

COST-EFFECTIVE GRAIN QUALITY MONITORING AND SILO TRACEABILITY FOR SCALABLE FARM NETWORKS

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MAIN CHALLENGE/ OBJECTIVES

Farmers lacked tools to verify grain quality and traceability, leading to economic losses. The objective was to reduce rejected batches and improve pricing through affordable, scalable digital tools and shared data practices.

MAIN RESULTS/ OUTCOMES

The practice improved price margins and eliminated rejected grain batches. It enabled cost-effective quality verification and traceability using existing farm software and open-source tools, with minimal additional investment.



PRACTICAL IMPLICATIONS / RECOMMENDATIONS

This practice can be replicated by farms using basic digital infrastructure. It leverages open-source tools (QGIS, Mergin Maps) and existing farm management systems (FMIS, silo software) to collect, synchronize, and share mycotoxin test results. Farmers mark sampling points, and results are integrated into silo records and grain certificates. The main costs involve training in digital tools and coordination with service providers (e.g., for sampling and data synchronization). The model is viable for farms managing multiple silos or producing grain for premium markets. It is especially beneficial when farms collaborate to form larger, uniform grain batches. The system is adaptable to other crops and regions where quality verification and traceability are critical. Practitioners should ensure data privacy via trusted intermediaries and align with buyers' certification requirements. The approach supports better market positioning with modest investment and high return potential.

GEOGRAPHICAL LOCATION

Finland

FURTHER INFORMATION

Data Pellon Uudisraivaajat (Data Field Pioneers) is an EIP-AGRI Operational Group in Finland (2024–2026), funded by the CAP Strategic Plan (EAFRD). The project is coordinated by DataSpace Europe with JAMK University of Applied Sciences and grain farmers. Keywords: communal data, grain trade, farm cooperation, fair data economy, digital agriculture, Operational Group, traceability, interoperability, Finland



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