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# **Societal benefits of modern poultry meat production in Germany and the EU**

An economic and environmental  
analysis

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## Executive summary

The global environment in which world food and agriculture as well as food and agricultural policy makers must make their decisions has changed significantly since the turn of the millennium. The long-term trend of declining agricultural commodity prices has come to an end. The turn of the millennium marks a megatrend reversal in international agricultural markets. Since 2000 agricultural prices have tended to rise – with significant volatility, as in the past. The reason is that global demand has been outpacing supply growth. This development may be expected to continue. The demand growth will materialize predominantly in developing and newly industrializing countries – in particular for livestock products, especially poultry meat.

The rapidly growing demand could be met by expanding the agricultural acreage or by producing more on the land being farmed already. Expanding the agricultural acreage is not an option. As land is limited, most of the production growth must come from yield growth. In addition, water is becoming increasingly scarce. Hence, water efficiency is also a significant issue to consider.

The markets for poultry meat in both Germany and the EU at large have been growing rapidly. At the same time, there has been a growing tendency towards diversity of preferences for quality. The measure to account for this which is consistent with a market economy is credible labelling of different qualities.

A central insight of economic theory is that every decision has its cost. The cost of a decision is what one must give up for it. As modern poultry production sometimes is the subject of public debate and criticism, this study has answered the research question of what to give up if modern and highly productive poultry meat production were replaced by some alternative methods of production. Regional focus of the analysis is on Germany and the EU respectively. More specifically, we compare the common production method of modern broiler and turkey production with two alternatives which are referred to in the literature as “extensive” and “ecological”.

As it turns out, these alternative methods of poultry meat production are neither extensive nor ecological. The reason is that they are less efficient as they use more resources to produce a given quantity of meat than the standard method. This particularly applies to land, water and labour.

Replacing the standard method of modern poultry production by the “extensive” method would raise production costs in the range of 25 percent to 30 percent. This compares to a cost increase in “ecological” production of more than 100 percent.

Therefore, production declines and the price goes up, however, by less than the production declines. As a consequence, agricultural incomes decline in the case of “extensive” production by EUR 400 million in Germany and by almost EUR 3 billion in the EU. When switching to “ecological” production these numbers amount to EUR 1.1 billion in Germany and more than EUR 8 billion in the EU. In addition, there are income losses in the same order of magnitude in the upstream and downstream industries of agriculture.

Declining domestic production acts to increase the incentives for additional production abroad. Both feed efficiency and yields of feedstuffs abroad are lower than at home. Therefore, global cropland would be expanded. In the “extensive” scenario for Germany the global cropland expansion would amount to more than 70 000 hectares and for the EU to more than 450 000 hectares. The numbers for the “ecological” scenario are about 160 000 hectares and 900 000 hectares respectively.

The global agricultural cropland expansion would result in additional CO<sub>2</sub> emissions. At a cost to society of EUR 72/t CO<sub>2</sub> the social cost of switching to “extensive” production in Germany and the EU would amount to almost EUR 1 billion and more than 6 billion respectively. In the case of “ecological” production, these numbers would be almost EUR 2.2 billion for Germany and more than EUR 12 billion for the EU.

In addition, the expansion of the global cropland acreage implies a loss of biodiversity which in Germany’s case would be equivalent to up to 36 000 hectares of rainforest in the “extensive” scenario and 77 000 hectares in the “ecological” scenario. For the EU, these numbers would amount to up to 223 000 hectares and 449 000 hectares respectively.

Modern poultry meat production in Germany and the EU is also very efficient in the use of water. In the “extensive” scenario for Germany, global water use would increase by more than 750 million m<sup>3</sup> and for the EU by 5.3 billion m<sup>3</sup>. In the “ecological” scenario the additional global water use would increase by about 2 billion m<sup>3</sup> and 14.5 billion m<sup>3</sup> respectively.

In conclusion, the value to society of modern poultry meat production is very high both in Germany and the EU when compared to “extensive” or “ecological” production. Moving to “extensive” or “ecological” production would result in substantial income losses for poultry meat producers as well as for upstream and downstream industries. In addition, this would cause a significant expansion of global cropland and – along with it – losses in natural habitats and more CO<sub>2</sub> emissions. The climate cost of the alternative scenarios would be as large as the income loss in agriculture and its upstream and downstream industries. There also would be a negative impact on world food security.

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**List of abbreviation**

AMI	– Agrarmarkt-Informations-Gesellschaft
AOCP	– Association of Ontario Chicken Producers
ASEPRHU	– Asociación Española de Productores de Huevos
BEIS	– Department for Business, Energy and Industrial Strategy
BMEL	– Bundesministerium für Ernährung und Landwirtschaft
BÖLW	– Bund Ökologische Lebensmittelwirtschaft
CBD	– Convention on Biological Diversity
CDG	– Country Development Groups
CFO	– Chicken Farmers of Ontario
CIWF	– Compassion in World Farming
CW	– Carcass Weight
DG AGRI	– Directorate-General Agriculture and Rural Development
DLG	– Deutsche Landwirtschaftsgesellschaft
EC	– European Commission
EPA	– United States Environmental Protection Agency
EU	– Europäische Union
FAO	– Food and Agriculture Organization
FAEN	– Forschungsverbund Agrar- und Ernährungswissenschaften in Niedersachsen
GDP	– Gross Domestic Product
GEF-BIO	– Global Environment Facility Benefits Index of Biodiversity
GHG	– Greenhouse Gas(es)
IMF	– International Monetary Fund
KTBL	– Kuratorium für Technik und Bauwesen in der Landwirtschaft
LDC	– Less Developed Countries

LW	– Live Weight
LLDC	– Least Developed Countries
LWK NRW	– Landwirtschaftskammer Nordrhein-Westfalen
MEG	– Marktdaten Eier und Geflügel
MMM	– Multi-Market-Model
NBI	– National Biodiversity Index
NIC	– Newly Industrialised Countries
OBT	– Observação da Terra
OECD	– Organization for Economic Co-operation and Development
OIC	– Old Industrialised Countries
RoW	– Rest of the World
UN	– United Nations
UNEP	– United Nations Environment Programme
USDA	– United States Department of Agriculture
VLM	– Virtual Agricultural Land Trade Model
WBA	– Wissenschaftlicher Beirat für Agrarpolitik beim BMEL
WING	– Wissenschafts- und Informationszentrum Nachhaltige Geflügelwirtschaft
WRI	– World Resources Institute
ZDG	– Zentralverband der Deutschen Geflügelwirtschaft e.V.



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