

Social benefits of modern poultry meat production in the European Union

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Acknowledgement

This presentation is based on:

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Societal benefits of modern poultry meat production in

Germany and the EU, HFFA Research Paper 08/2017

available from www.hffa-research.com

Changing international framework conditions 1

- The times of plenty in world agriculture are over.
- Since 2000: Upward trend in commodity prices.
- The global climate commons: Saturated with GHGs.
- Increasing scarcity of global natural capital (land, natural habitats, biodiversity, water).

Rapidly growing world food needs 1

- Rapid population growth.
- Rapid food consumption growth.
- World food needs: +120 % (2000-2050).
- Upward trend in prices.
- Growing concerns about world food security
(More than 800 million undernourished; more than 8000 children die every day from undernutrition).

Rapidly growing world food needs 2

- Poor countries most severely affected by climate change.
- Poor countries used to be net exporters in agricultural commodities.
- They now are net importers.
- FAO: Food import gap: +400 % (2000-2030).
- Continued rapid imports: 2030-2050.
- The world (incl. the EU) will have to accelerate food production growth significantly to avoid growing hunger while at the same time protecting the world's natural capital.

Rapidly growing world food needs 3

- The rapidly growing world food needs may be met by
 - expanding the agricultural acreage or by
 - producing more on the land being farmed already.
- As land suitable for farming is limited, most of the production growth must come from productivity gains.

Rapidly growing world food needs 4

- FAO:
 - 90% of future production growth by means of productivity growth;
 - 10% at the cost of acreage expansion.

The ILUC effect 1

- Reduced domestic EU food crop production (Direct land use change).
- Consequence: Accelerated expansion of the global agricultural acreage. (ILUC: Indirect land use change).
- Accelerated loss of natural habitats and biodiversity.
- Accelerated agricultural greenhouse gas emissions.

Growth in global poultry meat consumption, 1964-2030

Year	Total meat (1000 t)	Poultry meat (1000 t)	Share of poultry meat (%)
1964	80,414	10,142	12.6
1984	149,439	29,775	16.0
2004	249,291	78,307	19.9
2014	317,855	112,933	31.4
2030	.	137,949	.

Social benefits of modern poultry meat production 1

- Research question: What would happen if the EU would discontinue modern poultry meat production?
- Focus on chicken and turkey.
- Alternatives:
 - „extensive“ production (literature)
 - „organic“ production (KTBL).
 - Assumption: 100% switch to one of the two alternatives.

Social benefits of modern poultry meat production 2

- „Extensive“ production:
 - Slower growing breeds
 - Lower feed efficiency
 - More space per animal
 - Higher labor input.
- „Organic“ production: Essentially the same; but effects are more pronounced.

Social benefits of modern poultry meat production 3

- This would act to raise EU production costs.
- EU supply would decline.
- Price would rise but by less than production cost.
- EU poultry producers income would decline.
- Domestic EU production would be replaced in part by foreign production.

Social benefits of modern poultry meat production

- EU income changes under alternative production systems (million €)

Production system	„Extensive“	„Organic“
Producers	-2,910	-8,298
Up- and downstream sectors	-2,735	-7,800
Total	-5,644	-16,079

Social benefits of modern poultry meat production 1

- EU feeding efficiency is high.
- Av. feeding efficiency in ROW: About 20% lower than in the EU.
- More acreage for feed production.

Social benefits of modern poultry meat production 2: **Environmental effects**

- The replacement of EU by ROW production causes an additional expansion of the global agricultural acreage (ILUC effect).
- Consequences:
 - Additional loss of natural habitats around the globe.
 - Additional greenhouse gas emissions.
 - Additional loss of biodiversity.
 - Additional agricultural water consumption.

Social benefits of modern poultry meat production 3: **Environmental effects**

- Changes in feed use under alternative production systems (1,000t).

Production system	„Extensive“	„Organic“
EU domestic feed use	-3,208	-11,366
ROW feed use	4,845	13,200

Social benefits of modern poultry meat production 4: **Environmental effects**

- Additional expansion of the global agricultural acreage = Additional loss in natural habitats

Production system	„Extensive“	„Organic“
1000 ha	458	902

Social benefits of modern poultry meat production 5: **Environmental effects**

- Additional greenhouse gas emissions

Production system	„Extensive“	„Organic“
Million t CO ₂	84	170

Social benefits of modern poultry meat production 6: **Environmental effects**

- Climate cost (€ 200 per t of CO₂)

Production system	„Extensive“	„Organic“
Climate cost (billion €)	16.8	34.0

Social benefits of modern poultry meat production 7: **Environmental effects**

- Global biodiversity loss in rainforest equivalents (1,000 ha)

Production system	„Extensive“	„Organic“
1,000 ha	150-223	303-440

Social benefits of modern poultry meat production 8: **Environmental effects**

- Change in water use (billion cubic meters)

Production system	„Extensive“	„Organic“
EU	-4.530	-12.236
ROW	9.840	26.682
Balance	5.310	14.446

Social benefits of modern poultry meat production 9: **Environmental effects**

- Change in Water use:
 - „Extensive“ production: Water emptying from the Danube River into the Black Sea about in about 10 days.
 - „Organic“ production: Water emptying from the Danube River in into the Black Sea in about 30 days.

Environmental effects of productivity growth in the past 50 years

Natural habitats preserved	250 million ha
GHG emissions avoided	490 million tons
Climate benefit	€ 98 billion
Biodiversity preserved	1.3 million ha rainforest equivalents
Water sources preserved	41 billion cubic m

Conclusion 1

- **The rapidly growing world food needs must be satisfied for the most part by means of productivity growth.**
- **This includes animal husbandry in general and poultry meat production in particular.**
- **Replacing modern poultry meat production systems by „extensive“ or by „organic“ production would yield major economic losses to poultry meat producers and the up- and downstream industries.**

Conclusion 2

- **The environmental damage to society at large of moving from modern production systems to alternative systems far outweigh the purely economic losses.**
- **The corollary of this result is:**

Modern poultry meat production's environmental benefits to society are huge and they far outweigh the economic benefits to the entire value chain of poultry meat production.

Conclusion 3

- **There were times when policy makers in the EU, the USA and elsewhere thought the world had ample cropland.**
- **During these times less productive production methods had a lot of political appeal.**
- **Idling of agricultural acreage and more extensive production methods were subsidized.**
- **In the new era of scarcities in world agriculture, low productivity production methods are anachronistic.**

Thank you for your attention.