

# Microbiological Hazard Survey & Related Management of Dutch Fresh Produce Growers

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# Introduction

- Public health risks associated with pathogenic contaminations from food of non-animal origin (FoNAO) are a relevant concern (EFSA, 2013).
- Food Safety Management Systems (FSMS), including Good Agricultural Practices (GAP), are often recommended.
- GLOBALG.A.P. - microbiological requirements
- Regulation (EC) 852/2004 – hygiene code

# Purpose

- What measures are currently taken?
- What is the hygiene status at certain critical points at the grower?
- How can we stimulate effective risk management by growers?

# Methods

- A survey alongside visits to fresh produce growers for microbiological sampling and analyses was used to identify farm management and hygiene status.
  - General background of farm
  - Critical Points with subsequent sampling
    1. Water
    2. Manure
    3. Animals
    4. Hygiene
    5. Material/Equipment
  - Evaluation of the survey

# Methods cont.

- Questionnaires investigated measures that stimulate growers to adapt management to reduce potential microbiological contaminations.
- Measures
  - Costs (partial or full reimbursement)
  - Urgency (chain outbreak or close proximity)
  - Knowledge (advice or assistance)
- Practices
  - Sampling of water sources
  - Instruction of staff on hygiene

# Results (Survey)

- Interviewed and sampled at 19 growers
- Growers cultivated various crops: berries (strawberries and redcurrant), lettuce, tomatoes, bell peppers, etc.
- Water, swab, and/or product sampling for total psychotropic or aerobic mesophilic bacteria, coliforms, and *E. coli* demonstrated negative results.
- GLOBALG.A.P. was recognized and followed by most growers.
- Growers' impressions of the possible microbiological contamination of their crop was low.

**GLOBALG.A.P.**  
The Global Partnership for Good Agricultural Practice

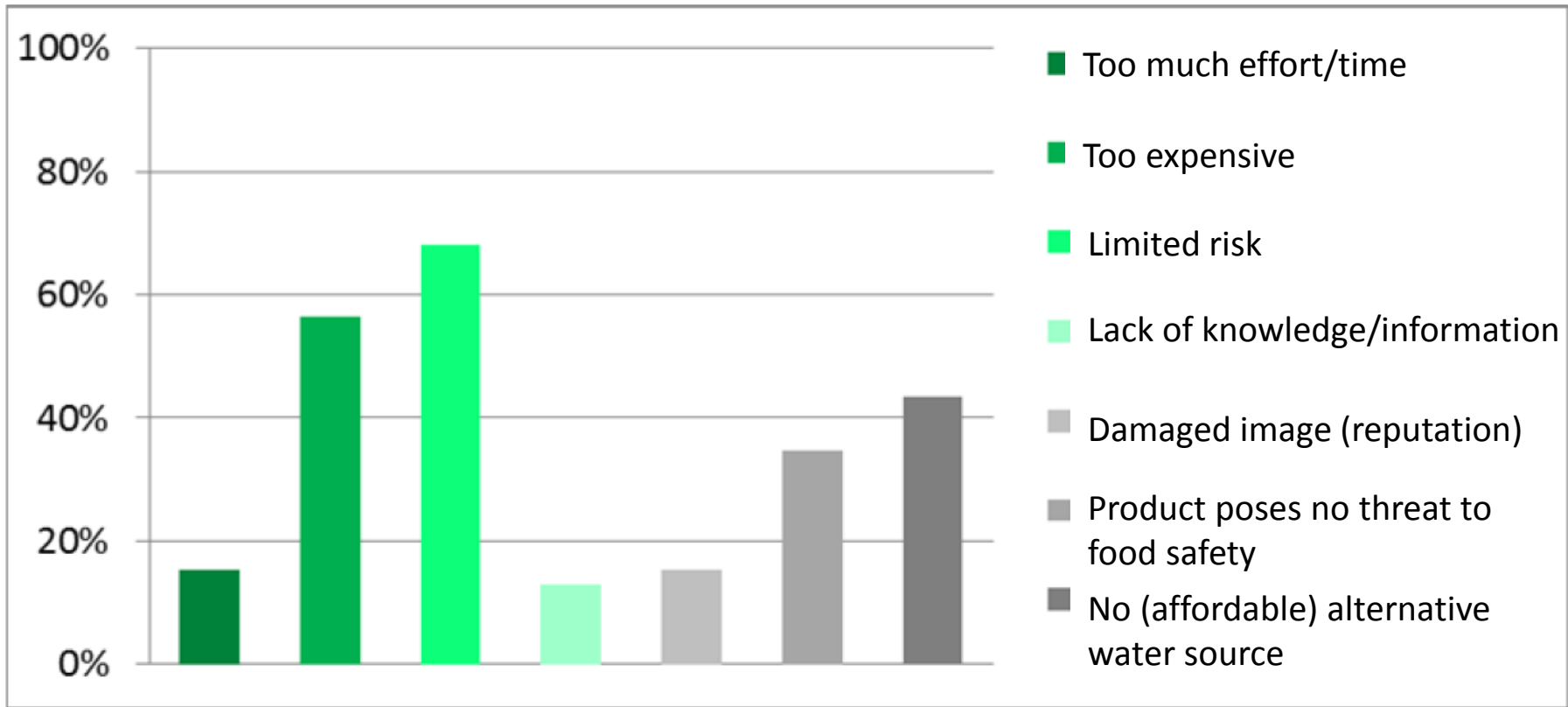
# Results (Survey) cont.

- Growers had limited familiarity to possible microbiological contaminations from...
  - Water storage sources with minimal or infrequent use
  - Staff personal hygiene
  - Harvesting equipment (e.g. knives or crates)
- Voluntary participation in the study results in bias.

*Are these truly representative growers?*



# Results (Questionnaire)

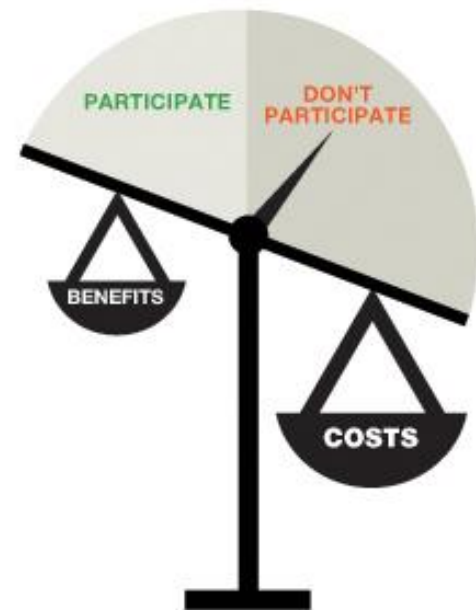


- Important motivations for not sampling irrigation and rain water sources more frequently.



# Conclusions

- Consistent sampling on the farm is not commonly practiced. Most growers take water samples for GLOBALG.A.P. certification.
- Growers estimate a low probability for a microbiological pathogen related outbreaks so from this perspective costs for control measures outweigh the benefits.



# Conclusions

- In particular, farmers were price sensitive towards water testing and water and hygiene management measures.
- However, were willing to adapt management in urgent situations and with lower costs.
- Preventative strategies, such as control measures, instead of reactive strategies are necessary, but less practical.

**How can we improve awareness of possible microbiological contaminations?**

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