



Meeting Regulations: Overcoming Analysis Challenges

Sarah King

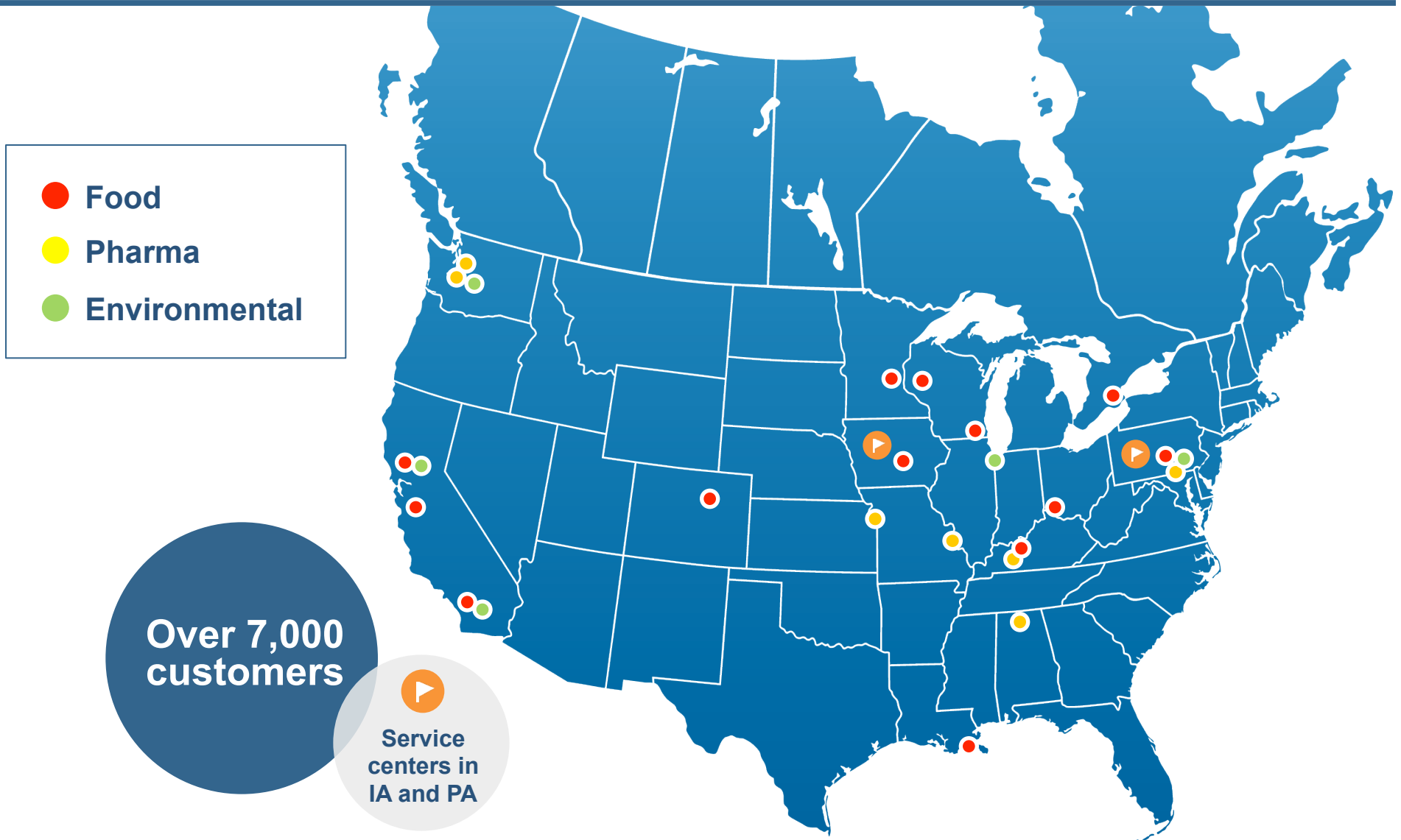
Pesticide Method Chemist

Eurofins Central Analytical Laboratories

Global Footprint

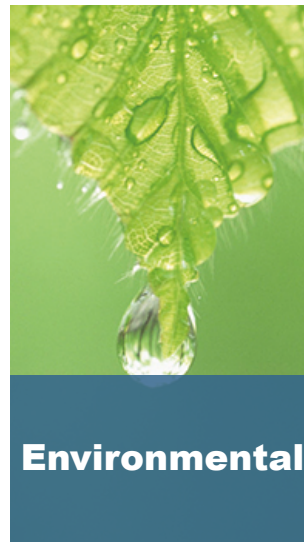


Locations



**Our testing spans multiple industries and arenas.
Some of our main areas are:**

- **ECAL**



- Pesticides
- Veterinary Drugs
- Mycotoxins
- Grains
- Inorganic Contaminates
- GDP
- FDA Import Detentions

- **US maintains a national MRL list and does not defer to other markets regulations**
- **Section 408 of the Federal Food, Drug, and Cosmetic Act authorizes the EPA to set tolerances or maximum residual limits (MRL)**
 - **Tolerances are deemed to safe levels**
- **Region MRL**
 - **Tolerances based on a geographical area of the US**
 - **California PROP 65**

Key Points



GLOBAL MRL DATABASE™
A service of BRYANT CHRISTIE INC.

Premium Subscriptions > | Support / Feedback | Account | Logout
Sarah King
Free - International MRLs - U.S. ViewPoint ▾

PESTICIDES MARKET INFO USER GUIDE FAQs VETERINARY DRUGS

PESTICIDE MRLS

CLEAR SELECTIONS ✕

Select Commodities, Pesticides, and Markets to include in your search.

Commodities

Search for Commodities [] SHOW ALL [] SELECT ALL [+]

Pesticides

Search for Pesticides [] SHOW ALL [] SELECT ALL [+]

Markets

Search for Markets [] SHOW ALL [] SELECT ALL [+]

United States will be included in all queries.

General Report Filters [Advanced Report Filters >](#)

Limit report results to those that contain:

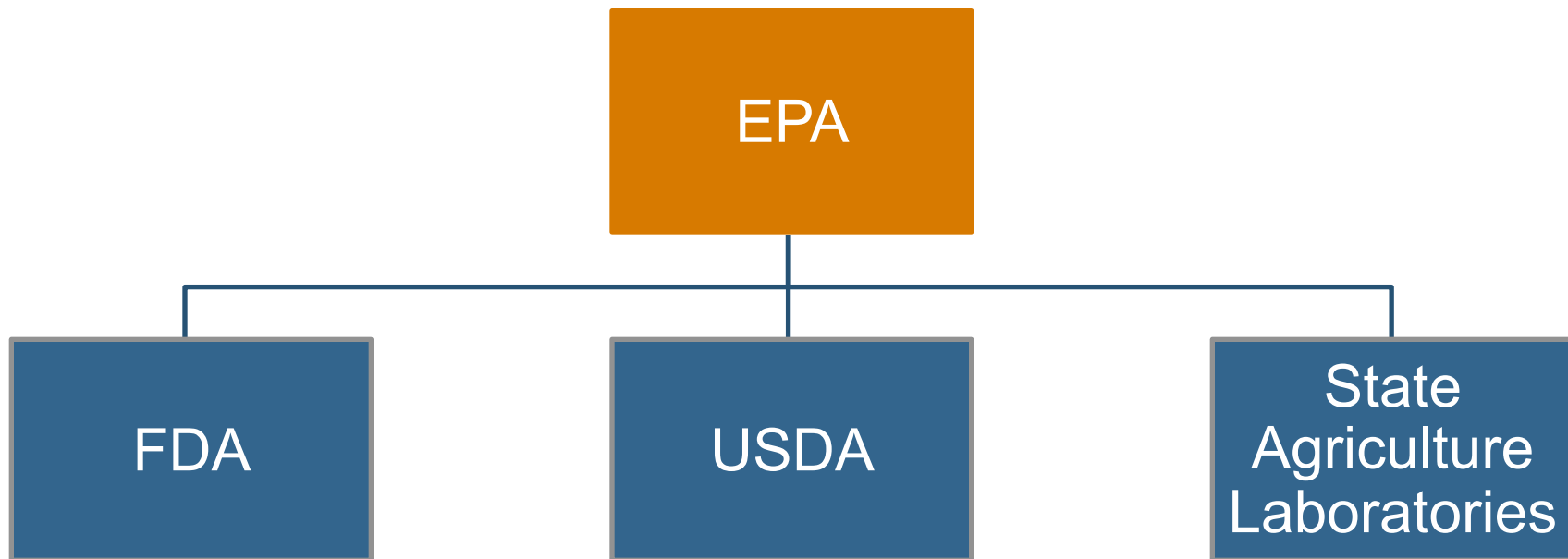
Processed commodity MRLs US MRL expirations

Report Display Options

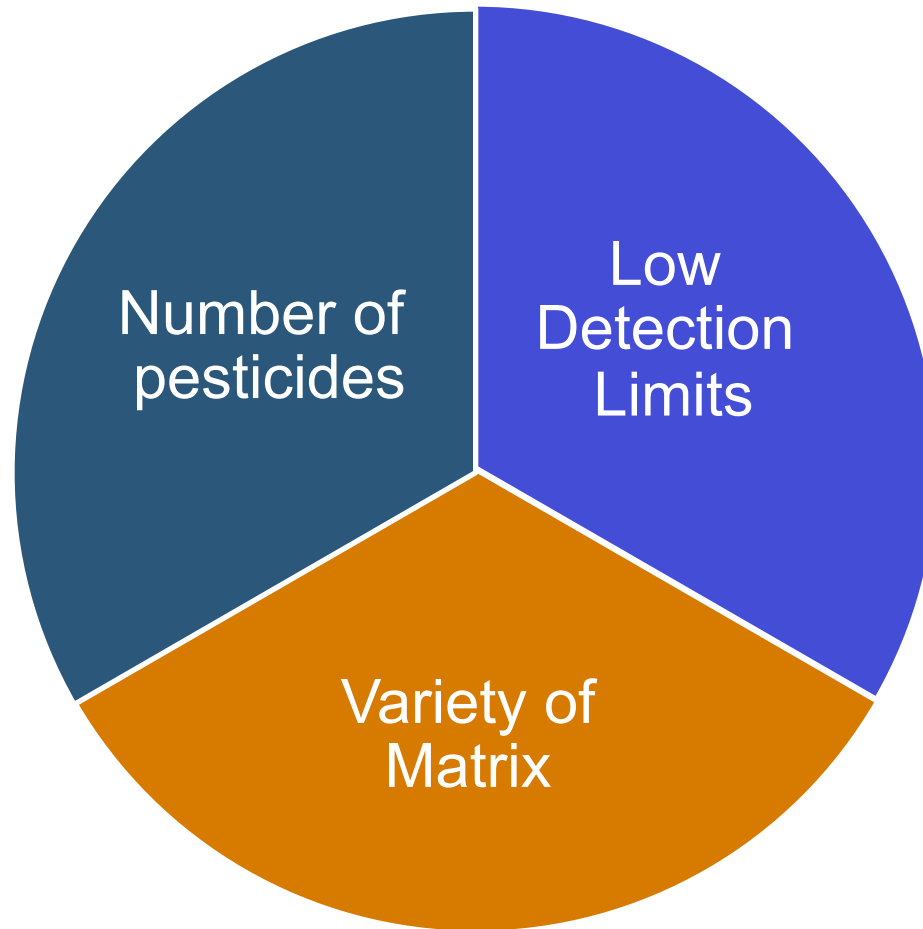
Order report results by: Commodity Pesticide

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- **EU regulation stricter than US**
 - **Contract lab is an expert in interpretation of regulations**

Regulation Monitoring



Meeting MRL



Variety of Matrix

Fruit

Vegetables

Oil

Botanical

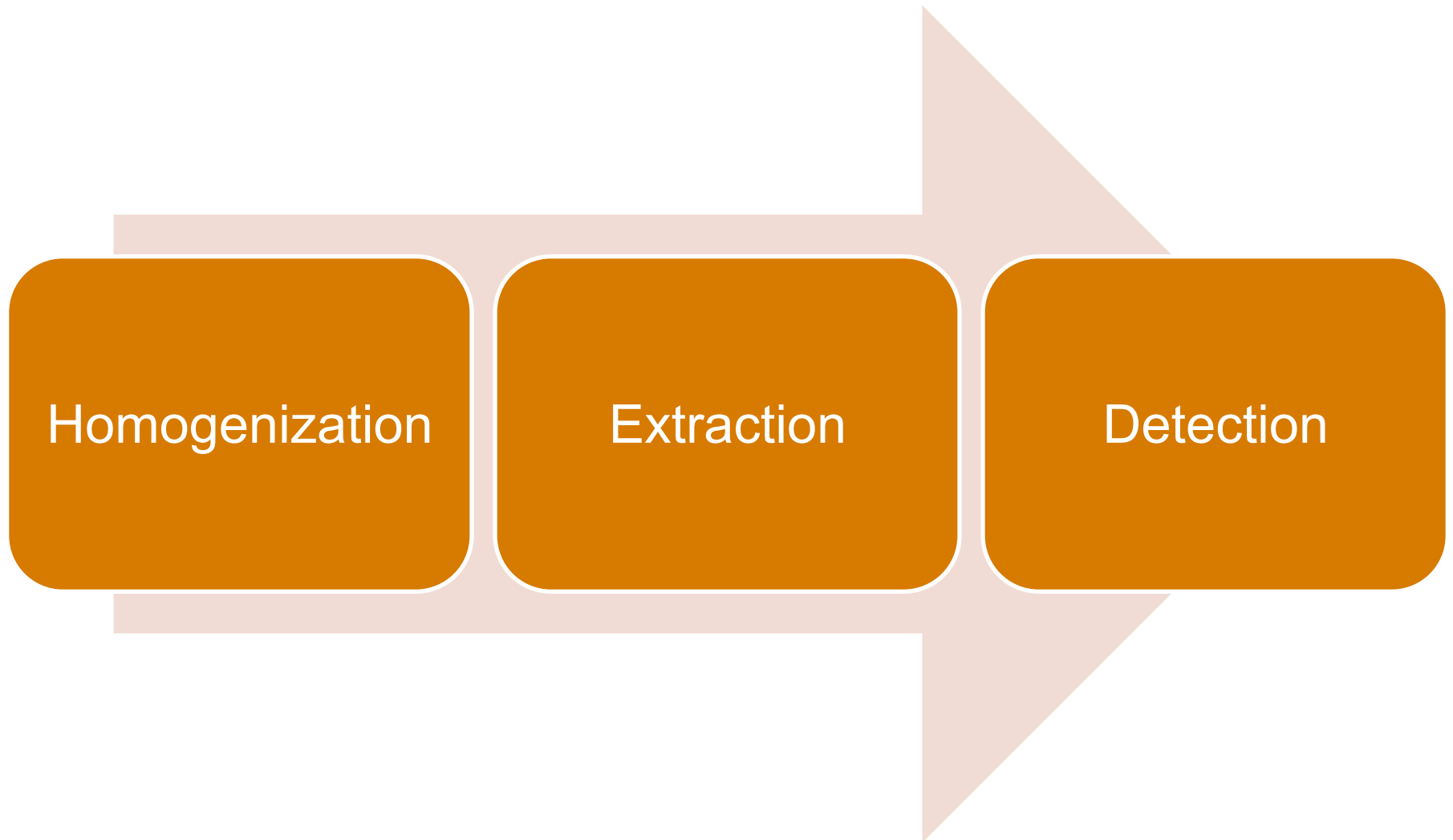
Tea

Spice

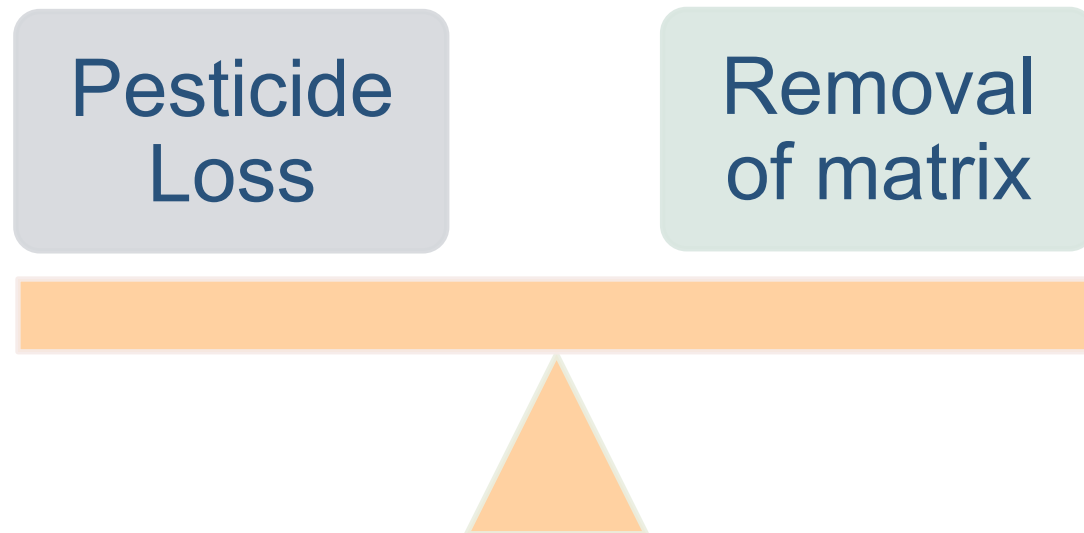
Honey

Meat

Dairy



Extraction Challenges



-
- **Common methods for food analysis**
 - **QuEChERS**
 - **DFG S-19**
 - **FDA Laboratory Information Bulletin (LIB)**
 - **Scientific Publication**
 - **European Union Reference Library (EURL)**
 - **Pesticide Analysis Manual (PAM)**

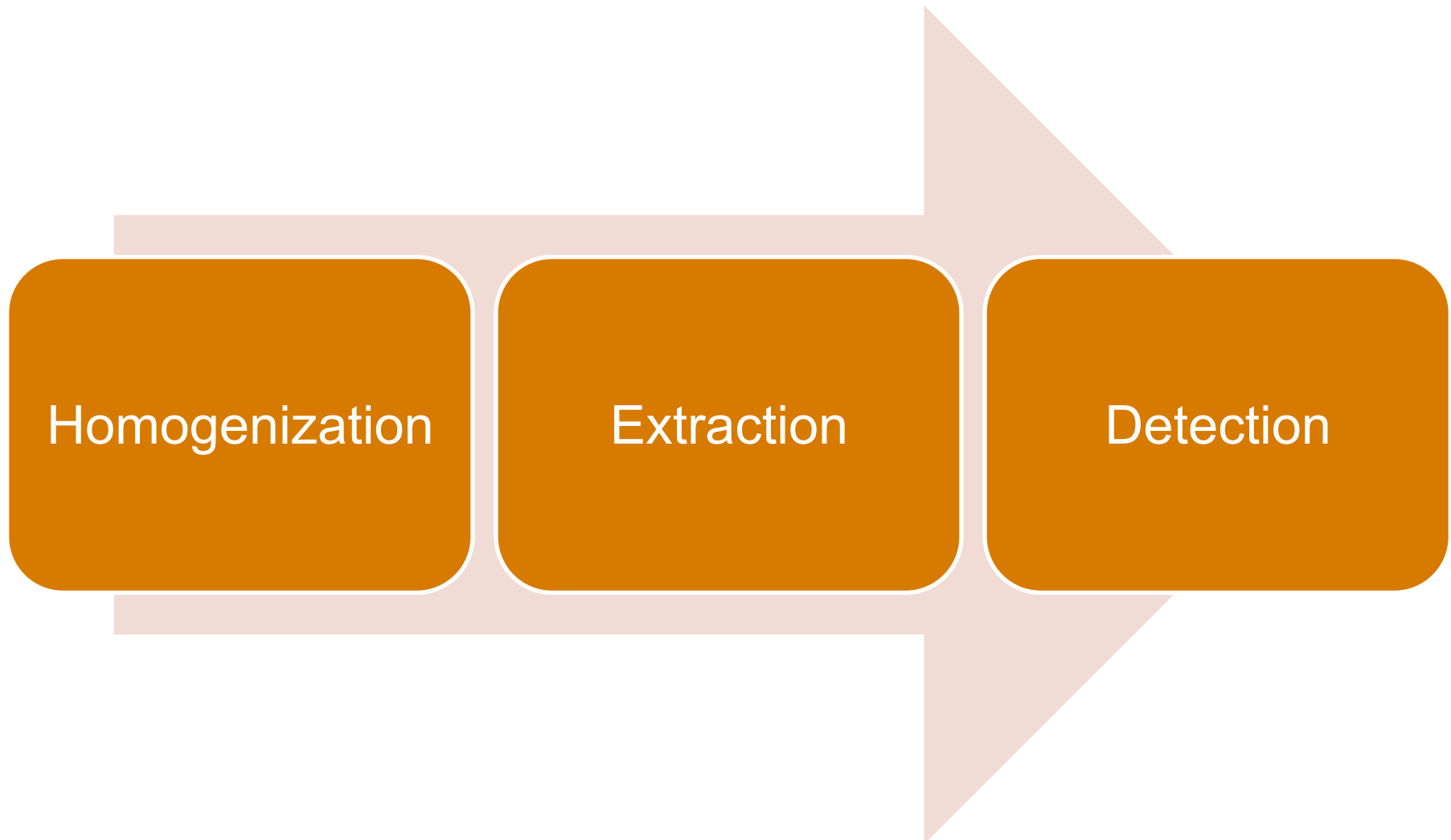
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- **Dilution**
 - **Low Sample Weight, high extraction volumes**
 - **Dry down steps**
 - **Physiochemical cleanup**
 - **Solvent solubility**
 - **Sorbent Cleanups**
 - **Solid Phase Extraction (SPE)**

Why SPE?

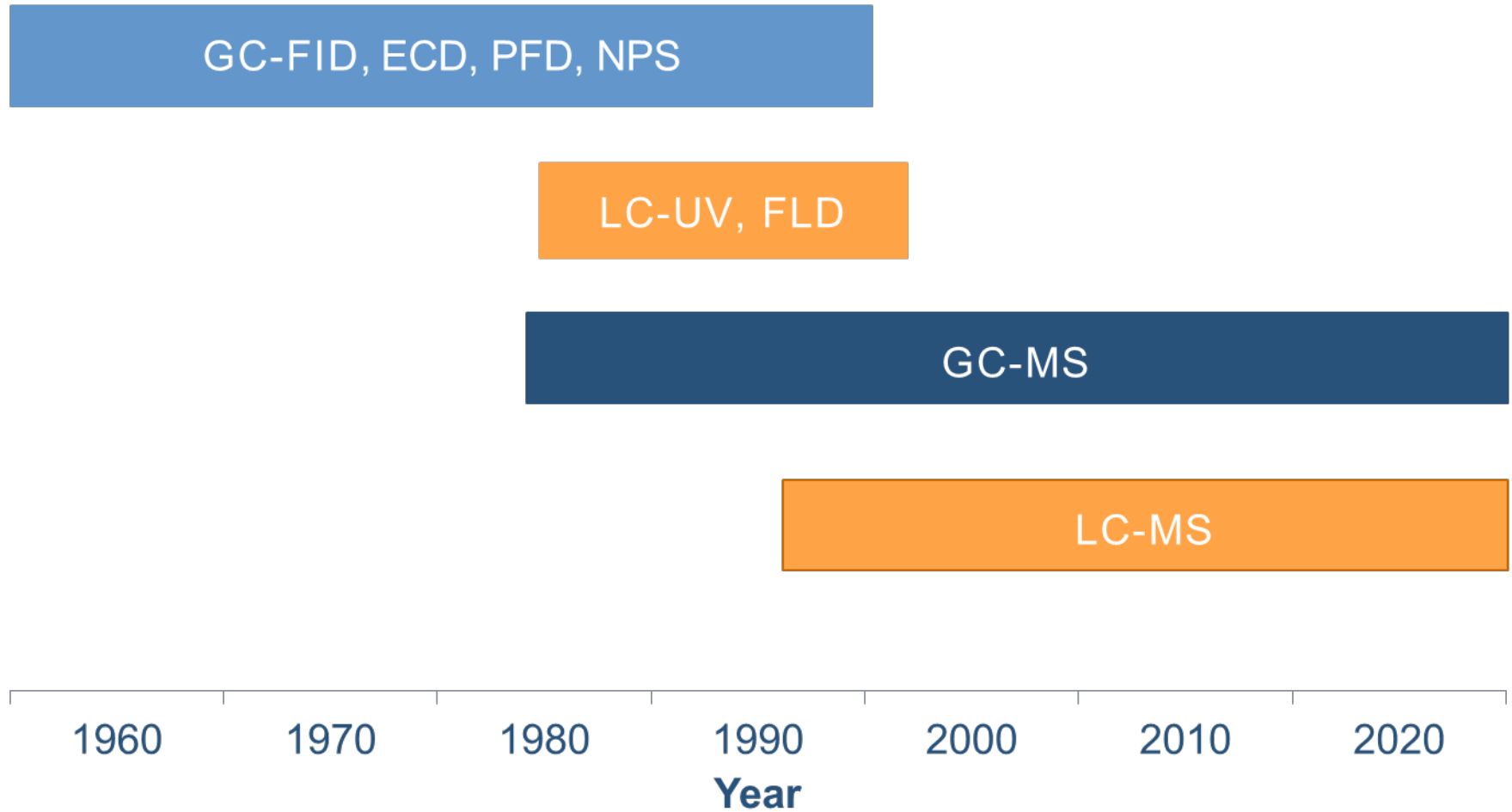
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- **Removal of sample matrix**
 - **Reduces ion suppression**
 - **Separate based on compound class**
 - **Concentrate low level compounds**

Types SPE

- Normal Phase
- Reverse Phase
- Ion Exchange
- Mix-Mode
- New SPE Sorbents
 - Oasis Prime (Waters)
 - EMR (Agilent)



Analysis Trends



Which Detection to Choose?



- **GC or LC**
- **Target**
 - **Analysis of particular compounds**
- **Non-Targeted**
 - **Analysis of any compounds**

-
- **Single Quadrupole**
 - **MS/MS**
 - **High Resolution (HR-MS)**
 - **HRMS/MS**

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- **Different governing bodies determine and monitor pesticide regulation**
 - **International and regional tolerances**
 - **Challenges to Reach MRLs**
 - **Number of pesticides**
 - **Low limit requirements**
 - **Variety of matrices**
 - **Support Reaching MRL**
 - **Extraction Method**
 - **Instrumentation**
-

- Eurofins GCL

**Thank you for your
attention**

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