



Animal &
Plant Health
Agency

Livestock Demographic Data Group:

Extrapolation of Poultry Smallholding Data Report

2018 - 2019



© Crown copyright 2020

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v.3. To view this licence visit www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ or email PSI@nationalarchives.gsi.gov.uk

This publication is available at www.gov.uk/government/publications

Any enquiries regarding this publication should be sent to us at

Department of Epidemiological Sciences
Animal and Plant Health Agency
Weybourne Building, Level 2, Area F
Woodham Lane, Addlestone, Surrey, KT15 3NB
LDDG@apha.gov.uk
www.gov.uk/apha

The Animal and Plant Health Agency (APHA) is an executive agency of the Department for Environment, Food & Rural Affairs, and also works on behalf of the Scottish Government and Welsh Government.

Contents

LDDG Poultry Indicators Report 2018-19	1
Executive Summary	1

LDDG Poultry Indicators Report 2018-19

A report of work done within APHA Contract G 2018-19

Report prepared by:

Lauren Perrin, Department of Epidemiological Sciences (DES), APHA

Adam Brouwer, Department of Epidemiological Sciences (DES), APHA

Executive Summary

Demographic poultry data for smallholdings within Great Britain is limited, due to non-compulsory registration for poultry keepers with less than 50 birds. From the 17 Highly Pathogenic Avian Influenza H5N8 and Low Pathogenic Avian Influenza H7N7 outbreaks between 2014 and 2017, restrictions were enforced within a specific radius of the outbreak. Foot patrols were conducted in these areas, known as protection zones, to establish the total number of poultry premises within the United Kingdom. Foot patrols provide a far more accurate representation of this number, but they are labour intensive and thus not realistic to conduct throughout the country. Therefore, this project aimed to use the data collected from these foot patrols, to investigate the extrapolation of poultry smallholding data to give an approximation of the number of poultry smallholdings in Great Britain.

The project used two approaches, initially looking for statistical relationships between human demographic, geographic, social and economic factors and the presence or absence of smallholdings. Whilst this approach using human census data at 'ward' level wasn't able to provide robust estimates of smallholdings, it did provide evidence as to which factors were correlated which was then used in the next method. In the second approach, the model was rerun at the Great Britain level and was altered to use a comparative analysis, where each Great Britain ward was matched to a ward in the protection zones. At the Great Britain level, there were 412,472 extrapolated smallholdings with an average of 1.81 smallholdings per ward, with a medium number of 2,062,360 birds. This was extrapolated to the county level, proving a total estimate of 350,001 smallholdings in England, with a medium value of 1,750,005 birds. Wales and Scotland presented 40,717 and 21,754 smallholdings with a medium value of 203,585 and 108,770 birds, respectively. There are clear differences between the extrapolated numbers between the nations, with Scotland having approximately half the number of smallholdings than Wales, despite a much larger population. This is likely due to Scotland's population being largely located in cities, as opposed to Wales, where there is a greater proportion of rural living. It could also be due to the methodologies used to extrapolate this data; smallholdings were constrained due to unsuitable land, and Scotland had a particularly higher proportion of unsuitable land (65.4%), compared to 13.1% and 33.1% in England and Wales, respectively.

This approach to extrapolate data to estimate the total number of poultry smallholdings in Great Britain presents limitations, but given the limited data available the estimates appear acceptable. The role of poultry smallholdings in the transmission of notifiable disease is unclear, but it could prove difficult to control an outbreak in an area of high smallholding density, especially given the previous lack of knowledge regarding smallholding density. The initial estimates given in this report may prove useful in targeting stakeholders when the risk status for notifiable avian disease is heightened.