Moving towards an interoperable multi-actor food and feed tracing software ecosystem for Europe

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INTRODUCTION

In times of complex globalised food and feed supply chains there is a strong need for efficient tracing strategies that include effective communication, data collection and data exchange approaches as well as powerful interoperable tracing software tools. In general, harmonised data structures, accurate and detailed datasets, digitalised data collection tools including data validation as well as interfaces to data systems are essential to allow for a faster tracing data exchange and thorough tracing. Despite recent major foodborne incidents, those requirements are not yet fully in place.

METHODOLOGY

To achieve those aims, a new project cooperation between the European Food Safety Authority (EFSA) and the German Federal Institute for Risk Assessment (BfR) was initiated in 2021. The project will focus on the development of a tracing data collection workflow and a Universal Tracing information eXchange format (UTX) to achieve interoperability between several national and European tracing tools developed for varying purposes in the food safety system. With that, the project will unify the synergies between tracing initiatives in the Member States (MS), Europe and beyond. Using agile software development methods, existing tools will be adapted to fit into the tracing workflow and new software features will be implemented if required.

RESULTS

Many software tools to be integrated into the tracing data collection workflow already exist from several initiatives. A comprehensive EFSA tool provides guided and structured data extraction from unstructured RASFF notifications. The Rapid Alert Supply Network Extractor (RASNEX) tool, developed by BfR, complements the EFSA tool by automatically extracting relevant tracing information in advance from RASFF notifications using pattern recognition. To collect data at the local level, a web-based data entry mask for local food safety officers with on-site plausibility checks and access to curated data was developed by the German

Federal State North Rhine-Westphalia. FoodChain-Lab (FCL), tracing software developed by BfR, is used to visualise and analyse tracing data collected by the aforementioned tools. FCL also provides a reporting module to create a visual output for reports such as EFSA Rapid Outbreak Assessments. The UTX format serving as an interface between the tracing tools is able to complement their advantages to provide flexible, comprehensive solutions for any tracing setting. The next step in the project is to define this format in detail.

DISCUSSION

The tracing data collection ecosystem and the UTX format will be inclusive and will be discussed and evaluated by the European MS during the course of the project. If more tracing tools exist at MS level, they can be included and/or use can be made of the possibilities that are offered by the tracing tool ecosystem via the UTX format as well. The UTX format will consist of standardised parts but will also offer the flexibility to include data which are characteristic of specific tools. UTX data files can be uploaded to the RASFF system to share data and prevent duplication of work for the MS with regard to the laborious and time-consuming manual data extraction from RASFF notifications in times of crises. Ultimately, it is expected that this development will improve the quality, timeliness and completeness of tracing data used for immediate analysis and therefore help to solve complex foodborne crises more efficiently.