

PRESENCE OF PFAS IN THE FOOD CHAIN: ROLE OF SCIENSANO IN THE RECENT CRISIS

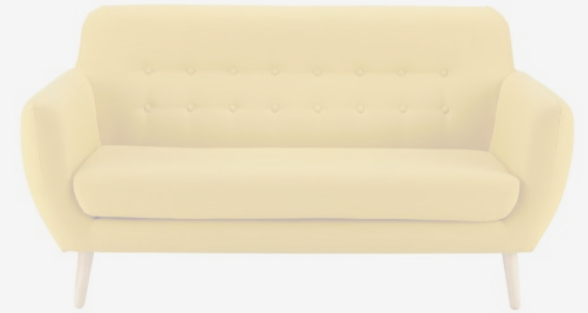
Laure Joly

Service organic contaminants and additives

What do these pictures have in common?



P F A S



Per- and polyfluoroalkyl substances

Carbon-Fluorine bonds



What do these pictures have in common?

Surfactants used to lower tension surface

Dispersing agents



Oil-, and
stain-resistant coatings



Anti-sticking agents



Water resistant coatings



Resistant to very
high temperatures



Toxic **F**orever **C**hemicals



- Chemically stable
- Persistent in the environment
- Bio-accumulative

Serious health effects

- Impact **on immune system**, even at very low concentration
*Illustrated by **decreased** antibody **response to vaccination***
- Reduced birth weight
- Effect on liver cells
- Impact on cholesterol

TOXIC

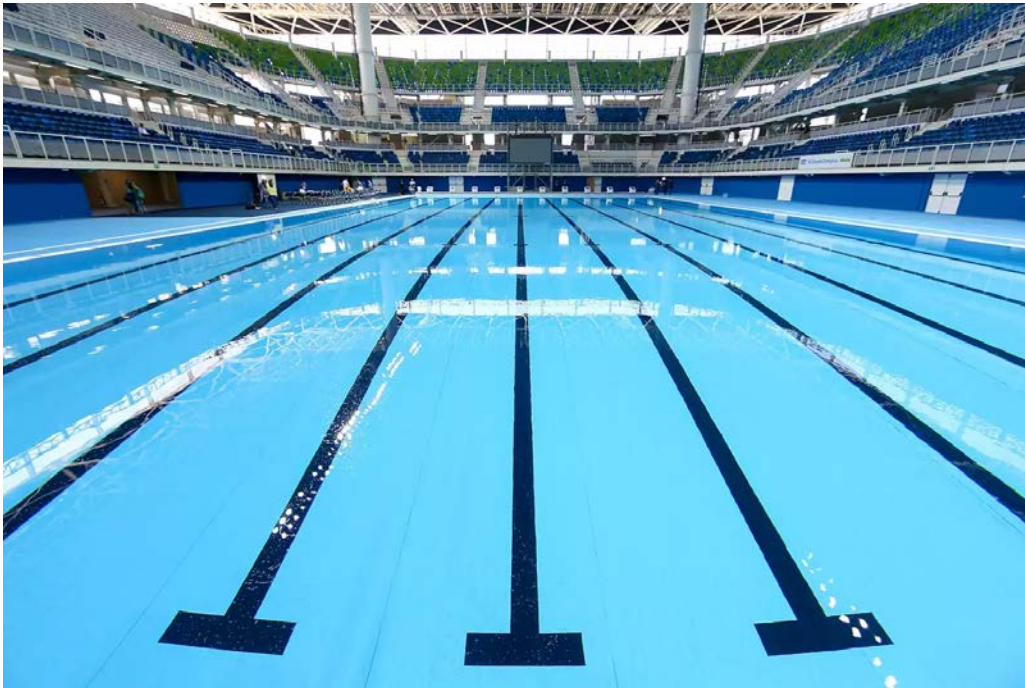
An analytical challenge

More than 4500 different compounds



At very low concentration !

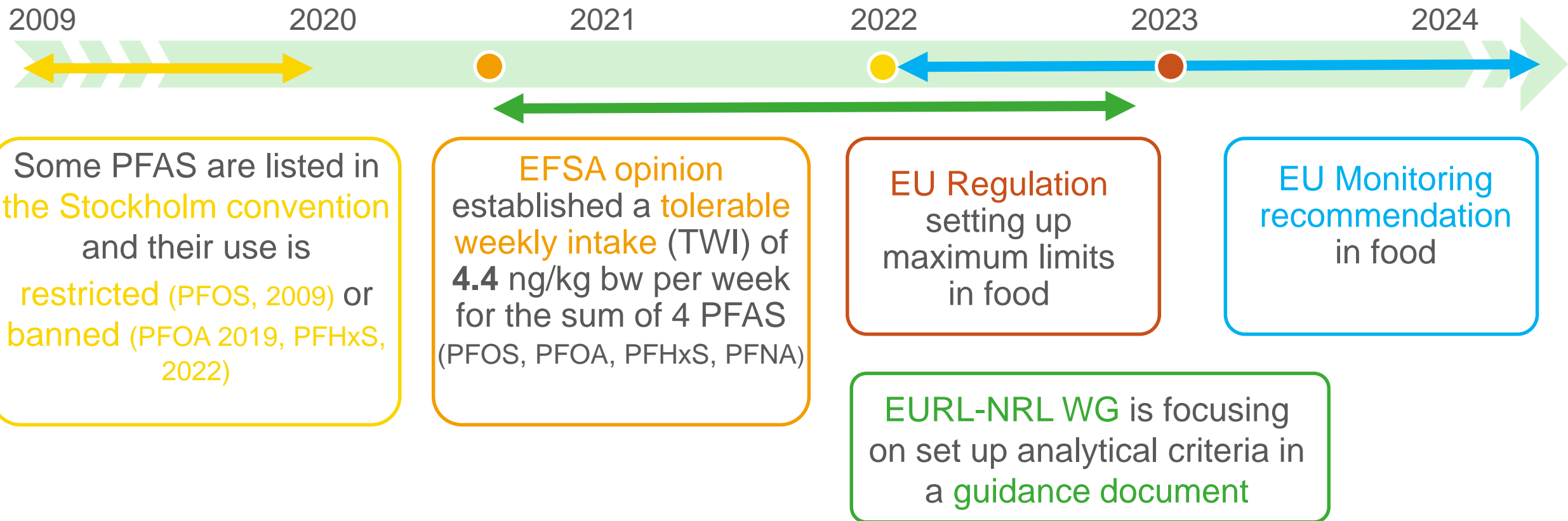
below ng / kg



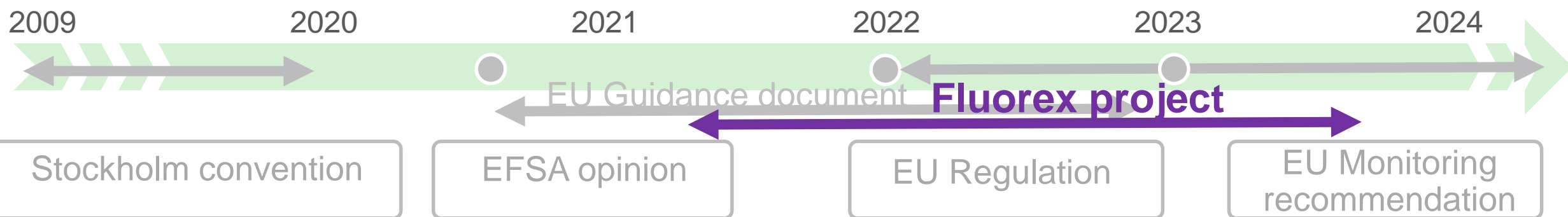
In food ... very complex matrices



PFAS assessment & regulation – an ongoing process



Fluorex project funded by SPF health, food safety and environment



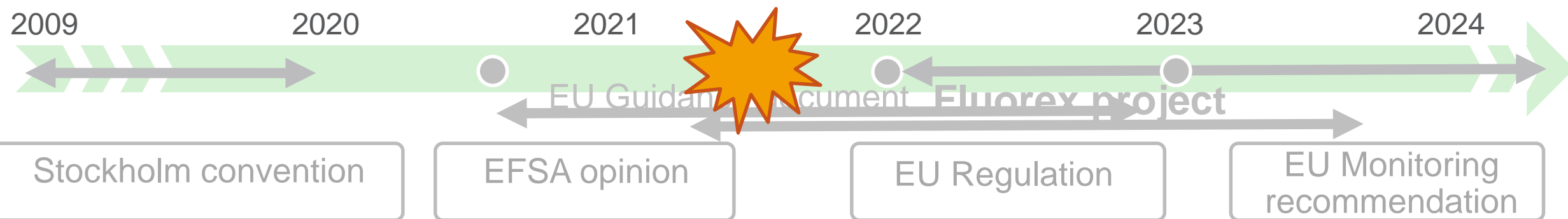
PFAS occurrence in the Belgian food chain

Exposure of the Belgian population

Potential other sources of food contamination



In June 2021 – agenda has been turned upside down

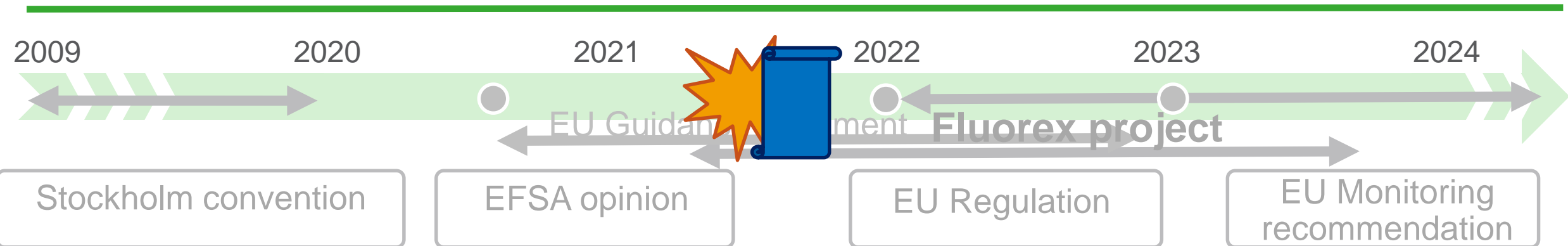


Credit: Belga

In June 2021, politics and media report on a possible severe contamination of PFOS around Antwerp

Source of pollution : 3M operations and waste water discharges

In June 2021 – agenda has been turned upside down



In July 2021, **FASFC scientific committee** recommended

to carry out analyses of the **whole food chain**

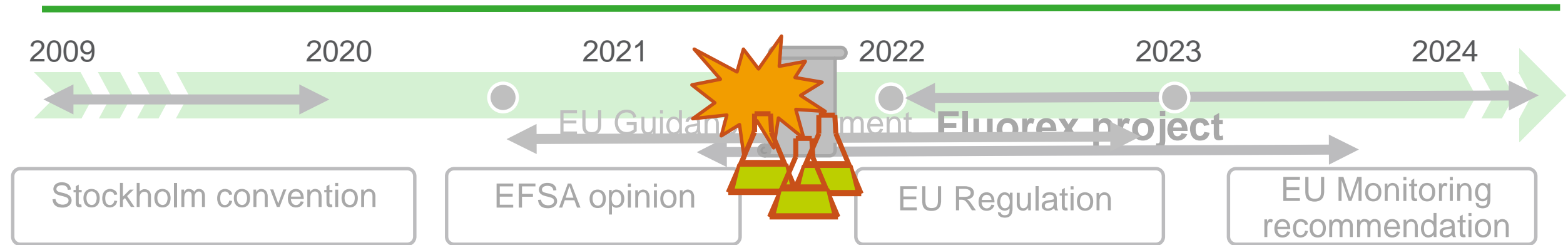
with priority given to eggs, edible offal, game meat, livestock meat and milk

to determine the **background contamination of the food chain**

to perform analyses **around every known PFAS-contaminated area** in Belgium

➡ **An analytical laboratory with a sensitive method was urgently needed**

A challenging method development and validation in a rush



To reach **very low concentrations** in complex matrices, the **method** requires

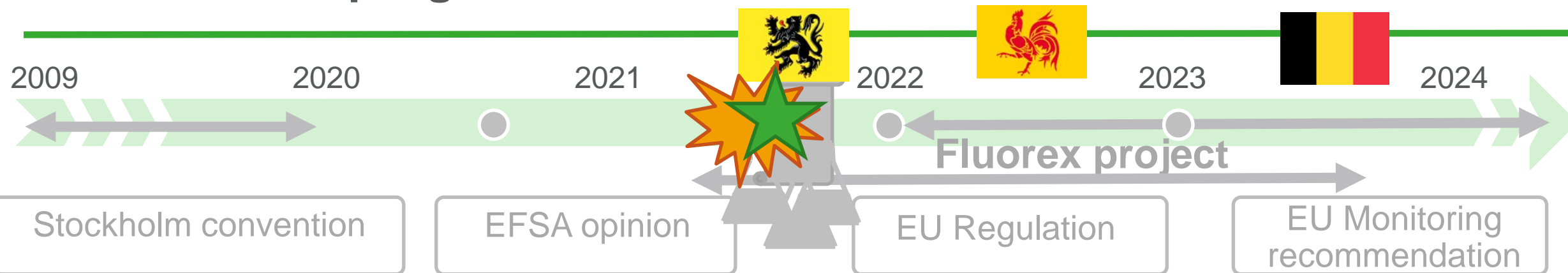
- Elimination of all contaminations
- Many purification steps
- Very sensitive detection technique





Validation
Accreditation



FASFC campaigns



★ Specific sampling campaign
among the farms in the vicinity
of 3M (< 15km)


 Background monitoring in
175 Flemish and 175 Wallonia
agricultural products



Monitoring in **Belgian** agricultural products is planned for the next years

FASFC sample results

★ farms within zone of the hotspot
→ no need for additional measures for agricultural products placed on the market



Only 1 (cauliflower) on 58 fruit and vegetable samples contained trace of PFOA



12 on 117 animal origin samples containing PFAS

- PFAS congeners detected only in free range rearing
- geographically distributed throughout Flanders
- PFOS is the congener the most frequently detected
- No exceedance of action limits
- No further action is required for farms

Free-range farming (which leads to intensive contact with the soil)
is an essential factor for the presence of PFAS in eggs and meat

Role of Sciensano in the recent PFAS crisis

We **quickly developed and validated a reliable analytical method** based on our expertise **to assist the investigations of FPS health, food safety and environment** and **FASFC**

We have evaluated the **presence of PFAS in Belgian food put on the Belgian market**. Belgium is a small country but **gathers lot of PFAS data for the EU recommendation via FPS health, food safety and environment**

We are involved as **analytical expert** in **FASFC scientific committee** and the **EURL working group** on analytical guidance document

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Special thanks to the pesticides and contaminants unit colleagues
for their flexibility and involvement during the crisis