

AgResearch MIRINZ Workshop

# Meeting Market Expectations

## Analysing aroma and/or fat composition

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Dairy Science & Technology Section

Farming, Food and Health. **First**

*Te Ahuwhenua, Te Kai me te Whai Ora. **Tuatahi***

October/09

# Rapid Screening Methods For Food Products



Higher throughput analysis

Linking chemical composition with food attributes



Phenotyping  
(e.g.: traits for good/bad fatty acid composition)

# Consumer health and wellbeing

Increased demand for:

- **Nutritional value,**
- **High-quality food**
- **Optimised calorific profile**



## Good fat:

- PUFA, 0.45
- $n-6/n-3 < 4$
- CLA

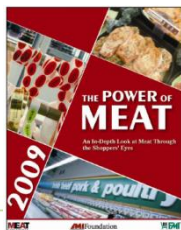
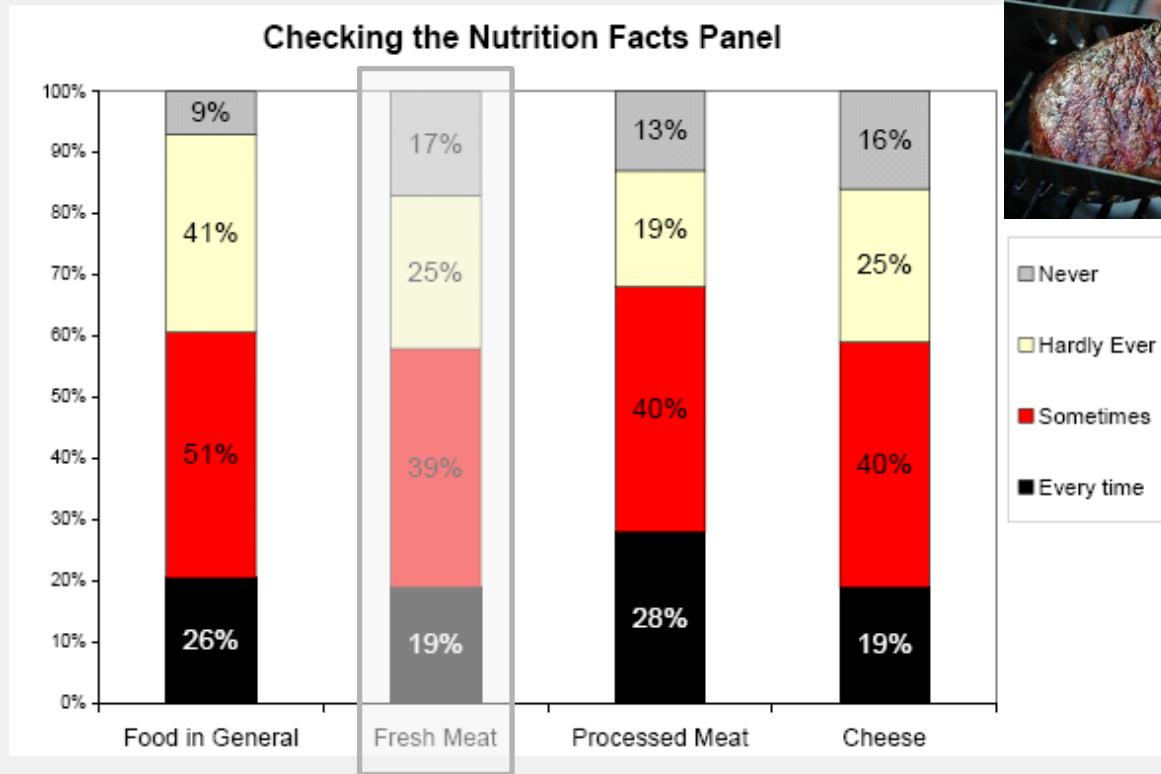


## Bad fat:

- Cardiovascular disease
- Obesity
- Diabetes

# Look at Meat Through the Shoppers' Eyes

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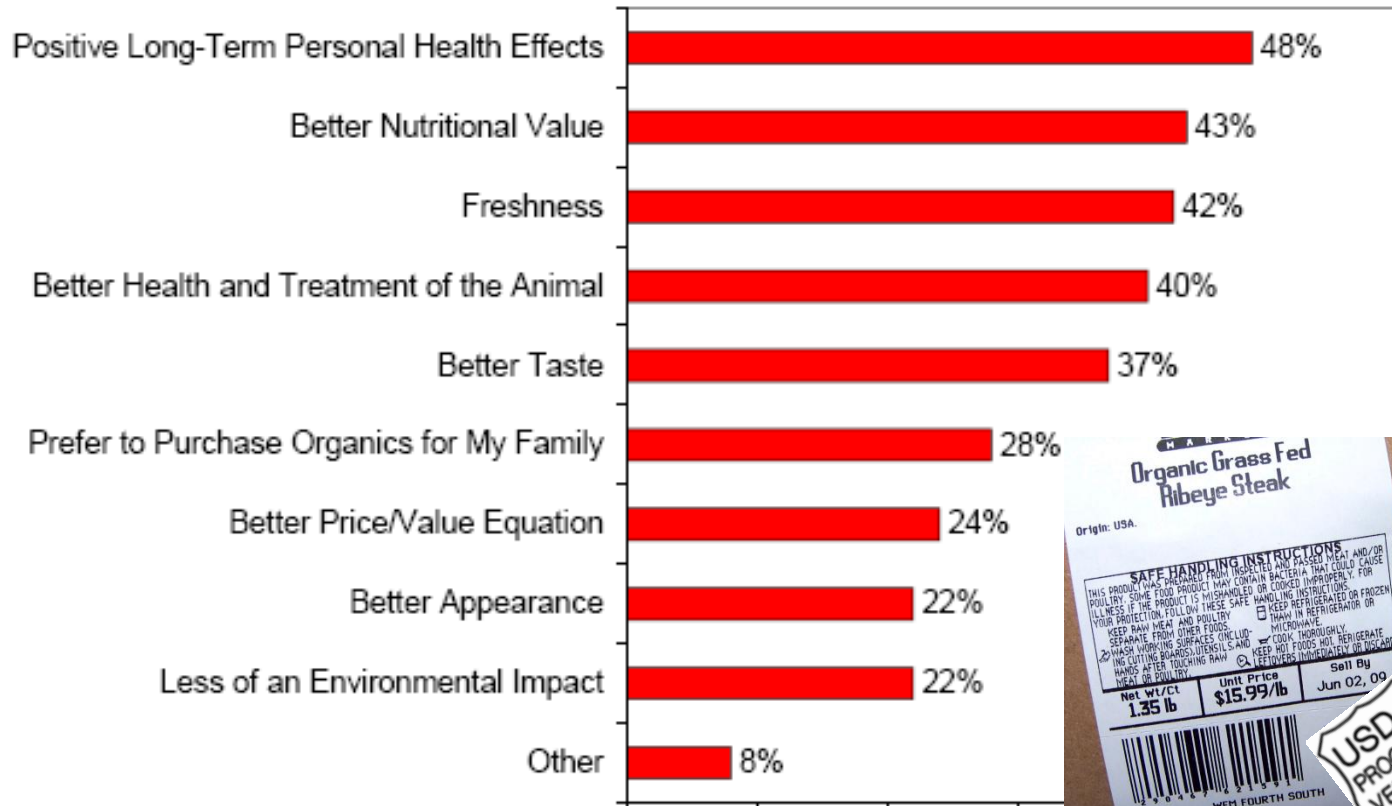


**The Power of Meat**, An In-Depth Look at Meat Through the Shoppers' Eyes  
Anne-Marie Roerink  
FMI, Director of Research  
The annual meat conference (2009)  
<http://meatconference.com/ht/d/sp/i/53559/pid/53559>

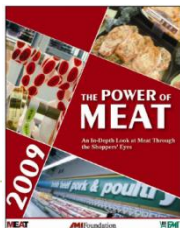
# High-value products

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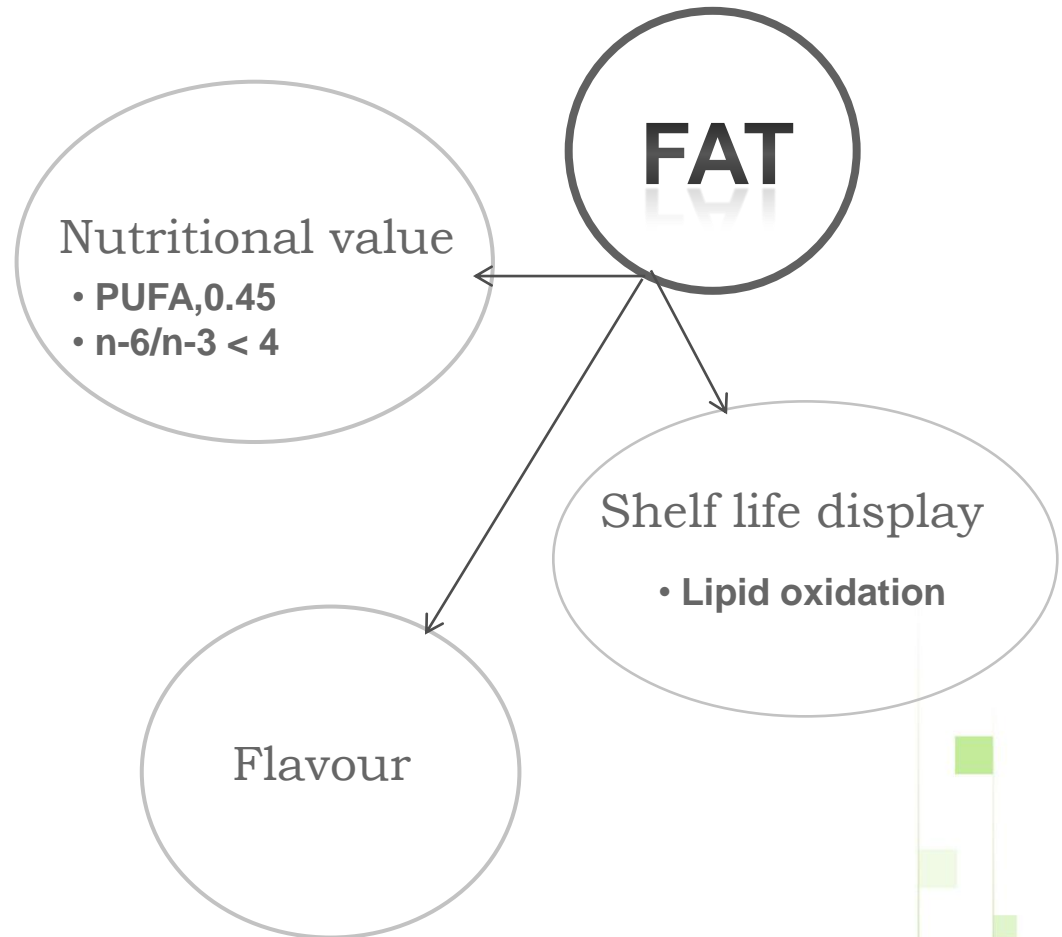
## Reasons for Purchasing Natural or Organic Meat



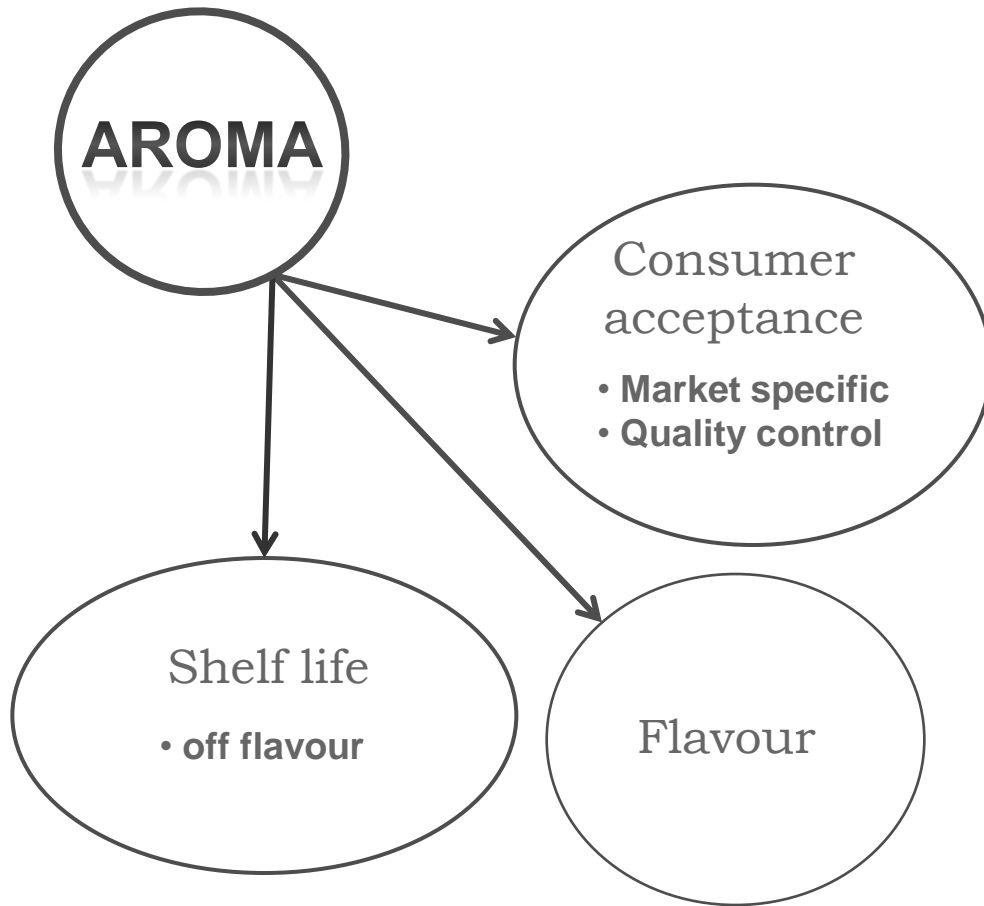
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# Fat composition



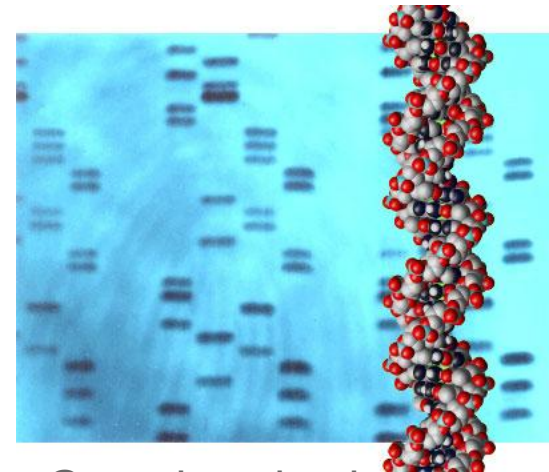
# Aroma composition



# Strategies to enhance fat acid & aroma composition



Feed strategies

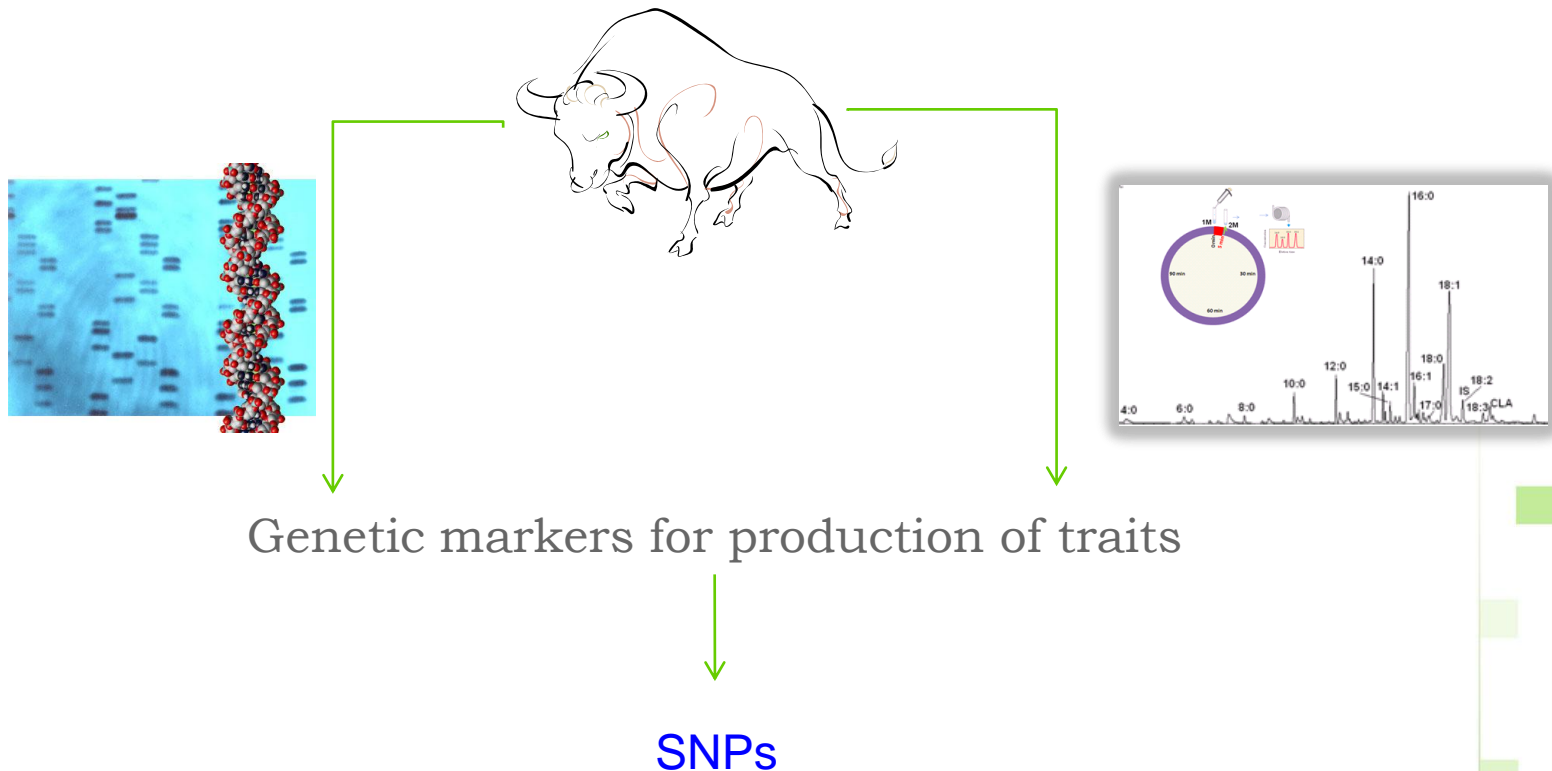


Genetic selection

# Quality traits vs. genetic selection

**Breeding programme:** Discovery and Validation

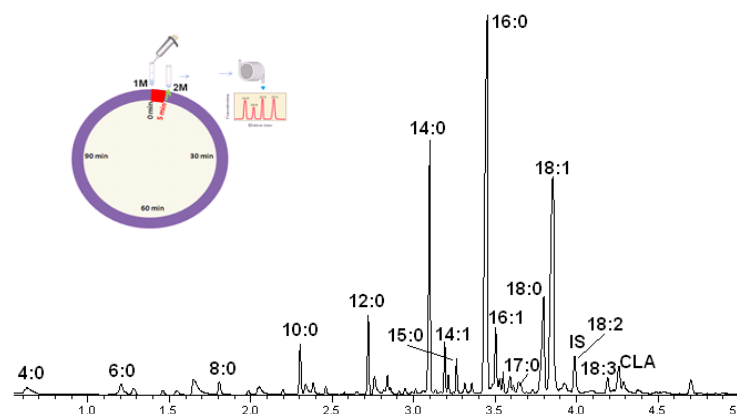
## Discovery



# Quality traits vs. genetic selection

## Validation

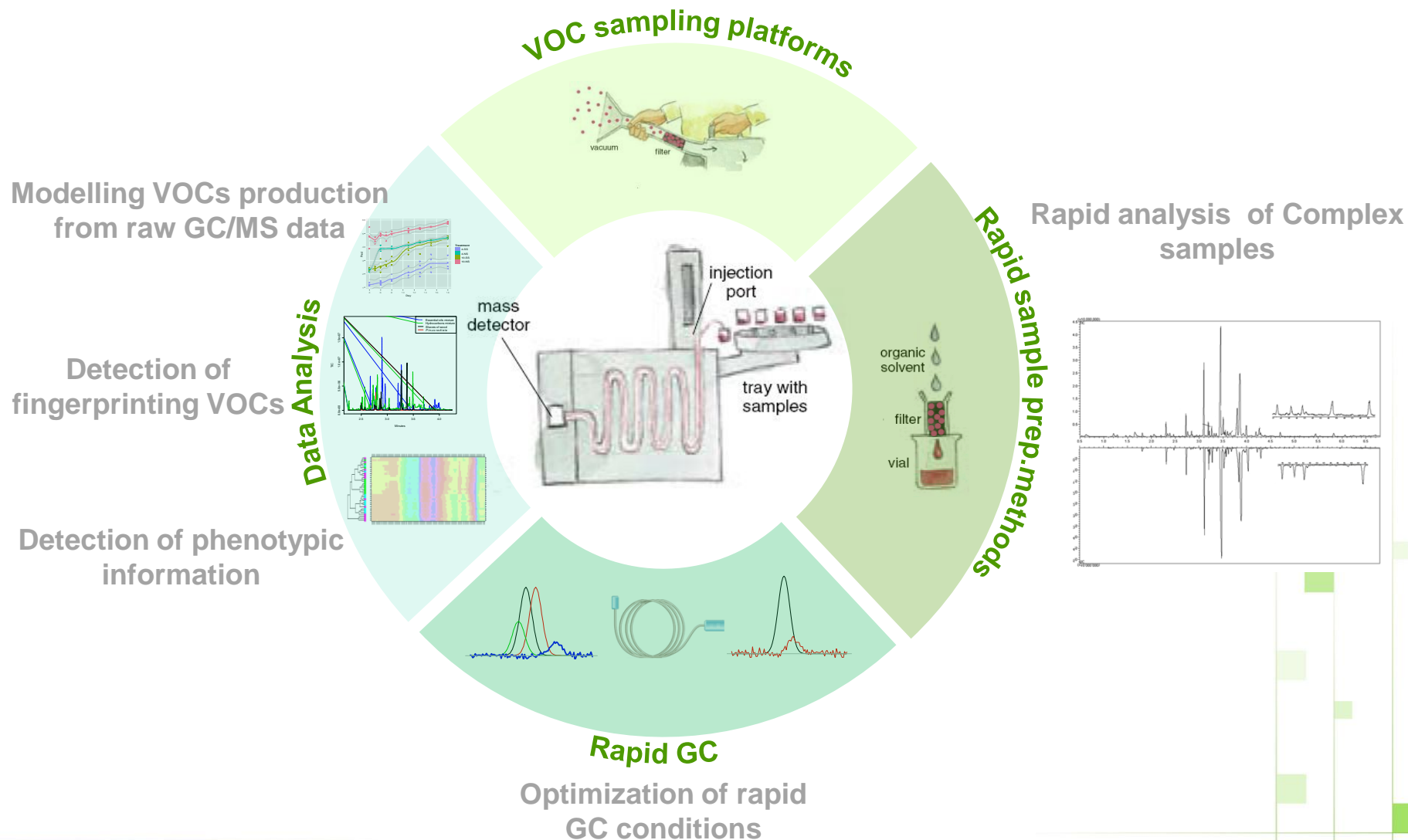
Selected marks  
(SNPs)



# Our Research

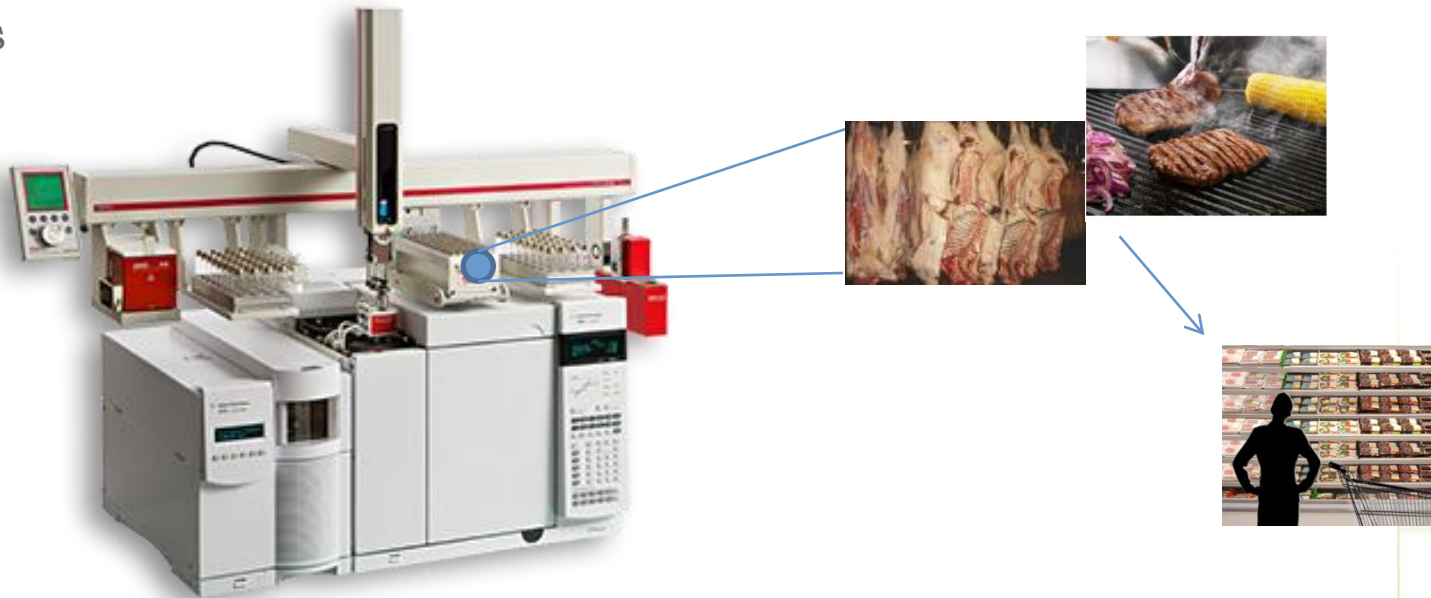
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Monitoring dynamic production of VOCs  
& development of selective trapping surfaces



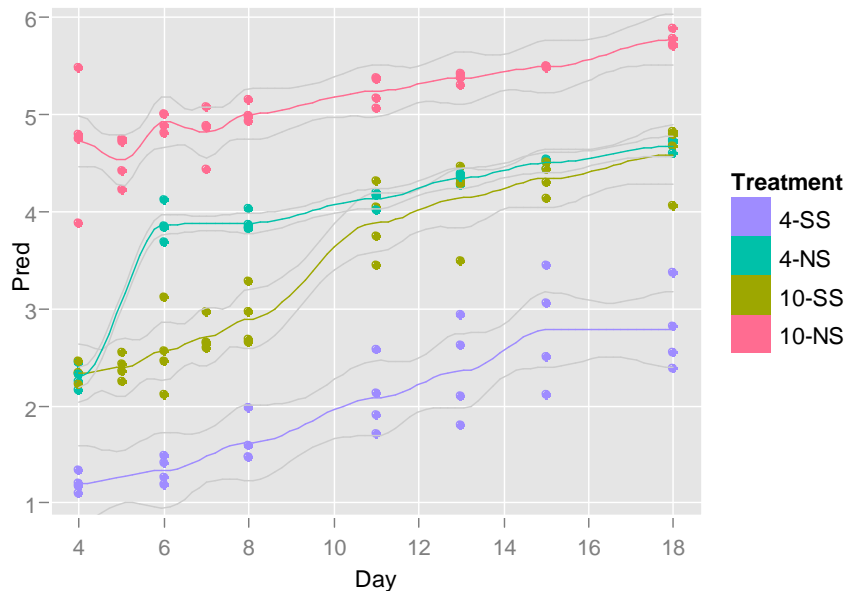
# Automated screening of food samples

- Simulation of different processing conditions
- Evaluation of key chemical composition changes
- Link changes with processing conditions
- Prediction of quality and sensory attributes associated with induced changes



# Screening of volatile compounds

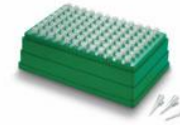
- Sterile and non-sterile meat samples
- Two temperatures (4°C and 10°C)
- Sealed vials
- Volatiles and bacteria growth monitored during 18 days



- VOCs correlated with bacteria growth
- Modelling allowed differentiation between treatments, allowing connection between VOCs and treatments

# Rapid phenotyping: value for money

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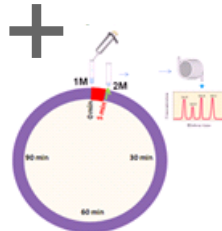


Small sample size



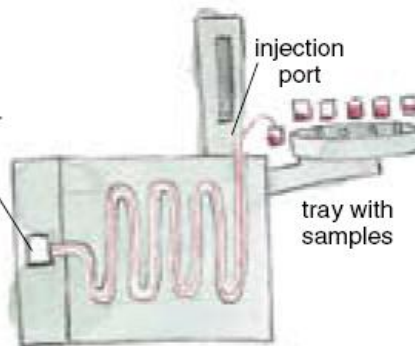
Fast sample preparation  
> Clean and green

Automated throughput



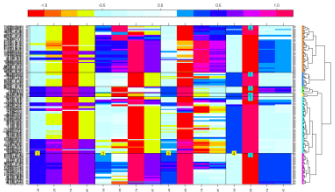
Rapid phenotyping

mass detector



Fast Analysis

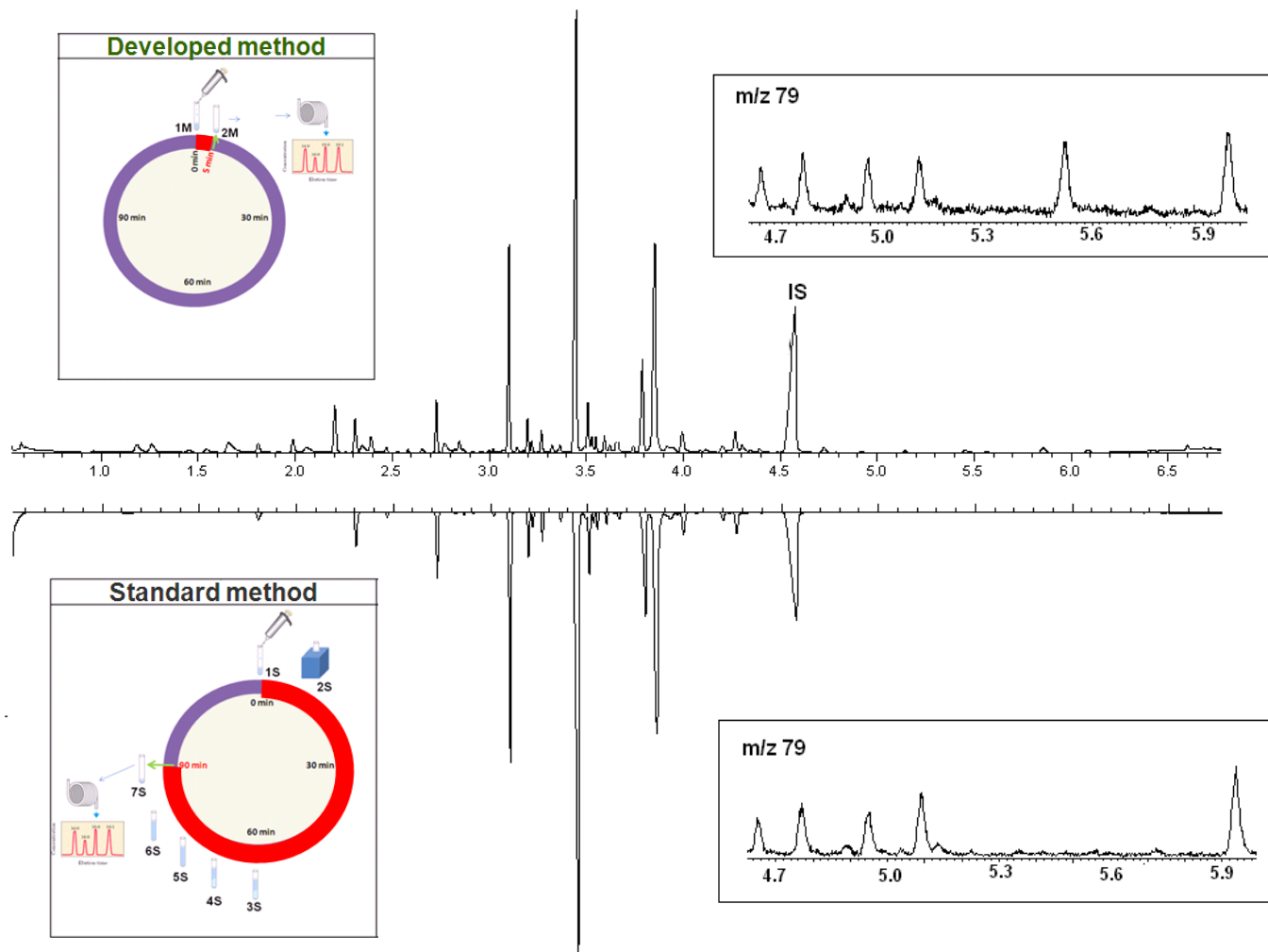
Comprehensive description of samples



Cost of Analysis

Quality of Information

# Rapid analysis of complex samples



How can we help you ?

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