



Dairies investment decisions in voluntary GM-free labeling standards in Germany

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Study and Results

- Survey of 51 dairy companies on GM-free labeling in Germany
(Here: Dairy = processor of raw milk into whole milk, yoghurt, cheese, etc.)
- Study of (1) current status, (2) potential benefits, (3) limitations, and (4) risks of GM-free production
- Small dairies (unlike larger ones) mostly switch completely to GM-free
- Long-term effects (e.g., creation of a positive image) are more important than short term effects (e.g., higher profit).

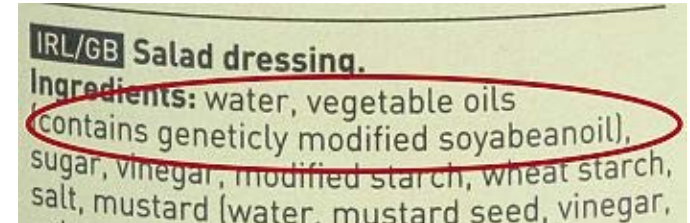
GM in food vs. GM in food process

Crop farming (e.g., maize)	Food product (e.g., cornflakes)	Animal product (e.g., milk, eggs)
GM	GM	Conv.
Conv.	Conv.	GM-free

GM-free labeling

■ Mandatory “positive” label:

- 1829/2003: Traceability and labeling of GMOs
- 1830/2003: GM food and feed
- Excludes products “processed with GMOs” (e.g., livestock products)



■ Voluntary “negative” label:

- 834/2007: EG-Eco-regulation (organic) – excludes GMOs
- EU Member States can introduce own legal standards or guidelines for “GM-free” products



Rigor of GM-free production standard

- Facilitate GM-free labeling
 - Germany, France, Austria, (also developing in Croatia, Greece, and Luxembourg)

- Allow GM-free labeling under highly restrictive circumstances
 - The Netherlands, Switzerland, Finland

- Prohibit GM-free labeling
 - Belgium, Sweden

Rational for different rigor

- Ensuring consumer information and choice.
- Avoiding consumer confusion or misleading information.



How dairies started GM-free labeling? (1)

■ Austria

- 1998: Implementation of GM-free production in Codex Alimentarius Austriacus Guideline
- 2000s: some small dairies produce GM-free
- 2004: Greenpeace „attacks“ NÖM (biggest Austrian dairy). NÖM announces to go GM-free but won't rise the prices.
- Now: ~100% GM-free milk



How dairies started GM-free labeling? (2)

■ Germany:

- 2008: Revision of German Genetic engineering Act of 1990. GM-free labeling no longer based on regulation for „novel food products“. New regulation is less strict.
- Some small producers use label.
- Greenpeace attacks large dairy „Landliebe“ (1,000 raw milk suppliers). Dairy switches.
- 2009: NGO introduces uniform GM-free label
- ALDI + LIDL produce GM-free without labeling
- 2015: REWE + EDEKA label private brands. ALDI labels, too.



GM-free labeling in Germany

- Some GMOs are allowed in the food process (so far)
 - GM feed outside a certain period (milk: approx. 3 month before milking)
 - Technically unavoidable GM in feed up to 0.9 % (in food 0.1%)
 - GM feed additives (Vitamines, ammino acids, encymes)
 - But: No GM food additives



OR



Inputs affected

- GM-free dairy product:
 - Raw milk from cows that ate non-GM feed only
 - Main feed input of concern: Soybean (meal)



Protein feed import to Germany

- 70-80% imported
- Mainly soybean (meal) from North and South America
- Meal import to Germany: 4.5 mio tonnes per year
 - Pigs 2.5 mil to.
 - Poultry: 1.2 mil to.
 - Cow/Cattle: 0.8 mil to.
- GM-free mainly from Brazil. Brazil has >92% GM soya



How costly is GM-free for farmers?

- Extra cost per kg milk from substituting GM by non-GM soybean meal (extra cost for non-GM soybean: +50€/t ~ 10% on top of GM soy)

Basic feed	Concentrate [kg/a/cow]	Soybean meal 44 [kg/a/cow]	Additional cost non-GM soybean meal [€/a/cow]	Additional cost per kg milk [€Cent]
90 % grass silage, 10 % hay	2,300	350	17.5	0.25
50 % corn silage, 50 % grass silage	2,250	911	46	0.66

Source: (Wurm, 2006)

Further costs: e. g. Dorfner and Uhl (2012)

- Documentation and control 0.1-0.8
- Investments 0.1-1.2
- Young cattle 0.1-1.4
- Separating feed charges 0-1.2



Compensation from dairies to farmers

- Survey: 0.35 – 10.0 €Cent

- Other sources: 0.5 – 2.0 €Cent
(abgespeist.de, 2011; dlz.agrarheute.com, 2011;
th-mann.de, 2011 and topagrar.com, 2011)



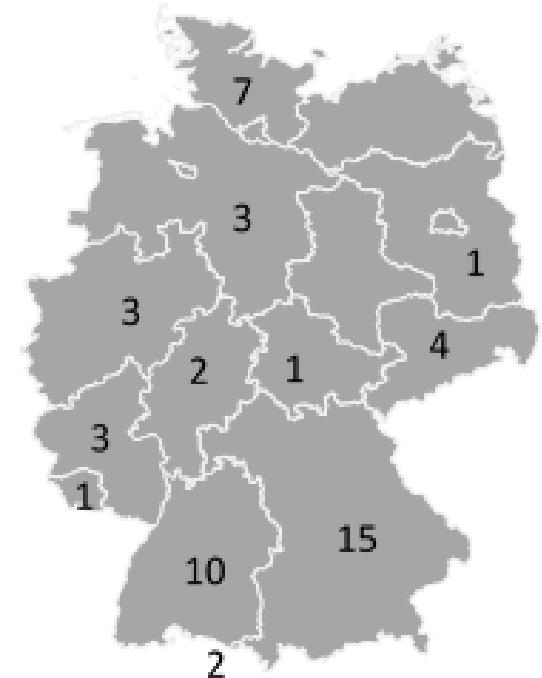
Survey of German dairy companies

- Sample size: 51
 - 12 “Conventional”
 - 18 “Organic”
 - 21 “GM-free”



Sample overview

Variable	
Amount of raw milk in 2013[10 ⁶ kg/year]	
- Mean (SD)	85.35 (212.36)
- Median	0.60
Revenue in 2013 [Million Euro]	
- Mean (SD)	338.38 (1870.75)
- Median	1.00
No. of suppliers	
- Mean (SD)	222 (685)
- Median	2



Map 1: Map of Germany with number of dairy companies in the survey

Assessment of market development

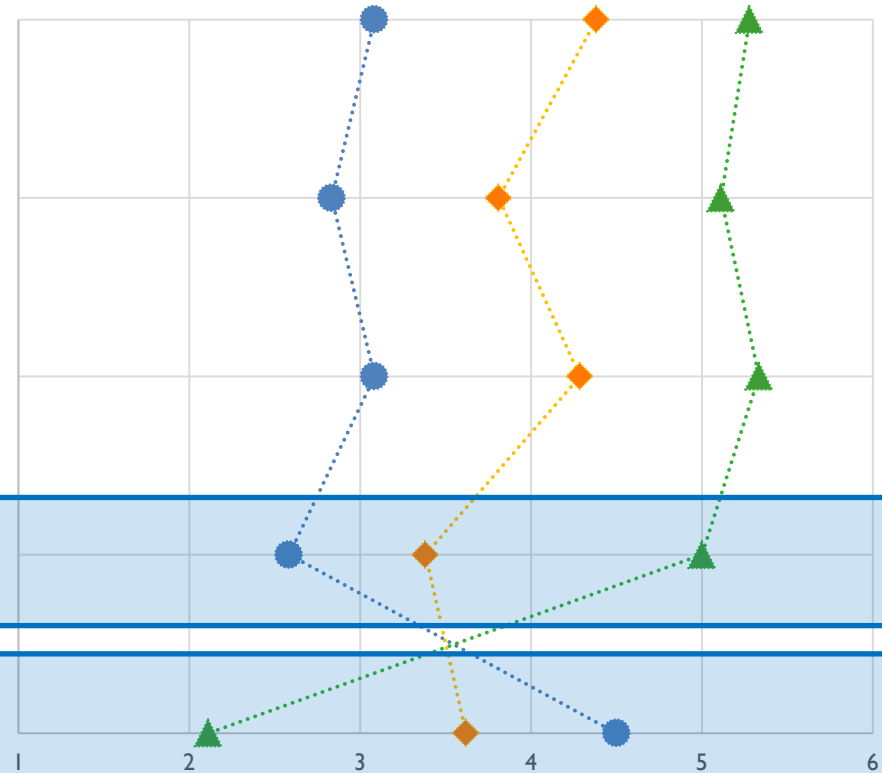
The current market situation for GM-free products is very positive

The current market situation is an opportunity to invest in GM-free products

The importance for GM-free products will increase within the EU

The GM-free market will gain importance internationally in the future

The GM-free market will always remain a niche market

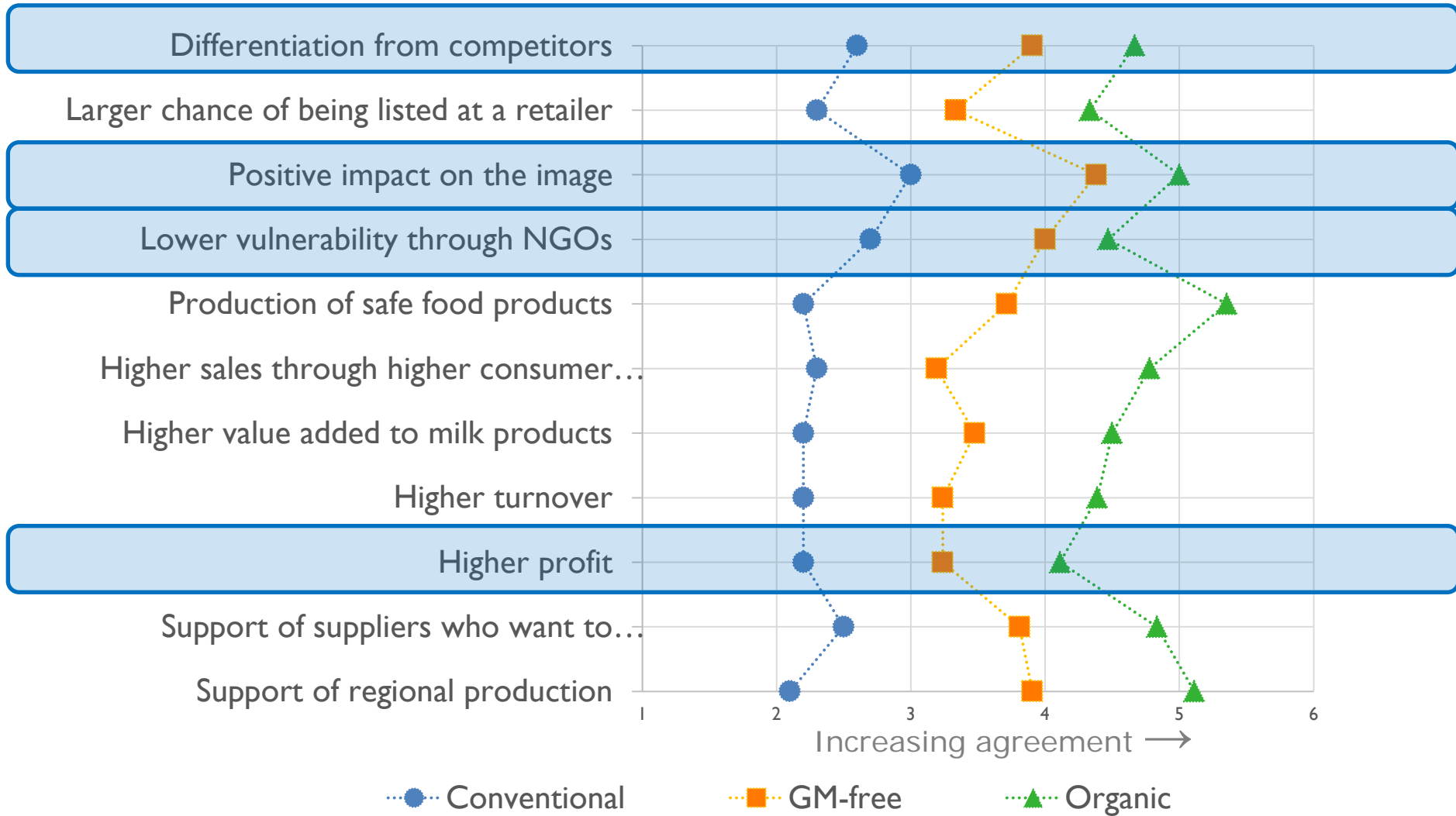


● Conventional

◆ GM-free

▲ Organic

Assessment of benefits



Expected extra cost and benefits

- per kg raw milk (base unit).

	Extra variable costs	Marginal WTP
Conventional dairies	1.6 (1.9)	6.1 (8.1)
GM-free dairies	2.7 (2.4)	14.0 (17.7)

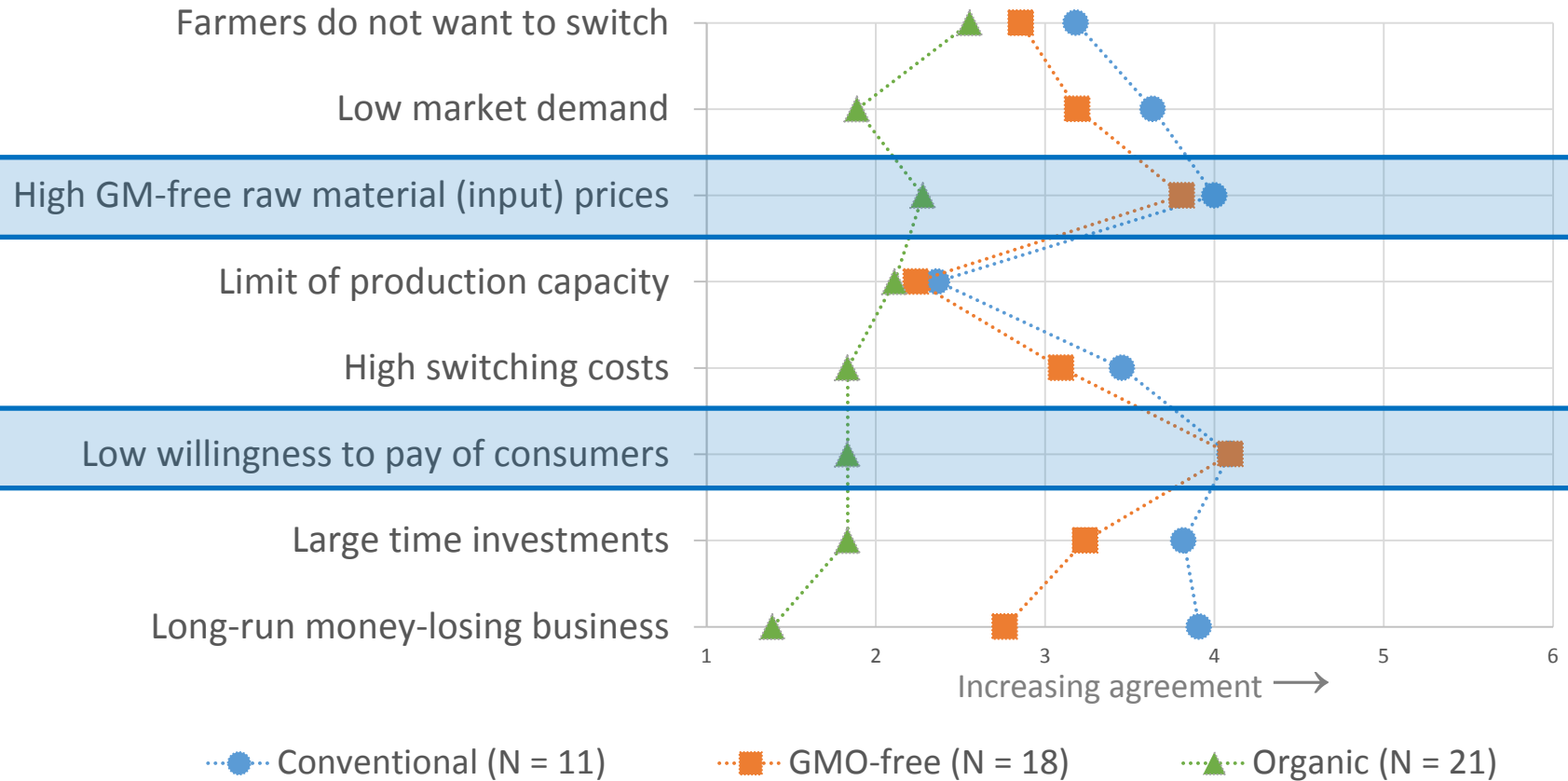
- BUT
 - Variable cost only one part = Ex-ante regulation cost
 - + Switching cost
 - Other costs (benefits): Ex-post liability and reputation

Other motives

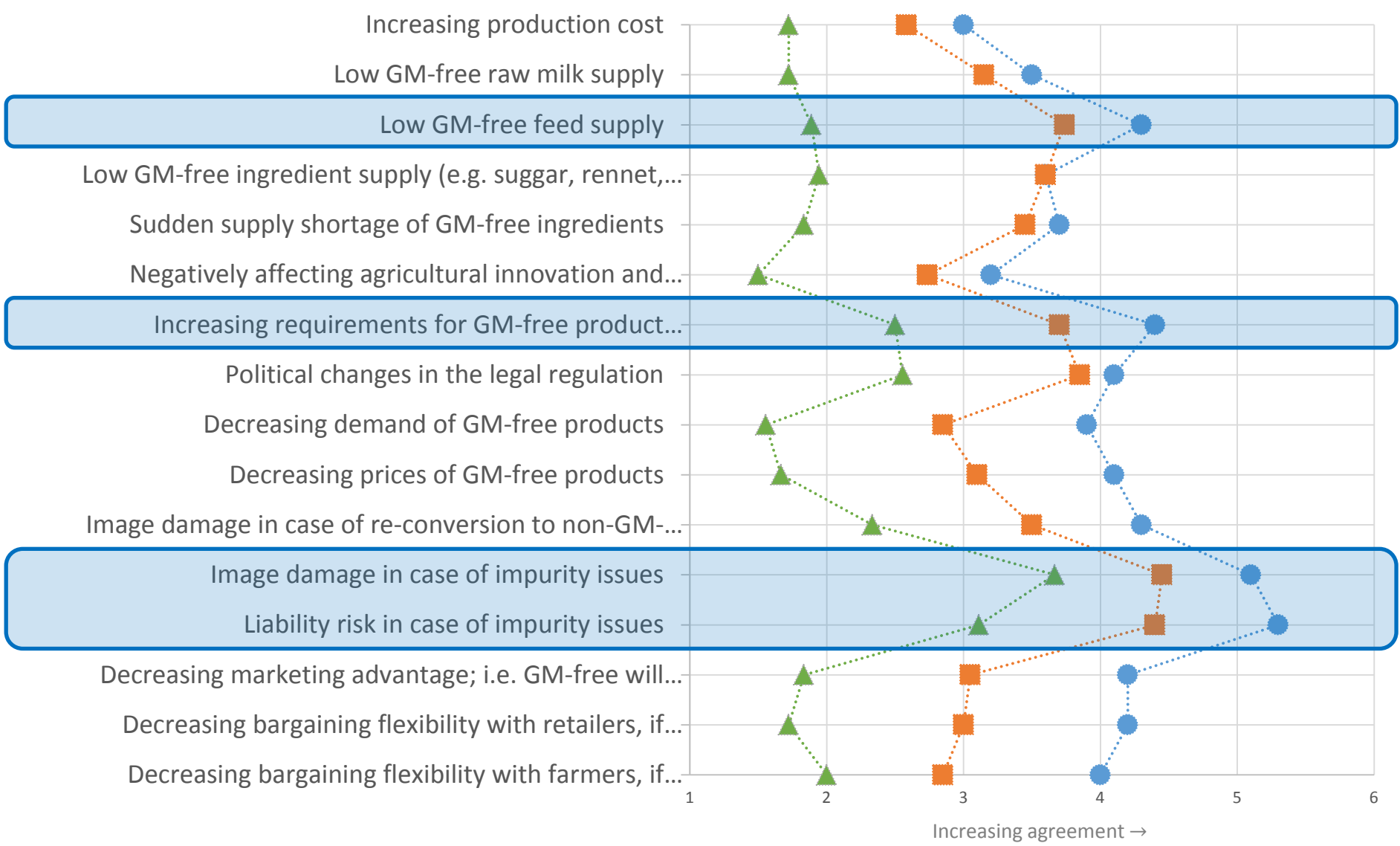
- 4 GM-free dairies: retailer demands GM-free (2014)
- Other dairies: Retailers announced to demand GM-free
- Also several organic dairies label their products as GM-free



Limitations to switch



Assessment of risks



Industries take own initiatives

- Initiatives against high risks of feed imports
- 2013: Representatives of industries and food retailing from five European countries released the “Brussels Soy Declaration” to support a non-GM soybean production system ([ProTerra Foundation, 2013](#)).
- Danube Soy Declaration



Conclusions

- GM-free may increase either consumer information or consumer confusion
- Survey indicates: Long term effects at least as important as short term profits
- NGO pressure important role for switching
- Future of GM-free depends on political decisions:
 - Support of protein feed production
 - Harmonization of GM-free labeling in Europe



Conclusions (Contd.)

- GM-free labeling may have strong effect on the import of genetically modified feed in Europe

