

Food-Related Norovirus Outbreak in Southern Germany

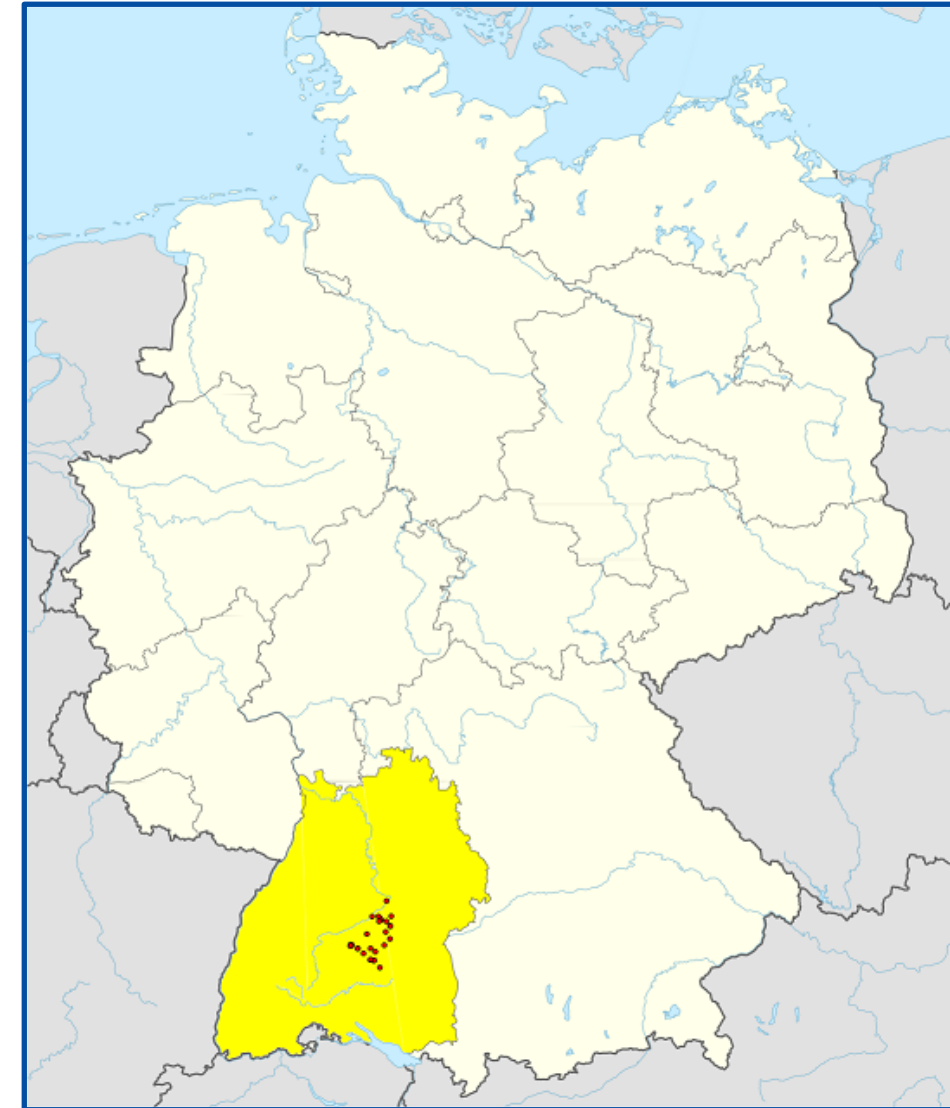
15.05.2025, London

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Food-Related Norovirus Outbreak in Southern Germany

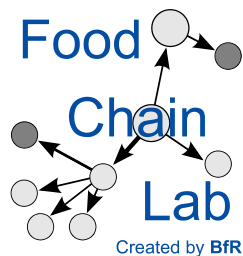
- Above-average number of gastroenteritis cases in Baden-Württemberg, a federal state of Germany
- Many children in schools and day-care centres affected
- Symptoms including fever, diarrhoea and vomiting.

The responsible authorities (you!) have declared an outbreak and started an investigation.



Map from NordNordWest, adapted
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<https://commons.wikimedia.org/w/index.php?curid=35392837>

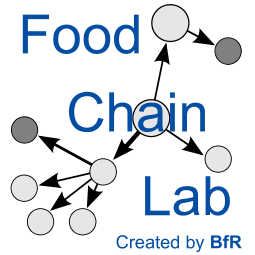
Cases, aggregated by educational institution



Educational Institution	Name	Street	House Number	Postal Code	City	Federal State ¹⁾	Cases	First Symptoms	Laboratory Test Result	Confirmed Cases? (Y/N)-	Lunch by Caterer? (Y/N)	Name of Caterer	Caterer's Principal Office	Establishment Capacity (No. of Children)
School	Primary school 01	Heuweg	1	72417	Jungingen	BW	18	01/09/2014		Y	Y	Caterer 1	Burladingen	146
School	Primary school 02	Lichtensteinweg	1	72393	Burladingen	BW	22	02/09/2014		Y	Y	Caterer 1	Burladingen	173
School	Primary school 04	Stillfriedstraße	1	72379	Hechingen	BW	27	01/09/2014	Norovirus	Y	Y	Caterer 1	Burladingen	187
School	Primary school 05	Steinbeisstraße	1	72501	Gammertingen	BW	12	01/09/2014		Y	Y	Caterer 1	Burladingen	83
School	Primary school 06	Sonnenhalde	1	72532	Gomadingen	BW	22	03/09/2014		Y	Y	Caterer 2	Engstingen	109
School	Primary school 07	Stuttgarter Straße	1	72574	Bad Urach	BW	18	04/09/2014		Y	Y	Caterer 2	Engstingen	108
School	Primary school 08	Emil-Mörsch-Weg	1	72555	Metzingen	BW	31	03/09/2014		Y	Y	Caterer 2	Engstingen	128
School	Secondary modern school 01	Brunnenstraße	1	72417	Jungingen	BW	20	01/09/2014		Y	Y	Caterer 1	Burladingen	181
School	Secondary modern school 02	Gammertinger Straße	1	72379	Hechingen	BW	15	02/09/2014	Norovirus	Y	Y	Caterer 1	Burladingen	106
School	Secondary modern school 03	Europastraße	1	72501	Gammertingen	BW	28	02/09/2014	Norovirus	Y	Y	Caterer 1	Burladingen	175
School	Secondary modern school 04	Siemensstraße	1	72818	Trochtelfingen	BW	24	01/09/2014	Norovirus	Y	Y	Caterer 1	Burladingen	166
School	Secondary modern school 05	Auf dem Graben	1	72574	Bad Urach	BW	12	03/09/2014		Y	Y	Caterer 2	Engstingen	103
School	Secondary modern school 06	Orffweg	1	72555	Metzingen	BW	17	03/09/2014		Y	Y	Caterer 2	Engstingen	116
Day-care centre	Day-care centre 01	Weilbachstraße	1	72417	Jungingen	BW	25	01/09/2014	Norovirus	Y	Y	Caterer 1	Burladingen	149
Day-care centre	Day-care centre 03	Panoramastraße	1	72393	Burladingen	BW	31	02/09/2014		Y	Y	Caterer 1	Burladingen	180
Day-care centre	Day-care centre 04	Tübinger Straße	1	72379	Hechingen	BW	19	01/09/2014		Y	Y	Caterer 1	Burladingen	191
Day-care centre	Day-care centre 05	Friedrich-Wolf-Weg	1	72379	Hechingen	BW	16	01/09/2014		Y	Y	Caterer 1	Burladingen	96
Day-care centre	Day-care centre 06	Eichertstraße	1	72501	Gammertingen	BW	24	01/09/2014		Y	Y	Caterer 1	Burladingen	146
Day-care centre	Day-care centre 07	Kapelleschweg	1	72818	Trochtelfingen	BW	24	01/09/2014		Y	Y	Caterer 1	Burladingen	168
Day-care centre	Day-care centre 08	Sperberweg 28	1	72829	Engstingen	BW	24	03/09/2014		Y	Y	Caterer 2	Engstingen	145
Day-care centre	Day-care centre 09	Bannholz	1	72532	Gomadingen	BW	18	04/09/2014		Y	Y	Caterer 2	Engstingen	140
Day-care centre	Day-care centre 10	Eichbergstraße	1	72813	Sankt Johann	BW	32	03/09/2014		Y	Y	Caterer 2	Engstingen	122
Day-care centre	Day-care centre 11	Schillerstraße	1	72574	Bad Urach	BW	24	04/09/2014		Y	Y	Caterer 2	Engstingen	115
Day-care centre	Day-care centre 12	Im Altweck	1	72585	Riederich	BW	10	03/09/2014		Y	Y	Caterer 2	Engstingen	67
Day-care centre	Day-care centre 13	Bachstraße	1	72585	Riederich	BW	31	03/09/2014		Y	Y	Caterer 2	Engstingen	124
Day-care centre	Day-care centre 14	Wangstraße	1	72813	Sankt Johann	BW	36	03/09/2014		Y	Y	Caterer 2	Engstingen	132
School	Grammar school 01	Gammertinger Straße	1	72379	Hechingen	BW	18	01/09/2014	Norovirus	Y	Y	Caterer 1	Burladingen	110
School	Grammar school 02	Hechinger Straße	1	72501	Gammertingen	BW	19	02/09/2014		Y	Y	Caterer 1	Burladingen	110
School	Grammar school 03	Schillerstraße	1	72818	Trochtelfingen	BW	18	01/09/2014		Y	Y	Caterer 1	Burladingen	152
School	Grammar school 04	Stuttgarter Straße	1	72574	Bad Urach	BW	33	04/09/2014		Y	Y	Caterer 2	Engstingen	176
School	Grammar school 05	Im Millert	1	72555	Metzingen	BW	11	03/09/2014		Y	Y	Caterer 2	Engstingen	92

1) BW – Baden-Württemberg

Case definition

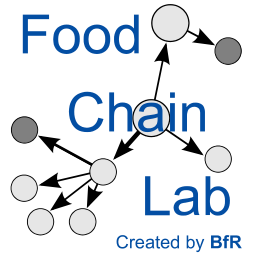


for an educational institution in Baden-Württemberg affected by a gastroenteritis outbreak:

- The educational institution (school, day-care centre) offers menus from external caterers for all children.
 - Catering is provided by an external caterer.
 - At least 10% of individuals (children, pupils) have fallen ill between 1. Sep and 7. Sep 2014 and show symptoms like diarrhoea or vomitus.
- OR
- At least 10 individuals* (children, pupils) have fallen ill between 1. Sep and 7. Sep 2014 and show symptoms like diarrhoea or vomitus.

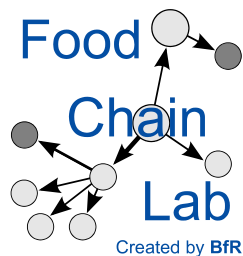
* Including educational institutions not fulfilling the 10% criterion but with at least ten diseased individuals considers the fact that especially in grammar schools and secondary modern schools a substantial proportion of pupils does not eat the meals offered at school. This way schools with many pupils but with a small number of pupils affected can be included in the outbreak investigation.

Objective



- Identify the contaminated food(s) responsible for the outbreak by tracing back the suspicious food items.
- If the product(s) and lot number(s) were able to be traced, recall them to minimise the further spread of the pathogen as well as to reduce the number of new cases.

Technical Note



DATE	STORY	TASKS	WHAT TO DO IN FOODCHAIN-LAB	FILES
08 Sep 2014	Members of the outbreak investigation team have visited educational institutions. They found out more about the caterers and their menus. As a first bit of information you are provided with	Import the three delivery lists into the FoodChain-Lab-Database.	<u>Data import into the database</u> <ul style="list-style-type: none">Choose Food-Lab → Open DB Gui... [K2] in the menu to open the internal FoodChain-Lab database.In the database window click the Table import [DB1] button in the upper left corner.	Start_Tracing_Primary school 01.xlsx Start_Tracing_Primary school 02.xlsx Start_Tracing_Secondary modern

Screenshots from KNIME

- K1 – K12 KNIME
- DB1 – DB10 FCL Database
- T1 – T15 Tracing View

KNIME Analytics Platform

File Edit View Node Food-Lab Help

KNIME Explorer

My-KNIME-Hub (api.hub.knime.com)
EXAMPLES (knime@api.hub.knime.com)
LOCAL (Local Workspace)
Example Workflows
EFSA_Results_me 13
EFSA_Results_me 13_AF
Gastroenteritis outbreak completed

Workflow Coach

Node recommendations only available with usage data reporting.

Node Repository

IO
Manipulation
Views
Analytics
DB
Other Data Types
Structured Data
Scripting
Tools & Services
KNIME Labs
Workflow Control
Workflow Abstraction
Reporting
FoodChain-Lab

*4: Gastroenteritis outbreak completed

Welcome to KNIME Analytics Platform

*3: EFSA_Results_me 13_AF

Supply Chain Reader

Tracing View

Node 5

Node 6

Outline

Console

Node Monitor

KNIME Console
WARN Geocoding 4:4 Geocoding failed for row Row47

Description

KNIME Hub

Tracing View

This node can visualize a supply chain. The three mandatory input ports expect a station table, an delivery table and a delivery relations table. These tables are provided by the Supply Chain Analyzer. Tracing can be performed by setting the following four properties for stations and deliveries: "Case Weight", "Cross Contamination", "Kill Contamination" and "Observed". You can change the property values by double clicking on a station/delivery or by using "Station/Delivery Selection -> Show Properties" from the context menu. Based on these properties the following values are computed: "Score", "Normalized Score", "Positive Score", "Negative Score", "Forward", "Backward". The results of the tracing or any other data from input tables can be visualized by using highlighting (as explained below).

Dialog Options

Station Properties

Weight

Weights for stations. The computed scores are based on these weights.

Cross Contamination

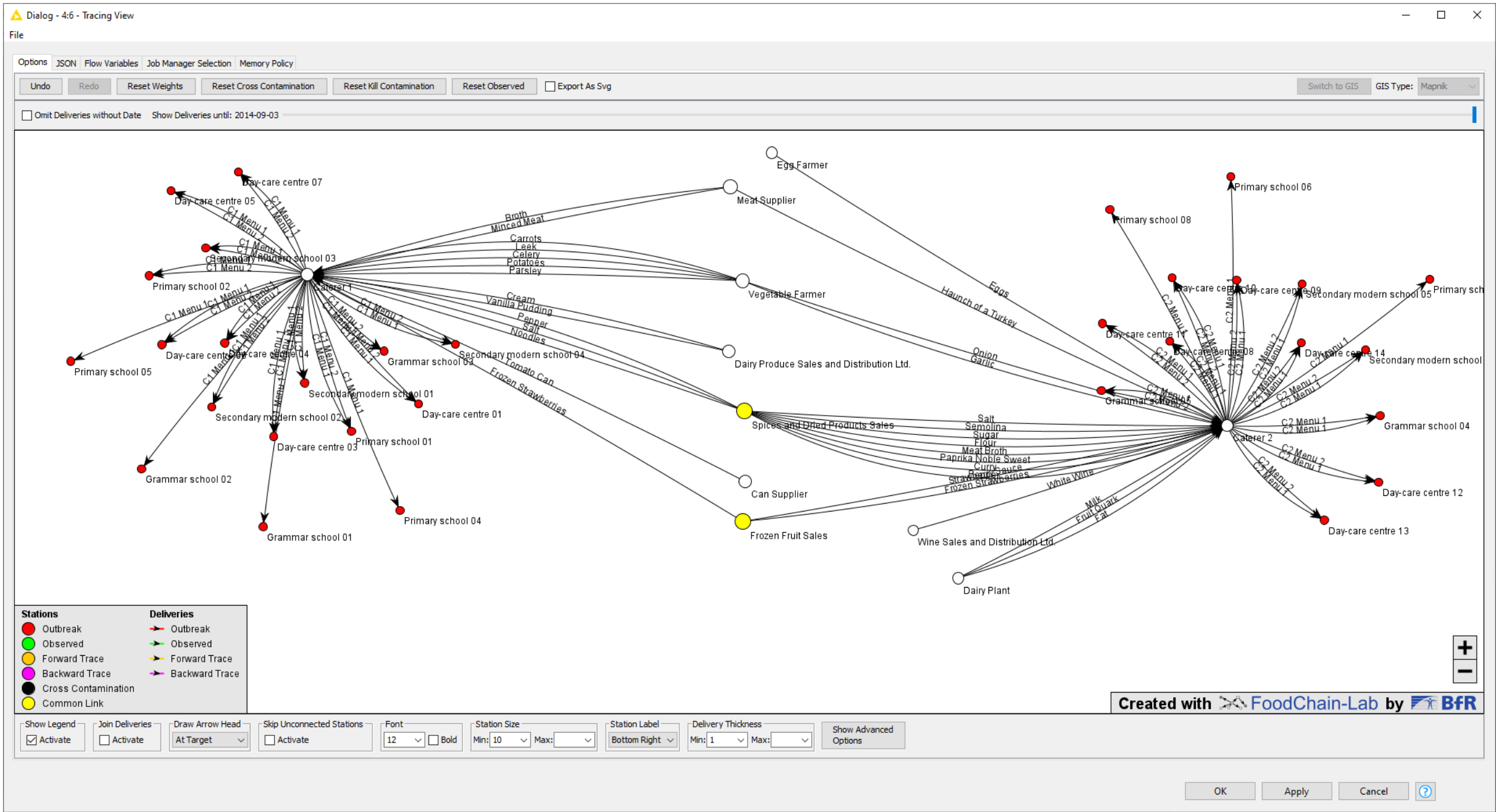
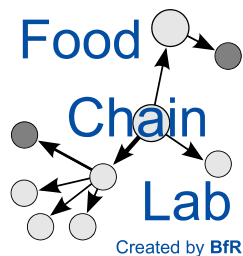
Set cross contamination for stations. That means all incoming deliveries can contaminate all outgoing deliveries (see "Enforce Temporal Order").

Kill Contamination

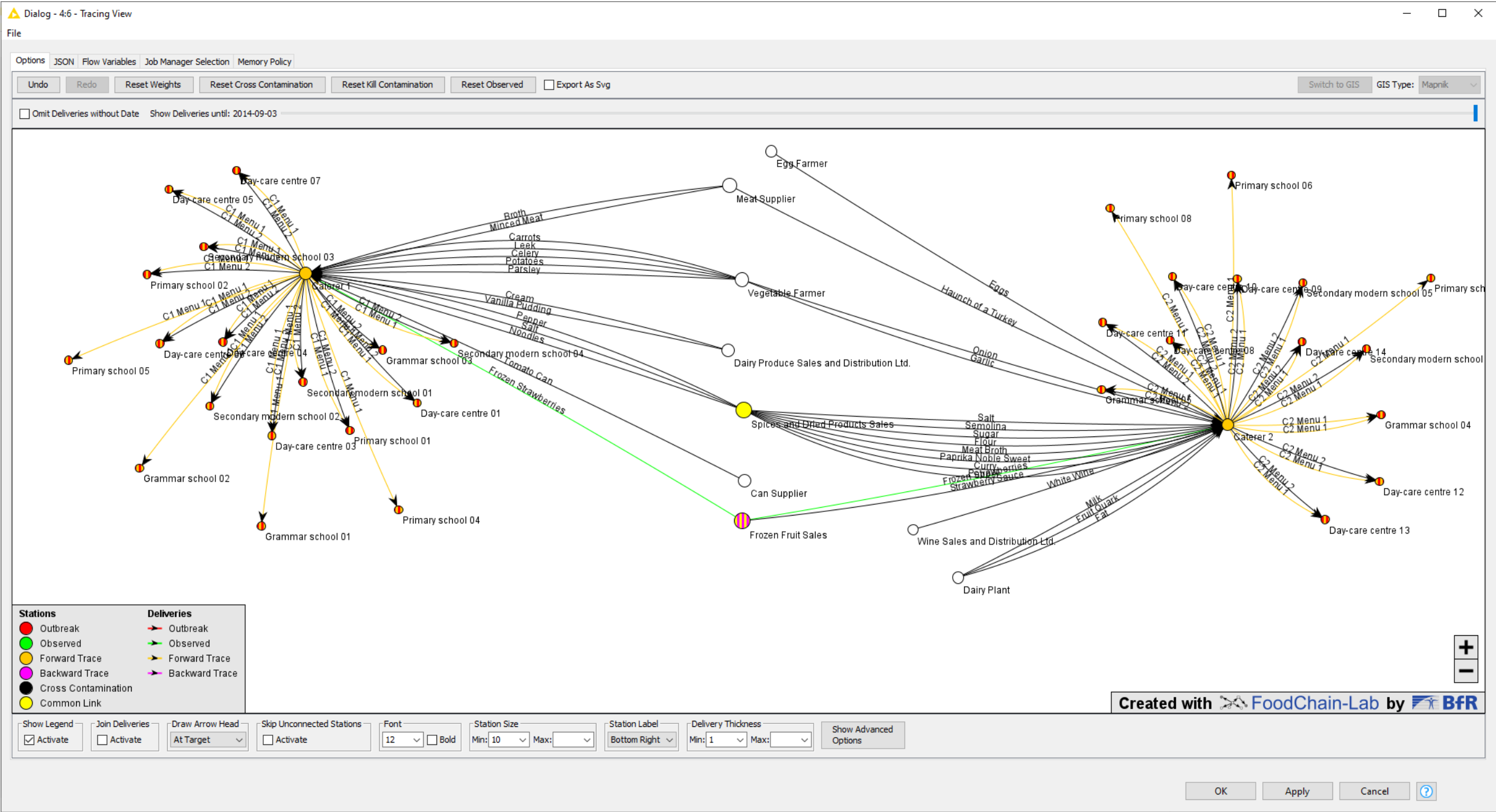
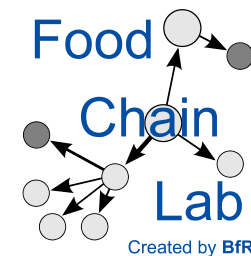
Set kill contamination for stations. That means

Food-Related Norovirus Outbreak Part I

Which product could explain cases if it was contaminated?



Which product could explain cases if it was contaminated?



Backward tracing template exercise

Food-Related Norovirus Outbreak Part II

Alexander Falenski

German Federal Institute for Risk Assessment
bfr.bund.de/en

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Protect Health


Consumer health protection to go

BfR2GO – the BfR Science Magazine


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