

Title: FarmNFC: Smartphone with NFC from field to fork

Objectives: Bring information of food traceability to the final consumer through the use of NFC tags in the product and the development of app for the consumer smartphone and other apps to be used at different stages of the supply chain.

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video: <http://www.expo2015.univpm.it/farm-nfc>

Summary:

Nowadays, consumers must be able to connect with data coming from multiple sources in and outside the supply chain. Information and communications technology (ICT) solutions (e.g. automated quality control) have an impact on quality and safety of any product and they are needed to optimize the information flow between farmers and stakeholders and to improve traceability in the food supply chain.

The current food labelling system cannot guarantee food quality and safety. A good **traceability** system is a useful tool to overcome this problem, thereby minimizing the potential for bad publicity, and enhancing consumer confidence.

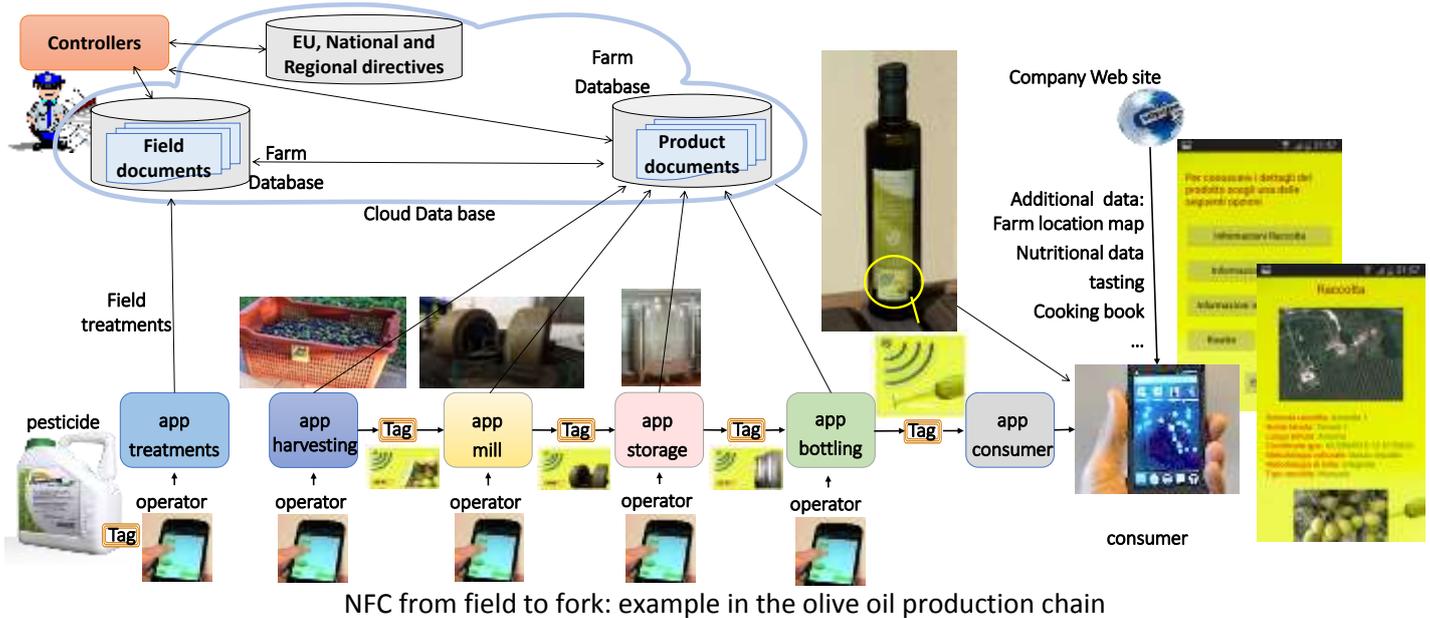
Since 2000s RfId technology has been applied in the food chain process with high costs and high complexity allowing the adoption only for big companies. More recently, the QRcode has been used, for example applied in a bottle of wine, to show information through the consumer smartphone, essentially as a fast link to the company web site, even if it is not a system of food traceability. The great innovation of QRcode is the possibility for the consumer to have information related to the company using his smartphone. Recently, the industrial olive oil company Bertolli announced the use of Near Field Communication (NFC) in the bottle for the American market. In this case, it is only as a link to a web site without the integration with a food traceability system. The Bertolli marketing strategy shows that the consumer is ready to appreciate information on the product with **smartphone and NFC**.

The purpose of this project is to use the NFC technology in each phase of the food supply chain (production, processing, distribution and consumption) and cloud storage to share information among farmers, government institutions and final consumers.

The solution will allow an easy management of data by the farmers, for internal use, and to fulfill the requirements of the regional, national and European authorities.

Furthermore, the use of cloud data storage will allow to share information among farmers involved in the same production chain, farmer consortium (e.g Bio-consortium, protected designation of origin, protected geographical indication, traditional specialities guaranteed), government institutions and authorities responsible for controls (Payment Agencies, certification bodies, etc) and final consumers.

FarmNFC



During the production chain from field treatments to packaging, all the information of previous production steps are obtained approaching the smartphone of the farmer to the tag placed in the object, additional information are added and stored in a cloud database and written in another tag.

The final consumer can read all the information, or what the farmer and the law want to show, about the supply chain, simply approaching his smartphone with NFC to the tag placed on the food products (i.e. bottle of olive oil).

Furthermore, the developed system can support the Integrated Administration and Control System (IACS) procedure, since the information recorded and produced with the proposed system can be used in the IACS, facilitating different administrative and control procedures.

The recorded information may be used by public institutions for the administrative checks and by controllers that acquire information first of the on-the-spot-checks, reducing the time of the controls and carrying less disturbance to the farmers.

The system will automatically support farmers' declaration and administrative documents and if required the administrative documents will be instantaneously sent in the cloud database to all the control institutions. The developed apps for smartphone with NFC will help the farmers to verify the compliance of the action they are making with the legislation. The farmers can correct the formal error as well as correct inappropriate actions (for example the use of pesticide not correct for a particular field, the use of an incorrect amount of pesticide).

The implementation of this new form of technology increases **food safety** not only for the final consumer, but also for agents of each phase of the supply chain. In addition, the app can promote sustainable production and product quality with the final effect of improving consumers' confidence.