

# INTEGRATED AGROLOGISTICS SYSTEM FOR TRACING AND SUPPORTING THE SALE OF FRESH FRUITS AND VEGETABLES (T1EDK-05348)



## Scope and Objectives of the Project

The fresh food industry recognizes the importance of traceability and food safety but some sectors are seen as more advanced than others in implementing the relevant procedures throughout the chain. The two main drivers for promoting traceability in the fresh fruit and vegetable industry are legislation (543/2011), on the other hand, increasing consumers' demand for accurate and complete information on the foods they consume, especially fresh foods that are more prone to spoilage. Facing the challenges of compliance with the requirements of the legislation, as well as meeting consumer expectations for safe fresh food, several sectors of industry are planning separate - often parallel - routes to define traceability guidelines and compliance with the specific food safety aspects related to the specific characteristics of individual supply chains. In the international traceability application results database, it is clear that product identification and standardized exchange of product data contribute to food safety, while establishing cost-effective business processes for disseminating information to all supply chain stakeholders.

The system proposed to be implemented under the project aims to support both internal traceability within enterprises and the overall (external) traceability of fresh fruit and vegetable products across the supply chain. In particular, internal tracing is to include packaging procedures to link the identity of lots of fresh fruit and vegetables to batches in the form of packaging, boxes and pallets.



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Similarly, external tracing is to include communication between trading partners on the identity of the products and their transport. To this end, product identification codes will be communicated to those involved in the distribution network, product labels and relevant electronic documents. The above are invited to link natural products with information required for their traceability Integrated Agrologistics System for the Tracing and Support of The Disposal of Fresh Fruits and Vegetables (AgroTRACE) will cover the whole range of production and disposal of fresh fruits and vegetables, from the field to the shelf, but also beyond. The innovation of the proposed system is further enhanced by the fact that tracing will go further than the field-to-shelf route and cover the recycling part (biomass, compost, etc.) in the context of the circular economy. So we're going to implement traceability from the field-to-the-shelf-to-the-field. In this way, on the one hand, we will have a strengthening of food safety supported by detailed information accessible from across the supply chain, including consumers, but also from certification bodies and audit authorities. Our tracing will also fully cover the piece of organic waste (biowaste), providing supply chain partners with documentation on their Corporate Social Responsibility, as well as supporting industrial symbiosis, where the waste or by-product of a production process is an input of another production unit. The collection and management of big data relating to real-world conditions and real-time events at the various stages of the chain will also be an important element.

## Expected Results

The main result of the project is the development of an innovative Fresh Fruit & Vegetable Tracking System using IoT technologies and an integrated Event Capturing and IoT Application Management Platform with a focus on interoperability. An important part of the system will be the proposed Transaction Support & Information Management Information System, which will be addressed to all partners in the supply chain of fresh fruits and vegetables, starting from the field and going as far as managing organic waste as part of a circular economy approach. The information system will consist of 4 distinct subsystems, which due to the modular architecture to be followed during their design and implementation, can be used independently covering the relevant needs. In addition to the system, an IoT Application Platform & Event Capturing platform will be developed, in which 2 Event Capturing and 5 IoT applications will be available. Therefore, at the end of the project there will be ready-to-use 12 software products that can operate either autonomously or collaboratively, in the context of the implementation of specific use cases. More specifically, the main features of the proposed system which as a whole give it a competitive advantage in a rapidly growing market are: Standards: Full compliance with GS1 standards and best practices related to them | Supply Chain Range: From the field to the consumer and back to the field through the monitoring of waste recycling of fresh products | Minimum reference level: Tracking at commercial unit (product) level | Data transmission technologies: RFID, LoRaWAN, Beacons (BLE) | Modular Structure: Central modular structure for full flexibility and adaptability | Open architecture: Open information templates using XML for full interoperability.

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