ECONOMIC ASPECTS OF ORGANIC AQUACULTURE

Oral presentation for Aquaculture Europe 2016, Edinburgh

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Relevant rules for aquaculture in the regulation EU 710/2009

6.8.2009 E

Official Journal of the European Union

L 204/15

COMMISSION REGULATION (EC) No 710/2009

of 5 August 2009

amending Regulation (EC) No 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007, as regards laying down detailed rules on organic aquaculture animal and seaweed production

THE COMMISSION OF THE EUROPEAN COMMUNITIES

Having regard to the Treaty establishing the European Community,

Having regard to Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EC) No 2092/91 (*), and in particular Articles 11, 13(3), 15(2), 16(1) and (3)(a) and (c), 17(2), 18(5), the second subparagraph of Article 19(3), Articles 22(1), 26(3) and 38(a), (b), (c), and Article 4 Othereof.

Whereas

- (1) Regulation (EC) No 834/2007 and in particular Title III thereof lays down basic requirements with regard to aquaculture animal and sewed production. Detailed rules for the implementation of these requirements should be laid down by amending Commission Regulation (EC) No 889/2005 (3), which lays down detailed rules for the implementation of Regulation (EC) No 833/2002
- (2) The Communication from the Commission to the Council and the European Parliament on a strategy for the sustainable development of European aquaculture (³) sets out a vision for the development of this sector over a ten year period to give a stable industry in rural and coastal areas providing alternatives to the fishing industry in terms of products and employment. The Communication pointed to the potential for organic aquaculture

- The aquatic growing area for organic seaweed and aquaculture animals is of utmost importance for growing both safe and high quality products with minimal impact on the aquatic environment. Community legislation on quality of waters and contaminants in food, including Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (4), Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (5), Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs (*), and Regulations (EC) No 852/2004 (7), (EC) No 853/2004 (8) and (EC) No 854/2004 (*) of the European Parliament and of the Council provide for environmental objectives for water and ensures high food quality. It is therefore appropriate to draw up a sustainable management plan for seaweed and aquaculture production specifying measures, such as waste reduction
- (5) Council Directive \$5/337/IEC of 27 June 1985 on the assessment of the effects of certain public and private project: on the environment (*). Council Directive \$2/43/IEC of 21 May 1992 on the conservation of natural habitats and of wild fatura and floras (*)) and Council Directive 79/409/IEC of 2 April 1979 on the conservation of wild birds (*)) abould ensure proper interaction with the environment while taking into account the impact of these activities on the environmental objectives for water set out in application of Directives 2000/60/IEC and 2005/56/IEC Provisions should be made for drawing up an environmental assessment covering best adaptation to the surrounding environment and mitigation of possible negative effects. There should be consideration that such assessments.

- Finfish, shellfish and seaweed
- Origin of animals: organic (if available)
- Husbandry: well-being, oxygen, temperature, light, stocking density, impact on local ecosystem, hormones
- Feed: origin, composition, quality, environmental impact
- Disease prevention and treatments: disinfection, parasite control, homeopathic / allopathic
- Transport



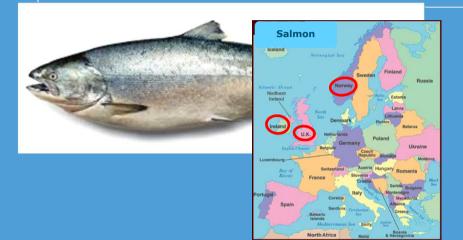
Approach farm level

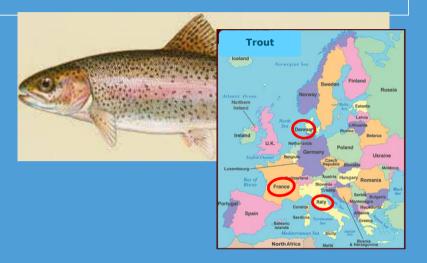
Basic idea: Simulating the transition to organic aquaculture

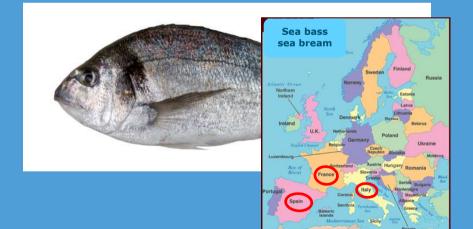
- 1. Collecting reliable data of the farm setup and the cost structure of conventional aquaculture
- 2. Modelling the (detailed) consequences of 710/2009
- 3. Collecting external information (prices/quantities)
- 4. Calculating the production costs before and after transition
- 5. Comparing the differences in production costs per kg fish



Cases











Data sources conventional aquaculture

- STEFC, 2014
 - Salmon in United Kingdom and Ireland
 - Trout in Italy, France and Denmark
 - Seabass/seabream in France, Italy and Spain
 - Carp in Romania
- Fiskeridirektoratet Norge, 2013
 - Salmon in Norway
- Landesfischereiverband Brandenburg/Berlin
 - Carp in Germany
- Turkovski and Lirski, 2013
 - Carp in Poland

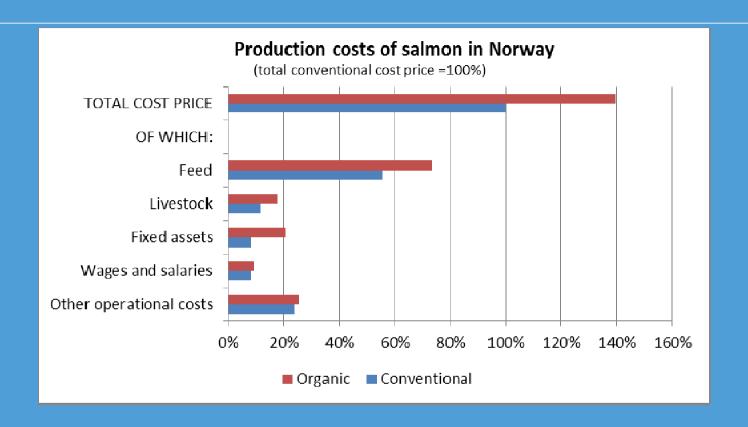


Data sources price and quantity indices

- Literature (reviewed and grey)
- Interviews with field experts
- Workshops with farmers and experts
 - Density (investments due to lower density)
 - Feed (conversion rates and prices)
 - Juveniles (availability and prices)
 - Veterinarian aspects (health, mortality)
 - Labour
 - Other relevant information



Production cost effects for salmon





Production cost effects for all species and regions

		conv.	organic	difference
Salmon	Norway	2.44	3.40	+0.96 (+40%)
	Ireland	5.34	7.08	+1.74 (+33%)
	UK	3.16	3.88	+0.71 (+23%)
Trout	Denmark	2.76	3.44	+0.68 (+25%)
	France	3.54	4.24	+0.70 (+20%)
	Italy	1.90	2.23	+0.33 (+17%)
Sea bass &	France	6.27	8.10	+1.83 (+29%)
sea bream	Italy	7.44	9.91	+2.46 (+33%)
	Spain	5.52	7.81	+2.29 (+42%)
Carp	Poland	1.95	3.04	+1.09 (+56%)
	Germany	2.16	2.82	+0.66 (+31%)
	Romania	1.02	2.00	+0.98 (+95%)



Approach consumer level

Breakdown pond to plate (conventional & organic):

- 1. Farm prices for raw fish
- 2. Cost of gutting
- 3. Gutting losses
- 4. Percentage fillet of gutted fish
- 5. Purchase price for slaughterhouse per kg fillet
- 6. Costs and margins for processing
- 7. Purchase price for supermarket per kg fillet
- 8. Costs and margins for supermarket
- 9. VAT
- 10. Consumer price



Data sources breakdown

- Literature
 - Slaughtering efficiency
 - VAT-rates
- Interviews
 - Margins in the chain
- Data collection
 - Consumer prices of supermarkets who sell both organically and conventionally produced fish. As far as possible comparable for product, packaging size, appearance, etc.



Consumer prices fresh/frozen salmon fillet in euro/kg

		Conventional	Organic
Albert Hein	NL	24.20	32.00
Delhaize	Ве	19.70	27.00
Carrefour	Fr	20.20	34.00
Tesco	GB	21.60	33.80
Picard	Fr	22.40	34.80
Rewe	D	23.20	29.50
Jumbo	NL	22.00	30.00
Average		21.50	32.00



Breakdown salmon fillet

		Conventi	onal		Organi	С
Farmers price	€	3.90		€	5.00	
Costs of gutting	€	0.60		€	0.60	
Gutting loss			10%			10%
Price gutted fish	€	5.00		€	6.30	
Percentage fillet			55%			55%
Price per kg fillet	€	9.10		€	11.50	
Processing	€	4.90		€	6.20	
Purchase price supermarket	€	14.00		€	17.70	
Margin supermarket	€	6.20		€	12.80	
Consumer price (excl. VAT)	€	20.20		€	30.50	
VAT	€	1.30		€	1.50	
Consumer price (incl. VAT)	€	21.50		€	32.00	



Breakdown salmon fillet

- Additional cost at farm level only explains part of the higher consumer price
- Margin for retail is most prominent factor



Comparison of conventional and organic price on farm and retail level

	Farm level	Retail level
Salmon		
frozen/fresh fillet	+30%	+50%
Smoked fillet	+30%	+45%
Trout		
frozen/fresh fillet	+30%	+30%
whole fish	+35%	+45%
Sea bass/ sea bream		
frozen/fresh fillet	+35%	+30%
whole fish	+35%	+30%
Carp		
frozen/fresh fillet	+30%	+30%
whole fish	+30%	+35%



Conclusions costs in the chain

- Farmers' price organic fish +30%
- Consumer price organic fish: +30% to +50%
- Reasons for this higher margins in the chain:
 - Margins calculated relatively instead of absolutely;
 - Imbalance of demand and supply in short-term;
 - Higher retail margin needed due to lower turnover rate
 - Small volumes lead to cost disadvantage per unit;
 - Extra costs for slaughtering methods and certification are insignificant.



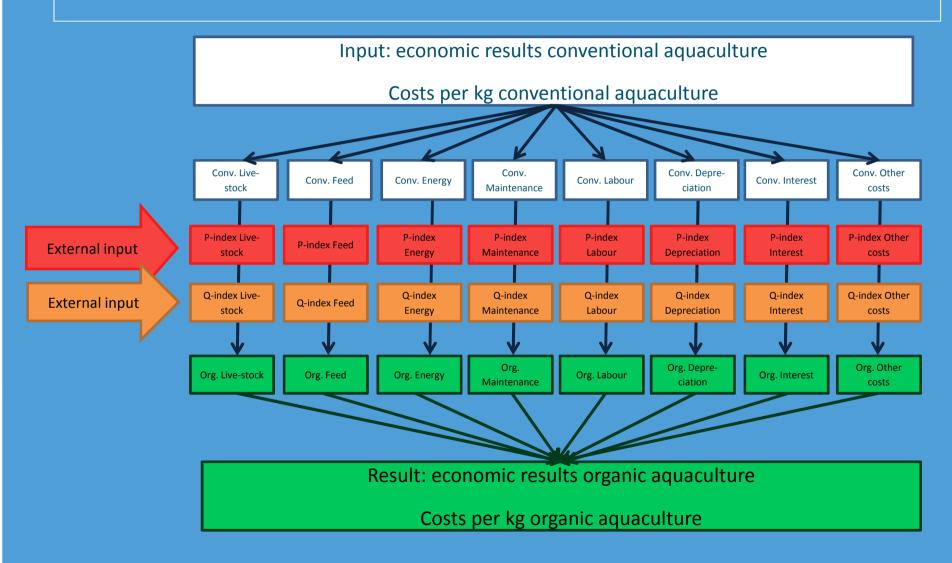
Thank you for your attention

It's question time!





Technical framework of the model





Technical base of the model

$$PC_{org} = \sum_{n=1}^{k} PCE_{conv,n} * Q_n * P_n$$

Where:

PC = Production cost

PCE = Production cost element

Q = Quantity index

P = Price index



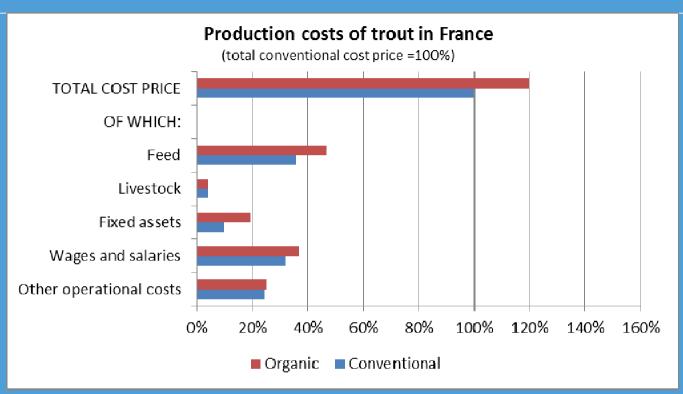
Background

- Oraqua Evaluation and improvements of EC Regulation no. 710/2009 based on:
- review of the relevant available scientific knowledge
- review of organic aquaculture production and economics
- assessment of consumer confidence and public perception

Work package 3.2: Farm economics and competitiveness of organic aquaculture



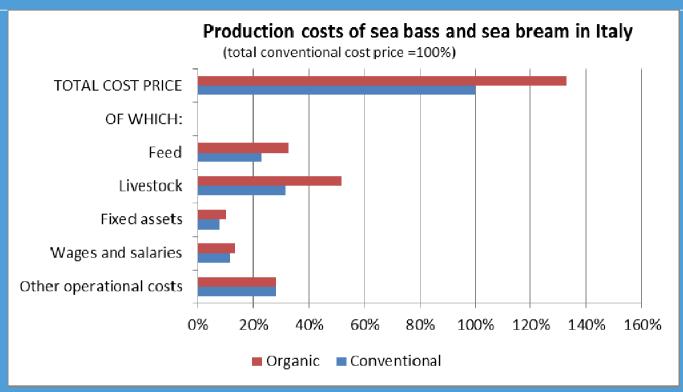
Production cost effects for trout



- Production costs +21% (DK), +20% (FR), +23% (IT)
- Due to feed (1), installation (2) and labour (3)



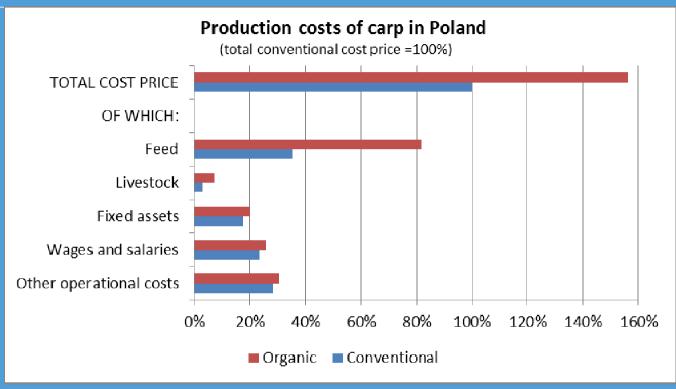
Production costs effects for sea bass/bream



- Production costs +29% (FR), +33% (IT), +43% (ES)
- Due to feed (1) and juveniles (2)



Production cost effects for carp



- Production costs +95% (RO), +56% (PL), +31% (DE)
- Due to feed (1) and juveniles (2)



Results salmon

(unweighted averages of Norway, United Kingdom and Ireland)

	Conventional	Organic	Difference
Livestock	0.29	0.44	0.15
Feed	1.51	1.91	0.40
Installation and machineries	0.27	0.69	0.42
Labour	0.45	0.52	0.07
Energy	0.07	0.07	0.00
Other operational costs	1.11	1.18	0.07
Financial costs	0.02	0.06	0.03
Subsidies & other income (-)	0.07	0.07	0.00
Total costs	3.65	4.79	1.14

- Cost price +1.14 euro/kg (=31%)
- Due to installation (1), feed (2) and juveniles (3)



Results trout

(unweighted averages of Italy, France and Denmark)

	Conventional	Organic	Difference
Livestock	0.27	0.32	0.05
Feed	1.06	1.38	0.32
Installation and machineries	0.26	0.39	0.13
Labour	0.69	0.79	0.10
Energy	0.16	0.16	0.00
Other operational costs	0.33	0.34	0.01
Financial costs	0.10	0.19	0.09
Subsidies & other income (-)	0.14	0.26	0.12
Total costs	2.73	3.30	0.57

- Cost price +0.57 euro/kg (=21%)
- Due to feed (1), installation (2) and labour (3)



Results sea bass & sea bream

(unweighted averages of France, Italy and Spain)

	Conventional	Organic	Difference
Livestock	1.27	2.06	0.79
Feed	2.19	3.29	1.10
Installation and machineries	0.50	0.69	0.19
Labour	1.11	1.27	0.17
Energy	0.19	0.19	0.00
Other operational costs	1.34	1.37	0.03
Financial costs	0.16	0.23	0.06
Subsidies & other income (-)	0.34	0.50	0.16
Total costs	6.41	8.61	2.20

- Cost price +2.20 euro/kg (=34%)
- Due to feed (1) and juveniles (2)



Results carp

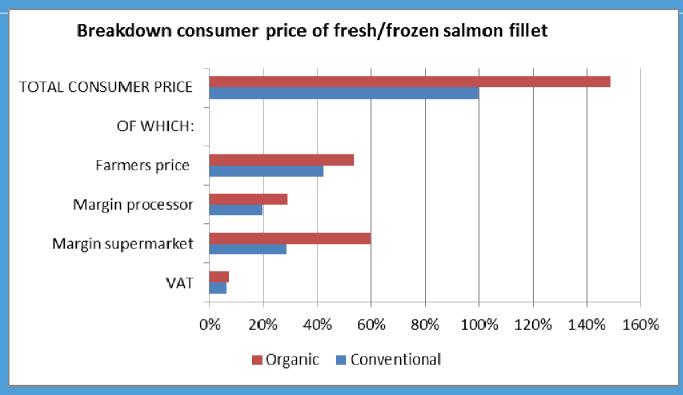
(unweighted averages of Poland, Germany and Romania)

	Conventional	Organic	Difference
Livestock	0.18	0.32	0.14
Feed	0.50	1.15	0.65
Installation and machineries	0.60	0.68	0.08
Labour	0.86	0.95	0.09
Energy	0.09	0.10	0.01
Other operational costs	0.40	0.44	0.05
Financial costs	0.05	0.06	0.01
Subsidies & other income (-)	0.98	1.09	0.11
Total costs	1.71	2.62	0.91

- Cost price +0.91 euro/kg (=53%)
- Due to feed (1) and juveniles (2)



Breakdown salmon fillet



- Additional cost at farm level only explains part of the higher consumer price
- Margin for retail is most prominent factor

