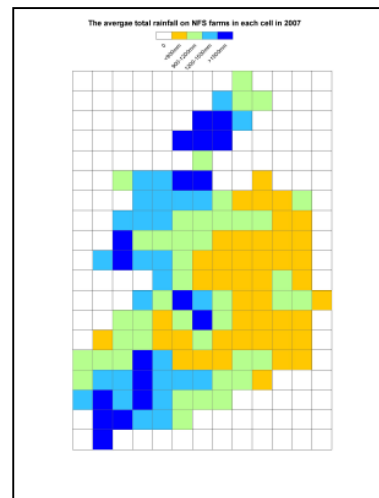


Project number: 5838
Funding source: Teagasc

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Project dates: Feb 2008 – May 2009

Mapping the National Farm Survey



Key external stakeholders:

Farm Accountancy Data Network (FADN), Department of Agriculture, Fisheries and Food, Teagasc staff.

Practical implications for stakeholders:

REDP researchers can now ascribe geographic data, not collected in the survey, to NFS correspondents allowing us, for instance, to:

- Examine the effect of past weather on present agricultural output, economic performance and farmer decision making.
- Or see now how the geographic location of farms, including environmental conditions and physical infrastructure like the road network and distance to processing plants, effects performance.

Main results:

This project has successfully assigned a geographic coordinate label to farms in the 2007 national farm survey database.

Opportunity:

With a coordinate, spatially referenced environmental, economic and geographic data can now be assigned to each farm within the NFS thus expanding the data attributes of the NFS dataset.

Collaborating Institutions:

N/A

Teagasc project team: Stuart Green,
Gerry Quinlan
External collaborators: N/A

1. Project background:

The National Farm survey (NFS) is designed to represent the major agricultural enterprises in Ireland. Its approach on collection and dissemination of data has always been by farm sector and enterprise type. The only geographic information collected was the address of the correspondent. Delivering results on a sectorial basis satisfies the national FADN reporting requirements and also guarantees the confidentiality of the correspondents.

Since the establishment of the NFS methodology there have been major developments in mapping technology such that the majority of agri-environmental data is managed and stored as computer map geo-databases. In the last decade the use of explicit geo-spatial analysis within agri-economics has grown in importance.

Retrospectively spatially-enabling the NFS allows the collected records to be used more easily within this new geospatial environment. Allotting each farm correspondent in the NFS with a geographic coordinate (an x-y coordinate) allows for the allocating of data to each farm from other map sources (for example calculating actual road distance to the nearest mart for all beef farms in the NFS). With a Geo-spatially enabled NFS (GNFS) we can allocate historical weather records to each farm or see how decisions year-on-year are influenced by weather. The geospatial NFS allows us to examine new FADN proposal to publish national surveys as maps.

2. Questions addressed by the project:

The aim is to try and associate a geographic X-Y point (in Irish National Grid coordinates) to each participant in the NFS for 2007 in order to attribute new environmental, geographical or meteorological data to each farm that is not ordinarily captured in the survey (local rainfall for instance) using address matching techniques against the GeoDirectory (an An Post/OSI geographic database with the location and address of every building address in Ireland)

3. The experimental studies:

There are three parts to the problem of spatially enabling the National Farm Survey for allocation of environmental attributes:

1. Matching addresses in the NFS to possible addresses in the GeoDirectory Database.
2. Allocating a geographic point that represents the matched GeoDirectory Database addresses that deals with the one-to-many matching possibilities and retains the confidentiality in the data.
3. Ascribing a representative sample of the environmental attribute to the point.

Addresses in the NFS 2007 database (names were not used or supplied) were matched against the 1.5 million addresses in the GeoDirectory. The method has to deal with the many alternate place name spellings (as well as accidental misspellings) that exist.

The NFS contained 1350 records. Detailed examination of this list revealed a number of further data capture issues. The NFS address is allocated to a point in the Geodirectory if the address matched or nearly matched.

Only 6% of NFS addresses match one-to-one with a GeoDirectory building the rest match with numbers of buildings, the average is a NFS address to match to 10 GeoDirectory buildings. This *one-to-many* matching is normal in rural Ireland where all the houses in a townland will have the same address and post is delivered based on the name of the addressee.

4. Main results:

NFS Farm addresses were matched to addresses contained within the 2007 Geo-Directory. The wide variety of alternate spellings in Irish and English make rural address matching in Ireland difficult. Only 6% of NFS addresses matched with a single GeoDirectory point, the average match was 10 points to each NFS address

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- This project has successfully assigned a geographic coordinate label to farms in the 2007 national farm survey database.
 - With a coordinate, spatially referenced environmental, economic and geographic data can now be assigned to each farm thus expanding the data attributes of the NFS dataset (as in the illustration on page one showing average rainfall for NFS farms)
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5. Opportunity/Benefit:

This is an internal Teagasc research enabling project. A service is now available to Teagasc researchers wherein they can request a geospatial dataset is ascribed to NFS farms, e.g. classification of farms in the NFS according to their height above sea level or proximity to contractors.

6. Dissemination:

The direct outputs of this project are confidential and have not been published – however the service has already been used in a number of projects that have produced reports and research papers.

7. Compiled by: Stuart Green
