

**Memorandum of Understanding between**

**Environmental Protection Agency**

**and**

**Department of Agriculture, Food and the Marine**

The objective of this Memorandum of Understanding (MoU) is to set out areas of mutual responsibility and shared interest between the Environmental Protection Agency (EPA) and the Department of Agriculture, Food and the Marine (DAFM) related to reporting historical emissions from the agriculture sector, Land Use, Land Use Change and Forestry (LULUCF) and projected emissions from forest land.

Signed:

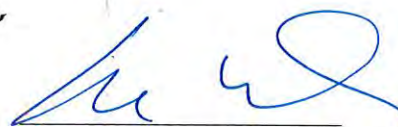


Tom Moran  
Secretary General

Department of Agriculture, Food and  
the Marine (DAFM)

Date: 10/5/12

Signed:



Laura Burke  
Director General

Environmental Protection  
Agency

Date: 25/4/2012

## **Introduction**

This Memorandum of Understanding (MoU) between the Department of Agriculture, Food and Marine ("the Department") and the Environmental Protection Agency ("the Agency") provides a framework for enhanced cooperation in areas of mutual interest, leading to greater efficiency and effectiveness in the delivery of the respective work programmes of both organisations. In particular, it encompasses agreement on provision of data regarding

- agricultural activity data to underpin the agriculture emission inventories
- estimates and projected estimates of emissions and removals of greenhouse gases and related information associated with forest land
- activity data to underpin emission estimates from Land Use and Land Use Change

## ***Environmental Protection Agency***

The Agency is an independent public body established under the Environmental Protection Agency Act 1992. The Agency has responsibilities for a wide range of licensing, enforcement, monitoring, assessment, research and reporting activities associated with environmental protection and environmental data management.

The Agency's mission is *"to protect and improve the natural environment for present and future generations, taking into account the environmental, social and economic principles of sustainable development"*.

Estimates of national anthropogenic emissions to the atmosphere are compiled on an annual basis by the Agency under its powers and responsibilities as provided in the Environmental Protection Agency Act 1992.

The national air inventories provide estimates of the annual trends in emissions of the main pollutants, including greenhouse gases and acidifying gases, which are vital for informing national environmental policy to address such emissions and their associated health and environmental impacts. The inventories are also key to ensure that Ireland meets its EU and international reporting obligations under various environmental conventions and protocols including the Kyoto Protocol and the Convention on Long Range Transboundary Air Pollution. Furthermore, the Agency develops emissions projections on an annual basis to meet national and EU reporting requirements.

## ***Department of Agriculture, Food and the Marine***

The Department is responsible for policy advice on agriculture, food, forestry, fishing and the rural environment. The Department regulates the agriculture, food and fishing industries through national and EU legislation and directs State bodies engaged in research, training, market development and commercial activities.

The Department is responsible for national forest research and development policy and priorities, the formulation and implementation of the national forest research programme and transferring the knowledge generated into practice. The Department



funds extensive research on the carbon sequestration capacity of Ireland's forests and advises Government on the role of forest carbon sequestration in mitigating the effects of climate change.

Forest Sector Development Division of the Department has responsibility for compiling annual greenhouse gas inventories for the forest sector for reporting to the Kyoto Protocol and the United Nations Framework Convention on Climate Change (UNFCCC), as well as providing projections of carbon uptake and release from forests.

### **Purpose of Memorandum of Understanding (Overview)**

The objective of this memorandum of understanding is to provide a framework for cooperation and assistance between the Department and the Agency in areas of environmental data governance related to reporting emissions from the agriculture sector, estimates and projected estimates of emissions and removals of greenhouse gases from forest land and activity data to underpin emission estimates from Land Use and Land Use Change.

The adoption of this memorandum will:

- facilitate work in existing areas of shared interest and cooperation related to national emissions inventories and projections
- facilitate the free and timely exchange of relevant information and data
- support compliance with Ireland's EU and other international reporting responsibilities, and
- promote best practice in areas of common interest; improve quality.

The implementation of this memorandum will be without prejudice to the statutory responsibilities and obligations of both organisations. Cooperation should also lead to efficiencies for both organisations, as well as for industry and others, in relation to the potential to maximise the use of available data, and avoidance of duplication of effort.

The memorandum is designed to be consistent with the requirements of the National Atmospheric Inventory System (NAIS) which establishes the necessary institutional, legal and procedural arrangements for the compilation of robust inventories of national emissions to the atmosphere. The NAIS provides for a formal Memorandum of Understanding between each Key Data Provider (the Department in this case) and the Agency regarding the scope, quality and submission date of the data to be provided for the purposes of the national emission inventories.

### **General Principles of Cooperation**

The purpose of this Memorandum of Understanding is to record the agreement that has been reached by the Parties.

The Term of this Memorandum is five years from the date of signing, and may be reviewed by agreement of both parties from time to time during the term in order to

ensure the greatest efficacy of its implementation. The memorandum shall in any event be reviewed on an annual basis by the Liaison Group (infra).

The Parties shall continue, during the Term, to consider ways to improve the quality of the key data as part of the process of continuous improvement of the national atmospheric inventories and national emission projections.

Each Party shall be responsible for any costs incurred by it in connection with this Memorandum of Understanding.

The Department agrees to provide the relevant data on an annual basis for timely incorporation into the national atmospheric inventories and national emission projections in accordance with the Schedules of this Memorandum, and to be involved in the process of continuous improvement for the Term.

The data will only be used by the Agency to report national air inventories and projections in line with reporting obligations, to inform EU and UN expert reviews of the national air inventories and to facilitate further research to improve inventories. Access to the data provided by the Department will be restricted to individuals involved in this process.

**This Memorandum does not provide for the transfer of personal data as defined in the Data Protection Acts 1988 and 2003 and the parties agree to adhere to the provisions of those Acts.**

The Schedules detail the data requirements as follows:

**Schedule 1** Data requirements to underpin emissions inventories from the agriculture sector

**Schedule 2** Data requirements to underpin emissions inventories and projections from forest land

**Schedule 3** Land Parcel Information System (LPIS) data to underpin emissions calculations from Land Use and Land Use Change

### **Liaison Group**

The Department and the Agency shall establish a Liaison Group as a formal, high-level mechanism for consultation and communication between both organisations. It shall be the responsibility of the Liaison Group to consider all data and cooperative matters, and related issues of mutual interest.

The Liaison Group will include representatives from the Department and the Agency. The Liaison Group will meet on an annual basis to review areas of cooperation and progress, as well as to devise action items where relevant. Minutes of these meetings will be agreed and held by both organisations.

The Liaison Group may decide to refer certain matters of cooperation to technical sub-groups or make other arrangements to examine matters of common interest. Such groups may examine matters of a technical, legal or administrative nature where co-operation may provide opportunities for efficiencies and effectiveness in relation to mutual and respective roles. Such working groups as may be established from time to time will operate under an agreed Terms of Reference and report to the Liaison Group.

### **Memorandum of Understanding Review**

The effective operation of this MoU may be subject to change or revision following annual review of progress by Liaison Group with recommendations for change made to, and accepted by, the respective signatories.

### **Confidentiality**

Notwithstanding the expiry or early termination of this Memorandum of Understanding for any cause, the provisions of Confidentiality shall survive such expiry or early termination.

Each Party possesses valuable information, technical knowledge, experience and data of a confidential nature that it regards as assets of considerable value. Each Party may disclose such information to the other Party on the condition that the recipient of the information does not disclose it to any third party or make use of it in any manner except insofar as is necessary to achieve the purposes of this Agreement.

The above undertakings shall not apply to:

- information, which at the time of disclosure is published or otherwise generally available to the public or where there is a right to access as defined under the European Communities (Access to Information on the Environment Regulations) S.I No. 133 of 2007
- information which after disclosure is published or becomes generally available to the public, otherwise than through the fault or negligence of the receiving Party
- information, which the receiving Party can show, was in its possession at the time of disclosure and which was not acquired directly or indirectly from the disclosing Party
- information rightfully acquired from others who did not obtain it under conditions of confidentiality to the disclosing Party.



## Schedule 1 - Data requirements to underpin emissions inventories from the agriculture sector

The data relating to cattle, fertiliser, poultry and cross border traffic of lambs for slaughter for previous years are to be provided in electronic format by 30th September annually, starting in 2012.

The detailed data requirements are outlined below as follows:

Agreement Table 1.1      Statistical data for cattle compiled under the Animal Identification and Movement (AIM) scheme

Agreement Table 1.2      Fertiliser and lime statistics

Agreement Table 1.3      Poultry statistics

Agreement Table 1.4      Cross border traffic of lambs for slaughter

An outline of the Quality Assurance system and specific data quality checks related to the data provided to the Agency by the Department as set out in the Agreement Tables below.

### Agreement Table 1.1 - Cattle Population Statistics

<b>Organisation</b>	<b>DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE (DAFM)</b>
<b>Contact</b>	<a href="mailto:pat.keena@agriculture.gov.ie">Pat Keena (pat.keena@agriculture.gov.ie)</a> <a href="mailto:Liam.Kinsella@agriculture.gov.ie">Liam Kinsella (Liam.Kinsella@agriculture.gov.ie)</a>
<b>Submission Date</b>	30 <sup>th</sup> September each year
<b>Data submitted to the EPA annually for previous years</b>	<p>Cattle population statistics from AIM (Animal Identification and Movement), formerly known as CMMS (Cattle Movement and Monitoring Scheme). The following tables are used in calculating emission factors for inclusion in the agriculture greenhouse gas inventory</p> <p><u>Chapter 1: Calf Birth Registration Data</u></p> <ul style="list-style-type: none"> <li>• Total Number of Beef and Dairy calves by County</li> <li>• Calf Births (year) by Month and by Breed of Dam</li> <li>• Breed Composition of (year) Born Calves</li> <li>• Calf Births (year) by County, by Gender and by Sire Type</li> </ul> <p><u>Chapter 3: Disposal of Cattle</u></p> <ul style="list-style-type: none"> <li>• Stillborn Calves (year) by Month, gender and Sire Type</li> <li>• Age Profile of On Farm Deaths (year) for Male Beef Cattle by Month</li> <li>• Age Profile of On Farm Deaths (year) for Female Beef Cattle by Month</li> <li>• Age Profile of On Farm deaths (year) for Male dairy Cattle by Month</li> <li>• Age Profile of On Farm Deaths (year) for Female Dairy Cattle by Month</li> <li>• Age Profile of Abattoir Slaughterings (year) for Beef Cattle by Month and by Gender</li> <li>• Age Profile of Abattoir Slaughterings (year) for Dairy Cattle by Month and by Gender</li> <li>• Age Profile of Factory Slaughterings (year) for Beef Cattle by Month and by Gender</li> <li>• Age Profile of Factory Slaughterings (year) for Dairy Cattle by Month and by Gender</li> <li>• Age Profile of Live Exports (year) for Beef Cattle by Month and by Gender</li> </ul>

	<ul style="list-style-type: none"> <li>Age Profile of Live Exports (year) for Dairy Cattle by Month and by Gender</li> </ul>
<b>Summary of Data: origin, collection, processing, checking prior to submission to EPA.</b>	<p>Origin: AIM is a database of all cattle born in or imported into Ireland which also records all movements and disposals of cattle.</p> <p>Under national and EU legislation, all keepers of cattle are required to notify the birth of an animal within 27 days and to notify the movements of cattle onto or off their holding directly to another holding within 7 days of the movement. Keepers are also required to notify any on-farm deaths on their holding within 7 days.</p> <p>Data are provided also to AIM from export-approved factories, local authority abattoirs, live export points and from livestock marts.</p> <p>Collection: An extract of the raw data for all births, deaths, slaughterings and exports for the year in question is taken from the AIM database and made available for interrogation.</p> <p>Processing: Using a specialised data interrogation system, the raw data are queried to provide the cattle statistics referred to above.</p> <p>Checking: All data extracted are examined thoroughly within the Department prior to release.</p>
<b>Consistency of Estimation methodology</b>	
<b>QA system details:</b>	Quality assurance is ensured by the actions set out below.
<b>Is the QA system accredited?</b>	No
<b>Protocols &amp; Guidance</b>	<p>There are many validations carried out before data are accepted onto AIM.</p> <p>Calf birth registrations are not accepted unless the herd number of the applicant is valid, has an active status and has been supplied with a herd identifier. Registrations are not accepted unless the tag number is valid, the dam is alive in the herd of birth at the time of birth, is over 18 months of age, has not had a calf in the previous 300 days and has matching breed details.</p> <p>The AIM database is an integrated database. All exits, disposals and other movements are validated by reference to the initial calf registration data and act as further verification of the existence of animals. Registered animals may not be removed from the AIM database unless recorded as slaughtered, exported or dead on farm.</p> <p>The Animal Health Computer System (AHCS), which is used to record TB and Brucellosis data, acts as a further cross-check on the accuracy of AIM data whereby any inaccuracies in registrations are highlighted systematically at the time of the herd test and a follow-up reconciliation process is undertaken between the two computer systems.</p>
<b>Summary of Specific QC Procedures</b>	See above
<b>Comments on data quality or uncertainty issues</b>	Not applicable – see above



**Agreement Table 1.2 - Fertiliser and Lime Statistics**

<b>Organisation</b>	<b>DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE (DAFM)</b>
<b>Contact</b>	Cara Mac Aodháin ( <a href="mailto:cara.macaodhain@agriculture.gov.ie">cara.macaodhain@agriculture.gov.ie</a> ) Liam Kinsella ( <a href="mailto:liam.kinsella@agriculture.gov.ie">liam.kinsella@agriculture.gov.ie</a> ) John Creaney ( <a href="mailto:john.creaney@agriculture.gov.ie">john.creaney@agriculture.gov.ie</a> )
<b>Submission Date</b>	30 <sup>th</sup> September each year
<b>Data submitted to the EPA annually for previous years</b>	Wholesale data submitted includes actual sales volumes of fertiliser, in addition to sales volumes of three major nutrients: nitrogen, phosphorus and potassium  Submission includes fertiliser and lime sales for all commercial crop use rather than just agricultural and horticultural use.  Small packets of fertilisers sold for garden use are not included because of insignificant volume.
<b>Summary of Data: origin, collection, processing, checking prior to submission to EPA.</b>	Data on fertiliser sales volumes within the Republic of Ireland is collected at source (manufacturers and importers) on a quarterly basis.  DAFM Crop Production and Safety Division (CPSD) compile the sales data quarterly and annually. An annual report of fertiliser sales data is produced by DAFM and made available to CSO, industry, Eurostats and FAO.  There is a legislative requirement that volumes of manufactured/imported fertilisers are made to DAFM. In addition, there is a good knowledge of the industry with DAFM Field Officers in Feeding stuffs, Fertilisers, Grain Marketing and Poultry Division being in regular contact with port authorities and established fertiliser importers & manufacturers  Data on lime sales is also collected at source (licensed quarries) on a monthly basis. The vast majority of lime used in Ireland is sourced from quarries within the Republic of Ireland. Arrangements are also in place to collate lime statistics of imported Lime.
<b>Consistency of Estimation methodology</b>	The consistency of data management for fertiliser and lime sales is reliant on the experience and competence of DAFM individuals and the co-operation of industry in providing declarations of volume sales. Data collection requirements for fertiliser are outlined in S.I. No. 384 of 2005. Monthly lime volume sales returns are one of the prerequisite conditions when a quarry is licensed to manufacture and sell ground limestone.
<b>QA system details: Protocols &amp; Guidance</b>	Quality assurance is ensured by the actions set out below.
<b>Summary of Specific QC Procedures</b>	Several ad-hoc checks are performed periodically on fertiliser and lime sales data: <ul style="list-style-type: none"> <li>• an up-to-date list of Irish importers and manufacturers who sell fertiliser and lime in Republic of Ireland is maintained.</li> <li>• data is checked where a significant increase or decrease in fertiliser and lime sales is detected or where data appears to be irregular.</li> <li>• figures are checked to see if they are in line with previous years' figures and trends and/or expected changes to previous trends</li> <li>• provisional figures are circulated within DAFM to personnel to whom the data is relevant to get their observations before being officially released as final figures.</li> <li>• DAFM personnel check to ascertain whether fertiliser and lime sales figures are broadly in line with what is expected, taking into account cropping trends, climate and product prices.</li> </ul>
<b>Comments on</b>	<ul style="list-style-type: none"> <li>• Some uncertainties could result from import and export, at retail level, of</li> </ul>



<b>data quality or uncertainty issues</b>	<p>fertiliser and lime across the border with Northern Ireland, however these issues are being addressed and minimised.</p> <ul style="list-style-type: none"> <li>Year-end returns of unsold product are not taken into account as fertiliser stocks have a short storage life and stocks would not be large at the end of the fertiliser reporting year (September 30<sup>th</sup>). Lime statistics are based on actual sales and in general large stocks would not be present at end of the reporting year.</li> </ul> <p>For the reasons outlined above, wholesale data is a very good indicator of fertiliser and lime sales volumes, although there may be a slight over- or under-estimate actual use in any one year. Any discrepancy will be balanced in the following years data.</p>
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**Agreement Table 1.3 – Poultry Statistics**

<b>Organisation</b>	<b>DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE (DAFM)</b>
<b>Contact</b>	<b>Liam Kinsella</b> ( <a href="mailto:Liam.Kinsella@agriculture.gov.ie">Liam.Kinsella@agriculture.gov.ie</a> )
<b>Submission Date</b>	30 <sup>th</sup> September each year
<b>Data submitted to the EPA annually for previous years</b>	<p>Data for the 30<sup>th</sup> June for:</p> <ol style="list-style-type: none"> <li>1) Total number of places for layers/capacity</li> <li>2) Total number of places for broilers/capacity</li> <li>3) Total number of turkeys slaughtered</li> </ol>
<b>Summary of Data: origin, collection, processing, checking prior to submission to EPA.</b>	DAFM maintains, inter alia, a register of commercial poultry flocks for Avian Influenza and other disease control purposes. 'Snapshot' data can be extracted and compared with information from earlier dates. Cross checking of register with records of new and exiting flocks is made. Total figures are checked by a second staff member. Slaughter data in the case of turkeys is forwarded by individual meat plants under Regulation (EC) No 1165/2008.
<b>Consistency of Estimation methodology</b>	There is a legal requirement for any person keeping poultry to register with DAFM. This does not always happen with smaller flocks but commercial flock owners tend to take all the steps necessary to ensure the security and legitimacy of their, often very valuable, flock.
<b>QA system details: accredited?, Protocols &amp; Guidance</b>	No formal QA accreditation. However, data is cross checked with registration applications, formal registration cessations, and inspection reports received in Poultry Unit together with ongoing contact with local inspectors and the DAFM unit responsible for management of the register.
<b>Summary of Specific QC Procedures</b>	As above.
<b>Comments on data quality or uncertainty issues</b>	Data in respect of layers and broilers is based on house capacity figures. Not all houses will be fully stocked during the year, so there may be a slight over estimation of the numbers.

**Agreement Table 1.4 – Sheep Statistics**

<b>Organisation</b>	<b>DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE (DAFM)</b>
<b>Contact</b>	<b>Liam Kinsella</b> ( <a href="mailto:Liam.Kinsella@agriculture.gov.ie">Liam.Kinsella@agriculture.gov.ie</a> ) <b>Brian O'Keeffe</b> ( <a href="mailto:Brian.OKeeffe@agriculture.gov.ie">Brian.OKeeffe@agriculture.gov.ie</a> )
<b>Submission Date</b>	30 <sup>th</sup> September annually for data for previous years.
<b>Data submitted to the EPA annually for previous years</b>	<ol style="list-style-type: none"> <li>i. Number of Northern Ireland Sheep Slaughtered at Approved ROI Export Premises</li> <li>ii. Number clean sheep statistics as imports to Northern Ireland from the Republic of Ireland</li> </ol>
<b>Summary of Data:</b>	i. Number of Northern Ireland Sheep Slaughtered at Approved ROI

<b>origin, collection, processing, checking prior to submission to EPA.</b>	<p>Export Premises</p> <p>Origin – compiled from returns completed by Veterinary staff at DAFM-approved sheep slaughter plants</p> <p>Collection – based on information made available by the slaughter plant</p> <p>Processing – data is input into an excel spreadsheet by a clerical officer</p> <p>Checking- spreadsheet is checked by an executive officer before it is issued</p> <p>ii. Number clean sheep statistics as imports to Northern Ireland from the Republic of Ireland</p> <p>Origin – based on information supplied by the Department of Agriculture and Rural Development in Northern Ireland</p> <p>Collection – collected by DARDNI in a manner unknown</p> <p>Processing – Relevant data is extracted from the spreadsheet received from DARDNI and entered into a DAFM summary spreadsheet by a clerical officer</p> <p>Checking- spreadsheet is checked by an executive officer before it is issued.</p>
<b>Consistency of Estimation methodology</b>	In both cases the methodology used by DAFM has not changed in recent years.
<b>QA system details: accredited?, Protocols &amp; Guidance</b>	DAFM procedures have been documented in a procedures manual. Not accredited under any formal QA system.
<b>Summary of Specific QC Procedures</b>	See above.
<b>Comments on data quality or uncertainty issues</b>	The data is believed to be reliable.



## **Schedule 2 - Data requirements to underpin emissions and projections from forest land**

The data relating to previous years (from 1990) **(A)** is to be provided in electronic format annually to the EPA by 30th September for Convention LULUCF and 30th November for Kyoto Protocol reporting, beginning in 2012.

The data relating to emissions for future years over the projected period (up to 2020) **(B)** is to be provided in electronic format annually to the EPA by 30<sup>th</sup> November.

- A.** Data for previous years to be provided annually by DAFM for the purpose of compiling the annual inventories of emissions and removals (Agreement Table 2.1) comprise the following:
- Estimates of carbon dioxide emissions and removals associated with biomass, deadwood, litter and soil pools on forest land;
  - Estimates of emissions of other non-CO<sub>2</sub> greenhouse gases from forest land;
  - Statistical data on Afforestation, Reforestation, Deforestation, harvesting and other relevant activities that support the estimates of emissions and removals for forest land;
  - Estimates of carbon dioxide emissions and removals associated with biomass pools on forest land subject to Article 3.3 of the Kyoto Protocol;
  - Estimates of emissions of other greenhouse gases from forest land subject to Article 3.3 of the Kyoto Protocol;
  - Statistical data on Afforestation, Reforestation, Deforestation, harvesting and other relevant activities according to land category that support the estimates of emissions and removals for forest land subject to Article 3.3 of the Kyoto Protocol.
- B.** Data to be provided annually by DAFM for the purpose of developing national emissions projections (Agreement Table 2.1) comprise the following:
- Estimates of forest land remaining forests, land converted to forests and forests converted to all other lands under convention LULUCF reporting
  - Estimates of carbon dioxide emissions and removals associated with biomass pools in forest land subject to Article 3.3 of the Kyoto Protocol;
  - Estimates of emissions of other greenhouse gases from forest land subject to Article 3.3 (and Article 3.4, if appropriate post-2012) of the Kyoto Protocol.
- C.** An outline of the Quality Assurance system and specific data quality checks related to the data provided to EPA by DAFM as set out in the Agreement Table 2.1 below.
- D.** Provide expertise and technical support during in-country and centralised reviews of Ireland's greenhouse gas inventory. Respond to Expert Review Team recommendations and any proposed modifications of methodologies and/or the National Inventory Report.

**Agreement Table 2.1**

<b>Key Data Provider</b>	<b>DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE (DAFM)</b>
<b>Contact</b>	Dr Eugene Hendrick, Forest Sector Development Division <a href="mailto:Eugene.Hendrick@agriculture.gov.ie">Eugene.Hendrick@agriculture.gov.ie</a>
<b>Submission Date</b>	30 <sup>th</sup> September for Convention LULUCF and 30 <sup>th</sup> November for Kyoto Protocol reporting.
<b>Data submitted to the EPA annually for previous years</b>	<ul style="list-style-type: none"> <li>• Estimates of carbon dioxide emissions and removals associated with biomass pools on forest land for reporting and accounting purposes under the national greenhouse gas inventories required under the Convention and the Kyoto Protocol;</li> <li>• Estimates of emissions of other greenhouse gases from forest land for the reporting and accounting purposes identified above;</li> <li>• Statistical data on Afforestation, Reforestation, Deforestation, harvesting and other relevant activities that support the estimates of emissions and removals for forest land;</li> <li>• Forest lands and deforested lands under convention LULUCF reporting;</li> <li>• Estimates of carbon dioxide emissions and removals associated with biomass pools on forest land subject to activities under Article 3.3 of the Kyoto Protocol</li> <li>• Estimates of emissions of other greenhouse gases from forest land subject to activities under Article 3.3 of the Kyoto Protocol;</li> <li>• Statistical data on Afforestation, Reforestation, Deforestation, harvesting and other relevant activities that support the estimates of emissions and removals for forest land subject to activities under Article 3.3 of the Kyoto Protocol.</li> </ul>
<b>Data submitted to the EPA for developing emissions projections</b>	<ul style="list-style-type: none"> <li>• Projected estimates of carbon dioxide emissions and removals associated with biomass pools on forest land subject to activities under Article 3.3 of the Kyoto Protocol;</li> <li>• Projected estimates of emissions of other greenhouse gases from forest land subject to activities under Article 3.3 and 3.4 (if appropriate post-2012) of the Kyoto Protocol;</li> <li>• Projected activity data on Afforestation, Reforestation, Deforestation, harvesting and other relevant activities that support the projections of emissions and removals for forest land.</li> </ul>
<b>Summary of Data: origin, collection, processing, checking prior to submission to EPA.</b>	<p>Data are collected by DAFM in-house, from Coillte and private grower organisations and are subject to quality checking.</p> <p>Additional checks are conducted (e.g. cross-checking with other datasets available such as the Joint Sector Forest Questionnaire in respect of harvest levels).</p> <p>The CARBIFOR 2 and CARBWARE project (a national forest carbon stock and flux project funded by DAFM 2007 to 2011) supplies updated data on sequestration rates, emissions and other reporting-relevant data.</p> <p>National Forest Inventory (NFI) and research data are processed using a software tool, CARBWARE, which generates the carbon stock and stock changes in a UNFCCC-compatible format. DAFM submits these data to the EPA.</p> <p>Compilation analysis and submission of forestry data:</p> <ul style="list-style-type: none"> <li>• Ongoing R&amp;D to move to higher tier methods;</li> <li>• Carbon accounting capacity in sinks and harvested wood products;</li> <li>• Updating the CARBWARE model.</li> </ul>
<b>Consistency of Estimation Methodology</b>	<p>A description of DAFMs methodologies for data collection, processing, reporting and checking related to forest land is available for LULUCF reporting: "CARBWARE – An Excel based carbon accounting system", Gerhardt Gallagher and Eugene Hendrick, 2003.</p> <p>The Excel based system will be replaced with the new CARBWARE software for reporting article 3.3 activities (CARBWARE manual in preparation (due December 2011)).</p>



	This will also eventually be used for LULUCF Convention reporting once a sufficient time series is available for back extrapolation to generate a consistent time series.
<b>QA system details:</b>	DAFM is putting in place a QA/QC system for forest land based on the IPCC GPG Chapter 5.5.
<b>Summary of Specific QC</b>	<p>DAFM and/or sub-contractors check the data for anomalies and carry out ground-truthing on data sets such as Deforestation. The data are input to CARBWARE, which generates the carbon stocks and stock changes in a UNFCCC-compatible format. Reports are then submitted to EPA.</p> <p>There is a MoU between DAFM and Coillte outlining the delivery of activity data and QA/QC checks by agencies.</p>
<b>Comments on data quality or uncertainty issues</b>	In the new CARBWARE module data quality and uncertainty will be documented and assessed.

### **Schedule 3 - Land Parcel Information System (LPIS) data to underpin emissions from Land Use and Land Use Change**

The data relating to Land Parcel Information System (LPIS) for previous years (back to 2000) are to be provided in electronic format by 30th September annually, starting in 2012.

The data to be provided annually will include:

- Land Parcel Shapefiles
- Parcel identity (ID) codes that are consistent in time, where possible
- Attribute data relevant to the agriculture land use of each parcel
- Anonymous identification code for farms, consistent in time, where possible. This will enable tracking of parcel use in the context of crop rotation patterns on farms.

The data will be used to inform the compilation of national and regional estimates of greenhouse gas emissions due to land use so as to facilitate

- reporting of Ireland's national inventory
- the review of the national inventory at national and international level; and
- further research.

The data will inform analysis of a statistical description of land use patterns both spatially, and in terms of changes in land use with time.

The data will be aggregated to a spatial resolution appropriate to optimum representation of parameters which influence greenhouse gas emissions and sinks within agriculture, e.g. climatic zones, soil type, drainage class.