

Agricultural Supply Chains: A Traceability Case Study

CASE STUDY

CUSTOMER PROFILE

This company is one of the world's leading agriculture companies, globally recognized for its innovative technologies that assist farmers in maximizing agricultural resources. As part of a larger conglomerate, it operates in over 100 countries with a workforce exceeding 53,000 individuals, focused on modernizing agricultural techniques. This project took place in their Brazilian business unit.

CHALLENGES

This company regularly encounters complaints regarding the inefficiency of their crop protection products, including fungicides, herbicides, and insecticides, only to discover, upon thorough investigation, that a significant portion of these grievances stem from product fraud or counterfeiting.

To address this challenge, they pursued a traceability solution for their pesticide products sold in 5-liter and 20-liter containers that would ensure the authenticity of their products. Furthermore, the client wanted more transparency across their distribution channels—gaining insight into the product's whereabouts downstream—to enhance sales and logistics planning, as well as to monitor product usage across different regions and timeframes.

SOLUTION

To tailor a solution that would meet the client's requirements, OPTEL initiated a series of meetings with the customer, followed by technical visits to their plant site. During these visits, details such as conveyor measurements, available space, potential camera placements, positions for electrical panels, and production speed were gathered. This data enabled OPTEL to propose the most suitable solution.

In this scenario, a solution involving serialization—assigning a unique/serial number or identifier to each product or packaging level—and aggregation—creating hierarchical relationships between different packaging layers—proved most effective. This solution would streamline the identification of genuine products and enable the identification of products lacking a valid serial number.



In practice, each product would bear a unique identifier printed on its label, which would then undergo a camera inspection to ensure alignment with the reference image value. This value would be cross-verified against a predefined parameter. The client opted to print specific information on their products: GTIN, lot number, manufacturing date, expiry date, serial number, and a 2D code containing all this information.

Subsequently, these products would be aggregated into the next packaging level. For instance, 5-liter containers would be packed into boxes accommodating four of them. As soon as four containers were placed in a box, a new label for the box would be printed, indicating the presence of those four serialized units (the linkage established within the system).

However, a challenge emerged with this particular 5-liter product. Once the containers were inside the box, their labels became unreadable (not visible through the box). To address this, a UV datamatrix code (invisible to the human eye) was printed on each container lid. This ensured that even within the box, the containers could be "read" and verified within the system.

For 20-liter containers, the process remained largely similar but involved different levels of packaging, with the containers being placed directly into pallets.

If any issues arose with the printing or labeling process, a signal would be sent to a rejection mechanism—a sort of "arm"—designed to remove problematic products from the production line.

RESULTS

With traceability implemented and with every product now bearing a unique serial number, seamlessly integrated into the database accessible to supply chain partners—from manufacturers to dispensaries—a new level of transparency and security has been achieved.

Any product lacking a corresponding entry in the database, indicating potential counterfeit activity, can be swiftly identified and rejected. Moreover, this system empowers the client to now pinpoint specific regional requirements and adapt their supply chain strategies accordingly, fostering agility and efficiency in meeting market demands.

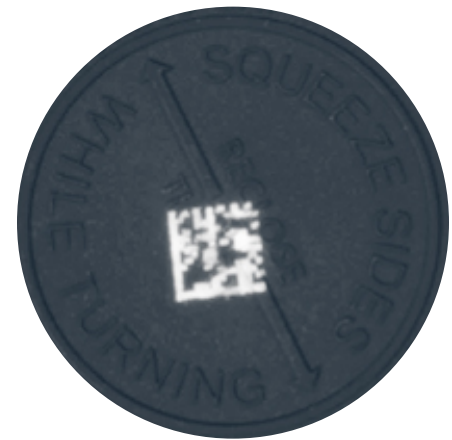
CONTACT US

To learn more about OPTEL's traceability solutions, contact us at optelgroup.com/contact/.

Unique identifier



UV datamatrix code



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