



EU FOOD SAFETY POLICY AND NEXT-GENERATION SEQUENCING

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DG SANTE - European Commission

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key policy areas



Public health
Safety medicinal
products

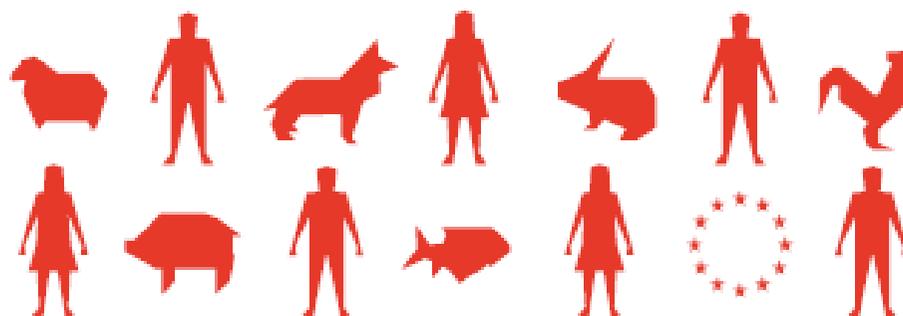


Food safety, plant health, animal health and
welfare



“One Health” approach

**strategic
framework** to
reduce the risks of
infectious diseases
in the interface
between animals
and humans



**multidisciplinary
transversal**
approach for
prevention of
zoonoses,
epidemics and
epizootics

Animals + Humans = One health

+ Environment

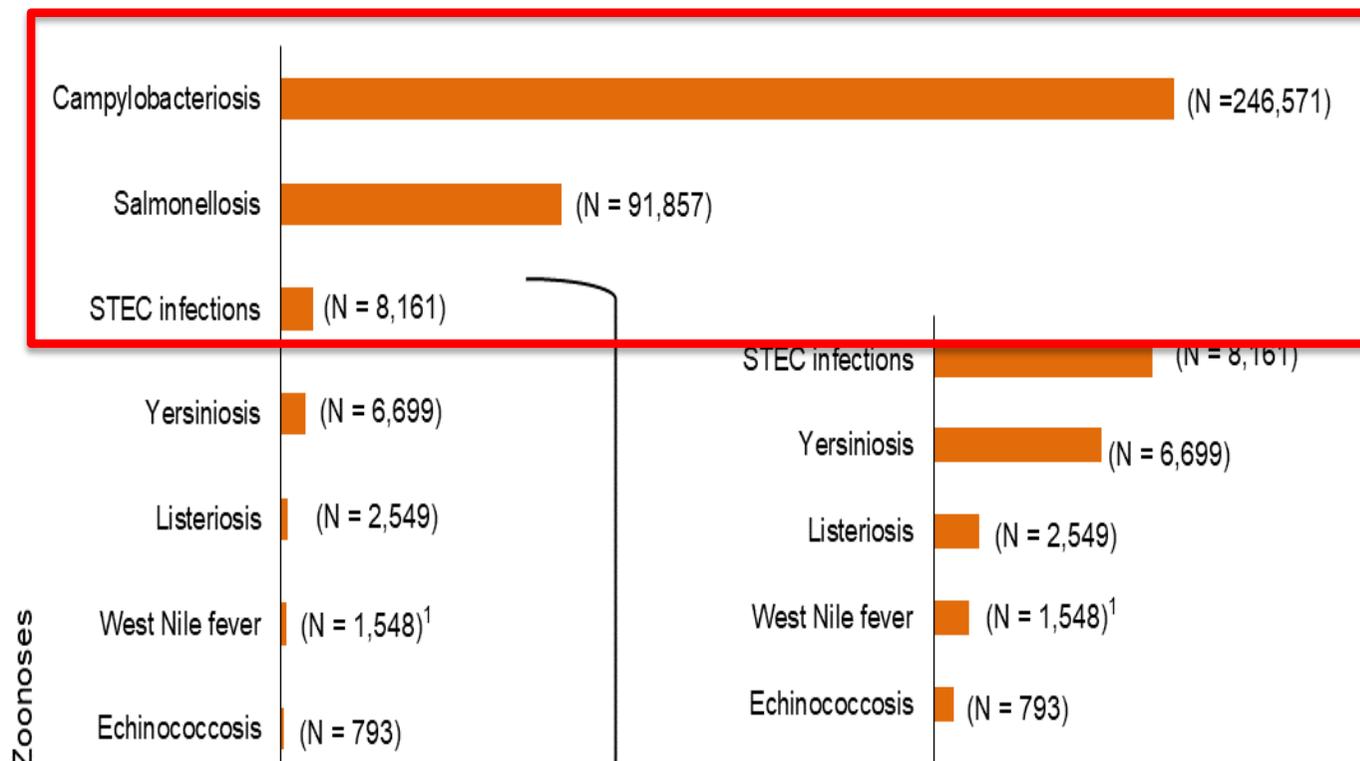
+ Plants



The European Union One Health 2018 Zoonoses Report

•60% of human diseases **originate** in animals (domestic or wild) i.e. are zoonoses

•75% of human **emerging** diseases are zoonoses



Foodborne incidents in the context of the global market

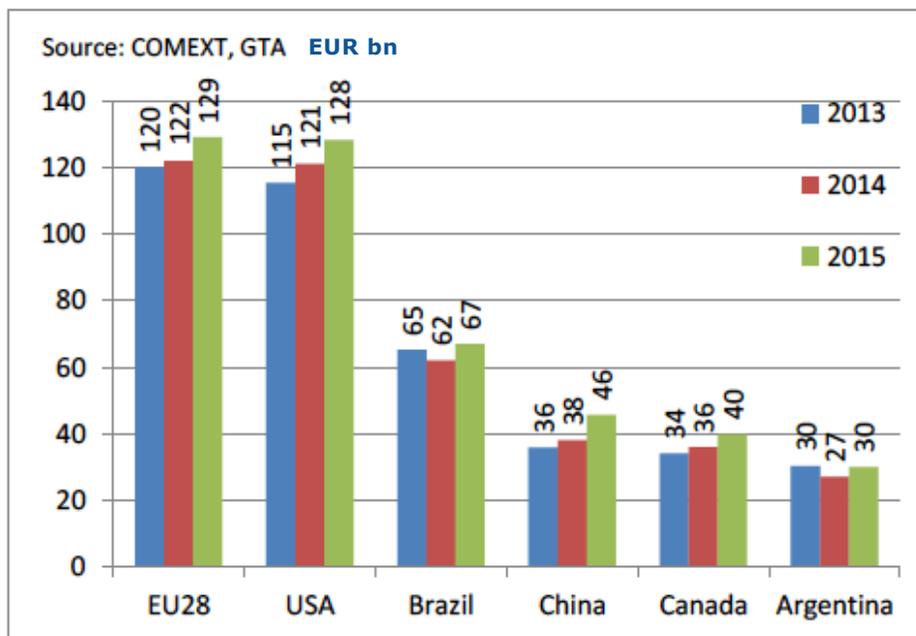
The enormous quantity of agri-food products traded every day, and the complexity of the food production chain, increase exponentially the possibility that a national incident becomes a multi-country incident.



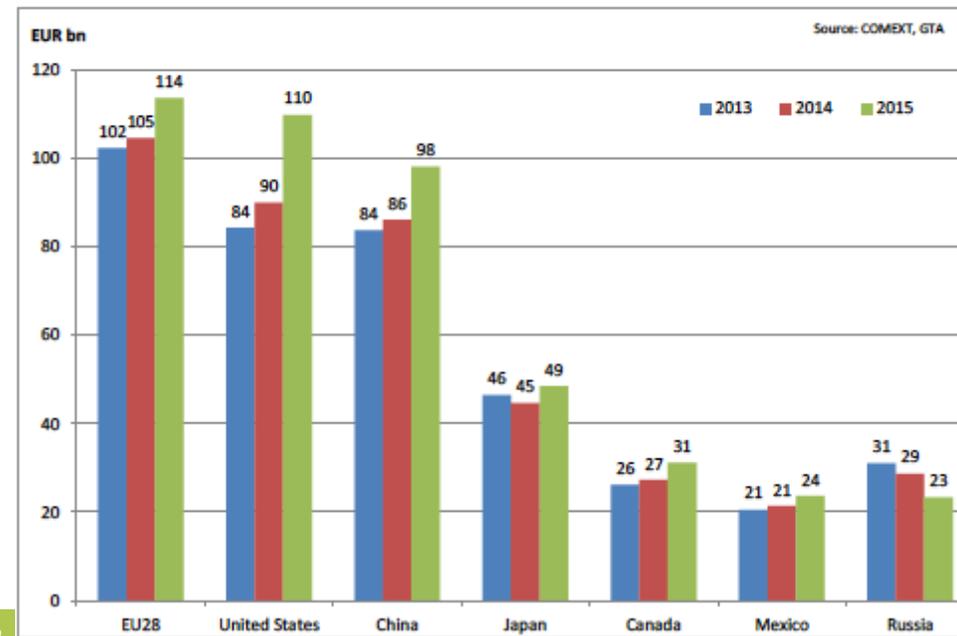
the global market of agricultural goods

- Total value of imports/exports of agricultural goods between the EU-28 and the rest of the world: EUR 263 billion in 2016
- This monetary value corresponded to 244 million tonnes of agricultural merchandise

Graph 1: Top world agri-food exporters



Graph 2: Top world agri-food importers





EU LEGAL FRAMEWORK

- The legal framework to prevent, monitor and manage food/feed-borne outbreaks or incidents is multidisciplinary
- It contains requirements for public health and food/feed safety managers, risk assessors and risk communicators
- The coordination between these actors and between different levels (local, national, EU and international) is laid down in these EU rules





FOODBORNE OUTBREAKS: EU APPROACH

- Prevention
- Preparedness
- Detection
- Investigation
- Management
- Communication
- Reporting/publication



Early detection and attribution of sources are key

- To limit **public health impact**
- To limit the need for food recalls, trade restrictions, reputational damages or other **economic consequences**



Joint EFSA-ECDC molecular typing database

Commission's mandate (2013):

requested EFSA and ECDC to provide technical support on the **collection of data on molecular testing** of *Salmonella*, *Listeria monocytogenes* and STEC isolates, for the purpose of multinational foodborne outbreak detection and assessment.



EURL working group on NGS

Created in 2017

- to promote the use of NGS across the EURLs' networks;
- build capacity within the EU;
- ensure liaison with the work of the EURLs and the work of EFSA and ECDC on WGS.

Multicountry outbreak investigations

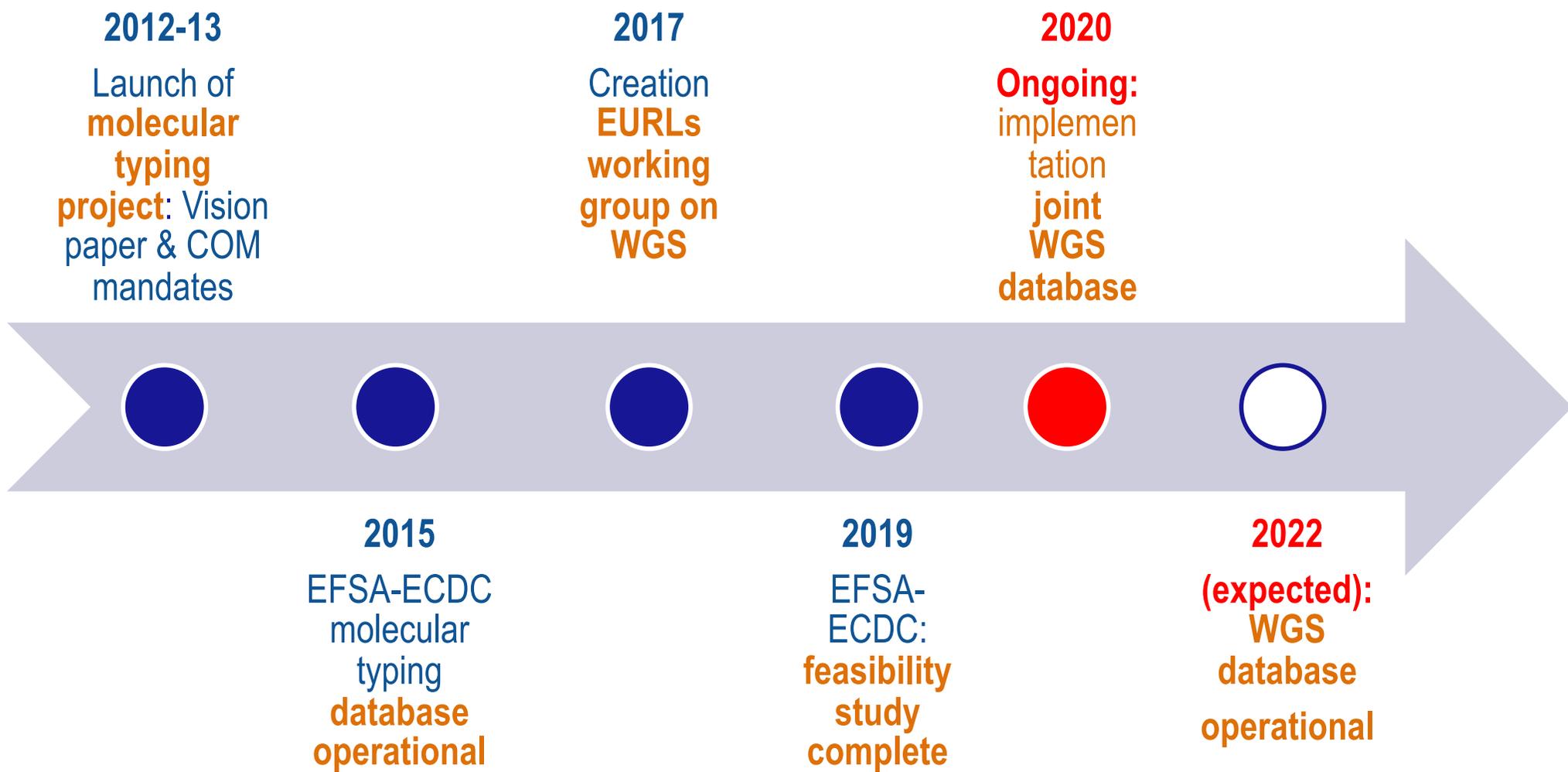
Data sharing

HUMAN data		Molecular typing data	FOOD data
EWRS*	TESSy	EFSA-ECDC database	RASFF*
To notify cross border threats	To report human cases	To report molecular typing data from human, food, feed, animals, food/feed environment isolates	To notify serious risk to human health deriving from food or feed

*Risk management tools



State of play of molecular typing project



WGS - main challenges

- Setting up and running of WGS database
- Standardisation of WGS analysis, procedures, PTs
- Assessment/analysis of WGS data in outbreak/crisis context
- Communication and data protection



WGS - main challenges

- Investment and lab capacity/expertise
- Availability of data

Conclusions

- NGS is a very valuable tool to ease source attribution and outbreak management
- Also for surveillance of foodborne pathogens (AMR)
- The joint WGS molecular typing database will strengthen cross-sectorial response to outbreaks
- Transition phase: stepwise approach necessary before full deployment