organic taste
ECROPOLIS

Analysis of regulatory framework affecting sensory properties of organic products


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SEVENTH FRAMEWORK PROGRAMME

Most pictures are from www.oekolandbau.de picture database

Overview

- Key questions
- Methodology applied
- Analysed regulations and standards
- Impact modell and used typology
- Yoghourt as example
- Graphical presentation of results for different product groups
- Conclusions
- Questions to be discussed

Is the regulatory framework affecting sensory properties?

- Do standards requirements/ differences have a relevant direct or indirect impact on sensory properties?
- If yes, what kind of impact on which sensory and other product properties can be expected – to be verified?
- In which way could this influence the product profile, in particular freshness and shelf life (authenticity)?

- BUT key determining role for the sensory quality and profile of a product remains to the individual processor/operator and his/her skills, experiences and care within the given and/or chosen frame?

Regulatory framework affecting sensory properties - which standards

- Main focus on the specific requirements of public regulations and private standards for organic production which affect sensory properties.
- Basis:
  Council Regulation (EC No 834/2007) and the related rules for implementation (EC No. 889/2008)

In addition, the most important private standards and governmental regulations for organic food and farming in the countries involved (CH, DE, FR, IT, NL; PL) were analysed.

Task: Analysis of regulatory framework affecting sensory properties – main emphasis

- The main emphasis of the analysis was on the requirements for processing (e.g. use or non-use of specific additives).
- Fact sheets with the main relevant standards requirements were made for each of the selected products (see Annex in comparative report)
- Product typology was developed from a marketing perspective based on an impact analysis as input for consumer research

Results in comparative report

- Summary of the relevant standards requirements of the EU regulation for organic production compared with private standards for the selected product groups and products.
- The standards requirements were linked with the potential impact factors relevant to sensory properties, for the different product groups,
- which can later be compared and correlated with the results from the sensory analysis and the results of the consumer perception research.

Selection of products

Dairy products:

- Yoghurt (natural and fruit yoghurts):
- Soft cheese:

Bakery products

- Cookies (with different sweet taste and ingredients):

Meat products:

- Salami

Vegetable oils:

- Sunflower oil:
- Rapeseed oil:

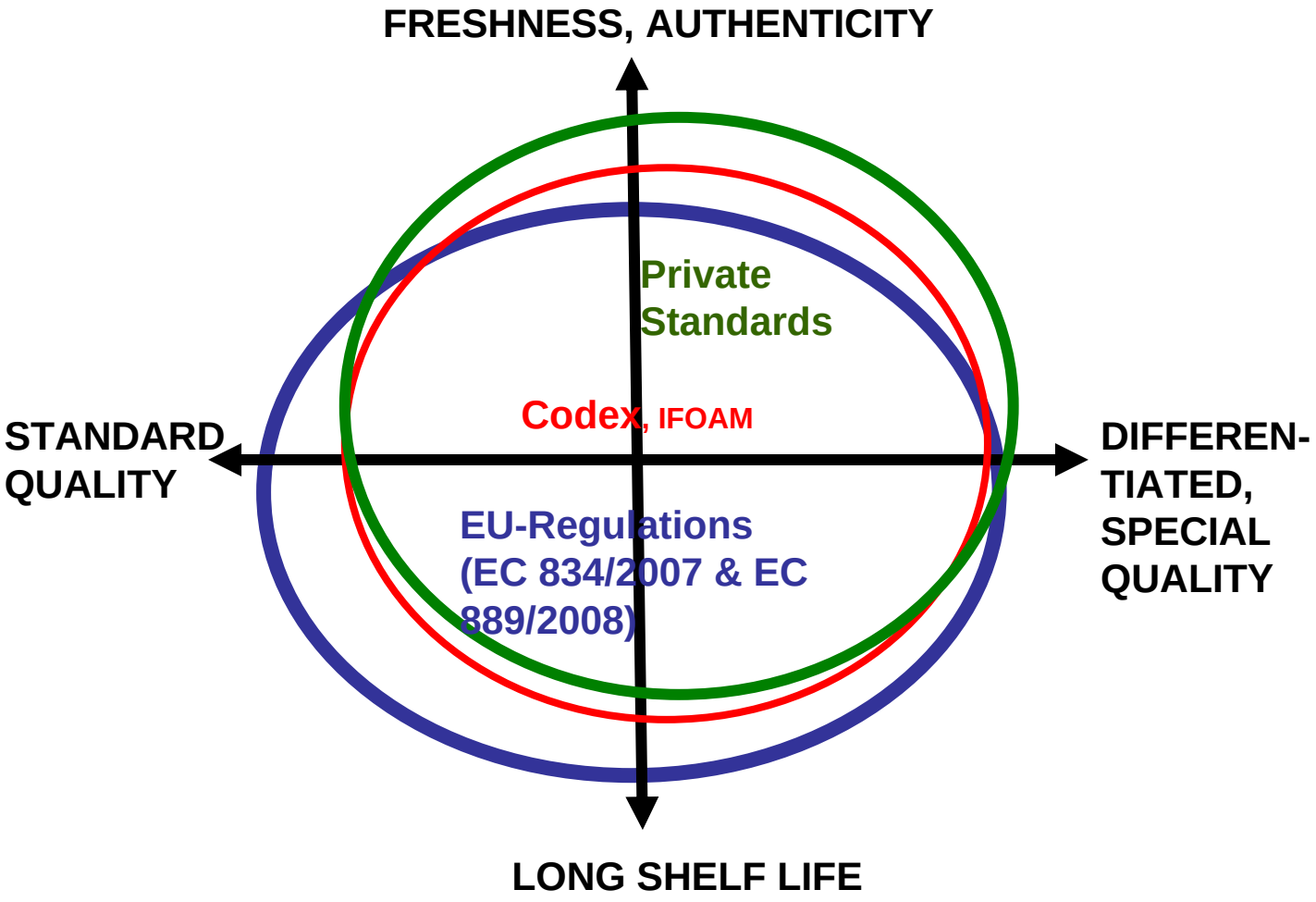
Vegetables/fruit products

- Tomato sauce:
- Fruit juices
- Apples

Level: country/ international	Governmental rules (more detailed or even stricter than EC Reg. 834/2007 & EC Reg. 889/2007	Private Standards	Other private requirements such as Code of Practise, etc.
Germany		Bioland Association (2009)* Naturland Association (2008/2009)* Demeter Germany (2008/2009)*;**	Flavour guidelines of Association Naturkost (2008)
France	Governmen-tal rules (phased out in 2009)	Nature & Progrès (2005)	Synabio-Charta (draft 2009)
Italy		AIAB (2002-2006)* Ital. Organic Standard (2004)	
Netherlands		SKAL	
Poland		Ekoland	
Switzerland	Governmen-tal rules	Bio Suisse (2009)* Demeter Switzerland (2009)*	
INT.-NAT.	Codex Alimentarius 2008	IFOAM (2005) Demeter International 2008 ***	

* these standards have detailed product specific processing standards
** National Demeter Standards are based on the same international processing standards

Strategic positioning as standard or differentiated product quality – how standards deal with it?



General conclusions

- In production standards both EU Regulation as well as private standards only few or no restriction found, which have a direct or indirect impact on taste
- In processing, by the fact that only very few additives can be used for organic food based on EU Regulation 834/2007 ff – some acids, preservatives or thickeners or flavour enhancers cannot be used. => Change of taste!
- Most differences are found in processing standards of private organisations (e.g. Bio Suisse, Demeter, Bioland), which restrict clearly some processing methods and exclude some additives
- Some company have internal quality management standards for their producers, which influence taste, which go beyond the restrictions by the EU regulation and organic label organisations.

Specific conclusions from standards comparison

5 private national standards in France, Germany, Italy and Switzerland, 3 international standards (IFOAM, Codex Alimentarius and Demeter International)

Most significant differences are:

- **the use or non-use of ingredients in particular with flavour and colour compounds;**
- **the use or non-use of natural flavours (e.g. for yoghurts, juices or bakery products);**
- **the use or non-use of specific thickeners in particular for milk-products and vegetable/fruit products;**
- **the use or non- use of nitrate/nitrites in meat products;**
- **the use of organic yeast (mainly for bakery products);**
- **The exclusion of some processing methods like high-temperature processing of oils or of milk.**

THESE DIFFERENCES IMPACT SENSORY PROPERTIES BUT AS WELL THE CHARACTER OF THE PRODUCTS REGARDING STANDARDISATION, DIFFERENTIATION, SHELF LIFE

Processing standards and potential impact on sensory properties

	Issues	Criteria	Direct impact on sensory properties				Other impacts e.g. shelf life
			texture	flavour		Appear-ance	
				taste	odour		
Use and origin of ingredients	Organic and non-organic ingredients	Use or non-use of organic ingredients	xx	xx	xx	xx	
		Use or non-use of non-organic ingredients	x	xx	xx	xx	
		Use or non use of functional ingredients (e.g. milk protein)	xx	x	x	x	
		Use or reduction of sugar	-	x	-	-	x
	Non-agricultural ingredients	Use salt and water,	-	xx	-	x	Shelf life
	Other issues	Use or non-use of colouring ingredients	-	-	-	xx	
		Use of extracts for flavour	-	xx	xx	-	
Use of additives	Restrictions	Lower amount of sulfites or nitrates/nitrites (e.g. for meat)	-	xx	x	(x)	
	Use or non-use	ascorbic acid	-	(x)	-	x	
		antioxydants	-	(x)	-	x	
		Colorants	-	-	-	xx	

Processing standards and potential impact on sensory properties II

	Issues	Criteria	Direct impact on sensory properties				Other impacts e.g. shelf life
			texture	Flavour Taste	Flavour odour	Appea-rence	
Use of processing aids and other substances		non-use of GMO and derivatives	-	-	-	-	
	Other substances	Use or non-use of Ion exchange resins	-	xx	-	xx	
		Use or non-use of natural flavours	-	xx	xx	-	
		Use or non-use of organic yeast	x	x	-	-	
		Use or non-use of bacterial starters	-	x	x	-	
Processing methods	Restrictions	Heat/pressure restrictions	xx	xx	-	-	Shelf life
	Non-use/ prohibition	Irradiation	-	-	-	-	Shelf life
		Micro-waves	-	-	-	-	Shelf life
		No homogenisation	xx	x	-	xx	
	Other issues	Reconstitution	x	xx	-	-	
		Over-processing (e.g. double pasteurisation)	(x)	x	-	-	Shelf life

Differences in yoghurts

Ingredients of agricultural origin:

- little differences found. Few standards restrict the use of starch-based compounds (used as thickener)
- Colouring ingredients: mostly allowed except Bio Suisse
- Extracts from flavour rich compounds: EU + most private standards except Bio Suisse

Ingredients of non-agricultural origin: no relevant differences

Additives:

- Thickeners: only few standards do not allow the use of of plant based thickeners (alginates etc.) as thickener in milk products.

Processing aids and other substances:

- Several standards require the use of flavours only from name-giving substance (possibly organic).
- Use of natural flavours is not allowed by two standards.

Processing methods:

- Two standards restrict the homogenisation of milk for yoghurt, one standard does exclude it.

Yoghurt typology

FRESHNESS, AUTHENTICITY

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STANDARDI-SATION OF QUALITY (STANDARD)

DIFFEREN-TIATION OF QUALITY (PREMIUM)

Use of milk-based thickeners (milk powder or milk proteins)

No use of flavour-rich extracts at all

Use of plant-based thickeners (gums, pectine, etc.)

Pasteurisation

Use of flavour rich extracts

Not homogenised milk

Use of special bacteries (e.e. Bifidus) on organic milk

Homogenisation of milk

Use of conventional bacteries

Use of natural flavours (not from the named source)

Double pasteurisation

Use of flavours from organic ingredients (and the named source)

LONG SHELF LIFE, CONVENIENCE

CAPACITIES

FRESHNESS, AUTHENTICITY

Summary table

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STANDARDI-SATION OF QUALITY (STANDARD)

DIFFEREN-TIATION OF QUALITY (PREMIUM)

Raw milk cheese

Sour dough bread

Yoghourt with only milk-based thickeners & without natural flavour

Bakery with yeast on organic substrate

Yoghourt with thickeners & with natural flavour

Cold pressed (virgin) oils

Sausages without additives (nitrites etc.)

Not homogeni-sed milk

Oils desodorated

Sausages with additives (nitrites, etc.)

Pastry with organic yeast and no ascorbic acid and no natural flavours

Homogenised milk

Pasteurised milk cheese

Fresh direct pasteurised fruit juice without gelatine

Bakery with conventional yeast

Pasteurised reconstituted juice with citric and ascorbic acid.

Pastry with conv. yeast and ascorbic acid and natural flavours

Raw sausages with additives

Micro-filtered pasteurised milk (ESL – Extended shelf life)

CAPACITIES

LONG SHELF LIFE, CONVENIENCE

Questions for discussion

- ***Must organic products be the same like conventional ones or should they have an own sensory and quality profile?***

- ***How can the product typology with the focus on premium versus standard and freshness versus long shelf life be considered in the taste experiments and consumer research?***

THANK YOU FOR YOUR ATTENTION

AND THE EU-COMMISSION
FOR SUPPORT

The project partners for assisting in the work

More information: www.ecropolis.eu

Fresh cheese typology

FRESHNESS, AUTHENTICITY

No use of colorants at all.

No use of flavour-rich extracts at all

Use of colorant additives (natural sources)

Raw milk use

STANDARDI-SATION OF QUALITY (STANDARD)

DIFFEREN-TIATION OF QUALITY (PREMIUM)

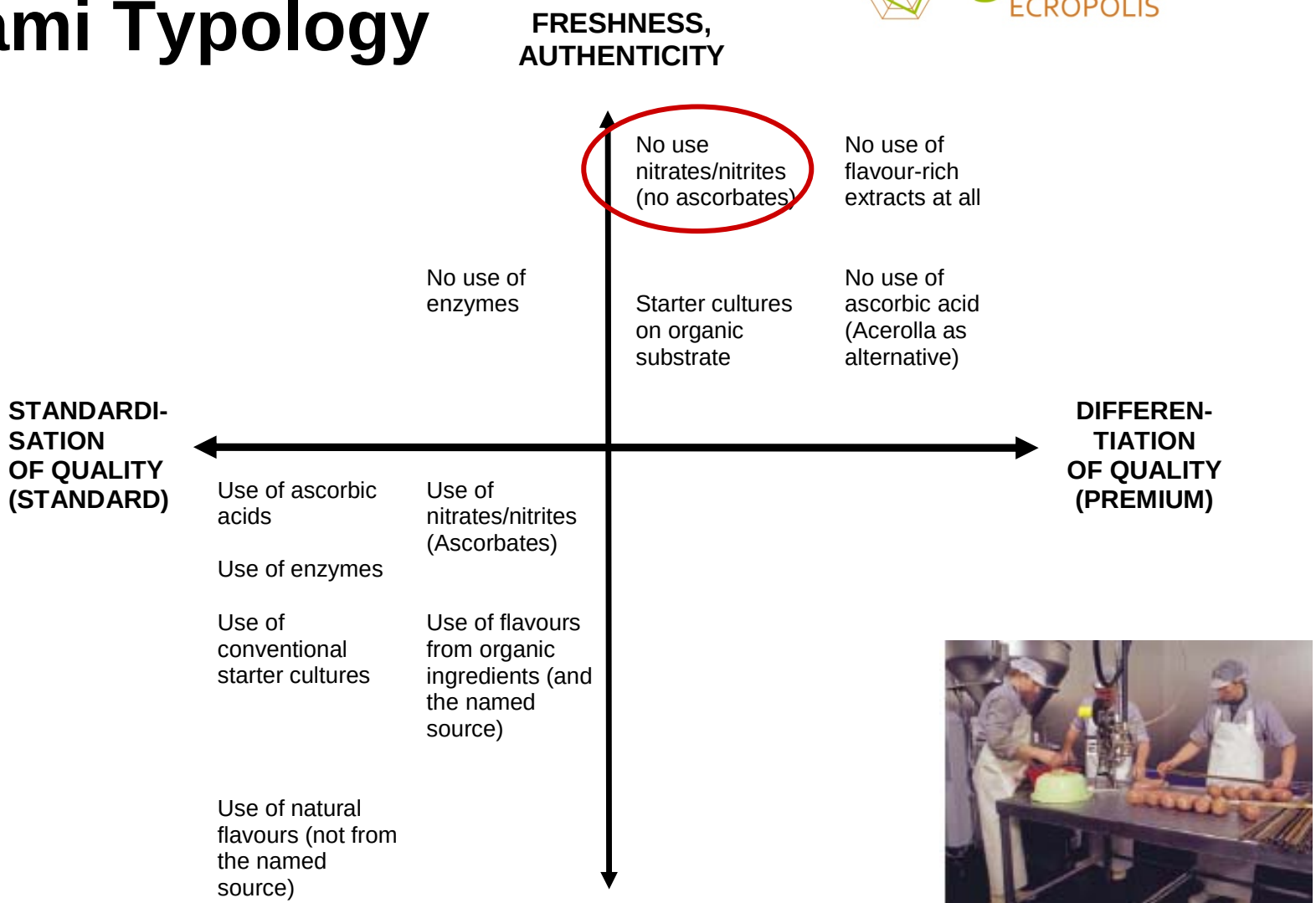
Use of pasteurised milk

Use of flavours from organic ingredients (and the named source)

Use of natural flavours (not from the named source)

LONG SHELF LIFE, CONVENIENCE

Salami Typology



Typology bakery products

FRESHNESS, AUTHENTICITY

STANDARDI-SATION OF QUALITY (STANDARD)

DIFFEREN-TIATION OF QUALITY (PREMIUM)

LONG SHELF LIFE, CONVENIENCE

- No use of citric acid /tartaric acids (instead lemon extracts)
- No use of flavour-rich extracts at all
- No use of lecithine
- Yeast and cultures on organic substrate
- No use of ascorbic acid (Acerolla as alternative)
- Use of lecithin from organic ingredients
- No use of thickeners at all
- No use of enzymes
- Use of thickeners
- Use of lecithine from non-organic sources
- Use of ascorbic acids
- Use of enzymes
- Use of conventional yeast and starter cultures
- Use of natural flavours (not from the named source)
- Use of citric acid or other acids
- Use of flavours from organic ingredients (and the named source)

Typology oil products

FRESHNESS, AUTHENTICITY

No use of enzymes

No use of citric acid /tartaric acids

No use of Tocopherol as anti-oxydants

Cold pressing

No use of flavours at all.

No use of Sodium hydroxide

STANDARDI-SATION OF QUALITY (STANDARD)

DIFFEREN-TIATION OF QUALITY (PREMIUM)

Use of tocopherol as anti-oxydants

Use of enzymes

Use of natural flavours

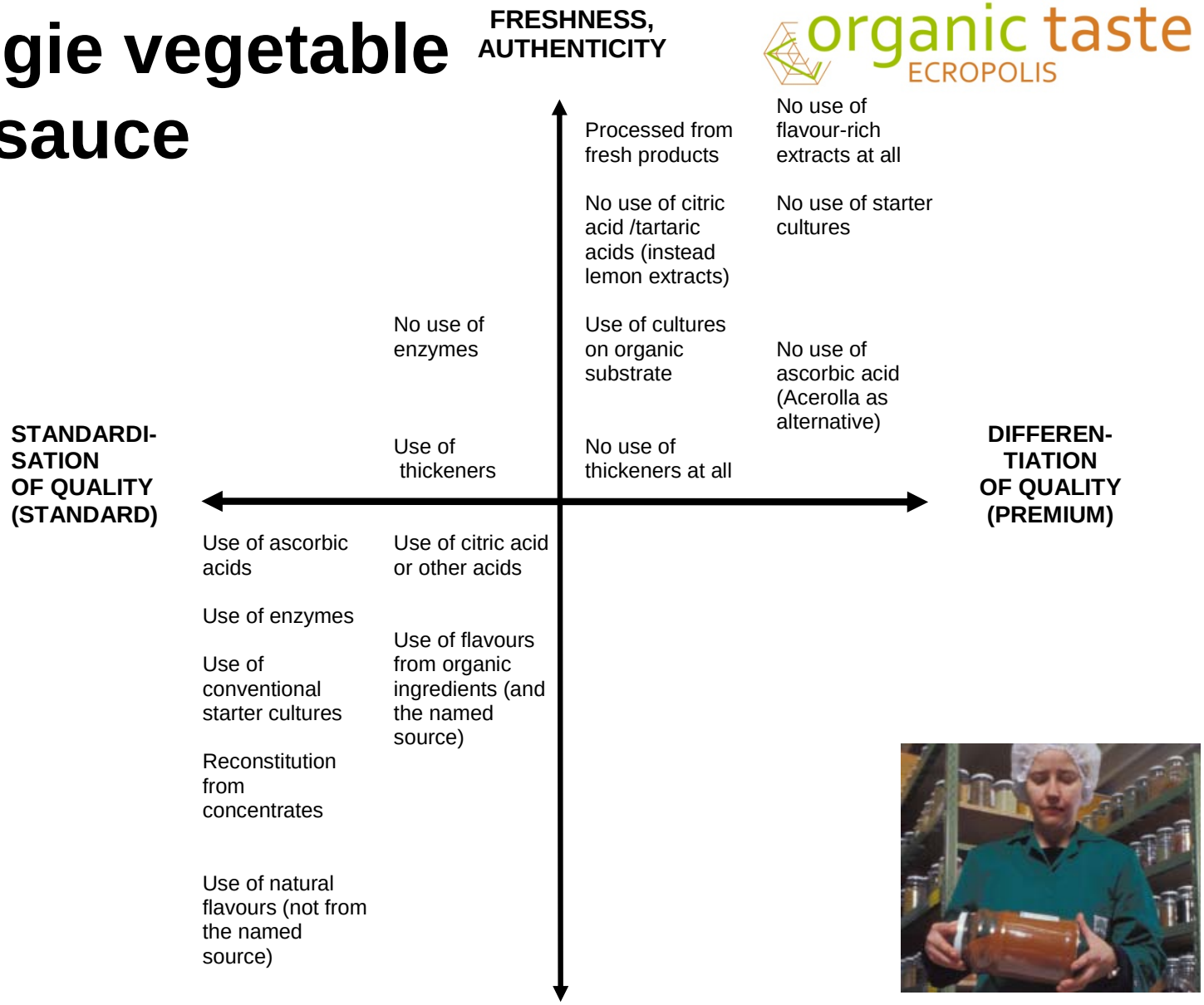
Use of citric acid or other acids

Use of sodium hydroxide

Pressing over 40-50 ^{o}C temperature

LONG SHELF LIFE, CONVENIENCE

Typologie vegetable juices/sauce



Typology fruit juices

FRESHNESS, AUTHENTICITY

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Processed from fresh products

No use of flavour-rich extracts at all

No use of citric acid /tartaric acids (instead lemon extracts)

No use of starter cultures

No use of enzymes

Use of cultures on organic substrate

No use of ascorbic acid (Acerolla as alternative)

Use of thickeners

No use of thickeners at all

STANDARDI-SATION OF QUALITY (STANDARD)

DIFFEREN-TIATION OF QUALITY (PREMIUM)

Use of ascorbic acids

Use of citric acid or other acids

Use of enzymes

Use of flavours from organic ingredients (and the named source)

Use of conventional starter cultures

Reconstitution from concentrates

Use of natural flavours (not from the named source)

CAPACITIES