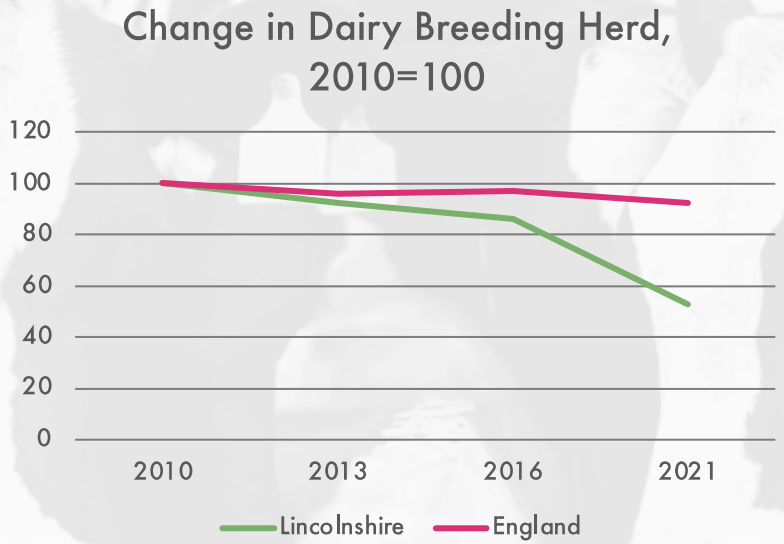
TOTAL CATTLE ACROSS LINCOLNSHIRE

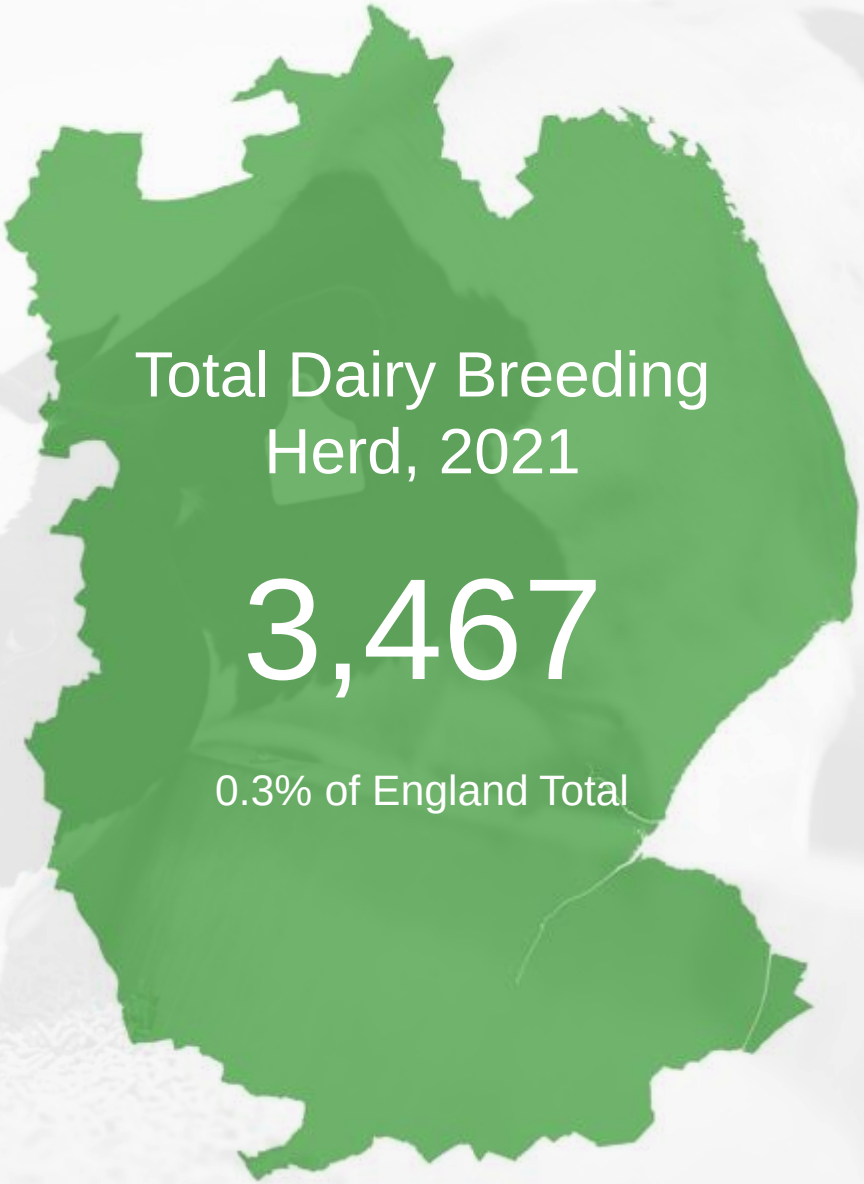




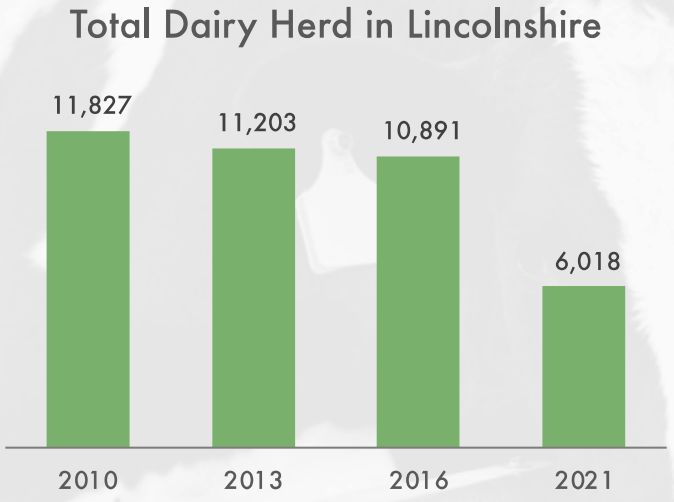
DAIRY BREEDING HERD

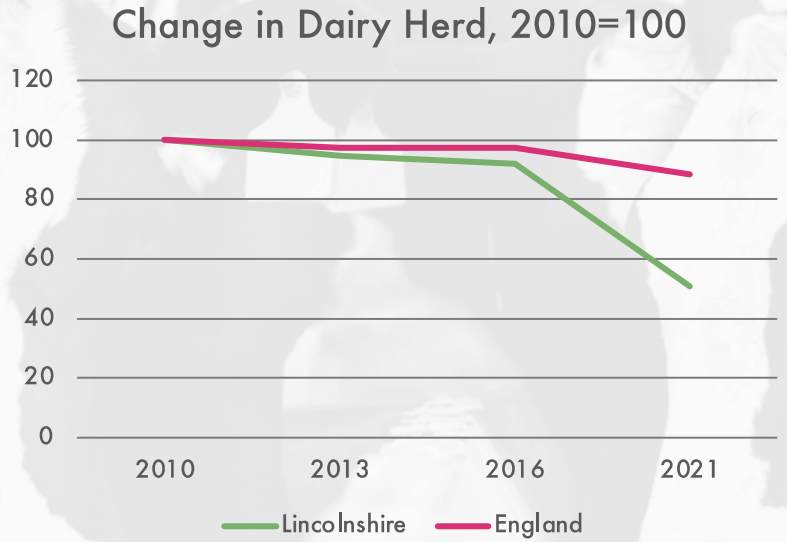


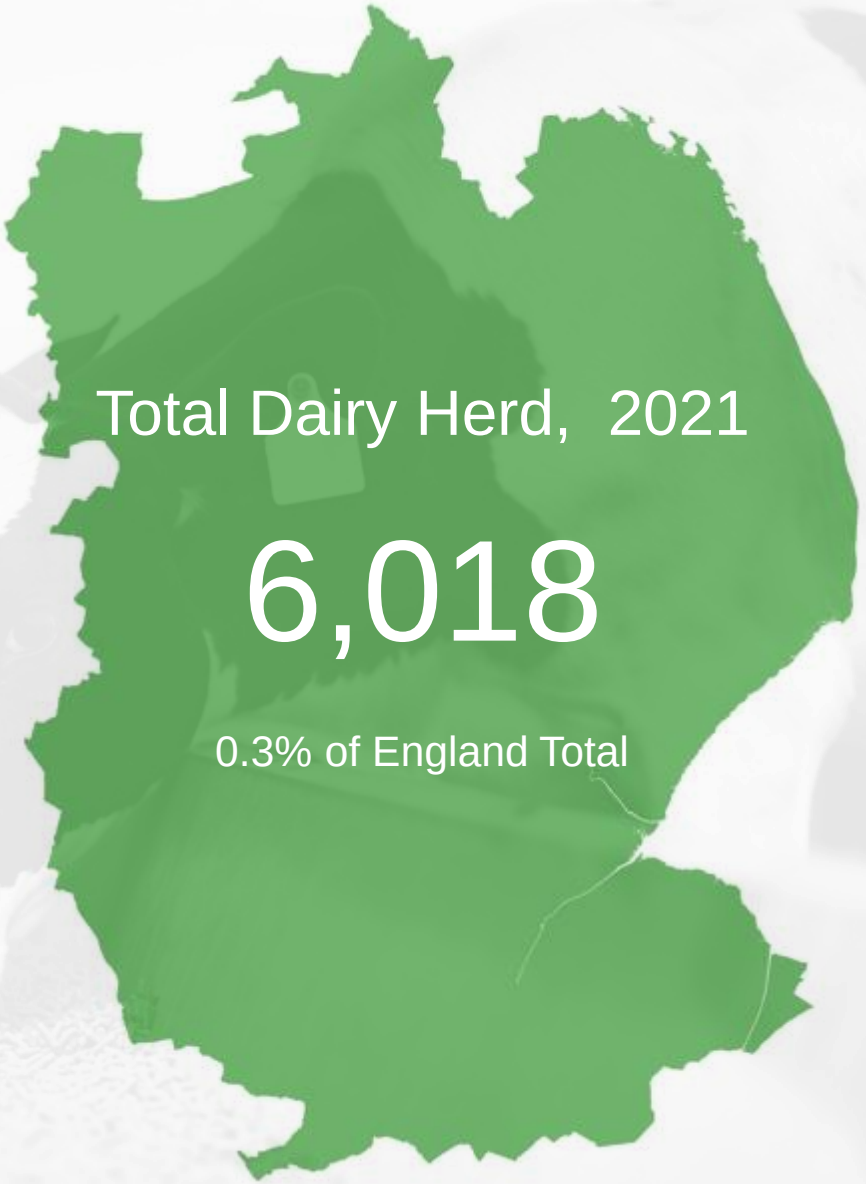




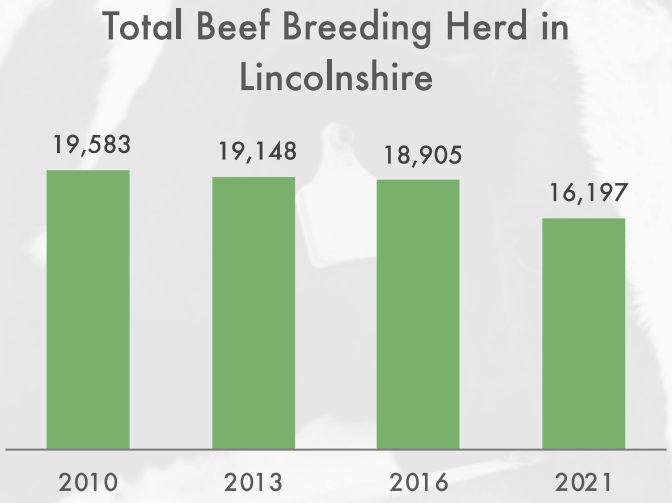
TOTAL DAIRY HERD

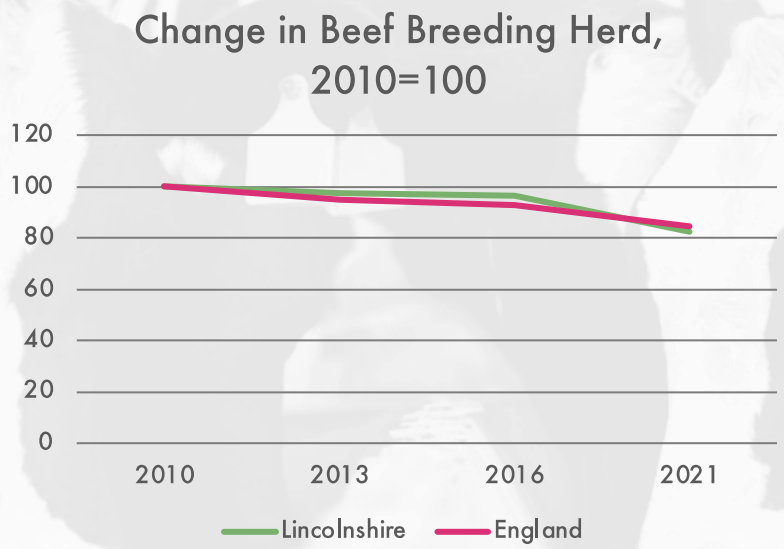


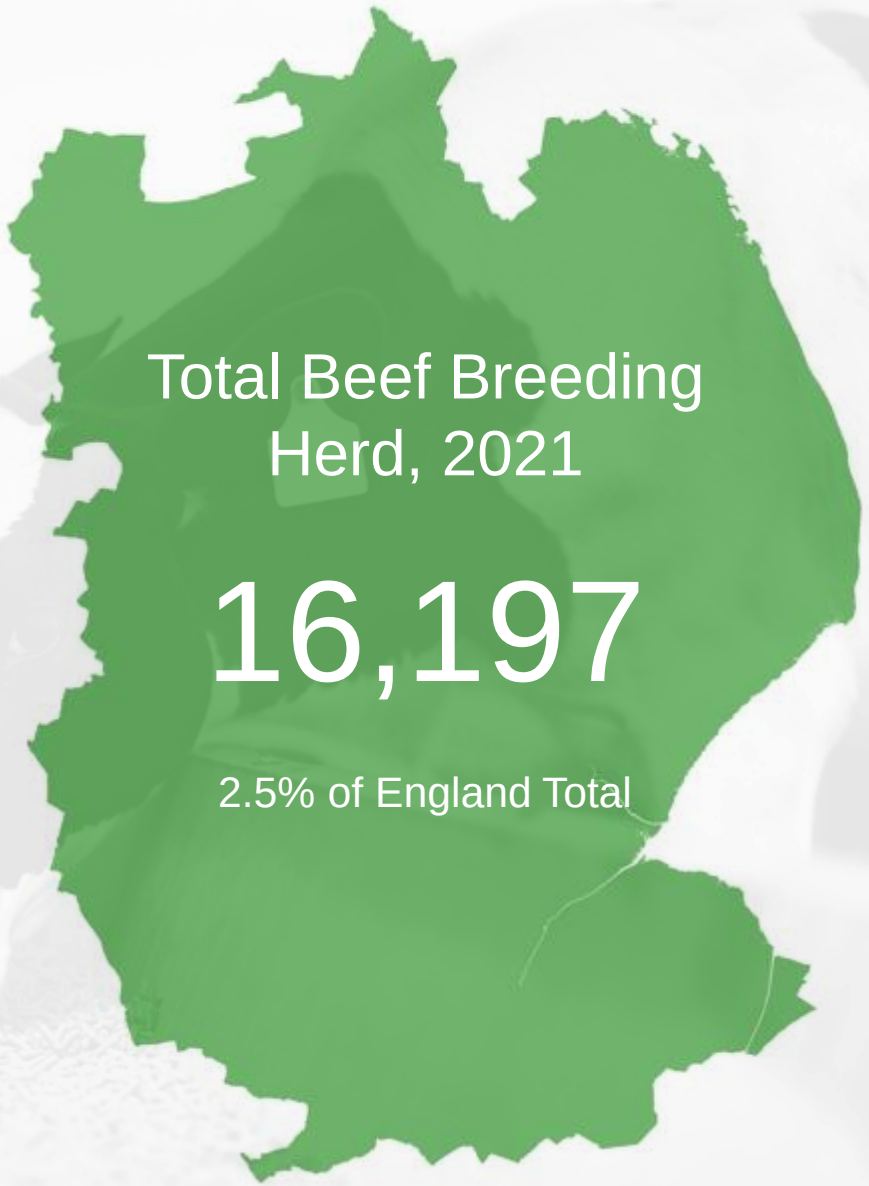




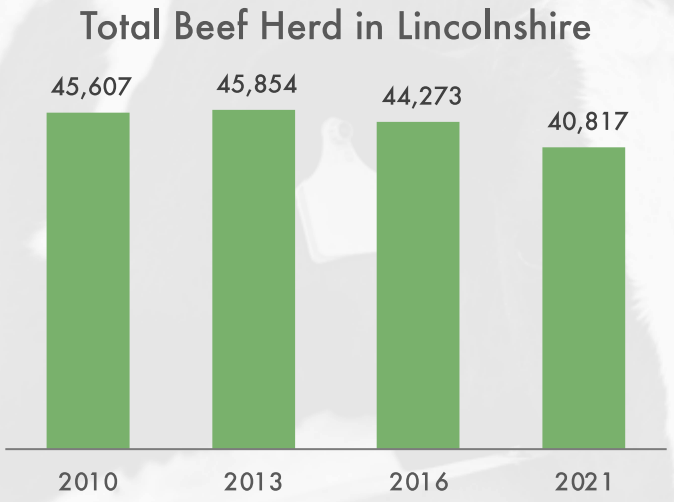
BEEF BREEDING HERD

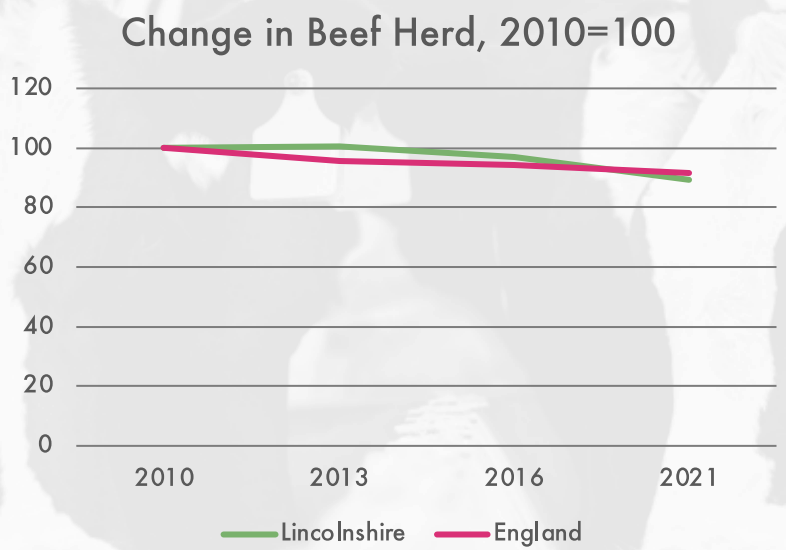


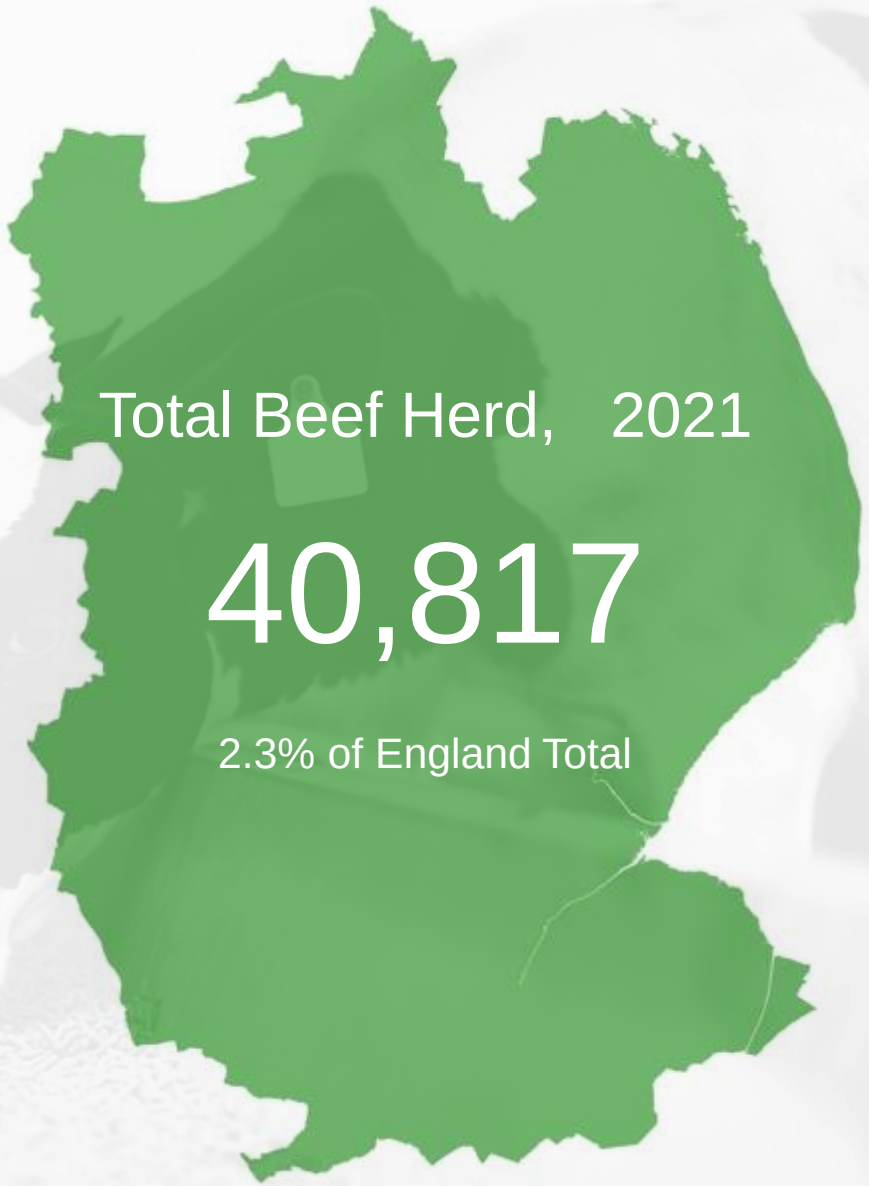




TOTAL BEEF HERD

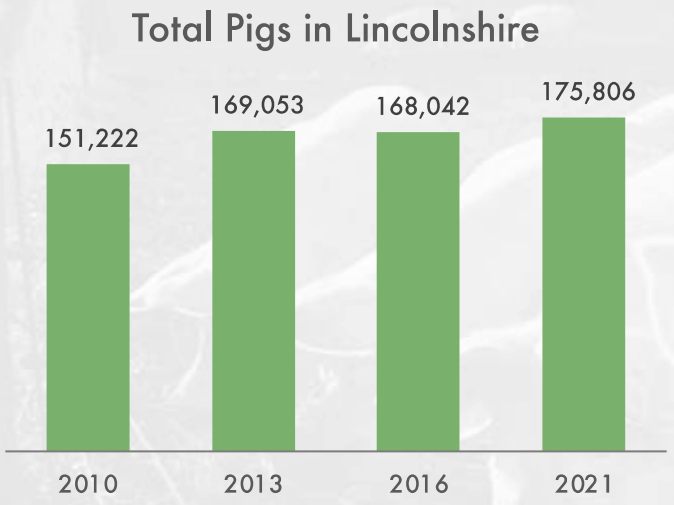


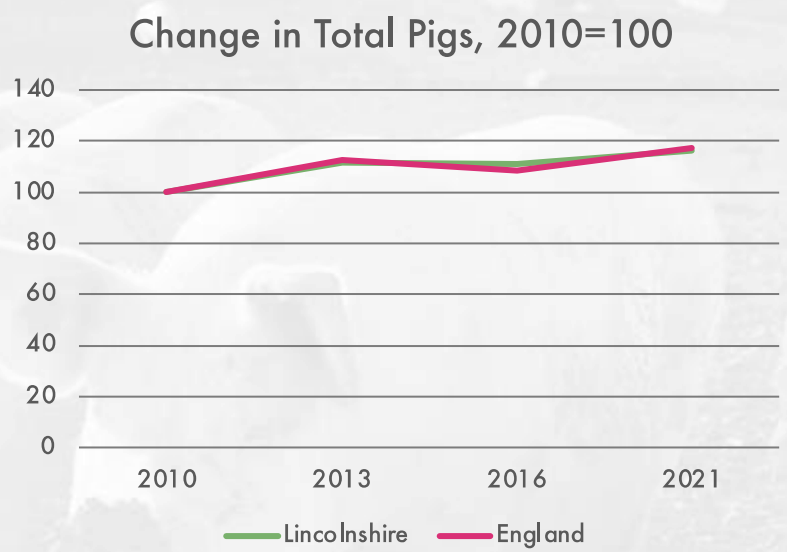




PIGS

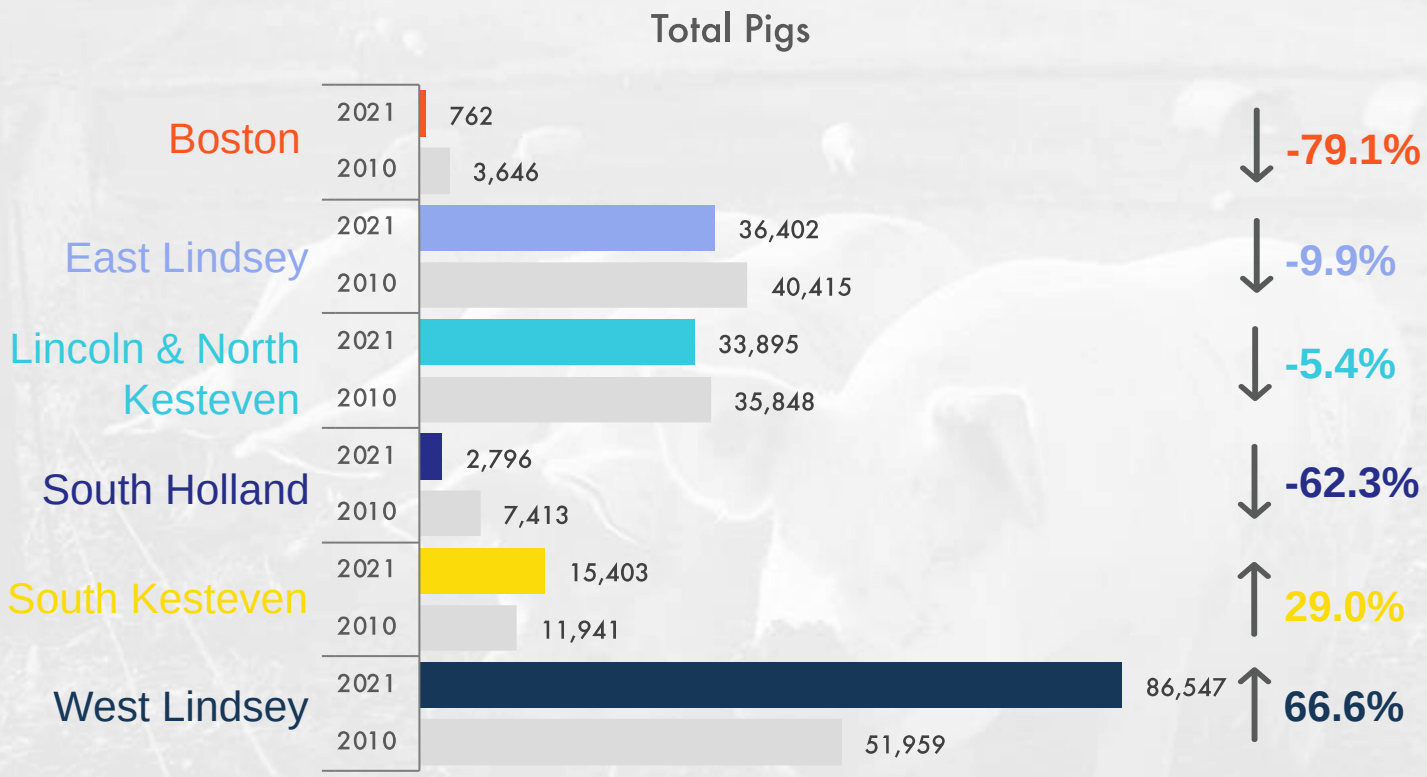
TOTAL PIGS


Total Pigs in Lincolnshire
151,222
169,053
168,042
175,806
2010
2013
2016
2021


Change in Total Pigs, 2010=100
140
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England


Total Pigs, 2021
175,806
4.1% of England Total

TOTAL PIGS ACROSS LINCOLNSHIRE



-79.1%

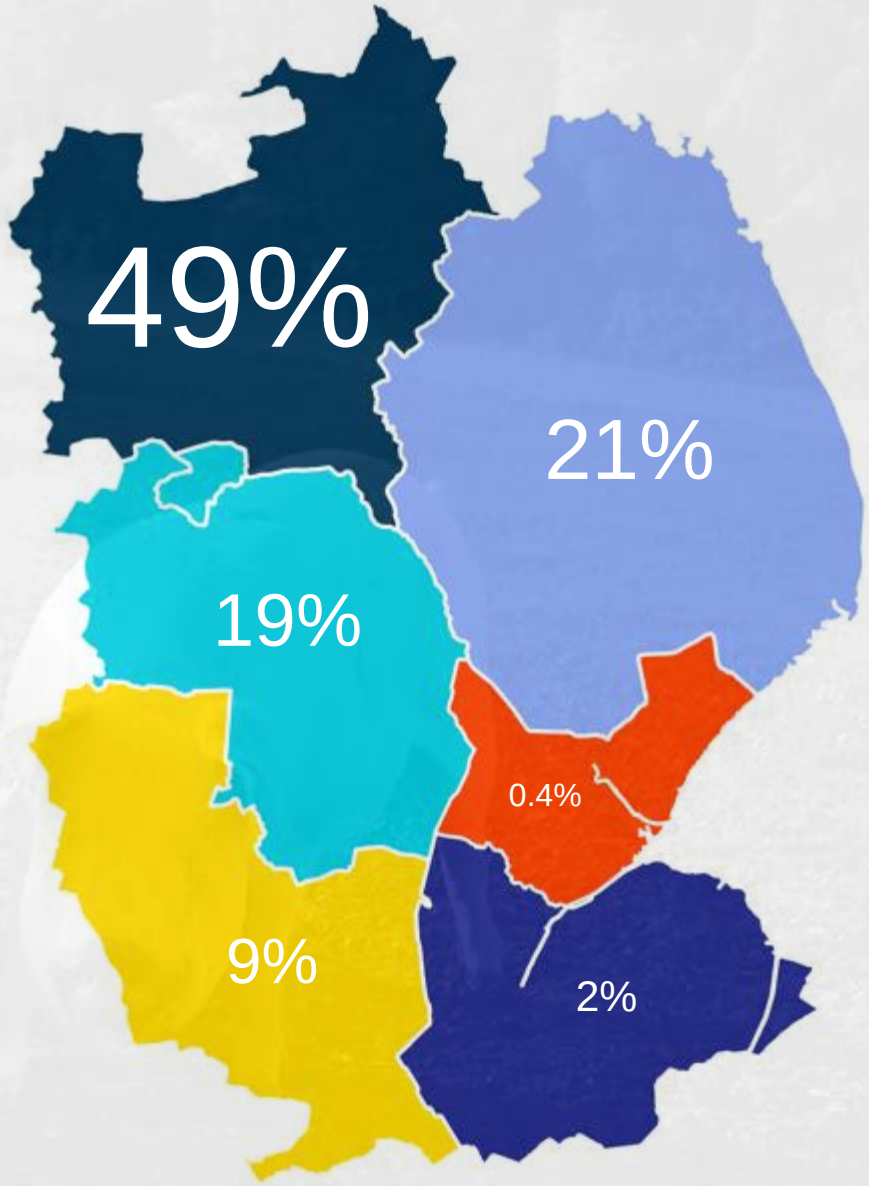
-9.9%

-5.4%

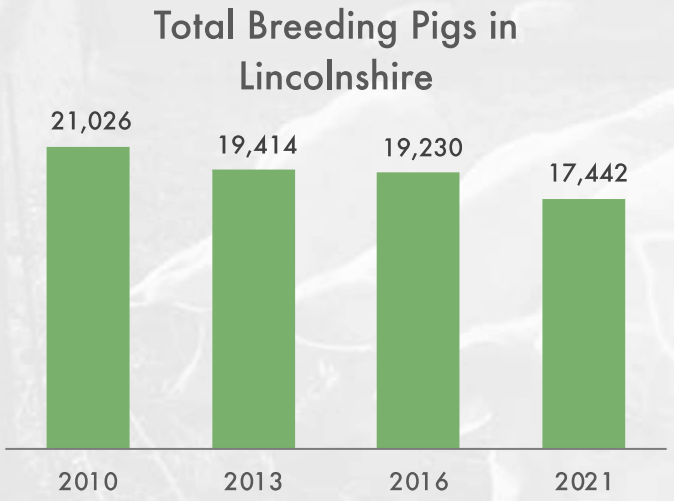
-62.3%

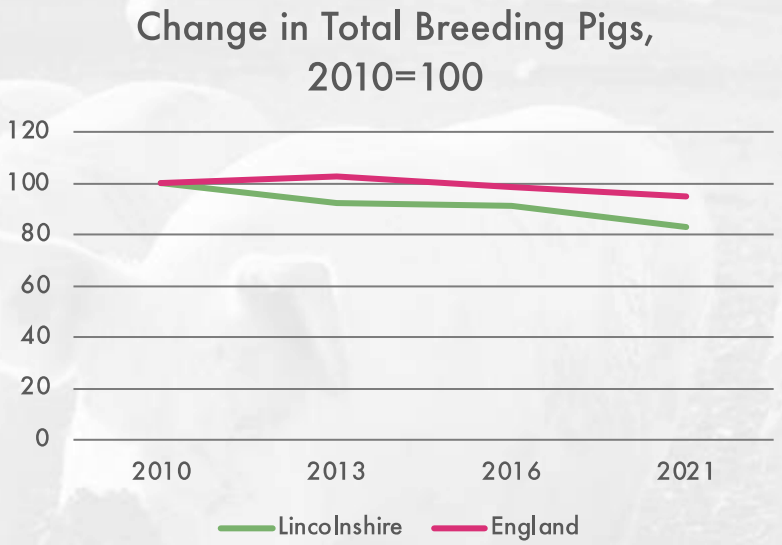
29.0%

66.6%

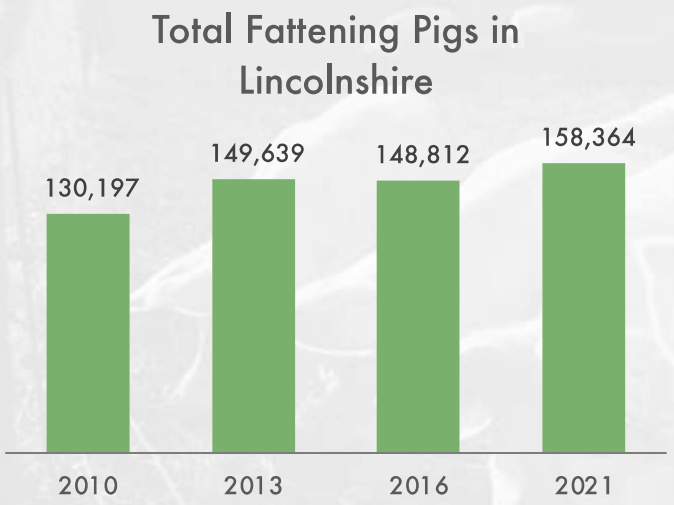


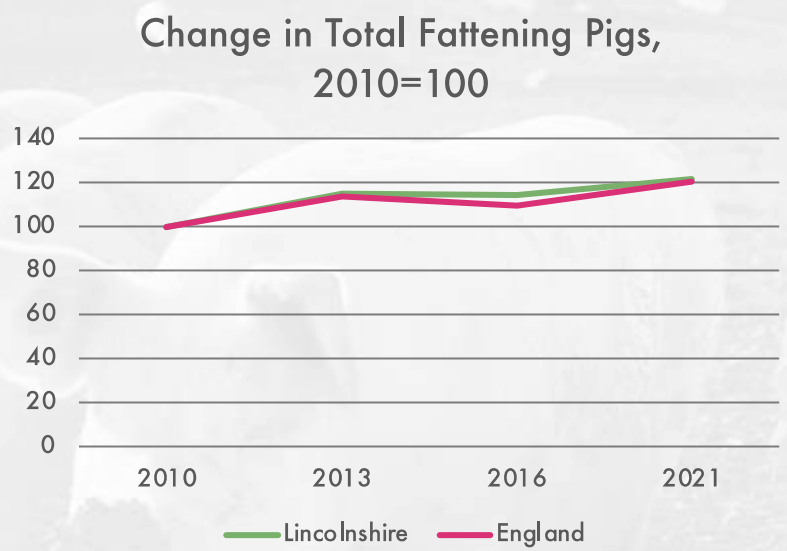
BREEDING PIGS

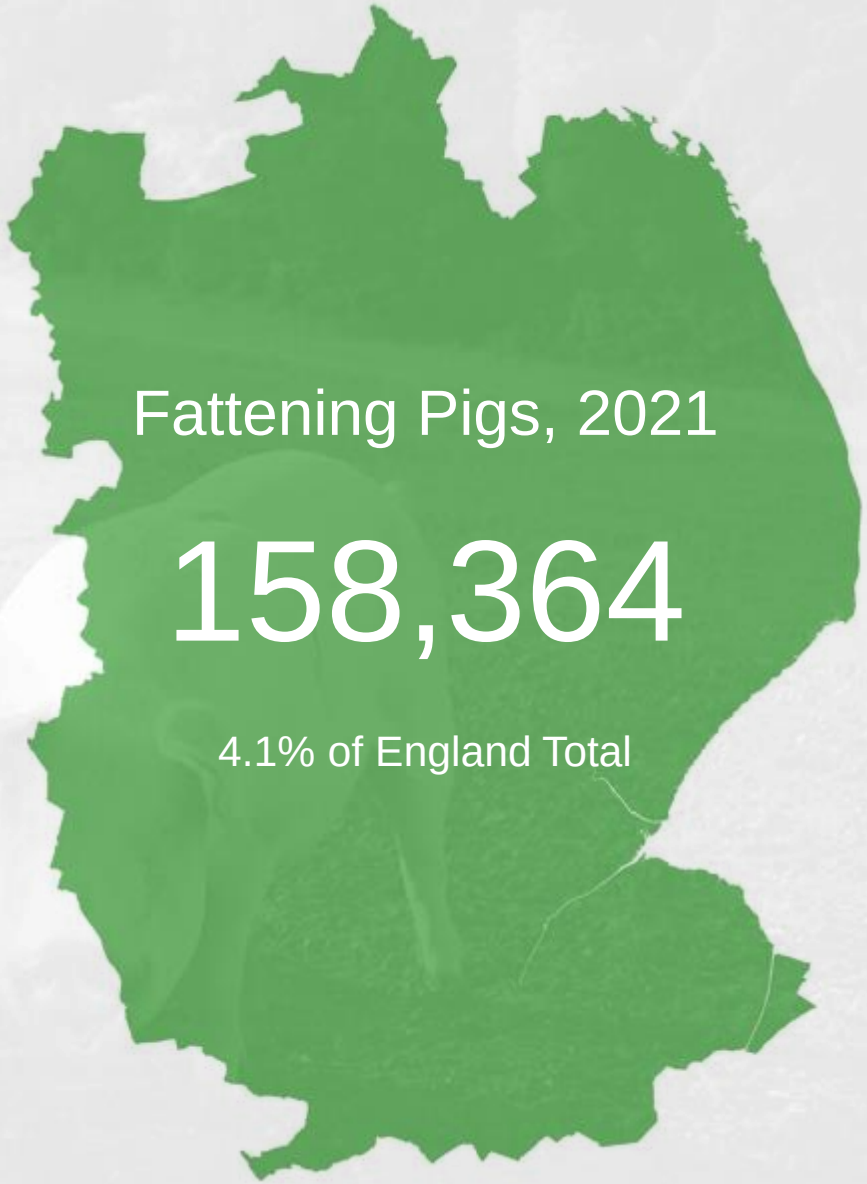




FATTENING PIGS

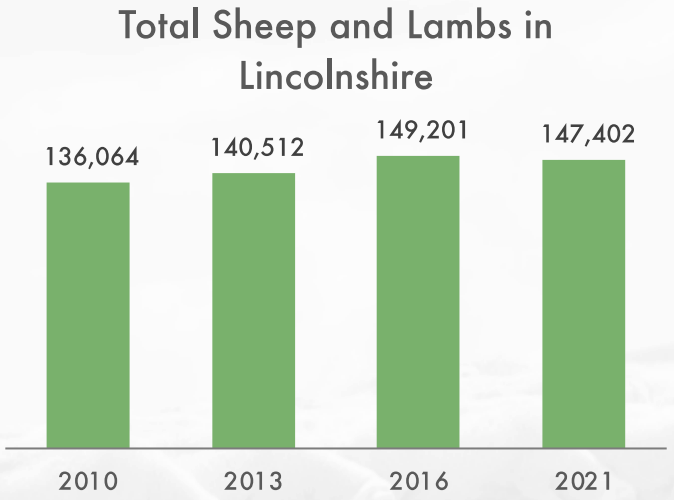


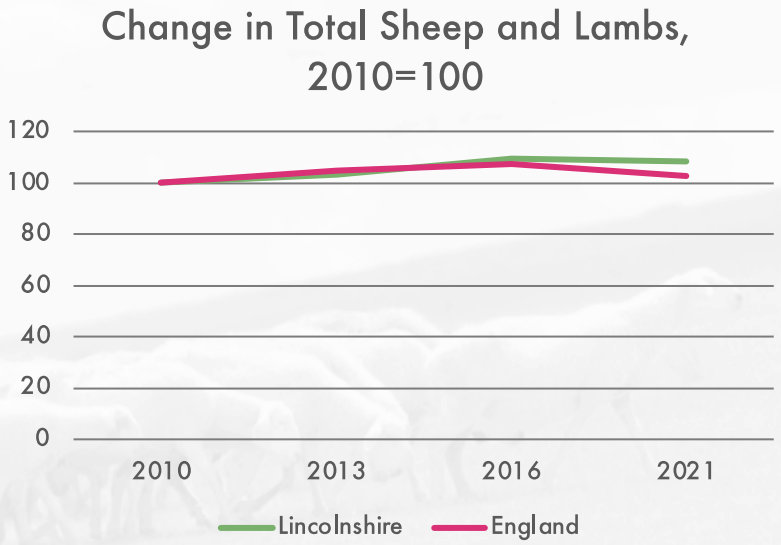




SHEEP, GOATS AND HORSES

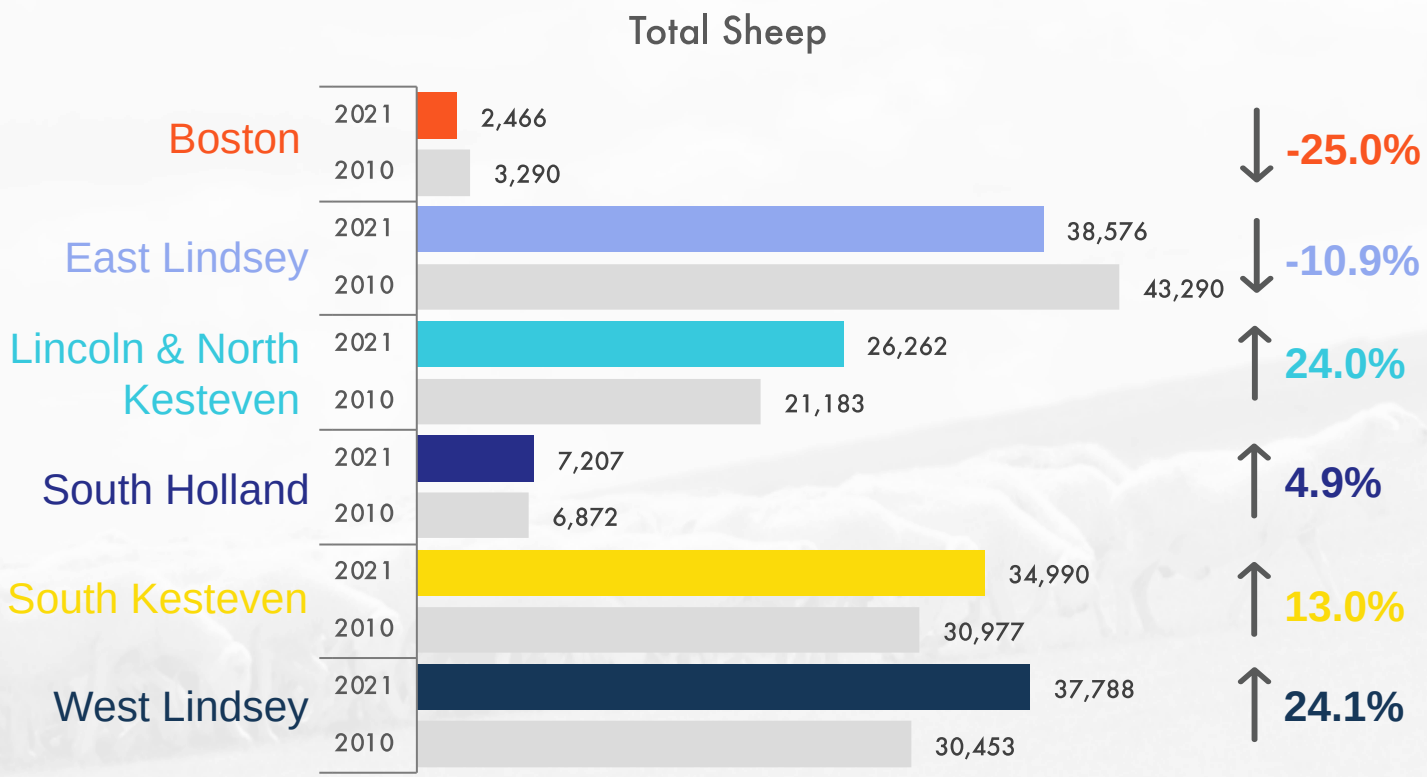
TOTAL SHEEP

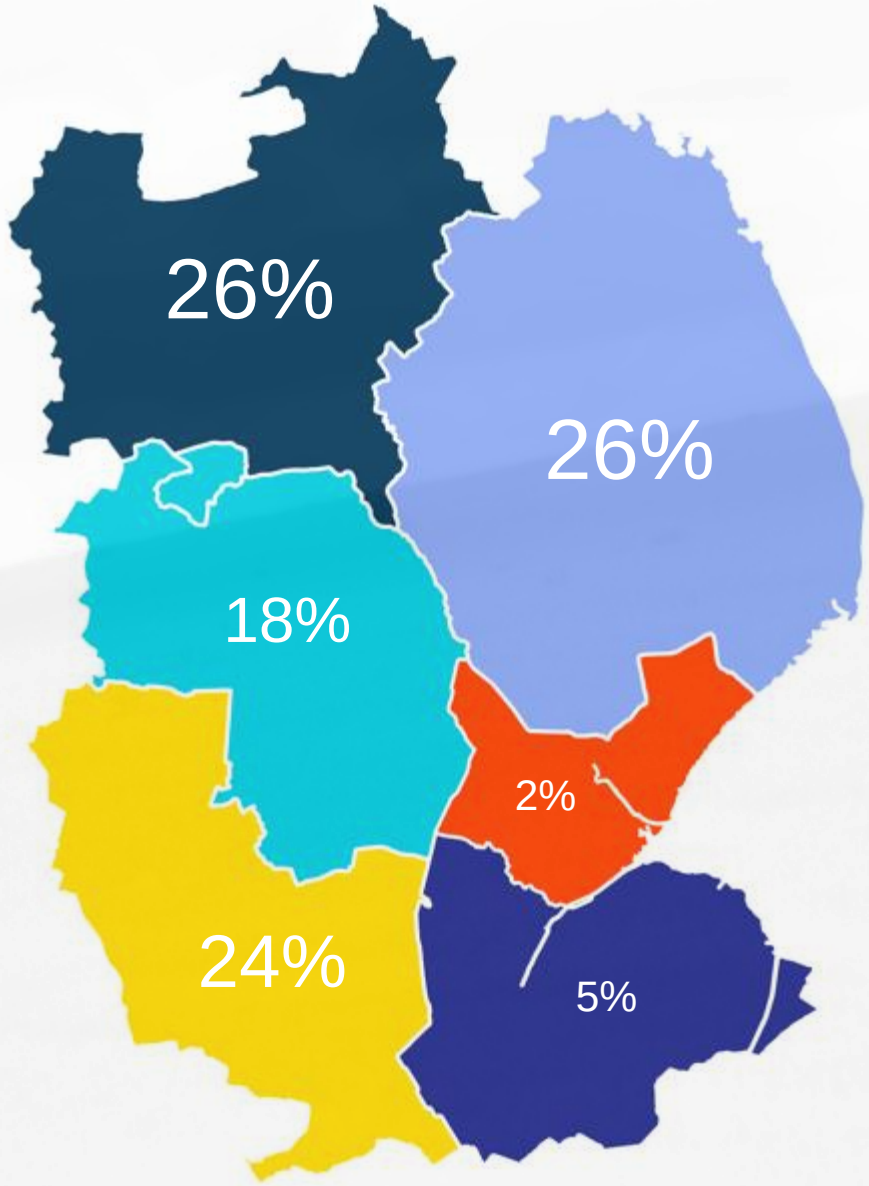

Total Sheep and Lambs in Lincolnshire
136,064
140,512
149,201
147,402
2010
2013
2016
2021


Change in Total Sheep and Lambs, 2010=100
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England

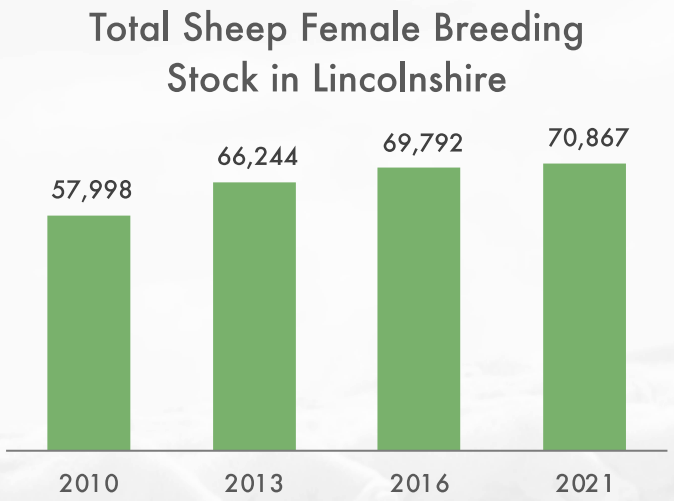

Sheep and Lambs, 2021
147,402
1.0% of England Total

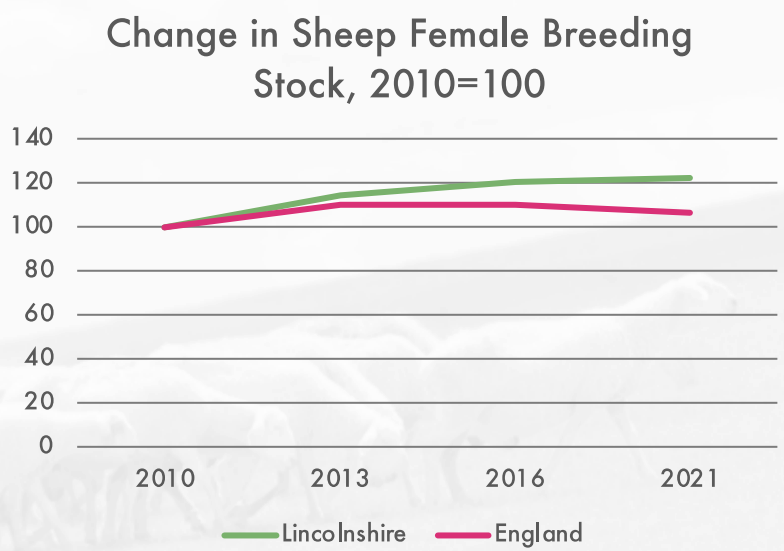
TOTAL SHEEP ACROSS LINCOLNSHIRE



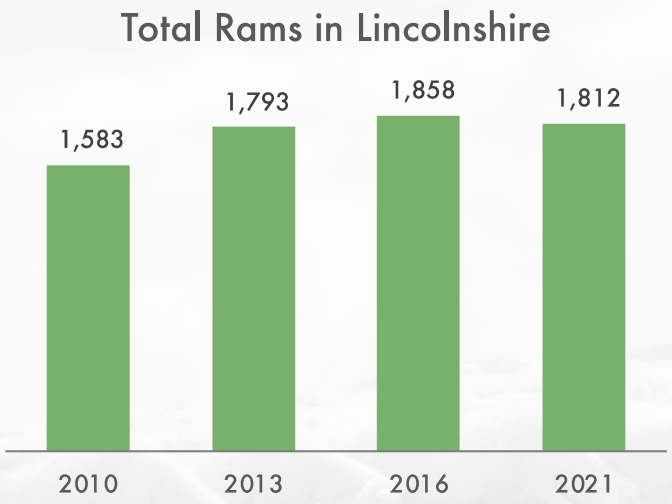


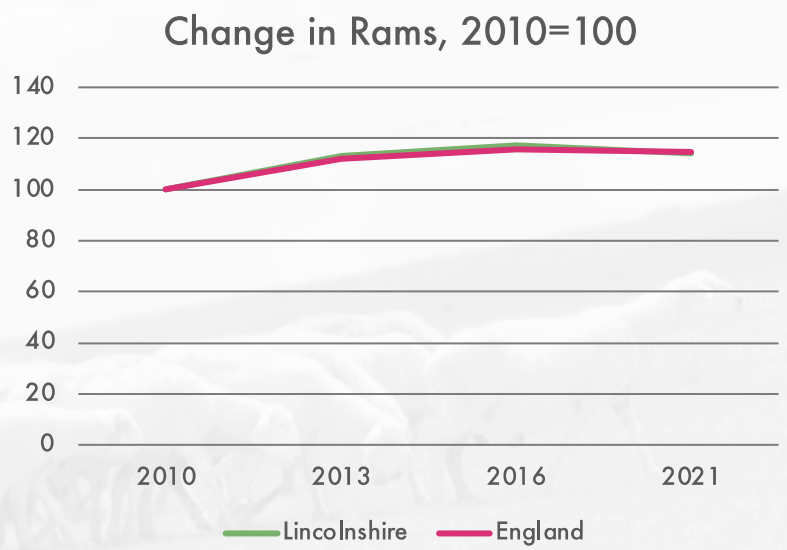
SHEEP FEMALE BREEDING STOCK

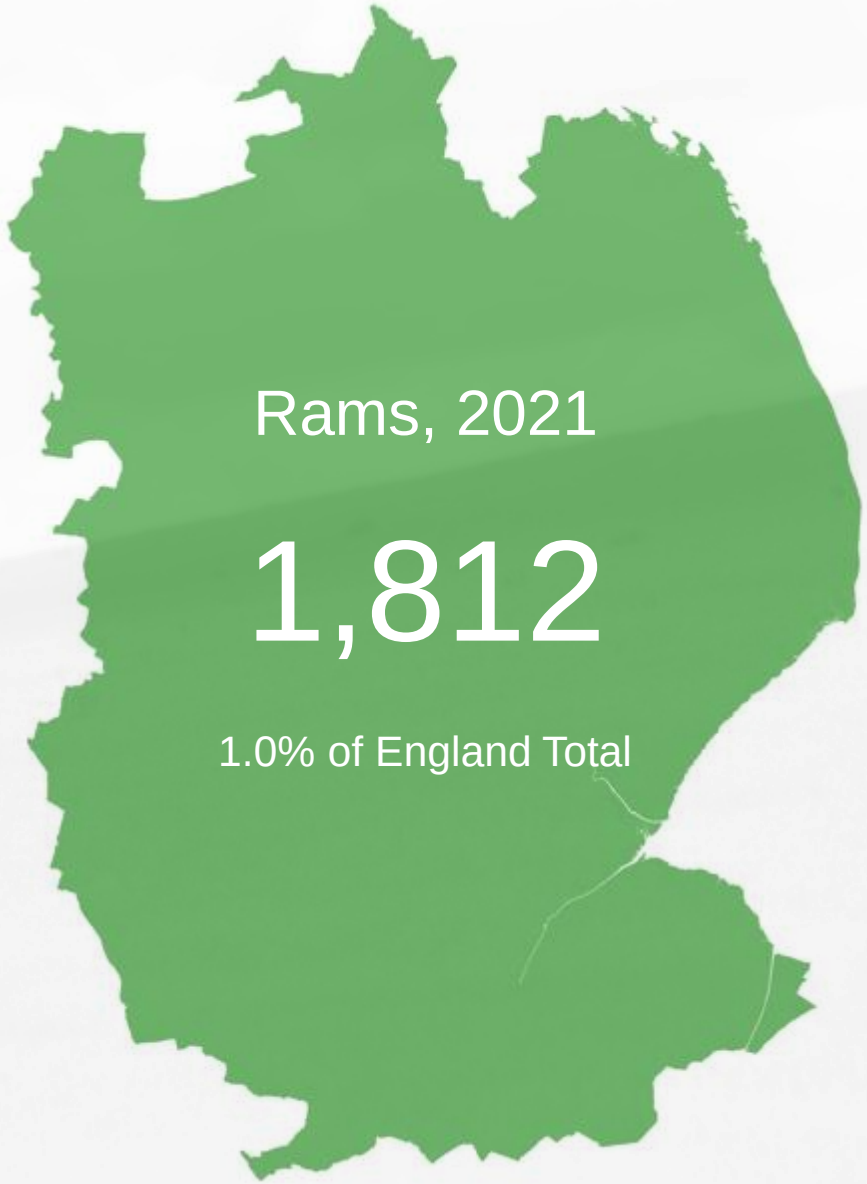




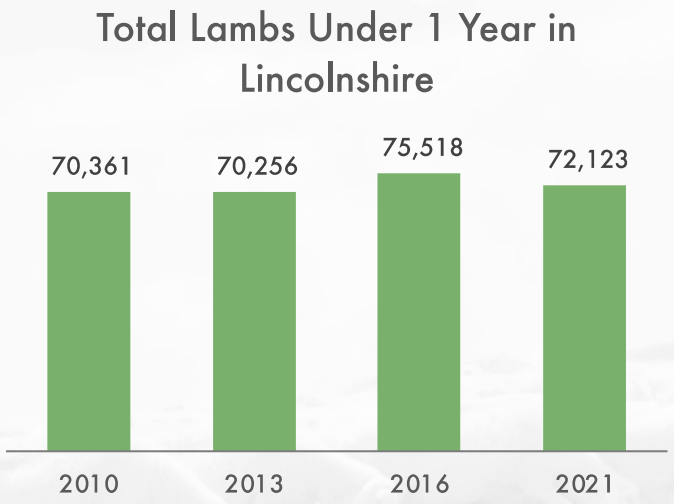
RAMS

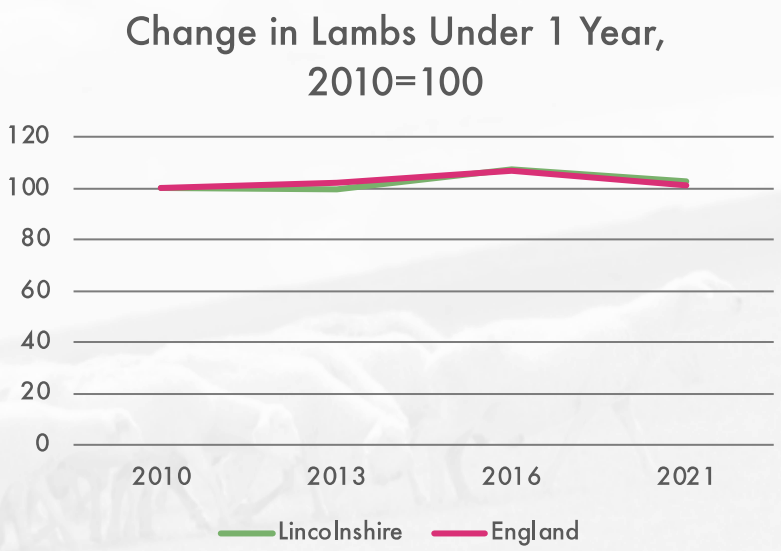

Total Rams in Lincolnshire
1,583
1,793
1,858
1,812
2010
2013
2016
2021

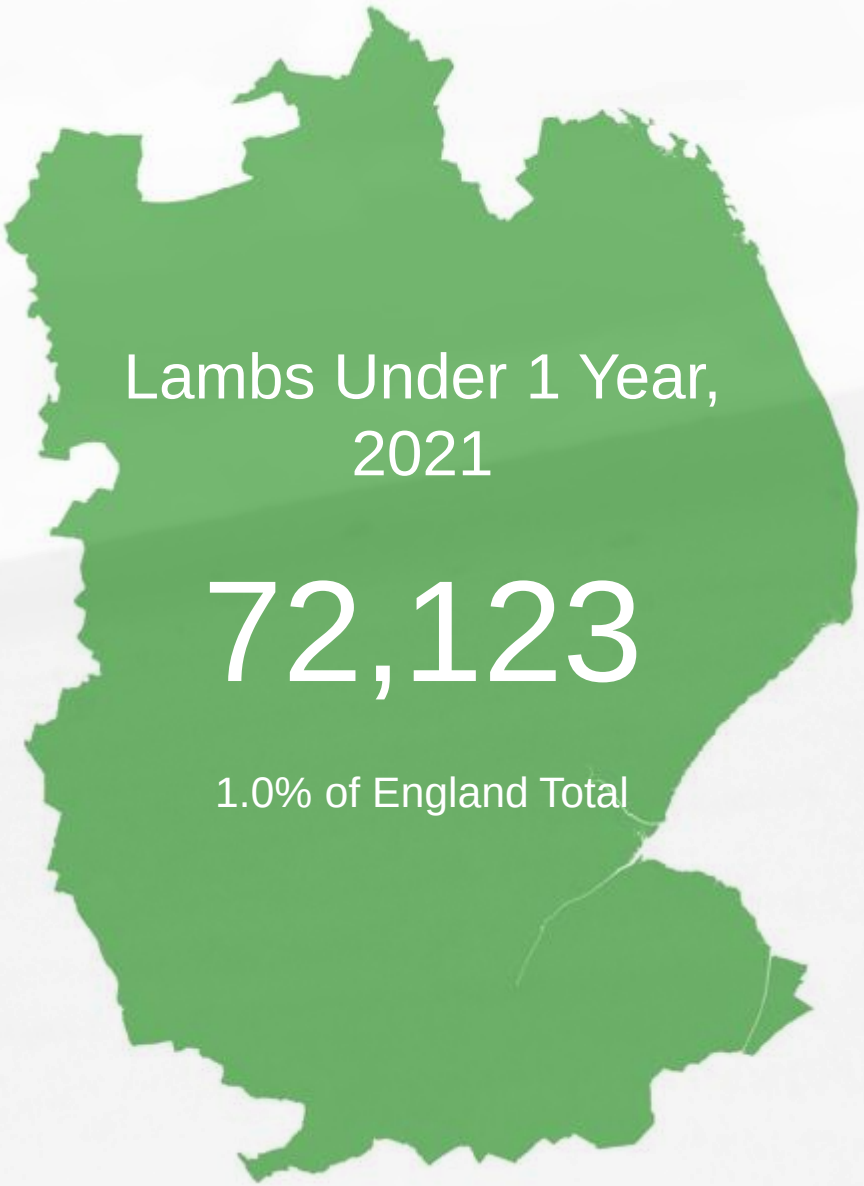

Change in Rams, 2010=100
140
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England


Rams, 2021
1,812
1.0% of England Total

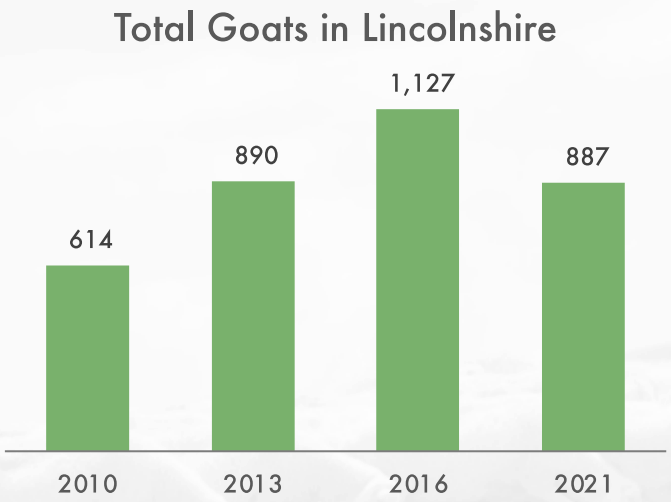
LAMBS UNDER 1 YEAR

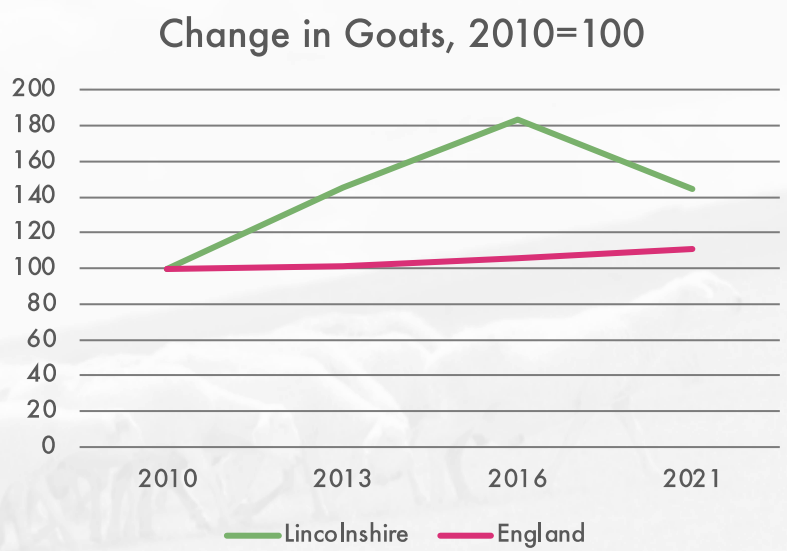






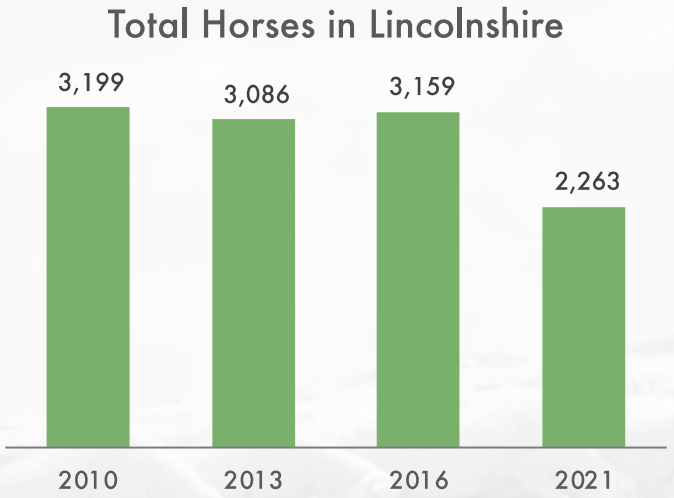
GOATS

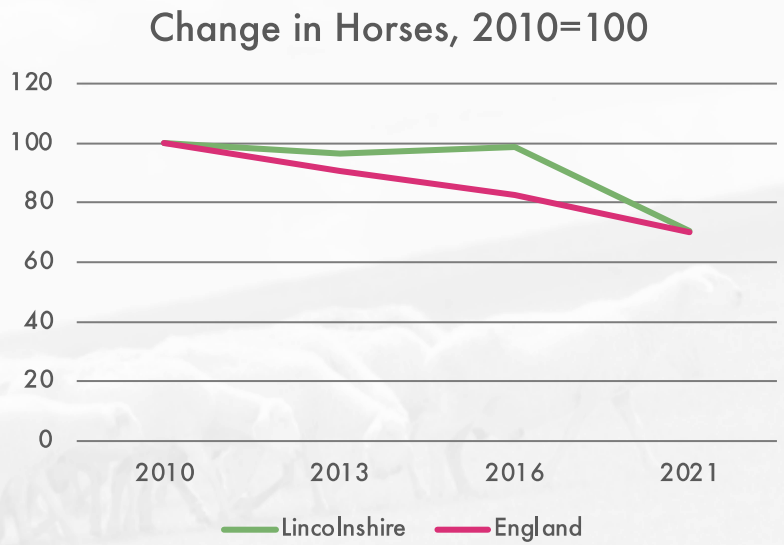

Total Goats in Lincolnshire
614
890
1,127
887
2010
2013
2016
2021

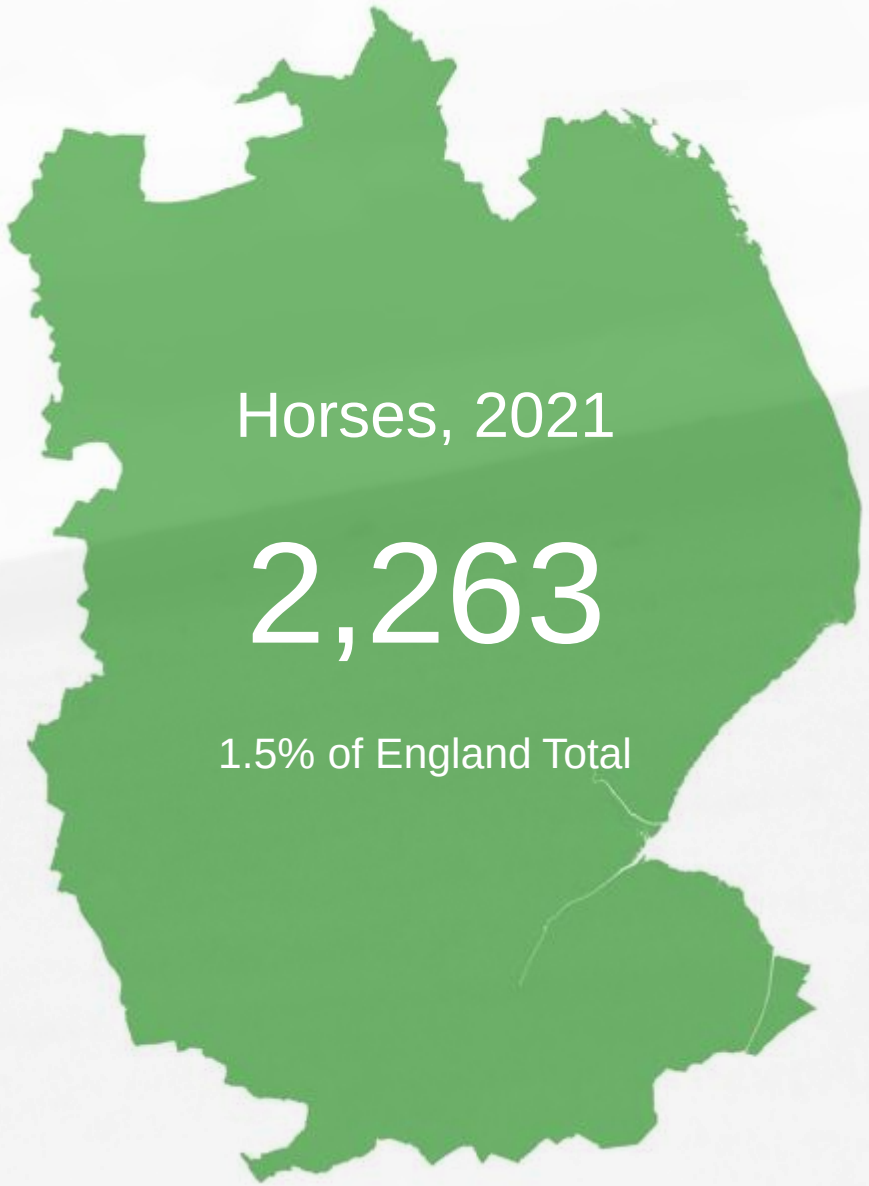

Change in Goats, 2010=100
200
180
160
140
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England


Goats, 2021
887
1.0% of England Total

HORSES

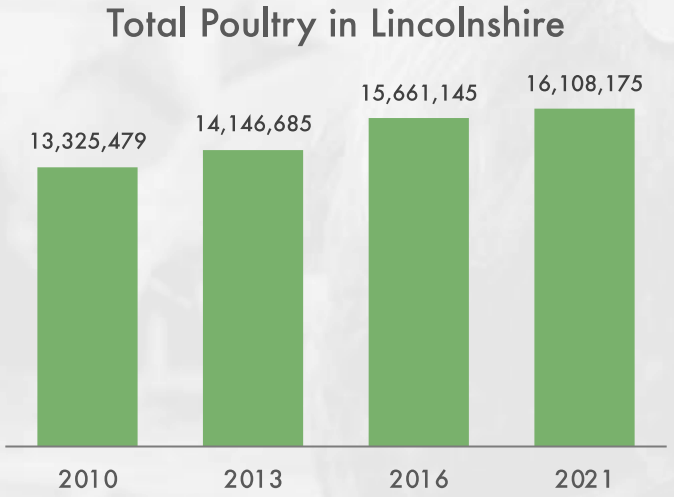

Total Horses in Lincolnshire
3,199
3,086
3,159
2,263
2010
2013
2016
2021

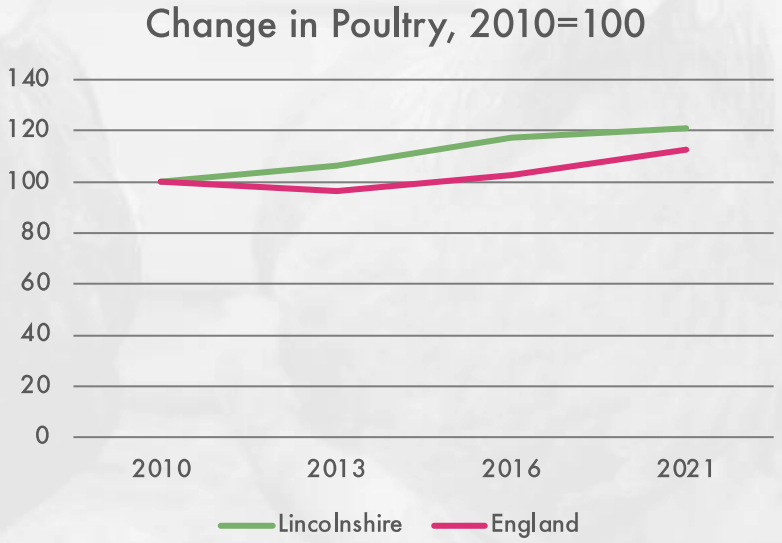

Change in Horses, 2010=100
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England

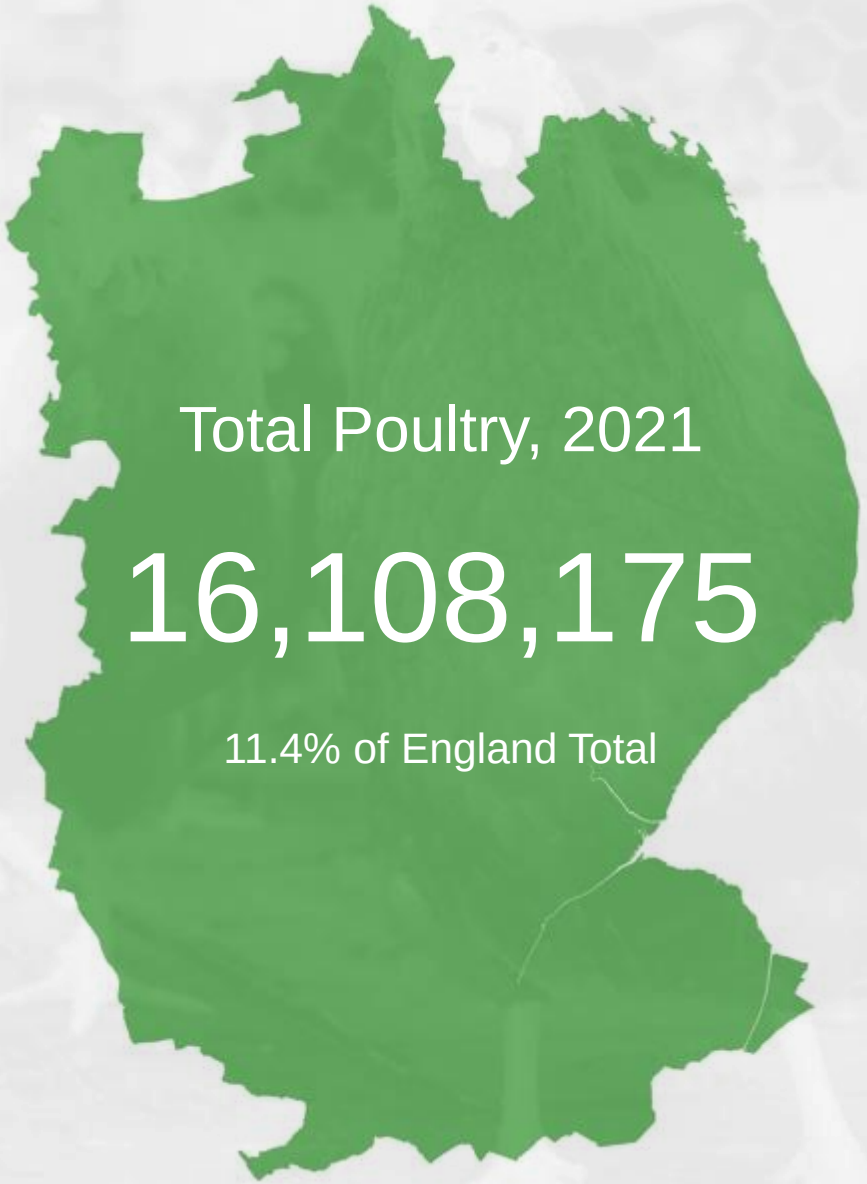

Horses, 2021
2,263
1.5% of England Total

POULTRY

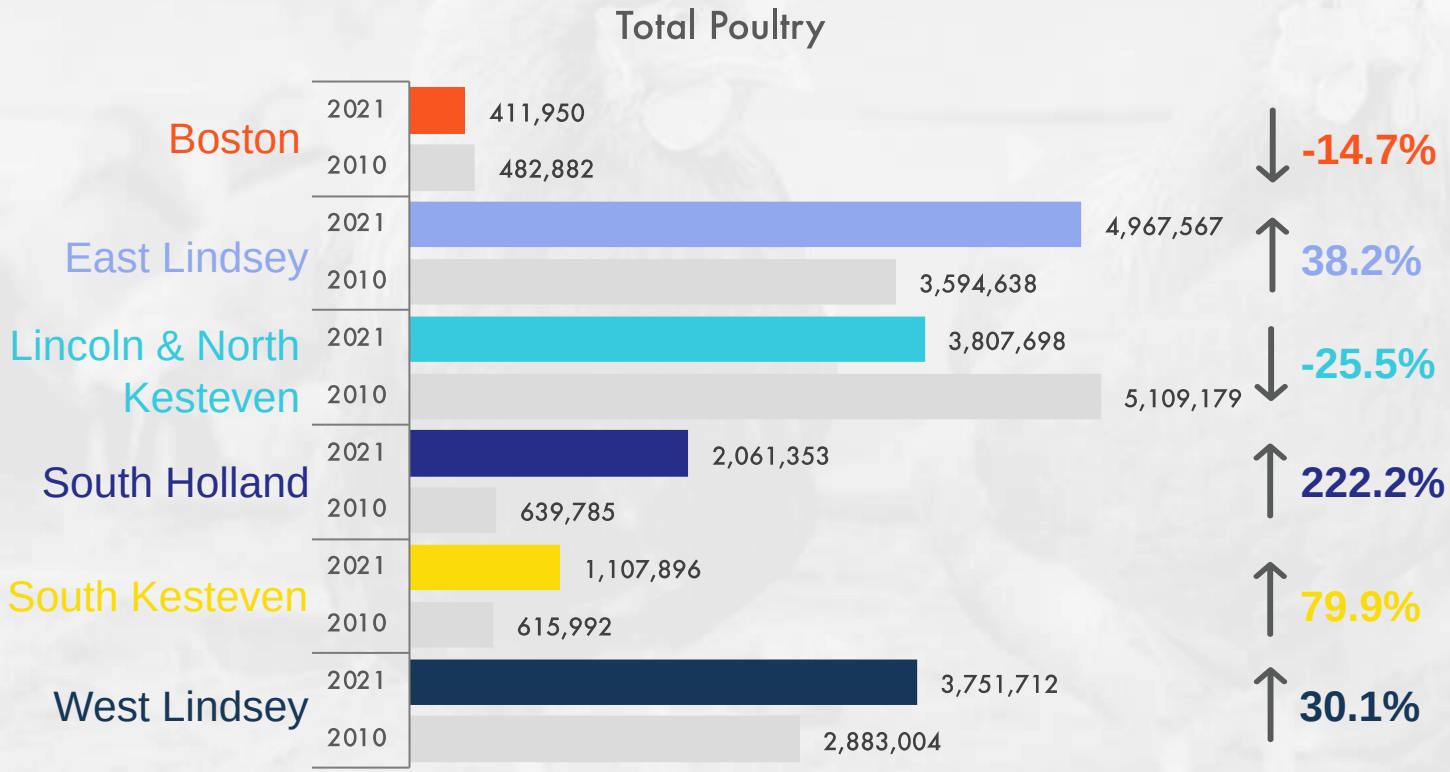
TOTAL POULTRY







TOTAL POULTRY ACROSS LINCOLNSHIRE



-14.7%

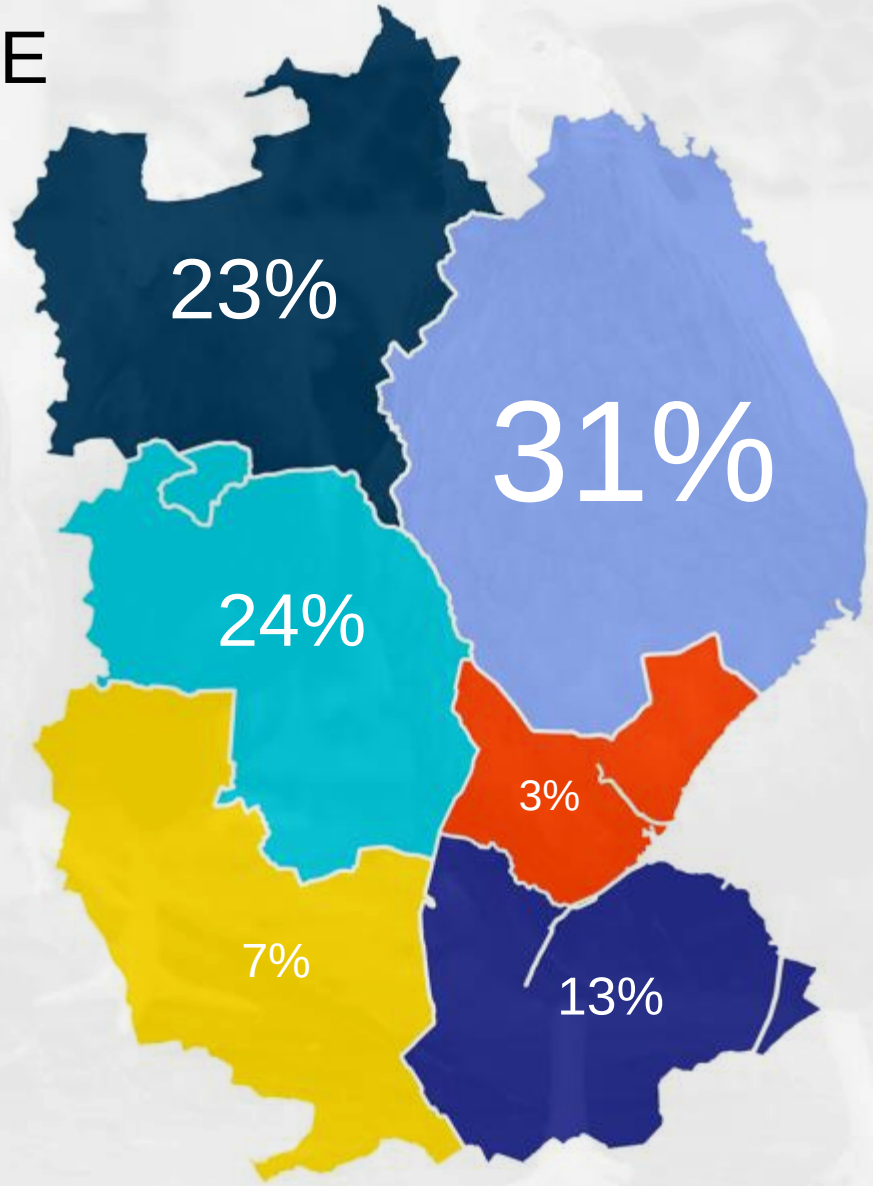
38.2%

-25.5%

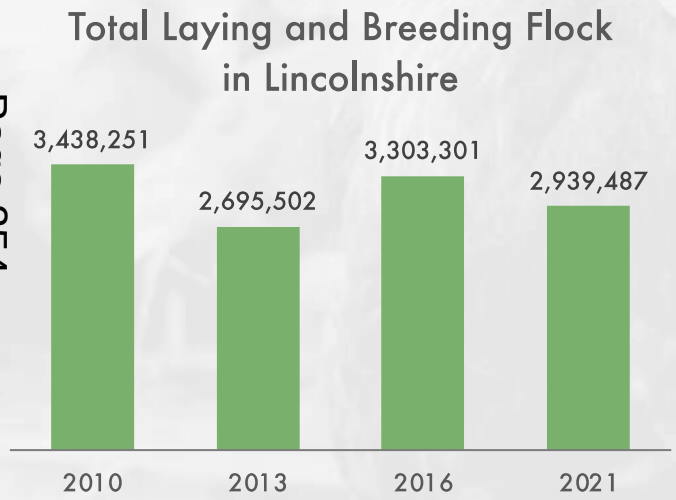
222.2%

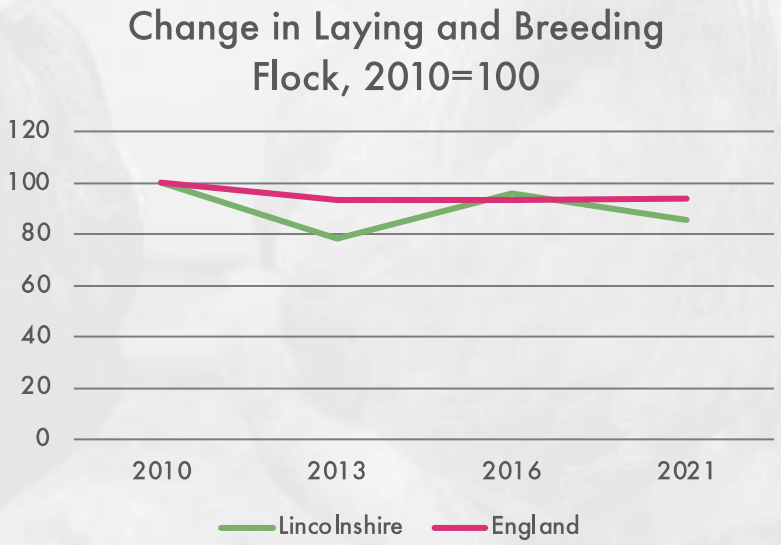
79.9%

30.1%

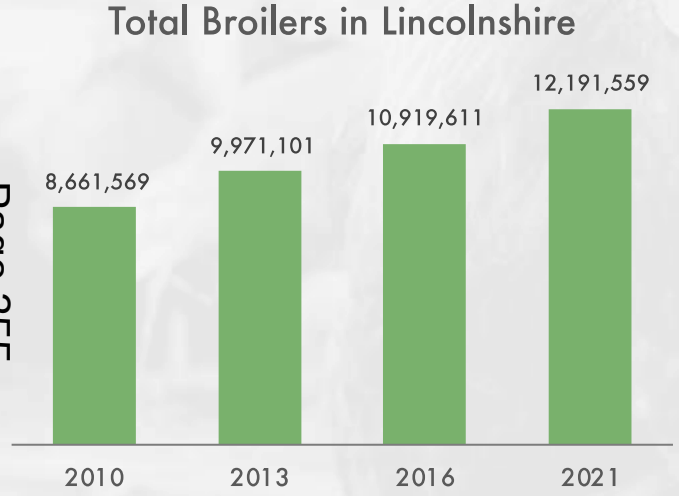


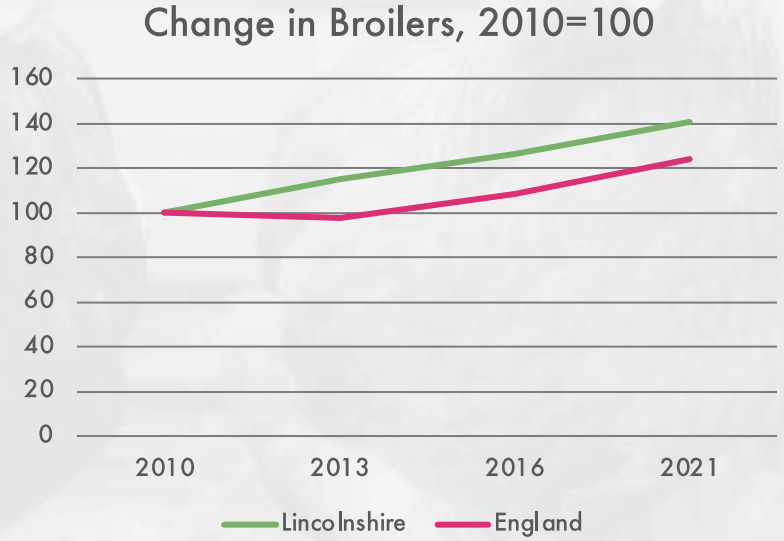
LAYING AND BREEDING FLOCK

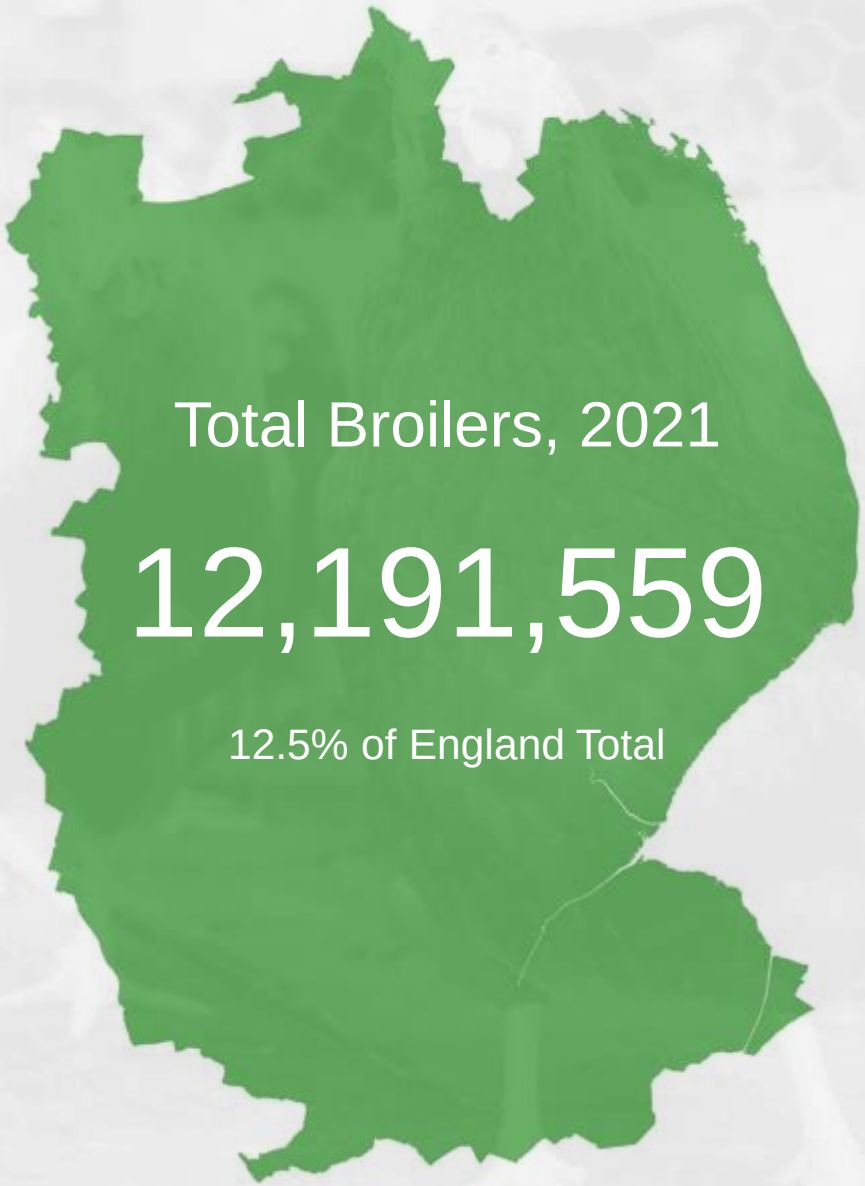




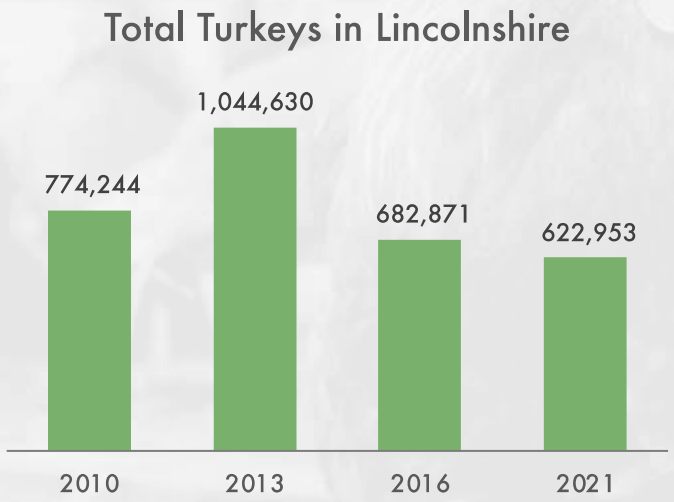
BROILERS

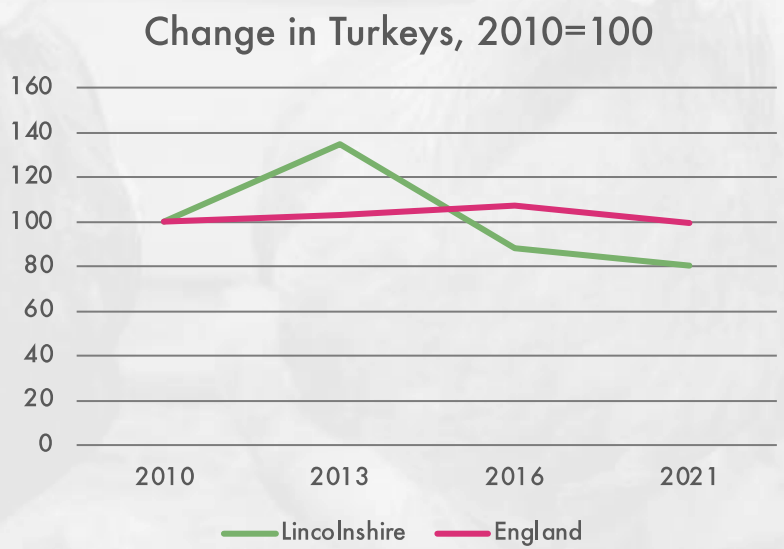

Total Broilers in Lincolnshire
8,661,569
9,971,101
10,919,611
12,191,559
2010
2013
2016
2021

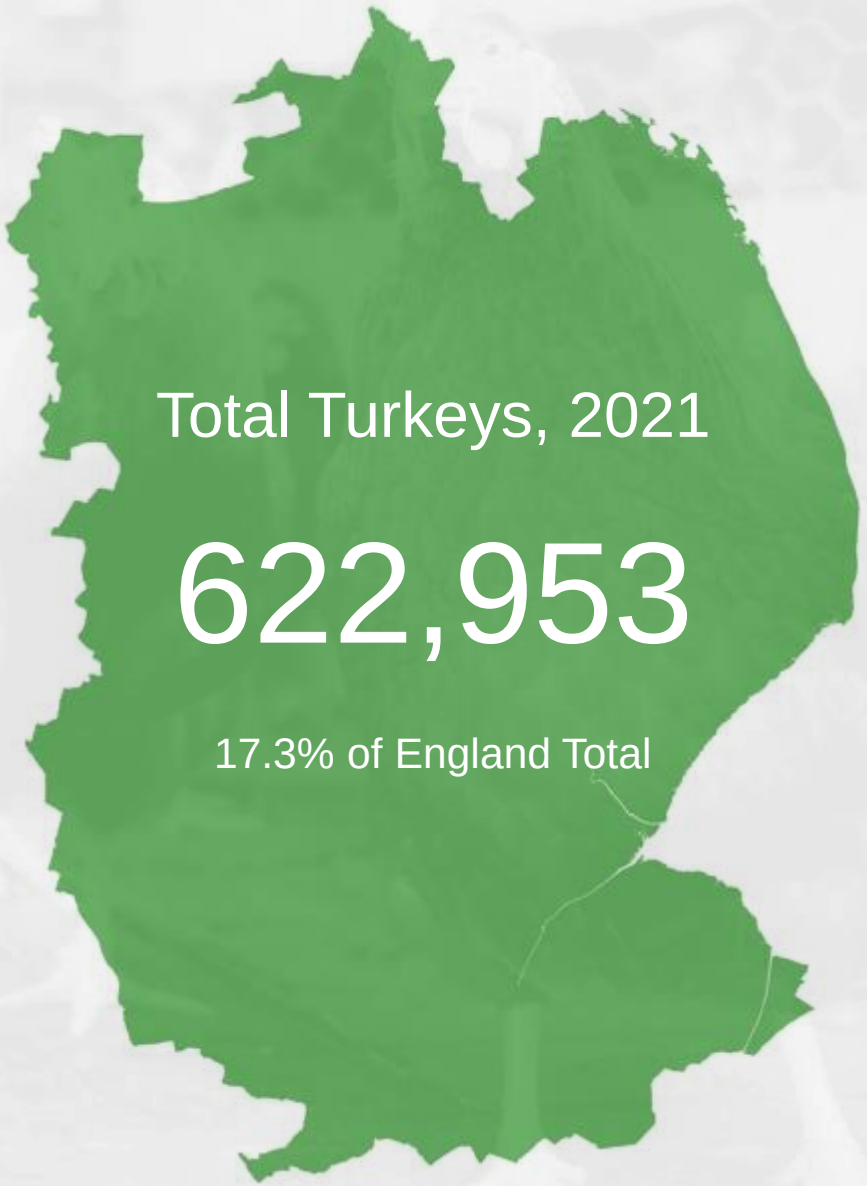

Change in Broilers, 2010=100
160
140
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England


Total Broilers, 2021
12,191,559
12.5% of England Total

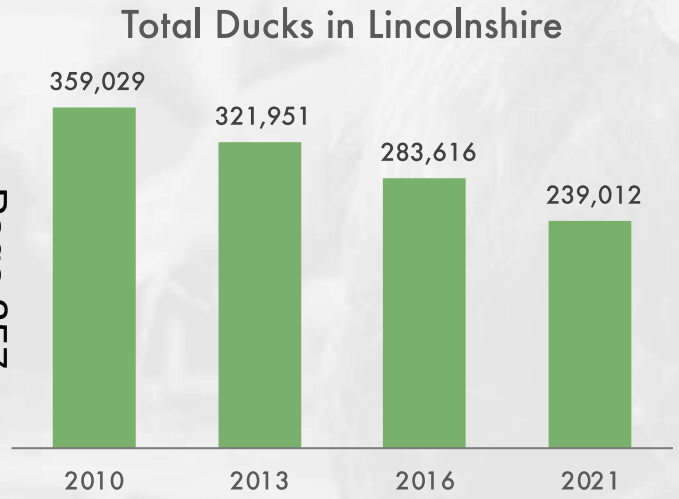
TURKEYS

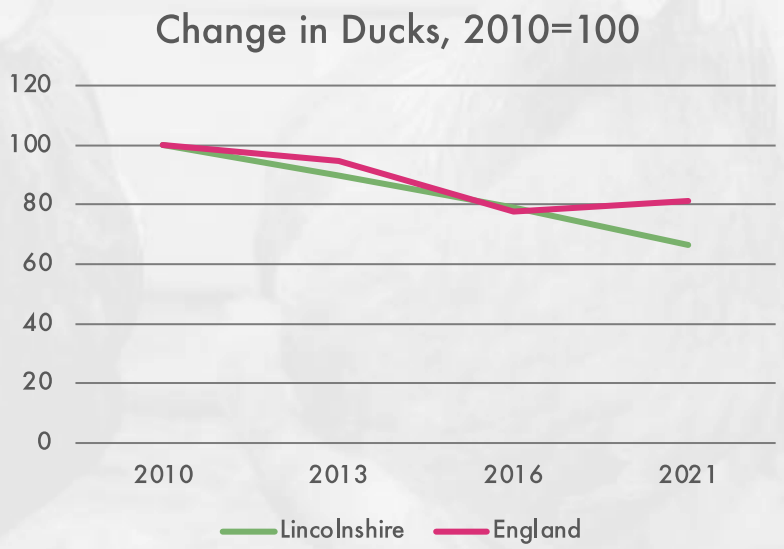

Total Turkeys in Lincolnshire
774,244
1,044,630
682,871
622,953
2010
2013
2016
2021

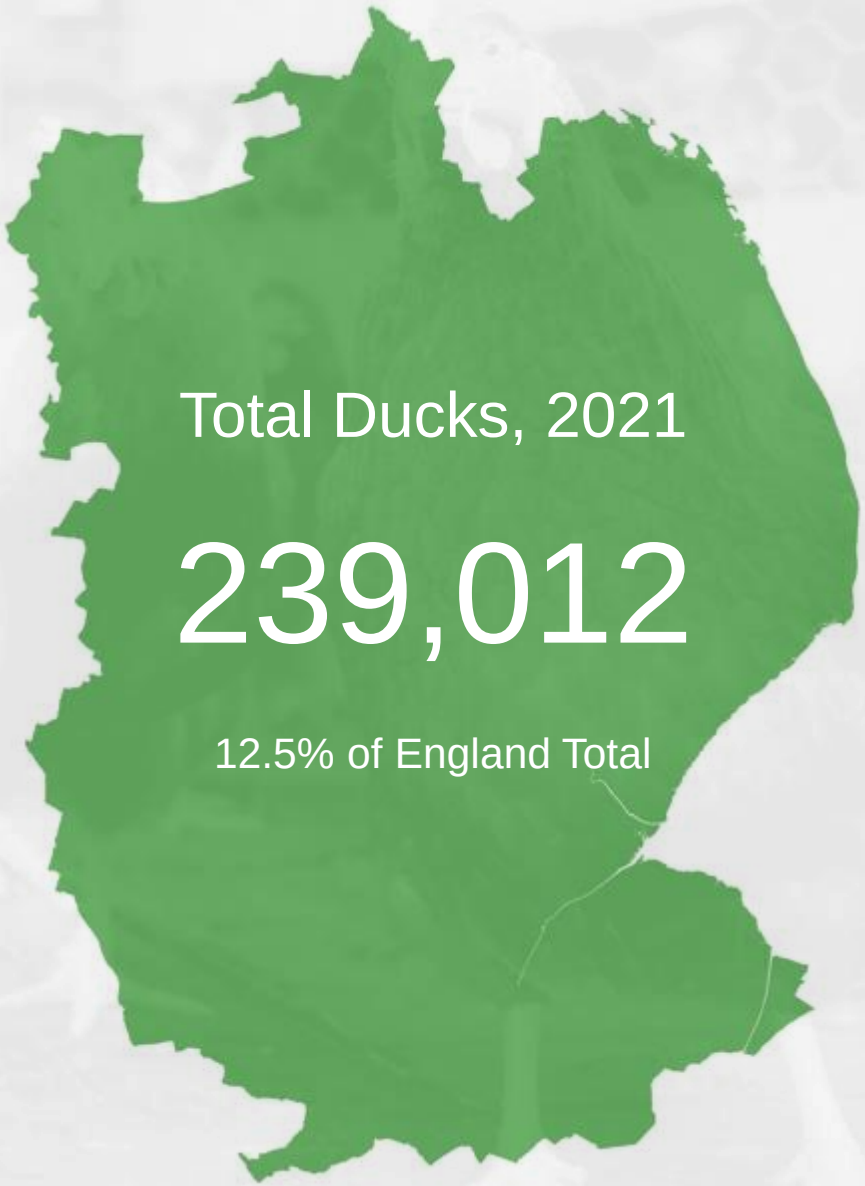

Change in Turkeys, 2010=100
160
140
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England


Total Turkeys, 2021
622,953
17.3% of England Total

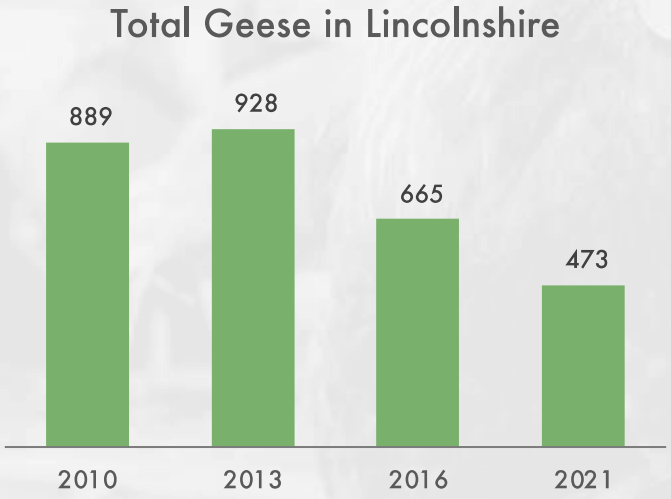
DUCKS

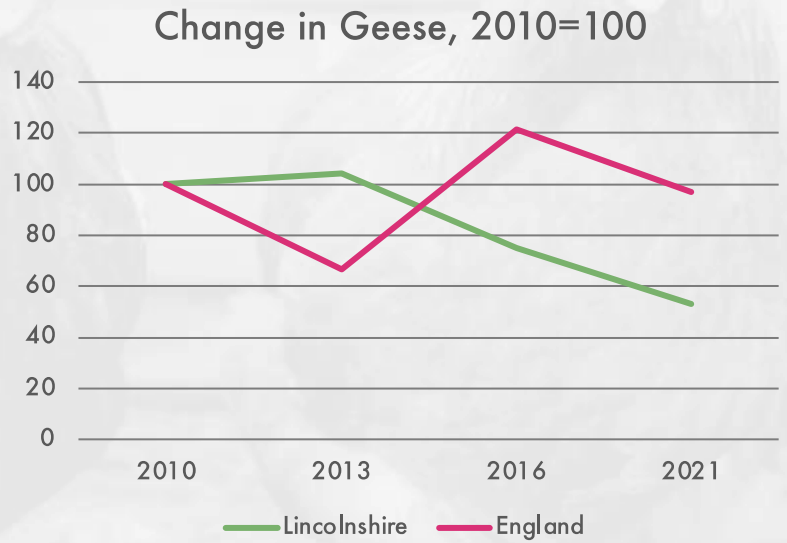

Total Ducks in Lincolnshire
359,029
321,951
283,616
239,012
2010
2013
2016
2021

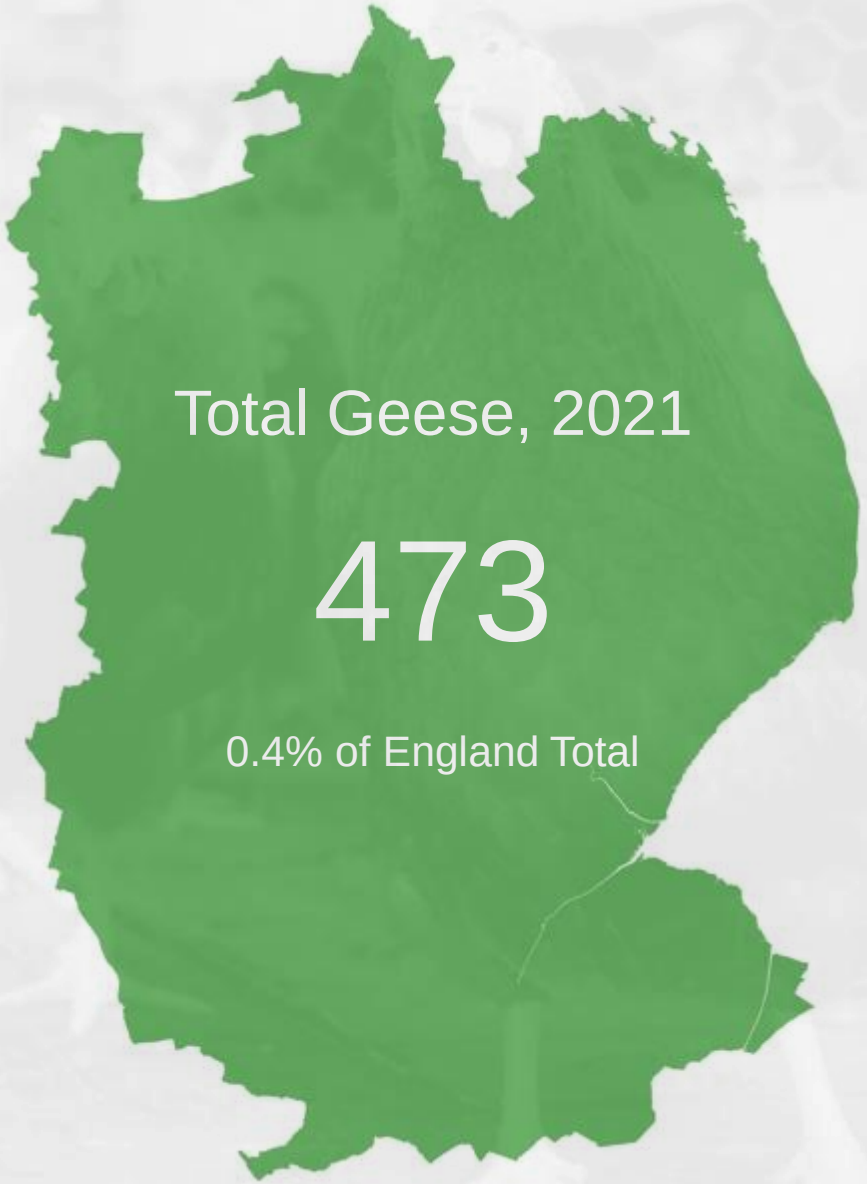

Change in Ducks, 2010=100
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England


Total Ducks, 2021
239,012
12.5% of England Total

GEESE

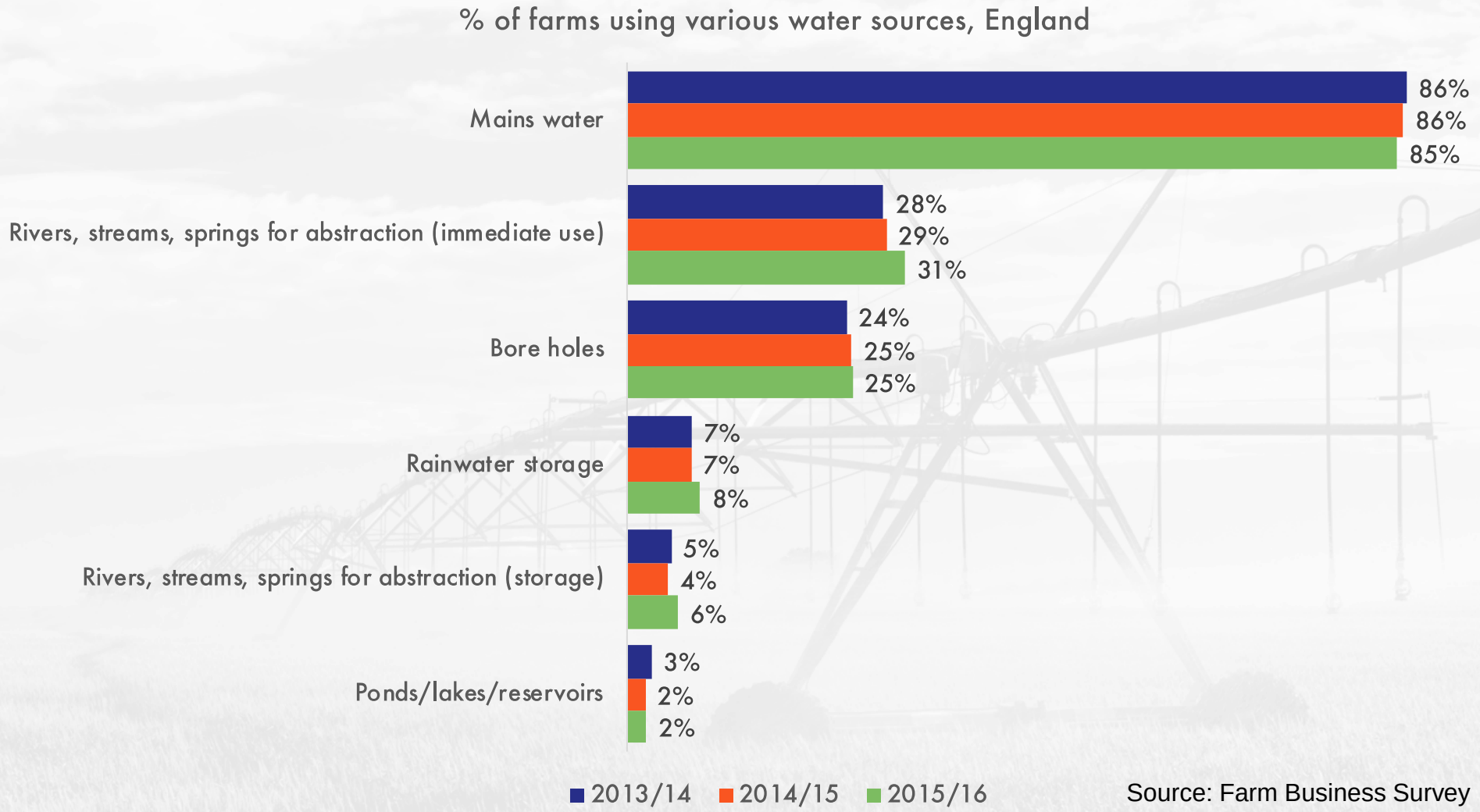

Total Geese in Lincolnshire
889
928
665
473
2010
2013
2016
2021


Change in Geese, 2010=100
140
120
100
80
60
40
20
0
2010
2013
2016
2021
Lincolnshire
England


Total Geese, 2021
473
0.4% of England Total

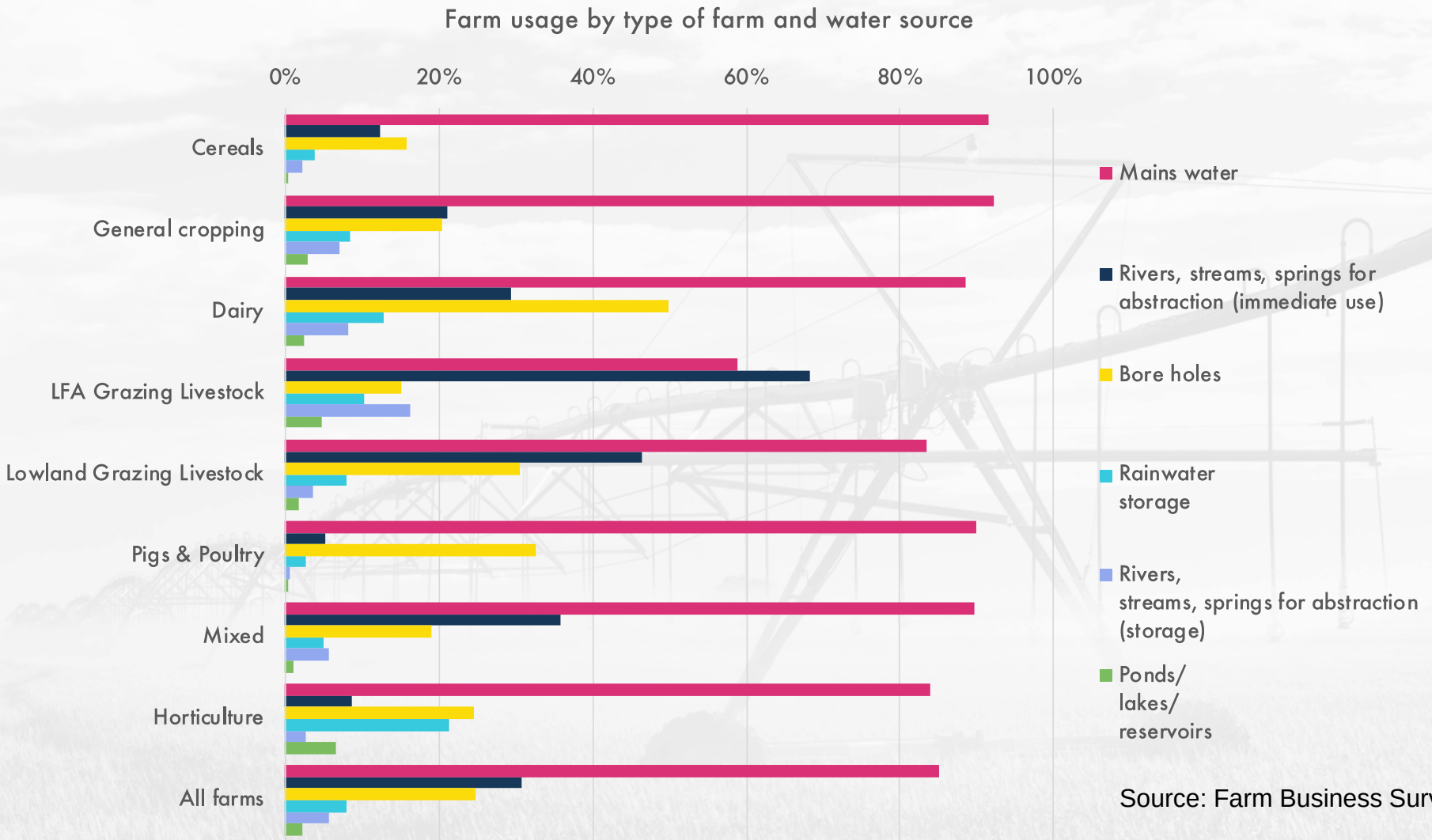
FARM WATER USAGE

FARM USAGE BY WATER SOURCE



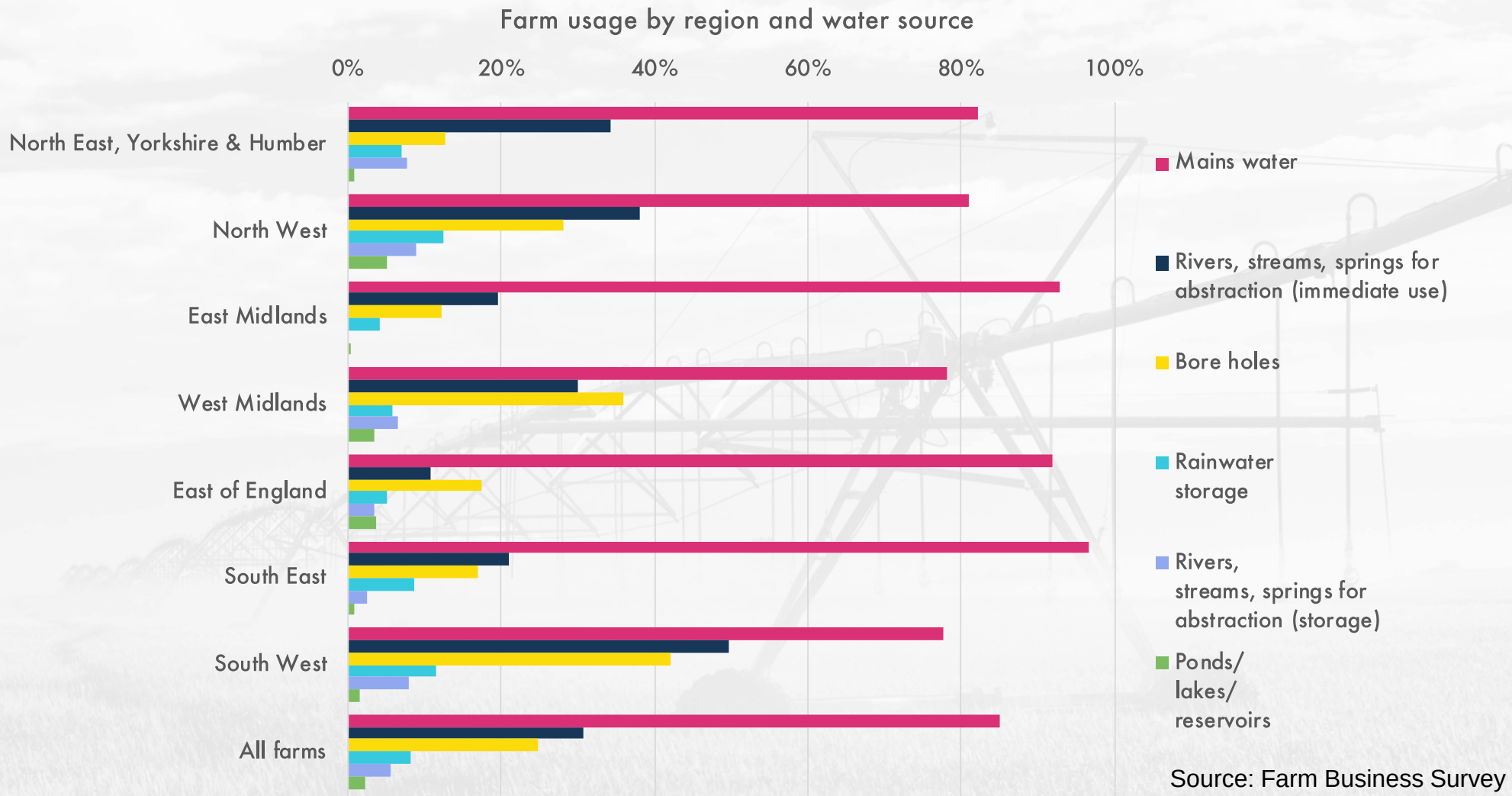
Source: Farm Business Survey

FARM USAGE BY FARM TYPE AND WATER SOURCE, 2015/16



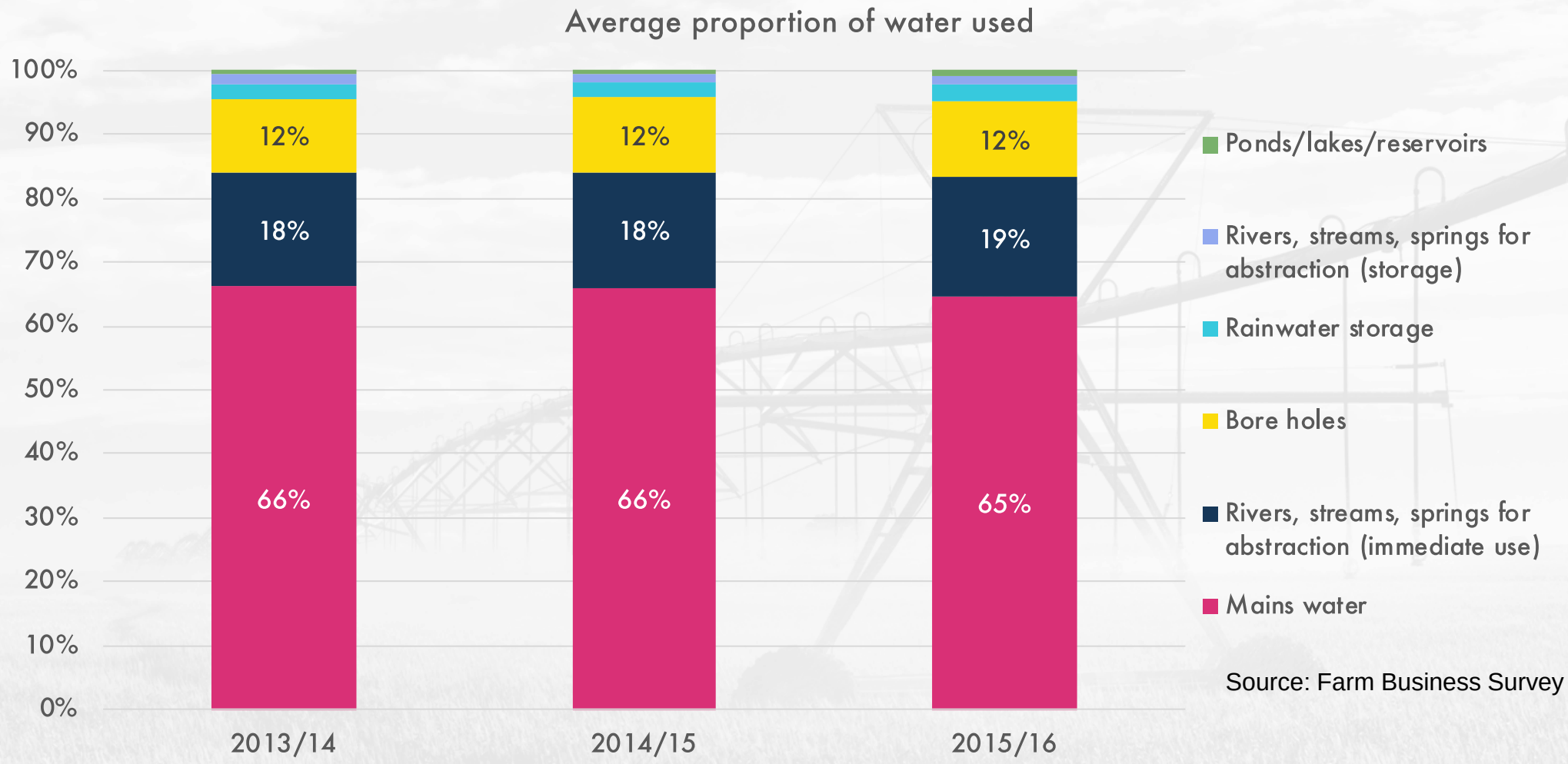
Source: Farm Business Survey

FARM USAGE BY REGION AND WATER SOURCE, 2015/16



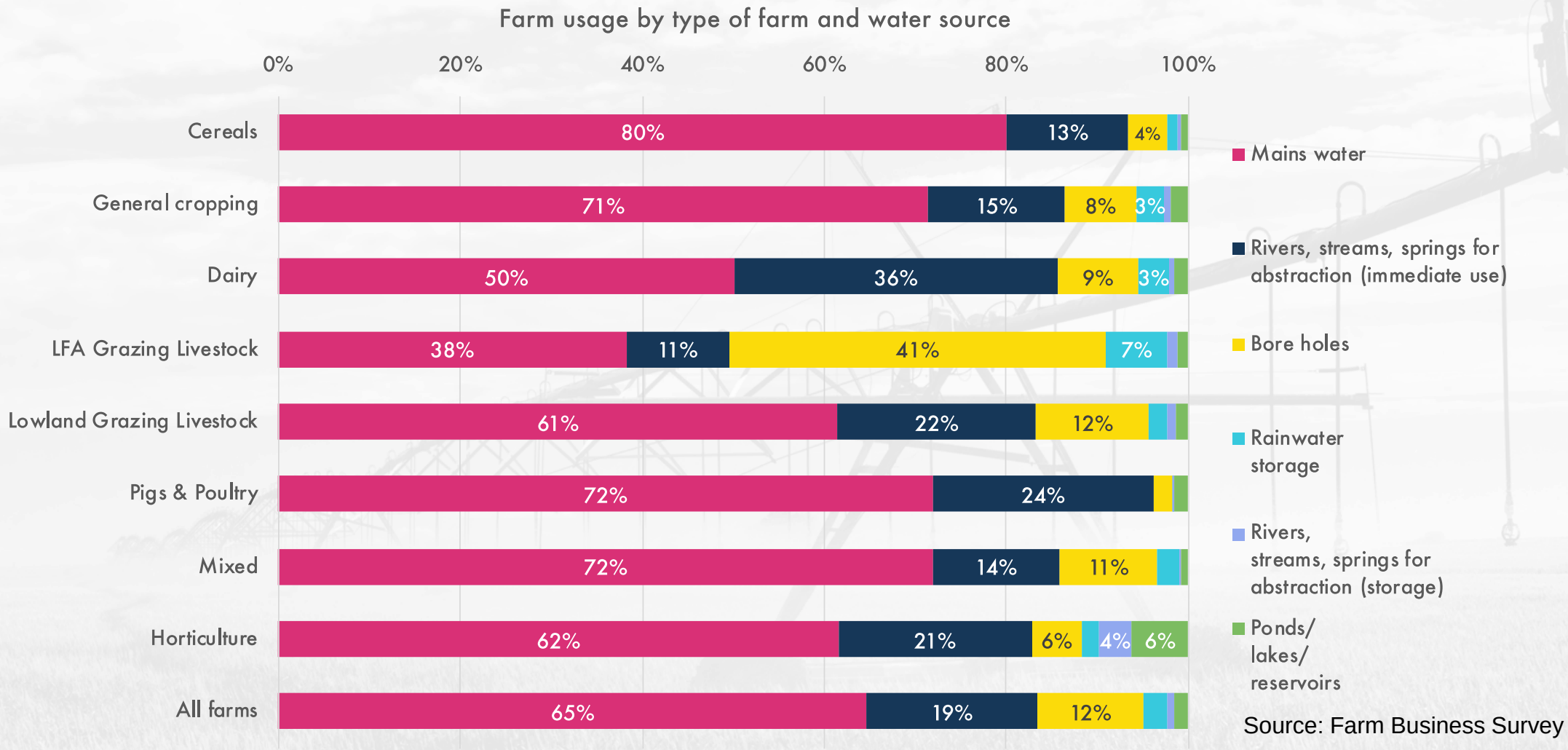
Source: Farm Business Survey

AVERAGE PROPORTION OF WATER USED



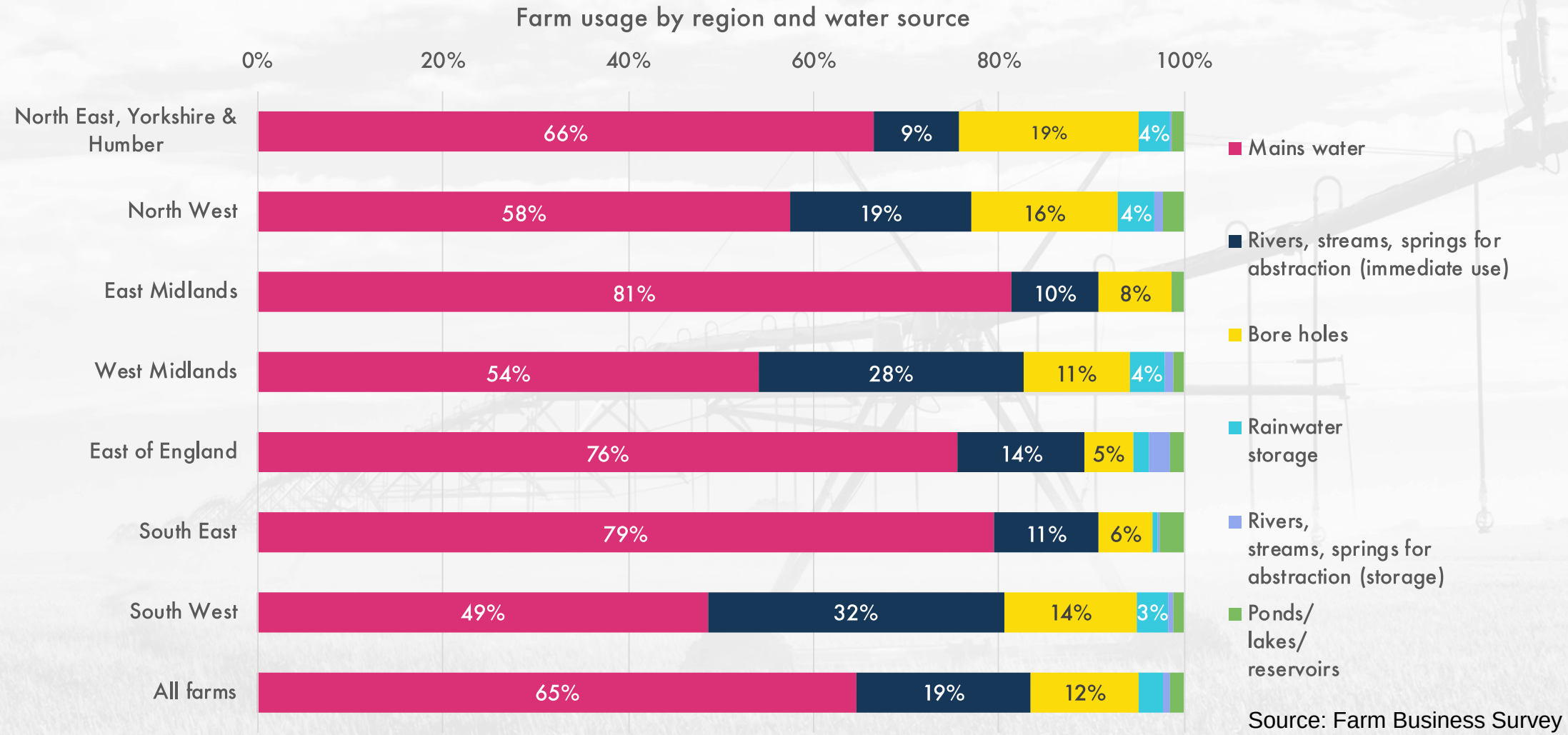
Source: Farm Business Survey

AVERAGE PROPORTION OF WATER USED BY FARM TYPE, 2015/16



Source: Farm Business Survey

AVERAGE PROPORTION OF WATER USED BY REGION, 2015/16



Source: Farm Business Survey

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