



LEAF Global Impacts Report 2017

Appendix and Methods

About the Appendix

This document details the methods and data sources for the Global Impacts Report 2017.

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 2017**.

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 2017 includes information from the LEAF Audit, the LEAF Sustainable Farming Review, LEAF's Sustainability Survey, LEAF Open Farm Sunday.

LEAF Audit

The LEAF Audit is an online self-assessment resource which was available to LEAF members until December 2014 when it was replaced by the LEAF Sustainable Farming Review. The completion of the LEAF Audit was a requirement of the LEAF Marque Standard (e.g. v11.2) and this completion is



independently verified. However, the specific responses within the LEAF Audit are self-assessed and not verified through third party inspection.

The LEAF Audit comprised over 370 statements based around the sections of Integrated Farm Management. Each question was required to be answered with one of the following five responses: Fully Achieved; Considerable Progress; Some Progress; Not Started; or Not Applicable.

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 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 Sustainability Survey

Over the last 4 years, LEAF has sent out a repeat questionnaire to its members to ascertain LEAF members' perception of their farms' sustainability.

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.



Methods for the Global Impacts Reports 2017

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 2017.

This definition of a LEAF Marque certified business is also used to determine further statistics and maps for the Global Impacts Report 2017.

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 10, 22 & 23), the area of certain crop classes (pages 22 & 23) and crop enterprises (pages 8 & 20) and number of animals reared to the LEAF Marque Standard (page 34) in the Global Impacts Report 2017.

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 22 & 23 in the Global Impacts Report 2017). A vector file



map was downloaded from <http://freevectormaps.com/world-maps/WRLD-EPS-02-007> and Adobe Illustrator 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 July 2016 (containing 2015 data)
- Defra Livestock Population statistics as at March 2016 (containing 2015 data)
- Defra Farming Statistics June 2015 Report (containing 2015 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 2015 compared to LEAF Marque figures being final and for 2016.

The proportion of UK LEAF Marque production out of all UK production can be seen for fruit and vegetables on pages 9, 10 and 23 of the Global Impacts Report 2017. 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 2017 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 for businesses to complete the LEAF Audit, or from 2015 (LEAF Marque Standard v12.0 onwards), 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 & 2016

Impact Indicators containing 2015 and 2016 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 for statistics presented in Global Impacts Report 2017 on:

- Number of LEAF Marque certified businesses where nitrogen efficiency per tonne product is measured (page 28)
- Hectares of crop on LEAF Marque certified businesses with a Crop Health and Protection Policy (page 30)
- Hectares of crop on LEAF Marque certified businesses where steps are taken to minimise damage to beneficial species and non-target organisms (page 30)
- Number of LEAF Marque certified businesses monitoring energy consumption (page 36)
- Number of LEAF Marque certified businesses measuring the water efficiency of irrigated crops (page 38)

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.

The Waste Management Best Practice metric (presented on page 32 of Global Impacts Report 2017) was newly designed for 2016 so no comparison data is available. LEAF defines Waste Management Best Practice as those businesses that, according to the LEAF Sustainable Farming Review 2016:

- 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 creation of new questions in the LEAF Sustainable Farming Review that captured quantitative data was available only for 2016 so no comparison data is available. 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 28)
- LEAF Marque certified businesses used a Carbon Footprint Tool (page 32)
- LEAF Marque certified businesses have one or more types of renewable energy generation on-farm (page 36)
- Average habitat area on LEAF Marque certified businesses (page 40)
- LEAF Marque certified businesses improving on-farm biodiversity (page 40)
- Visitors to LEAF Marque certified businesses (page 42)
- LEAF Marque certified businesses communicated about more sustainable food and farming (page 42)

It should be noted that Habitat Area (page 40) 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 0.7%). 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 (This resulted in a 0.2% increase in the habitat area). The guidance has subsequently been improved to prevent this happening in future scopes. In addition, the respective distance of hedges in terms of capital cities was determined by searching for distances between well-known locations and choosing the one that most closely matched the figure calculated. The distance from Paris to Moscow is detailed as 2,836km and thus from Paris to Moscow and back again (5,672km) is roughly the length of hedges (6,455 km).

Impact Indicators for 2014

In some cases, data presented in the Global Impacts Report 2017 has been compared to LEAF Marque businesses in 2014 (page 28 & 30). This data has come LEAF Marque business’ responses to the LEAF Audit¹ rather than the LEAF Sustainable Farming Review.

The reported statistics shows the number of or total hectares of crop for LEAF Marque certified business (see **Method B - Determining crop area and number of livestock units for LEAF Marque certified businesses**) that answered “Fully Achieved”. 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.



Other Methodologies

Sustainability 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), producer groups and college members. The aim of LEAF's Sustainability Survey³ was to determine if our members felt aspects of their businesses were more or less sustainable than five years ago and how they were communicating the sustainability of their business practices to their customers.

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 2016 survey (as at 1st Jan 2017), 181 farmer members responded to the survey, 176 members responded to the 2015 survey and 127 responded to the 2014 survey. Whilst LEAF Members' participation in all surveys was requested via email, the 2016 and 2015 Sustainability Survey was hosted on Survey Monkey whilst the 2014 Sustainability Survey was hosted within the Questionnaires platform on glue; the different platforms used may have affected the data.

The Sustainability Survey asked a range of questions however just the answers to 'Do you feel that your business is more or less financially, socially and environmentally sustainable than it was five years ago?' was presented graphically in the Global Impacts Report 2017 (see page 17).

LEAF Demonstration Farm Visits

All 35 LEAF Demonstration Farms were contacted via email to provide information around farm visits they had hosted in 2016. See <http://www.leafuk.org/leaf/farmers/demofarm.eb> for more information on the LEAF Demonstration Farms.

As at the 10th April 2017, 26 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 2017 (pages 18 & 19).

LEAF Sustainable Farming Review Users

All LEAF members (includes all LEAF Membership Types), excluding test sites, who had completed the LEAF Sustainable Farming Review² 2016 were presented as a total number of 'Users of the LEAF Sustainable Farming Review' (page 18 of the Global Impacts Report 2017). Completion was considered to be all Companies where the LEAF Sustainable Farming Review workflow state is 'audit approved' or 'Complete'. 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 2016 are presented on page 24 of Global Impacts Report 2016.

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 Survey (168 responses). Visitor's Previous Experience and Visitor's Understanding figures were calculated from responses to the Open Farm Sunday Visitor Surveys (717 online responses and 1,442 paper responses; 2,159 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) via our Personal Relations company, CERES.

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

Other External Data Sources

Jordan's are defined as the UK's fourth biggest cereal supplier in the Independent article "Jordans cereal company: Still growing those wild oats" published on the 23rd July 2005 (<http://www.independent.co.uk/news/business/sme/jordans-cereal-company-still-growing-those-wild-oats-301333.html>).

Supplementary Tables and Figures

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

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