

# FIAQ Presentation

06/09/2023



# FIAQ – VACCP in practice



CCP1

CCP2/CCP3

Beekeeper/  
Processor

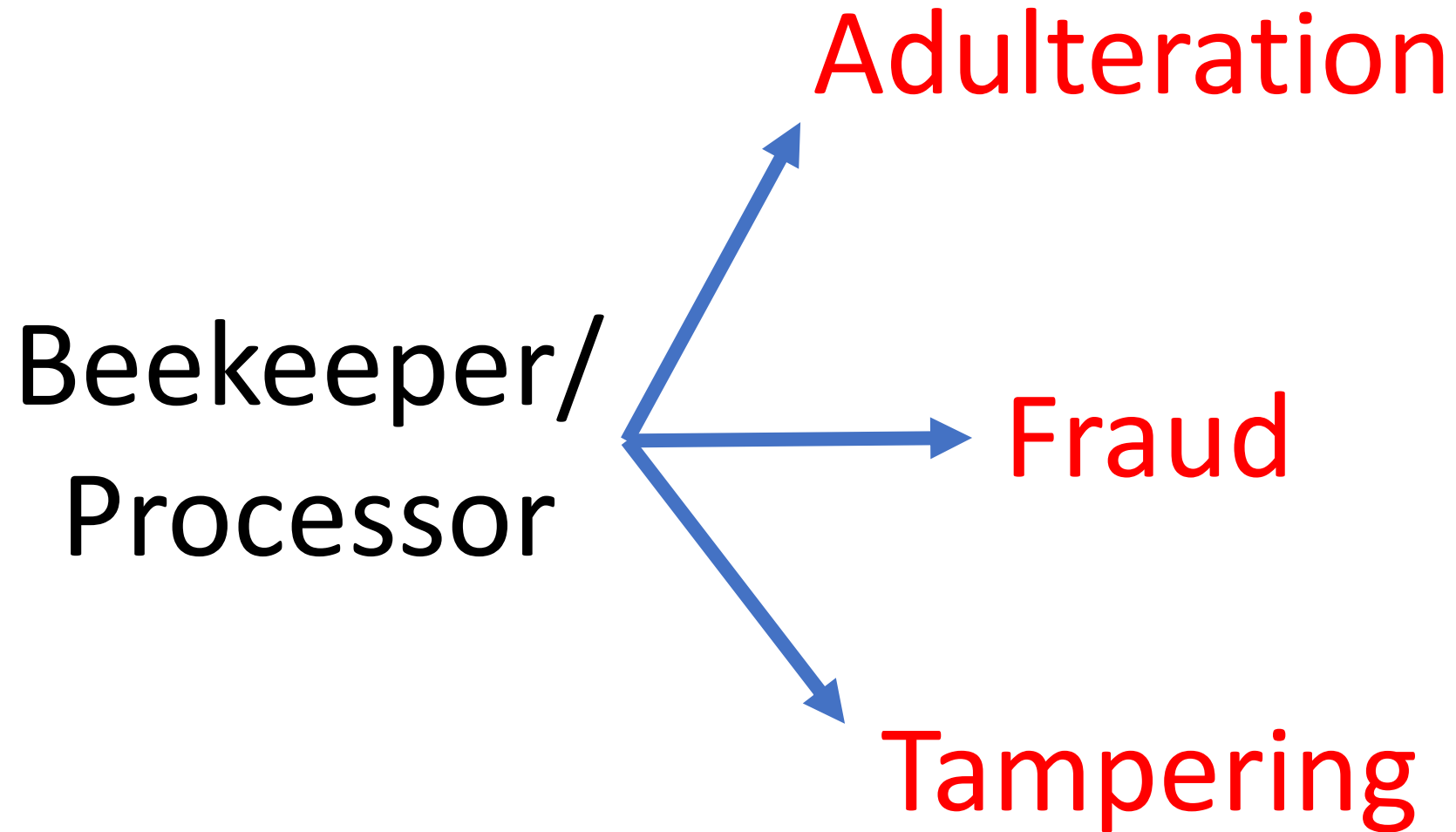


Hive and  
Wellness



Distribution/  
Customers

Threats and Vulnerabilities

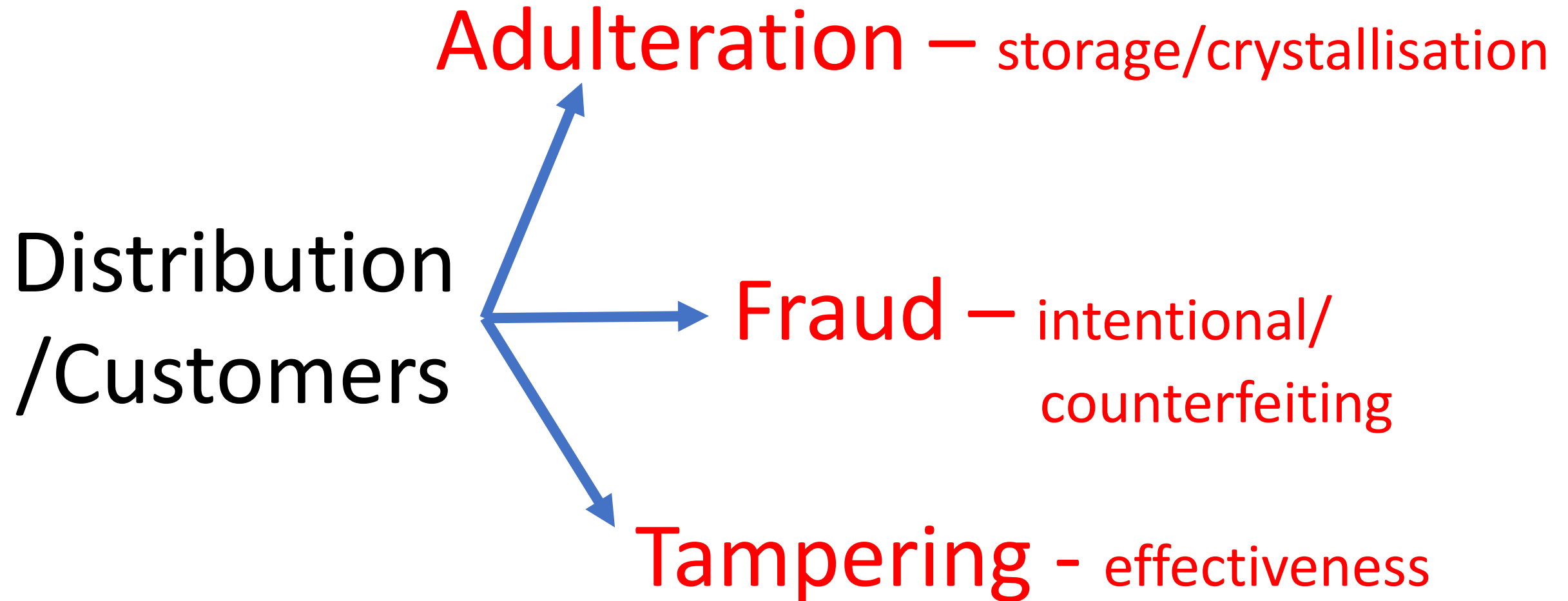


Hive and  
Wellness

**Adulteration** – mixing varieties

**Fraud** – intentional/accidental/  
systematic

**Tampering** - effectiveness



## FIAQ – VACCP in practice

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**Microbiological** – Total plate count (aerobic/anerobic), Coliforms, Mould, Yeast, Salmonella, Shigella, Staphylococcus, Bacillus

**Antibiotics** – Chloramphenicol, Ceftiofur, Fluroquinolones, Nitrofurans, Nitromidazoles, Oxytetracycline, Streptomycin, Sulfonamides, Thiamphenicol, Tylosin

**Pesticides/Herbicides/Insecticides** – Amitraz, Glyphosate, Amino methyl phosphonic acid

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## Adulteration/Fraud

- C13 – C3/C4 sugars via EA/LC-IRMS (Supp. Feeding)
- NMR (database dependent)
- LC-HRMS (database dependent)
- $\beta$ -Fructofuranosidase by enzyme test (Supp. Feeding)
- $\beta$ -/ $\gamma$ -Amylases by enzyme test (Supp. Feeding)
- Thermostable  $\alpha$ -Amylases by enzyme test (Single-marker analysis)
- Foreign  $\alpha$ -Amylases Profiling (FAmyP) by enzyme test (Single-marker analysis)
- Honey-foreign oligosaccharides by LC-ELSD (Single-marker analysis)
- Psicose by LC-ELSD (Sugar syrup marker analysis)
- Mannose by HPIC-PAD (Trace sugar analysis)
- Specific marker – rice syrup (SM-R) by LC-MS/MS. Rice syrup (TM-R) by ICP-MS. Beet syrup (SM-B) by LC-MS/MS
- Detection of 4-Methylimidazole (4-MEI) by LC-MS/MS
- Food colorant E 150d by LC- MS/MS



### Laboratory/Method Validation

- ISO 17025 – Is the honey test in the scope of accreditation?
- Analytica, QSI, Intertek, University of the Sunshine Coast, BVAQ, NMI, Symbio.

**Questions?**

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## Strengths and Weaknesses of each Testing Method

Determination Of	<sup>13</sup> C EA/ LC-IRMS	LC- HRMS	NMR- Profiling
C4 Sugar	■	■	■
C3 Sugar	■	■	■
Tailor-made syrups	■	■	■
Illegal (Resin) Processing	■	■	■
Moisture Reduction	■	■	■
Botanical and Geographical Origin	■	■	■

- Very Effective in Detecting
- Somewhat Effective in Detecting
- Not Effective in Detecting