



LEAF Global Impacts Report 2018

Appendix and Methods

About the Appendix

This document details the methods and data sources for the Global Impacts Report 2018.

Where external data sources are cited, data can be independently verified by accessing those sources.

All LEAF Marque inspections are carried out by LEAF Marque approved, independent Certification Bodies. These Certification Bodies are ISO 17065 accredited. They are responsible for accurately recording a business' conformance with the control points set out in the LEAF Marque Standard as well as their certification decision in the LEAF Marque data system (therefore providing the LEAF Marque certificate status for a business).

The LEAF Marque Standard is available in several languages which are available on the [LEAF website](http://www.leafuk.org/leaf/farmers/LEAFmarquecertification/standard.eb) (<http://www.leafuk.org/leaf/farmers/LEAFmarquecertification/standard.eb>). The English version of the Standard is the definitive version and therefore any issues of interpretation from other translations need to be referred to the English version.

Where data has been provided by self-assessment, this has been sense-checked and excluded if appropriate, where possible. It should be noted that it is a requirement of the LEAF Marque Standard v14.1 for a LEAF Marque certified business to complete the LEAF Sustainable Farming Review and to provide correct and up to date 'farm details and production information'.

When citing elements of this report or using any of the data please acknowledge LEAF as the source and provide a download date and website link; or cite as: **LEAF Global Impact Report 2018**.

For general enquires please contact: enquires@leafuk.org

For technical issues related to the data please contact: Kathryn.Green@leafuk.org

Sources of Data

The key data used in the LEAF's Global Impacts Report 2018 includes information from the LEAF Audit, the LEAF Sustainable Farming Review, LEAF's Annual Survey (formally LEAF's Sustainability Survey), LEAF Open Farm Sunday, FACE and Independent Evaluations.

LEAF Sustainable Farming Review

The LEAF Sustainable Farming Review is an online self-assessment resource for LEAF members to support their implementation of Integrated Farm Management. The LEAF Sustainable Farming Review has an annual scope. The LEAF Sustainable Farming Review replaced the LEAF Audit in December 2014. The completion of the LEAF Sustainable Farming Review is a requirement of the LEAF Marque Standard



(v12.0 onwards) and this completion is independently verified. However, the specific responses within the LEAF Sustainable Farming Review are self-assessed and not verified through third party inspection.

The LEAF Sustainable Farming Review is composed of around 90 principles based around the nine sections of Integrated Farm Management along with further guidance information and links to support the user. Each question must be answered in one of the following five ways: Fully Achieved; Considerable Progress; Some Progress; Not Started; or Not Applicable. Additionally, the user indicates which of the supporting practices, which are associated with the principle, they carry out. From the LEAF Sustainable Farming Review 2016 scope onwards, questions that required businesses to provide numerical detail on some areas of Integrated Farm Management were introduced. The answers to all questions are not pre-populated.

LEAF's Annual Survey

Over the last 5 years, LEAF has circulated a repeat questionnaire to its members to ascertain their perception of their farms' sustainability. For 2017, this was titled the LEAF Annual Survey whereas in previous years it was circulated under the name LEAF's Sustainability Survey.

LEAF Open Farm Sunday

LEAF manages Open Farm Sunday, the single, most effective and supported day in the UK farming calendar. It is a day for farmers to 'open their gates' and welcome people onto farms to discover the story behind their food and the vital role farmers have in caring for the countryside. Every year, LEAF carries out an extensive analysis of farms participating in LEAF Open Farm Sunday events and some surveys of visitors and host farmers. Farms participating are both LEAF members and non-LEAF members.

FACE

FACE (Farming and Countryside Education), a leading charity in farming and food education, merged with LEAF in July 2017. Since the merger FACE has carried out detailed monitoring and analysis of its education activities by the FACE Regional Education Consultants. Data includes total hours and topic of activity delivered, and total number of people and schools educated.

Independent Evaluations

An independent evaluation was undertaken by CCRI (Countryside and Community Research Institute): *M. Reed, N. Lewis and J.Dwyer (2017) The effects and impacts LEAF Marque in the delivery of more sustainable farming: a study to understand the added value to farmers*. Full details of evaluators, methodology, key findings, conclusions, limitations and recommendation can be found in the Full Report. ¹

¹ <https://leafuk.org/farming/leaf-marque/leaf-marque-independent-evaluation>



Methods for the Global Impacts Reports 2018

Method A – Determining a LEAF Marque certified business

A LEAF Marque certified businesses is defined as a business that is holding a LEAF charity membership number, holding a LEAF Marque membership status of 'Current' and holding a LEAF Marque certificate status of 'FULL' as at the 31st December for the year corresponding to the year of the data. Businesses that held a LEAF Marque membership status of 'Grace' were also included as this usually refers to businesses who hold a valid certificate but where payment to the certification body is outstanding. Businesses with a LEAF Marque membership status of 'Closed and 'Transferred Out' and businesses with LEAF Membership Type of 'Non-paying agent' were sorted manually to confirm possible exclusions (e.g. duplications or expired certificates). Test companies and businesses with LEAF Marque membership status of 'Applied' and 'Registered' were excluded.

The number of LEAF Marque certified businesses is quoted on page 8 of the Global Impacts Report 2018.

This definition of a LEAF Marque certified business is also used to determine further statistics and maps for the Global Impacts Report 2018.

Method B – Determining crop area and number of livestock units for LEAF Marque certified businesses

Determining the crop area and number of livestock units for LEAF Marque certified businesses required the number of LEAF Marque certified businesses (see **Method A – Determining a LEAF Marque certified business**) in a certain year alongside aspects of Production Information. Production Information, which includes farm details (including country), crop class, crop enterprise and areas of crop, is self-assessed by all LEAF members however it is a requirement of LEAF Marque certification for businesses to provide correct and up to date production information. This is annually confirmed during their completion of the LEAF Sustainable Farming Review and verified during the LEAF Marque inspection process. Alterations were made to data which was obviously questionable including translating information into English as required and checking excessively large figures and altering to include a more realistic figure based on farm size.

This method is used to create hectares of crop on LEAF Marque businesses around the globe and in certain countries (pages 8 & 9), the number of countries with LEAF Marque certified businesses (pages 8, 20 & 21), the area of certain crop classes (pages 8), number and area of crop and livestock enterprises (pages 8, 20 & 21), and number of animals reared to the LEAF Marque Standard (page 32) in the Global Impacts Report 2018.

For more information about determining statistics relating to crop area and number of livestock units for LEAF Marque certified businesses please contact LEAF.



Mapping Methods

In order to show where LEAF Marque certified businesses operate around the world, all LEAF Marque certified businesses were mapped (see pages 20 & 21 in the Global Impacts Report 2018). A vector file map was downloaded from <https://freevectormaps.com/world-maps/WRLD-EPS-01-0006> and Adobe Photoshop was used to colour in the areas that corresponded to countries of LEAF Marque certified businesses.

Method C – Determining UK LEAF Marque crop area and livestock population as a proportion of all UK crop area and livestock population

To present the proportion of UK LEAF Marque production compared to all UK production, crop area and number of livestock units for UK LEAF Marque certified businesses only (see **Method B – Determining crop area and number of livestock units for LEAF Marque certified businesses**) was compared to Defra statistics. At the time analysis was performed the most up-to-date information available from Defra statistics were:

- Defra Horticulture statistics as at August 2017 (containing 2016 data)
- Defra UK Livestock Population statistics as at March 2017 (containing 2016 data)
- Defra Farming Statistics 2016 Report (containing 2016 data)

It should be noted that all Horticulture or fruit & vegetable data here excludes potatoes. Data for LEAF Marque certified businesses also excludes peas as there is not enough certainty in the difference between dried, processed and fresh peas. Additionally, the LEAF Marque leek data has been manipulated to more accurately represent the proportion of UK leeks that are LEAF Marque – this is likely due to Defra releasing provisional figures for 2016 compared to LEAF Marque figures being final and for 2017.

The proportion of UK LEAF Marque production out of all UK production can be seen for fruit and vegetables on pages 8, 9 and 21 of the Global Impacts Report 2018. Proportions of UK cereal, potato and livestock production have not been presented and can instead be accessed on request from LEAF.

Method D – Determining Impact Indicators for LEAF Marque certified businesses

Aligned with the LEAF Marque Intended Impacts, the Impact Indicators presented in Global Impacts Report 2018 demonstrate how LEAF Marque certified businesses are increasing the implementation of more environmentally sustainable farming practices through Integrated Farm Management (IFM).

Data provided in relation to the indicators is, in part, taken from the answers LEAF Marque businesses have provided in the LEAF Sustainable Farming Review or LEAF Audit alongside Production Information (see **Method B – Determining crop area and number of livestock units for LEAF Marque certified businesses**). It is a requirement of LEAF Marque certification, from 2015 (LEAF Marque Standard v12.0 onwards), for businesses to complete the LEAF Sustainable Farming Review. While this is self-assessment tool, answers are sense-checked and reviewed for appropriateness, where possible. The



questions and practices used to develop the Impact Indicators are kept consistent where possible, however best practice and the LEAF Marque Standard has evolved over time so some changes may have been made. More information on the individual questions and/or practices used please contact LEAF.

Impact Indicators for 2015 to 2017

Impact Indicators containing 2015, 2016 and 2017 figures were established using a combination of LEAF Marque certified business' production information and the answers provided in the LEAF Sustainable Farming Review to questions, practices and metrics.

Data shows the total crop area (not farm business area) or number of LEAF Marque certified businesses **(Method B - Determining crop area and number of livestock units for LEAF Marque certified businesses)** that answered "Fully Achieved" to corresponding questions in 2015 and/or 2016 and/or 2017 for statistics presented in Global Impacts Report 2018 on:

- Number of LEAF Marque certified businesses monitoring energy consumption (page 34)

It should be noted that LEAF members who responded "Considerable Progress" or "Some Progress" may still meet the criteria required within the LEAF Marque Standard; however, this is not represented within this report.

Data shows the total crop area (not farm business area) or number of LEAF Marque certified businesses **(Method B - Determining crop area and number of livestock units for LEAF Marque certified businesses)** that ticked the corresponding practice(s) in 2015 and/or 2016 and/or 2017 for statistics presented in Global Impacts Report 2018 on:

- Number of LEAF Marque certified businesses where nitrogen efficiency per tonne product is measured (page 26)
- Hectares of crop on LEAF Marque certified businesses where steps are taken to minimise damage to beneficial species and non-target organisms (page 28)
- Percentage of LEAF Marque certified businesses with livestock that observe indicators of animal welfare and performance on a production cycle basis (page 32)
- LEAF Marque certified businesses have one or more types of renewable energy generation on-farm (page 34)
- Number of LEAF Marque certified businesses measuring the water efficiency of irrigated crops (page 36)

The Waste Management Best Practice metric (presented on page 30 of Global Impacts Report 2018) was newly designed for 2016. LEAF defines Waste Management Best Practice as those businesses that, according to the LEAF Sustainable Farming Review of the corresponding year:

- Consider themselves to be "Fully Achieving" **or** making "Considerable Progress" towards **all** the following statements:
 - "We reduce possible wastes"
 - "We reuse our by-products effectively"
 - "We recycle or carefully dispose of wastes"
- **AND** consider themselves to be doing **at least 4** of the following practices:



- “Comply with waste disposal legislative requirements”
- “Plan purchase of goods in detail to reduce wastage”
- “Consider whether suppliers will accept return of packaging and containers for recycling/disposal”
- “Consider ease of recycling/disposal of packaging when comparing goods for purchase”
- “Recycle, or dispose of, all wastes which cannot be used in our business”
- “Ensure that wastes are disposed of without risk to water quality and the wider environment”
- Those businesses that considered “We reuse our by-products effectively” to be “N/A” to their business but they met all other requirements were also included.

The Integrated Pest Management Best Practice metric (presented on page 28 of Global Impacts Report 2018) was newly designed for 2017 so no comparison data is available. LEAF defines the 8 aspects of IPM Best Practice as those businesses that, according to the LEAF Sustainable Farming Review 2017:

- Consider themselves to be Fully Achieving **or** making Considerable Progress towards **all** the following statements:
 - “We have a Crop Health and Protection Policy”
 - “We assess crop health regularly”
 - “We use a range of crop protection measures”
- **AND** consider themselves to be meeting the practice: “Carry out a regular programme of crop walking”
- **AND IF** they considered the practice “We do not use PPPs” to be false for their business (i.e. the business uses pesticides) then they must also meet all the following criteria:
 - Fully Achieved or making Considerable Progress towards “We base PPP application based on evidence of need”
 - Consider themselves to “Include PPP strategy such as product choice, dose rate and effect on beneficial species”
 - Consider themselves to be doing at least 4 of the following practices:
 - “Include a resistance management strategy”
 - “Review and update the Policy annually”
 - “Map areas where heavy infestations occur regularly and patch spray”
 - “Use biological control measures”
 - “Use economic thresholds for spraying decisions”
 - “Use selective rather than broad spectrum plant protection products where possible and practical”

The creation of new questions in the LEAF Sustainable Farming Review that captured quantitative data was only available from 2016 onwards. Data was calculated from LEAF Marque certified businesses who provided data for the Impact Indicators related to the following questions:

- Staff on LEAF Marque certified businesses who have appropriate awareness of IFM (page 24)
- LEAF Marque certified businesses recorded Soil Organic Matter % (page 26)
- LEAF Marque certified businesses used a Carbon Footprint Tool (page 30)



- Average habitat area on LEAF Marque certified businesses (page 38)
- LEAF Marque certified businesses improving on-farm biodiversity (page 38)
- Visitors to LEAF Marque certified businesses (page 40)
- LEAF Marque certified businesses communicated about more sustainable food and farming (page 40)

It should be noted that Habitat Area (page 38) was calculated as a percentage of “Total Farmed Area”, with those businesses that resulted in habitat area <0.0001% or >100% were excluded from the data (If >100% habitat area was included in the data this would increase the habitat area by 0.9% in 2017 and 0.7% in 2016). Where habitat area was >75% for business, the Total Farm Area was used instead (where provided) as it was felt that the business’ definition of Total Farm Area or Total Farmed Area was perhaps misunderstood and therefore the full information provided by the business was utilised to more accurately estimate habitat area. In 2017, small fruit farms with number of trees >50,000 were removed from the data set as it was assumed these were including trees used for cropping. The guidance has subsequently been improved to prevent this happening in future scopes.

Other Methodologies

LEAF Annual Survey Results

For the past 5 years, LEAF has conducted a survey of our farmer members, including individual farmers (LEAF Marque certified and non-LEAF Marque certified) and producer groups. For 2017, this was titled the LEAF Annual Survey whereas in previous years it was circulated under the name LEAF Sustainability Survey. The aim of these surveys was to determine how our members felt about aspects of their businesses, including their sustainability.

LEAF’s definition of sustainability is:

‘Sustainable farming delivers a site-specific farming system supporting the integration of the environment, society and farm economic viability over the long term’

For the 2017 LEAF Annual Survey 55 members responded to the survey, while for LEAF’s Sustainability Survey (which was also circulated to college members). Whilst LEAF Members’ participation in all surveys was requested via email, the 2017 LEAF Annual Survey was hosted on Survey Monkey for the third year running whilst the 2014 Sustainability Survey was hosted within the Questionnaires platform on glue; the different platforms used and change of name may have affected the data.

The LEAF Annual and Sustainability Surveys asked a range of questions however just the answers to ‘Do you believe your farm practice met the environmental sustainability standard expected by suppliers and end users?’, ‘How economically sustainable do you feel your business is?’, ‘How environmentally sustainable do you feel your business is?’ and ‘How socially sustainable do you feel your business is?’ were presented in the report (see page 15). The combined responses to ‘How economically sustainable do you feel your business is?’, ‘How environmentally sustainable do you feel your business is?’ and ‘How



socially sustainable do you feel your business is?’ were presented graphically in the Global Impacts Report 2018 (see page 15).

LEAF Demonstration Farm Visits

All 35 LEAF Demonstration Farms were contacted via email to provide information around farm visits they had hosted in 2017. See <http://www.leafuk.org/leaf/farmers/demofarm.eb> for more information on the LEAF Demonstration Farms.

As at the 26th February 2018, 28 LEAF Demonstration Farmers had responded via email, phone call or entered data into the Visits and Talks question in the LEAF Sustainable Farming Review. Where data had been provided around number of visits, number of visitors and type of visitor, it was totalled and presented in the Global Impacts Report 201 (page 16).

LEAF Sustainable Farming Review Users

All LEAF members (includes all LEAF Membership Types), excluding test sites, who had completed the LEAF Sustainable Farming Review² 2017 were presented as a total number of ‘Users of the LEAF Sustainable Farming Review’ (page 16 of the Global Impacts Report 2018). Completion was considered to be all companies where the LEAF Sustainable Farming Review workflow state is ‘audit approved’. The LEAF Sustainable Farming Review can be completed and edited at any time during the year, with final responses being used in all data analysis.

For more statistics relating to the LEAF Sustainable Farming Review please contact LEAF.

Open Farm Sunday

The key statistics from LEAFs Open Farm Sunday 2017 are presented on page 22 of Global Impacts Report 2018.

The number of host farmers was calculated from Farm Registration data while the number of volunteers was calculated from responses to the Open Farm Sunday Farmer Feedback Survey (99 responses). Visitor’s Previous Experience and Visitor’s Understanding figures were calculated from responses to the Open Farm Sunday Visitor Surveys (785 online responses and 1,021 paper responses; 1,806 total responses). The number of visitors come from a combination of responses to the Open Farm Sunday Visitor Surveys, contacting farms and estimates using Range of Visitor Numbers per Farm (which came from Farm Registration data). Where data has come from the Open Farm Sunday Visitor Surveys and Farmer Survey, figures concerning visitor numbers have been extrapolated. Media Coverage figures come from individual social media pages (Facebook, Twitter and YouTube) and website hits via our Public Relations company, CERES.

For more figures surrounding Open Farm Sunday please consult Annabel Shackleton or Melanie McCarthy.



FACE

FACE has carried out detailed monitoring and analysis of its education activities since the merger (July 2017). Data is recorded by the FACE Regional Education Consultants after every activity into KOLOLA². Data includes total hours of activity delivered, total number and type of people and schools educated from 1st July 2017 to 28th February 2018.

The key statistics from FACE are presented on page 23 of Global Impacts Report 2018.

Independent Evaluations

LEAF commissioned the Countryside and Community Research Institute (CCRI) to undertake an independent evaluation of the impact of LEAF Marque certification, examining the financial, environmental and social benefits. It builds on previous work the CCRI carried out in 2010 which looked more broadly at the benefits to farmers of LEAF membership. For more information about this independent evaluation, including details of evaluators, methodology, key findings, conclusions and recommendations, please see *M. Reed, N. Lewis and J.Dwyer (2017) The effects and impacts LEAF Marque in the delivery of more sustainable farming: a study to understand the added value to farmers* on the LEAF website³

Other External Data Sources

Figures related to LEAF Marque certified businesses Leckford Estate and A.J and C.I Snell (as feature in the Case Studies on page 25 and 39, respectively) were confirmed by the primary contacts for the business (Andrew Fergusson and Anthony Snell).

Supplementary Tables and Figures

Please see contact LEAF if you require more supplementary tables and figures.

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² <https://www.kolola.net/>

³ <https://leafuk.org/farming/leaf-marque/leaf-marque-independent-evaluation>