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Conference Abstract

FoodChain-Lab Web: An integrative modular software to visualise and analyse complex global food supply chain networks during foodborne incidents

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Abstract

In times of globalised food and feed trade, powerful integrative software tools are essential to solve foodborne crises quickly and reliably. The FoodChain-Lab web application (FCL Web; https://fcl-portal.bfr.berlin/) is such a tool. FCL Web is free and open-source software which helps to trace back and forward food along complex global supply chains during foodborne disease outbreaks or other food-related events. In the framework of One Health EJP COHESIVE, the efforts of several national and international tracing-related software projects are integrated within FCL Web to provide a modular tracing platform following the One Health approach.

FCL Web unifies interactive tracing data visualisation, analysis as well as reporting - and in the future data collection - in one modular tracing platform (Fig. 1). The interactive analysis module was developed in a project with EFSA and offers automated visualisation of supply chains based on the needs of the user. A data table displays key information on involved food business operators and food items and includes comprehensive filter functions to analyse the information given in the table. The analysis module also helps to run

simulations on hypothetical cross contamination or geographic clustering events during outbreaks via a scoring algorithm for deliveries and food business operators. A pilot version of a reporting module was integrated in FCL Web as well to display tracing, sample and case information in a format suitable for publishing tracing results in outbreak reports. A web-based tracing data collection mask offering a guided and structured data assessment with access to curated data was developed in a national project and will be integrated in FCL Web soon. Its multi-language design allows for potential European-wide use. In the future, more modules, e.g. to analyse genome sequencing data in the context of tracing are planned for FCL Web.

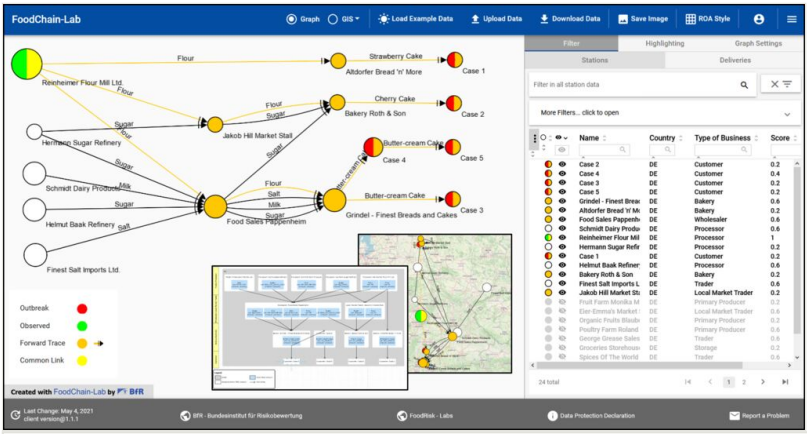

Figure 1. doi

FCL Web visualising the supply chain network of a fictitious foodborne disease outbreak in the network view, the map view, the reporting view and in the data table.

With its features and its integrative approach, FCL Web blends seamlessly into a list of crucial tracing tool projects in Europe. In the future, these tools will be strongly interconnected to serve several tracing purposes on the local, national or European level. Hence, there is a need to improve interoperability of the tools e.g. via a universal data exchange format.

Keywords

FoodChain-Lab, tracing web portal, foodborne disease outbreaks, supply chains, digital innovation

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