



### Tracking food products from farm to the fork

*A prototype system designed to help consumers, farmers and other interested parties trace the geographic origin of food at all stages of production from 'farm to fork' - storage, processing and distribution - has been developed by researchers.*

In the wake of successive outbreaks of food-borne disease in the past decade (think mad cow disease, *E.coli*, salmonella, etc) and the current fear over the possible spread of avian flu, public demand for tighter safeguards on the entire food production chain has never been greater.

For the team behind the IST-funded [GeoTraceAgri](#) project there is a keen awareness of the high stakes involved for all the various players.

"The certification of the origin of food products is a vital issue for Europe in the ongoing discussions with the World Trade Organisation," explains Michel Debord, project coordinator. "Americans in particular prefer to certify the quality of a product according to its brand and attach no real importance to its origin. European consumers, by contrast, want to know where the food that they eat has come from."

The concept behind GeoTraceAgri is to take advantage of advances in information and communication technology, satellite imaging and mapping to enable clear and precise tracking of food products that are accessible in real-time to relevant parties.

### Indicating the origin of agricultural products

"The ultimate goal of GeoTraceAgri was to develop indicators of geotraceability that enable users to locate precisely the origin of agricultural products," he says. "The advantage of this type of system is that the geographical certification is objective and verifiable, and can be viewed on the Internet using secure geoportals that have been specifically developed for this purpose."

The first stage of the project involved defining the indicators and determining the indicator classes relevant to geographical traceability in agriculture. The various geographical scales taken into consideration included information such as the plot, field, catchments and region for which the origin of the product is certified (Region d'Appellation Contrôlée or AOC).

The next stages involved constructing a reference system for geographical traceability for selected agricultural sectors and developing the computer infrastructure needed to ensure the geographical traceability of the agricultural products.

Development of the prototype involved testing by over 25 parties such as cooperatives, administrations, farmers, and various specialists in a number of European regions.



The final prototype – built using a variety of different platforms, languages, databases, mapping engines, and spatial processing libraries – reflects both the diverse nature of the project and the wide range of expertise that the consortium partners brought to the table.

While the overall feedback from end users was very positive, it was clear to project participants that work remains to be done in educating the agricultural community about the concept of geotraceability as well as training them to exploit the system's full potential.

### Improving management

Another possible benefit is the role such a system could play in streamlining procedures and reinforcing the competitiveness of EU agriculture. The data used in the course of the project also has positive implications for environmental management relating to rural land use and cover, topography, climatology, soil type, hydrographic network, yields, and so forth.

While there has been a long-standing need for such traceability, the GeoTraceAgri project is in the happy position of coming to fruition at just the right time. Since January 2005, the new Common Agricultural Policy (CAP) requires farmers and producers in EU Member States to guarantee the quality of their produce, and to set up means of traceability using a single system of declaration.



A key aspect of the declaration system is the Land Parcel Identification System (LPIS), which utilises orthophotoplans – basically aerial photographs and high precision satellite images that are digitally rendered to extract as much meaningful spatial information as possible. A unique number is given to each land parcel to provide a unique identification in space and time. This information is then updated regularly to monitor the evolution of the land cover and the management of the crops.

The result is a growing database of European-wide geolocalised information that reinforces the basis of the concept of geotraceability and provides a firm platform for future versions of the GeoTraceAgri prototype, says Debord.

"The main benefit is that geotraceability is fully objective and certifies the declaration of origin made by the farmer or producer. Today more than 80 per cent of existing data can be geolocalised and thus visualised on the Internet using geoportals such as Google Earth," he says.

At the time that the project was under development such detailed geographical data was not available to the GeoTraceAgri team. But the partners still succeeded in developing and validating a prototype using a decentralised IT architecture and Web services. Their aim was to create a user-friendly system that would be readily accessible on the Internet for farmers, cooperatives, distributors and administrations with control responsibilities.

Although GeoTraceAgri has officially completed its project duration, the real story of geotraceability is just beginning, believes Michel Debord. CDER, one of the partners involved in the GeoTraceAgri consortium, has been delegated the task of developing the prototype into a full-blown commercial product.

Also keen to build on the success of GeoTraceAgri, the European Commission gave the green light for a follow-up

project, GTIS CAP (GeoTraceability Integrated System for the Common Agricultural Policy). The aim of GTIS CAP was to define and validate an integrated information system that will serve both the European and national administrative bodies in charge of the CAP and the producers of vegetal products for consumers and for livestock. That project has itself now reached a successful conclusion.

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[GTIS CAP project website](#)  
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