



Agriculture-related issues in the transformation process of meat production

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KTBL: Kuratorium für Technik und Bauwesen in der Landwirtschaft

Association for Technology and Structures in Agriculture

- core function is **knowledge transfer**
- registered association with about **400 experts** from practical farming, research, development and advisory services.
- **Government-funded** by the German Federal Ministry for Food and Agriculture
- Head office in Darmstadt with approximately **70 employees** who coordinate about **50 working groups**, with 8-12 honorary specialists

An efficient and sustainable agriculture ensures the livelihood for future generations and is socially accepted.

- Politicians plan and decide on the basis of reliable information
 - ➔ Service provider for German Federal Ministry for Food and Agriculture
- The future is secured by a strong network consisting of research, development, administration and practical farming
 - ➔ Steering Committees with working groups
- Farmers, advisors and scientists rely on sophisticated information and recommendations
 - ➔ KTBL analysis results and information

Further Considerations with respect to Dietlinde's views

- **Meat production in Germany improves from an environmental protection and animal welfare perspective**
 - market share of meat products produced under environmental and animal welfare aspects increases
- **Decline of meat production**
 - Self-sufficiency for German meat production does not exceed much more than 100 percent, i.e. the targeted reduction of meat consumption in Germany is not compensated by an increase in exports. There is no indication of an export orientation.

Focal points

- A) Improvement of meat production regarding **animal welfare**
- B) Improvement of meat production regarding **the environment**
- C) **Decline** of meat production
- D) **Stakeholders** impacting meat production
- E) **Compatibility** of social acceptance and economic competitiveness

A) Improvement of meat production regarding animal welfare



A) What is animal welfare?

Enable species appropriate behavior by providing enough space



A) What is animal welfare?

Easy access to outdoor and indoor climate when desired



A) What is animal welfare?

Possibility to use different areas for specific functions



A) How to improve animal welfare?

Opportunity for species-specific activities, food intake and body care



A) How to improve animal welfare?

- Avoidance of amputations
- Reduction or omission of non-curative procedures on animals leads to the an increased need of management measures, especially more animal control



A) Consequences of animal welfare

Increase of health and environment related risks

- Hygiene issues become more demanding
- Increased risk of mutually caused injuries
- Increased emissions of ammonia, since faeces and urine have more space to transpire

Economic Impact

- The adaptation of conventional livestock farming to a more species appropriate approach is
 - Very costly for pigs and poultry
 - less costly for cattle

A) What does it take to improve animal welfare?

- Enormous process changes and investments are required on each farm
 - The structural change in agriculture has been running for years
 - Small farms rather cease than invest into business
 - Concentration continues to less and bigger farms

- Substantial research and breeding efforts
 - Answers and solutions to be found for the conventional as well as organic livestock management
 - Experts estimate a duration of twenty years to implement animal welfare nationwide



A) Big farms and animal welfare

- Industrial livestock farming is not negative across-the-board
 - Animal welfare law is not depending on stock size
 - Every individual animal is entitled to animal welfare and animal protection laws apply
 - Animal health depends on the specific housing and management factors applied

A) Summary: Animal Welfare

- How to accomplish increased animal welfare is still to be defined in detail
- The complexity of the topic is not holistically understood yet
- The identification of measures requires substantial research and breeding efforts
- The implementation of animal welfare takes about 20 years
- Economic impact is less dramatic for cattle but more for pig and poultry husbandry
- Increased animal welfare drives economic pressure which leads to business concentration
- An increase of animal welfare does not automatically lead to a decline in meat production

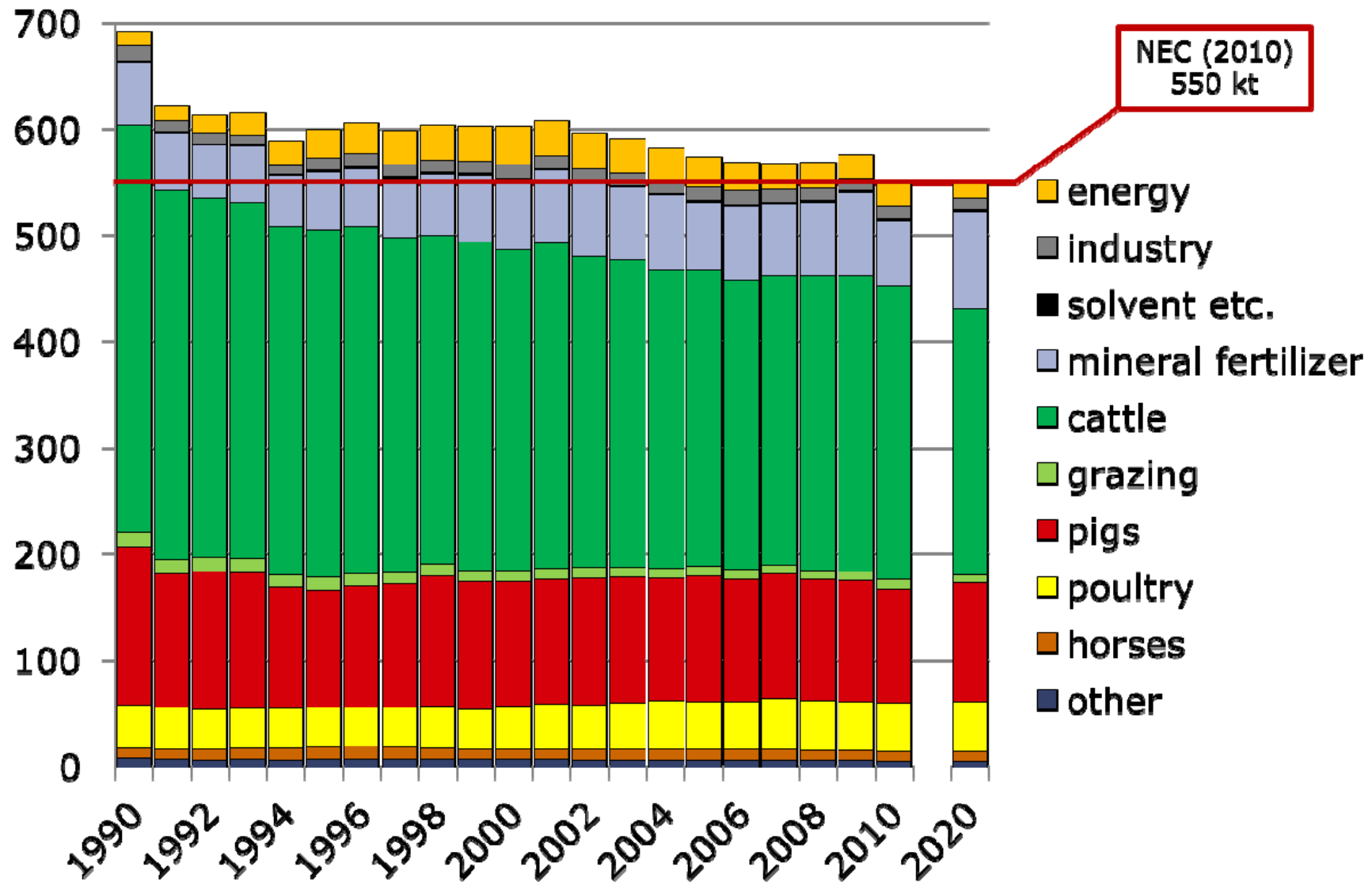
B) Improvement of meat production regarding the environment in Germany



B) Compatibility of animal welfare and environmental protection

- Animal welfare and environmental protection are competitive objectives in some areas
 - E.g. space: increased space for livestock farming leads to an increased ammonium (NH_3) emitting surface
 - Ammonia emissions occur predominantly in storage and application of manure
 - In Germany 95% of ammonia emissions originate from agricultural activities.
 - Ammonia related legislation is managed by EU Guideline NEC: *National Emission Ceilings Directive*
- In general, many questions cannot be answered yet as to the impact of animal welfare livestock farming on the environment

Trend of ammonia emissions in Germany from 1990 to 2010 and projection for 2020

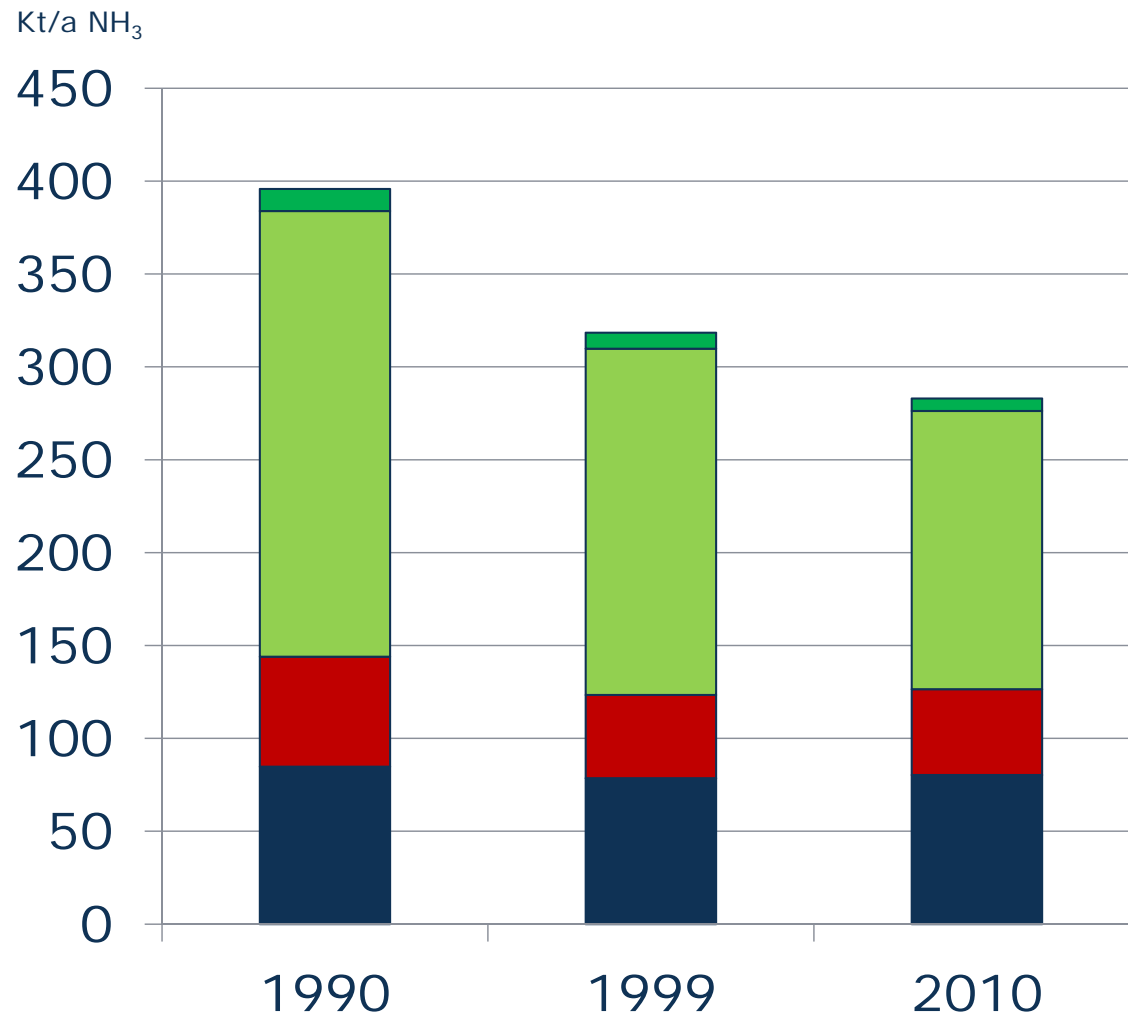


NEC (2010)
550 kt

- energy
- industry
- solvent etc.
- mineral fertilizer
- cattle
- grazing
- pigs
- poultry
- horses
- other

Data sources: energy, industry and solvents: Umweltbundesamt (2012), agricultural emissions: Haenel et al. (2012)

Emissions from different compartments - Dairy cows



1990 - 2010

35 % reduction number of cows

28 % reduction emissions

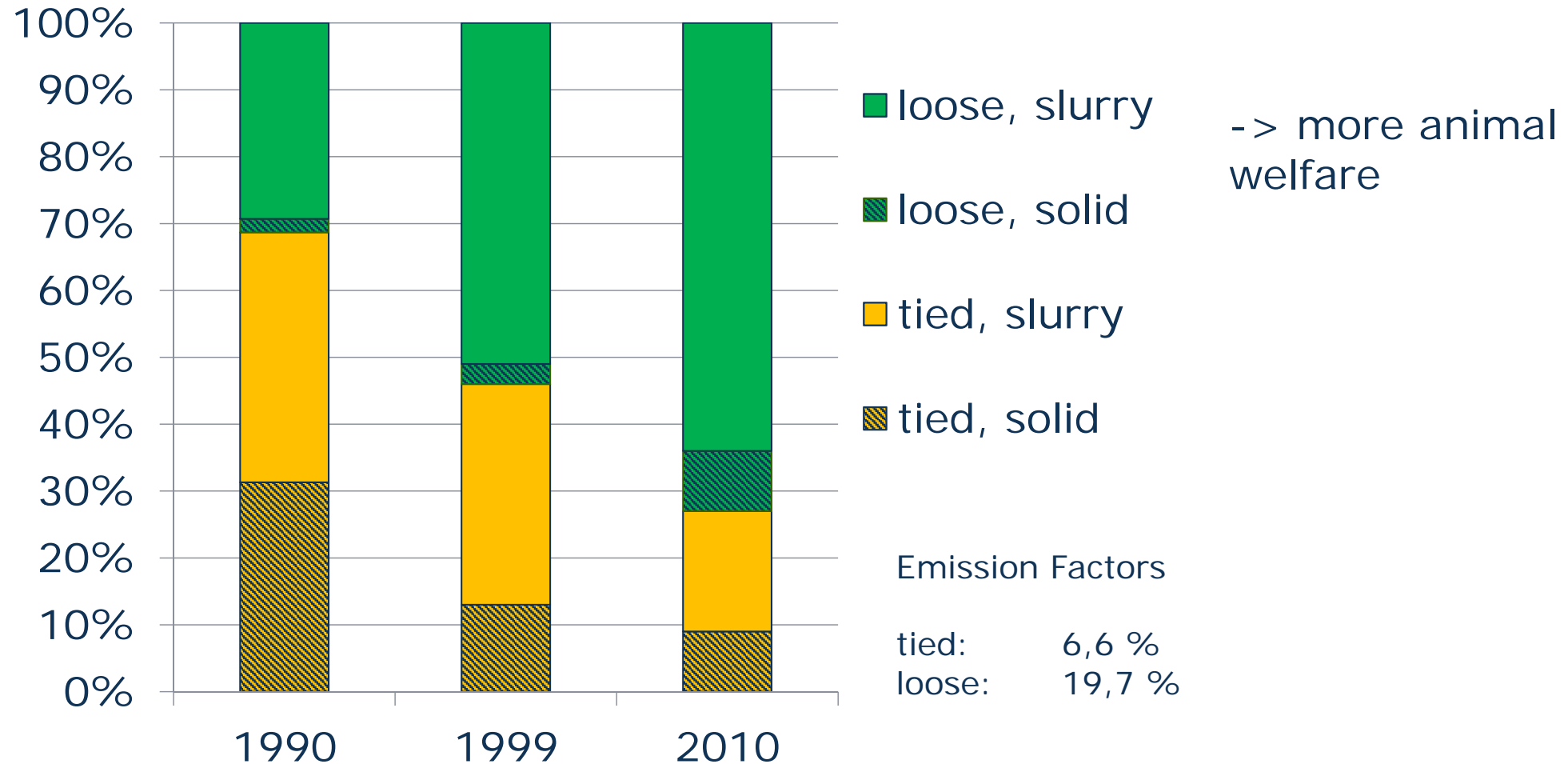
■ grazing

■ application of manure - 38%

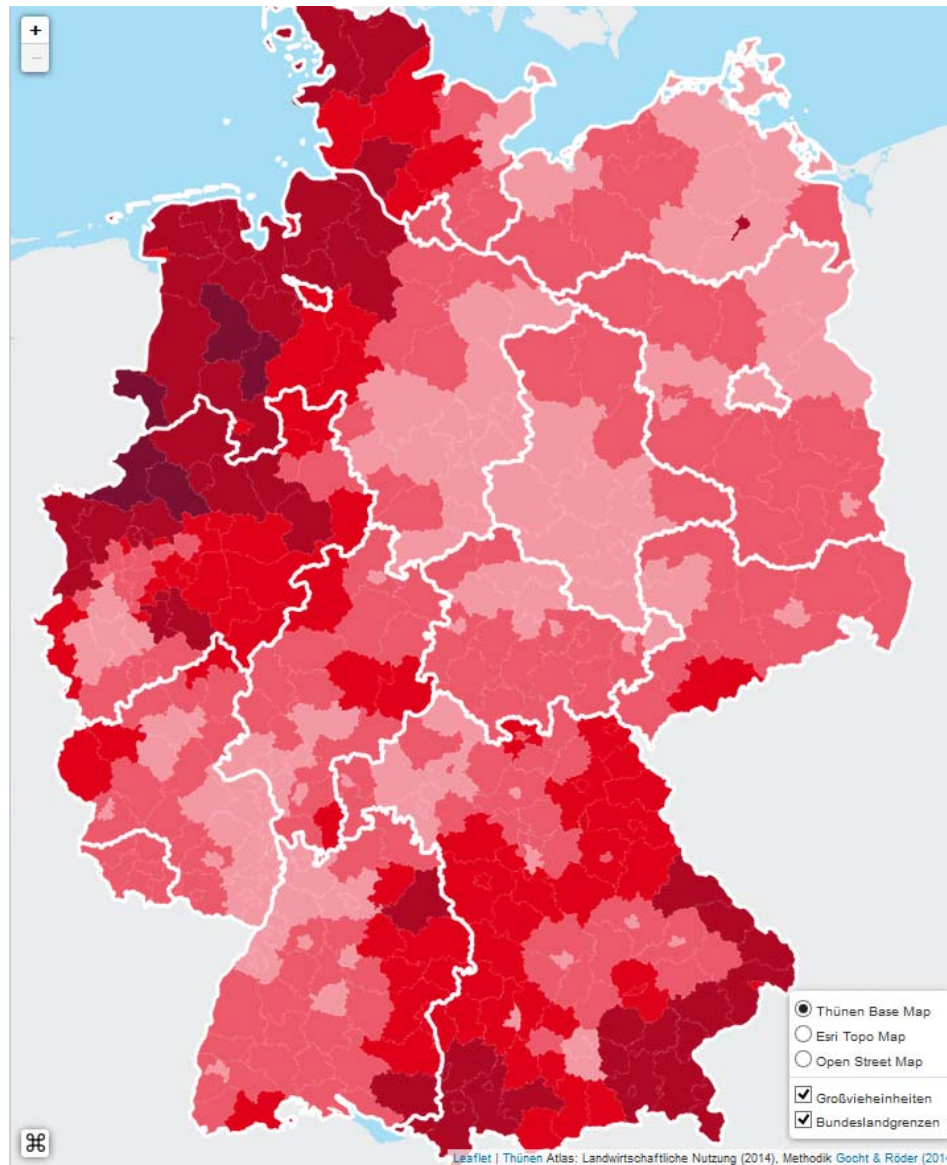
■ storage of manure - 22%

■ housing - 0,5%

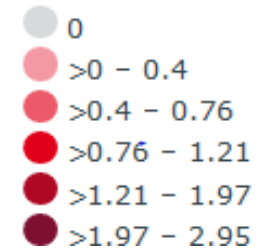
Ammonia emissions in different housing systems - dairy cows



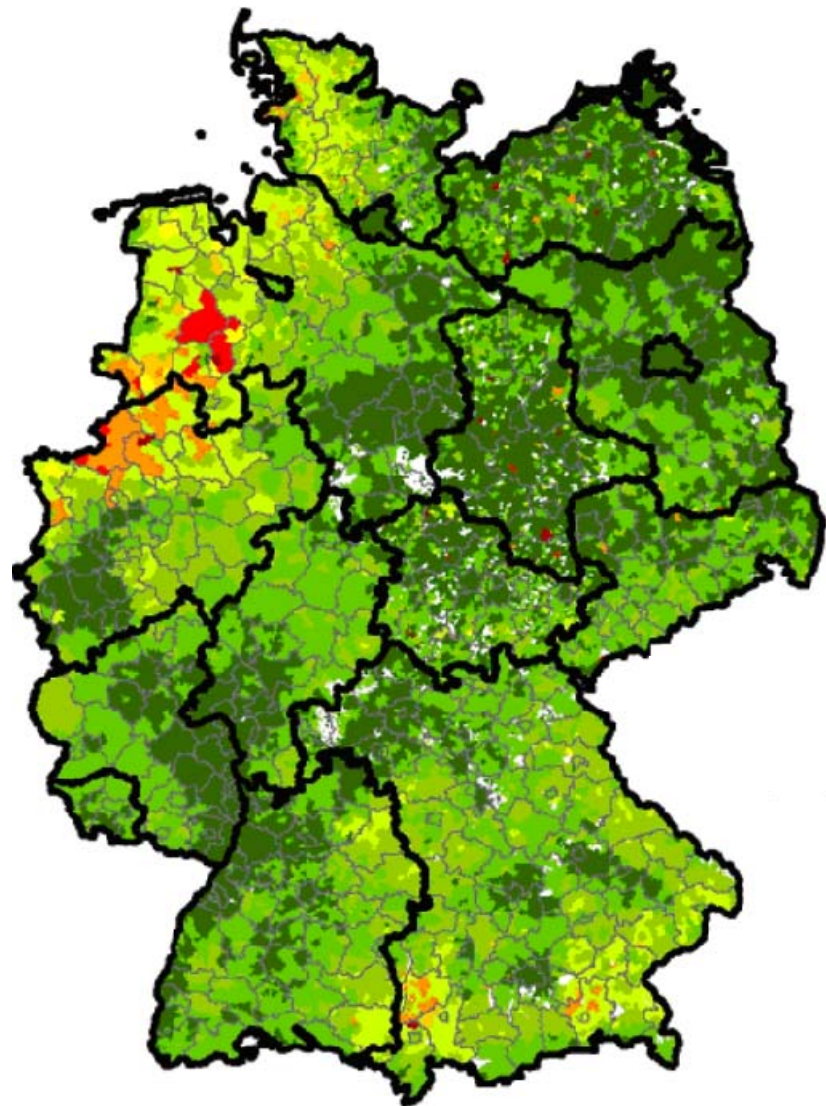
Animal husbandry regional distribution



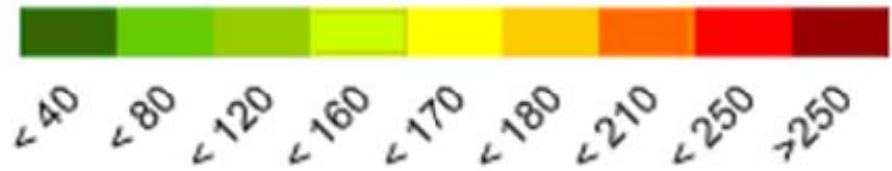
Livestock units per ha



Nitrogen excretion per ha



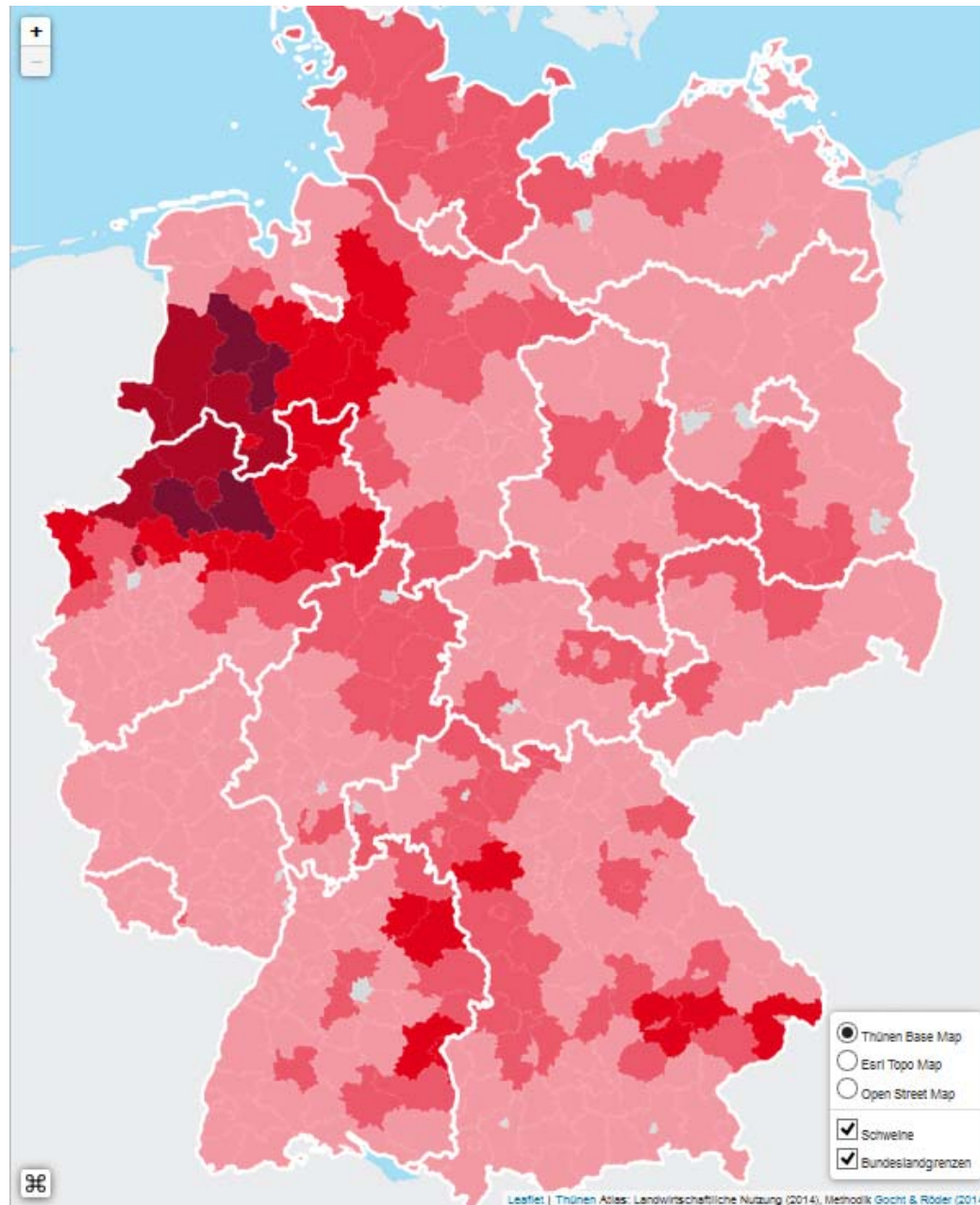
kg N per ha farm land (communal mean)



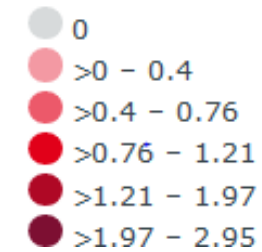
Excluding poultry manure
Without N-losses

Quelle: Osterburg et al. 2012

Pigs regional distribution



Pigs Livestock units per ha



Thünen Atlas 2014
Daten: Stat.Bundesamt 2010

B) Summary: Environmental impact of animal welfare

Environmental protection and animal welfare are...

... sometimes competitive, especially considering space / ammonium

... two different legislation domains

- Animal welfare is being managed on national level
 - Only two remarkable laws available
 - No standardized or measurable criteria
- Environmental protection is managed on EU level
 - High number of laws covering many different aspects
 - Measurable requirements

... evaluated differently: animal welfare always has second priority

- ➔ Animal welfare related topics should be managed at the same level as environmental protection topics
- ➔ Research needs to address both areas at the same time

C) Decline of meat production in Germany



C) Decline of meat production

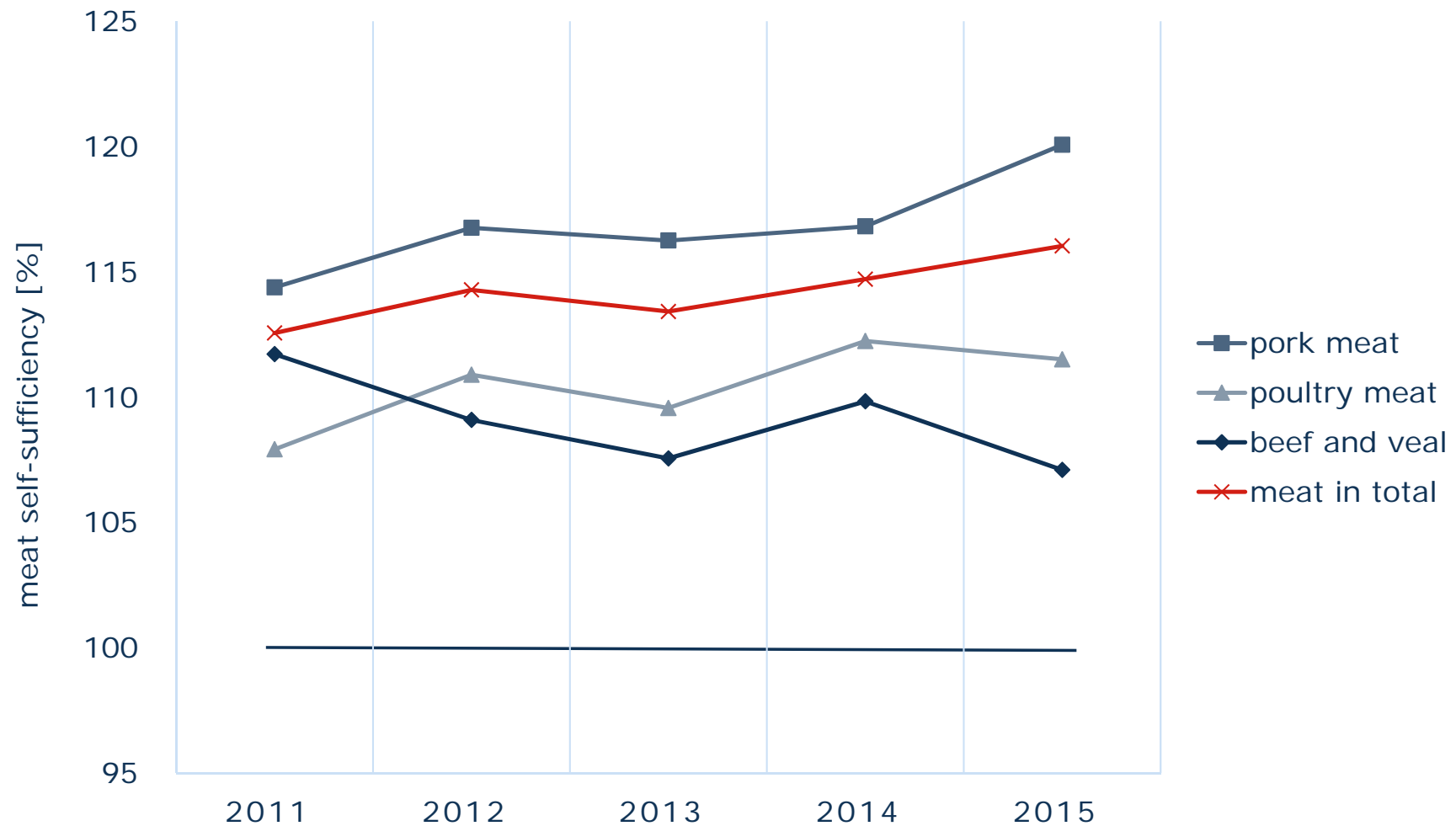
Postulat of TRAFO 3.0 –

Sustainable production and consumption of meat

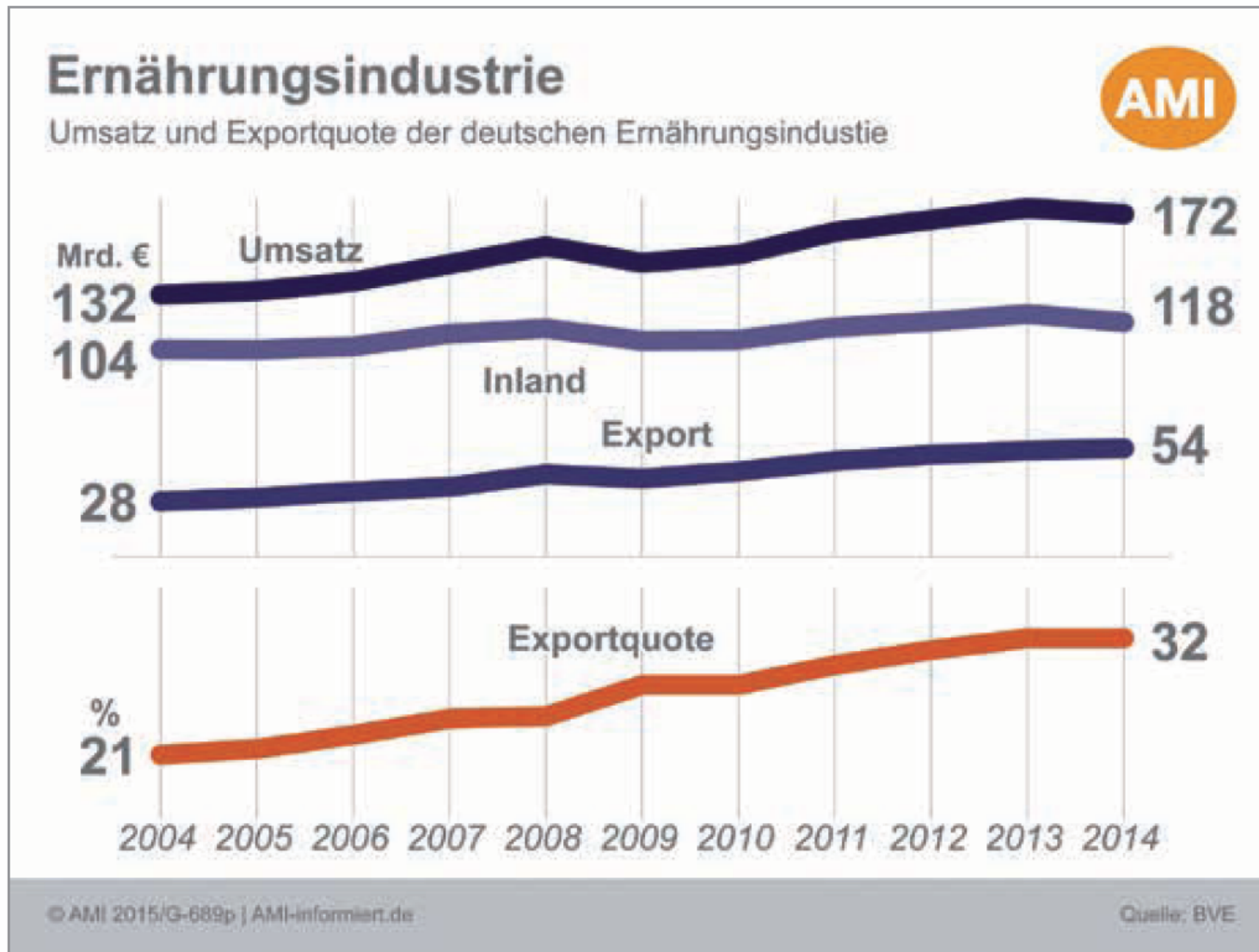
Decline of meat production in Germany:

- Self-sufficiency for German meat production does not exceed much more than 100 percent, i.e. the targeted reduction of meat consumption in Germany is not compensated by an increase in exports. There is no indication of an export orientation.

C) Germany's meat self-sufficiency rate from 2011 - 2015



C) Turnover and export ratio of German food industry

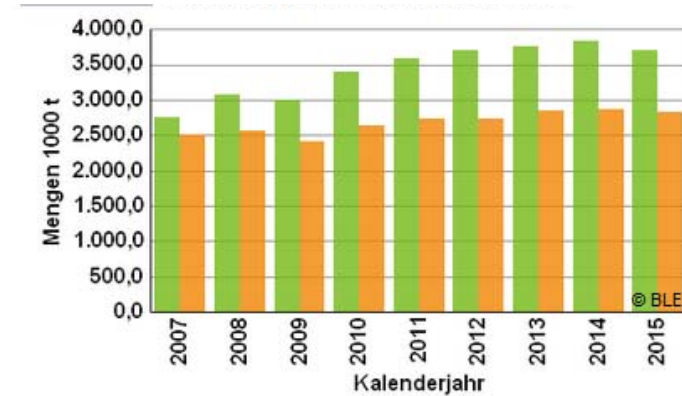
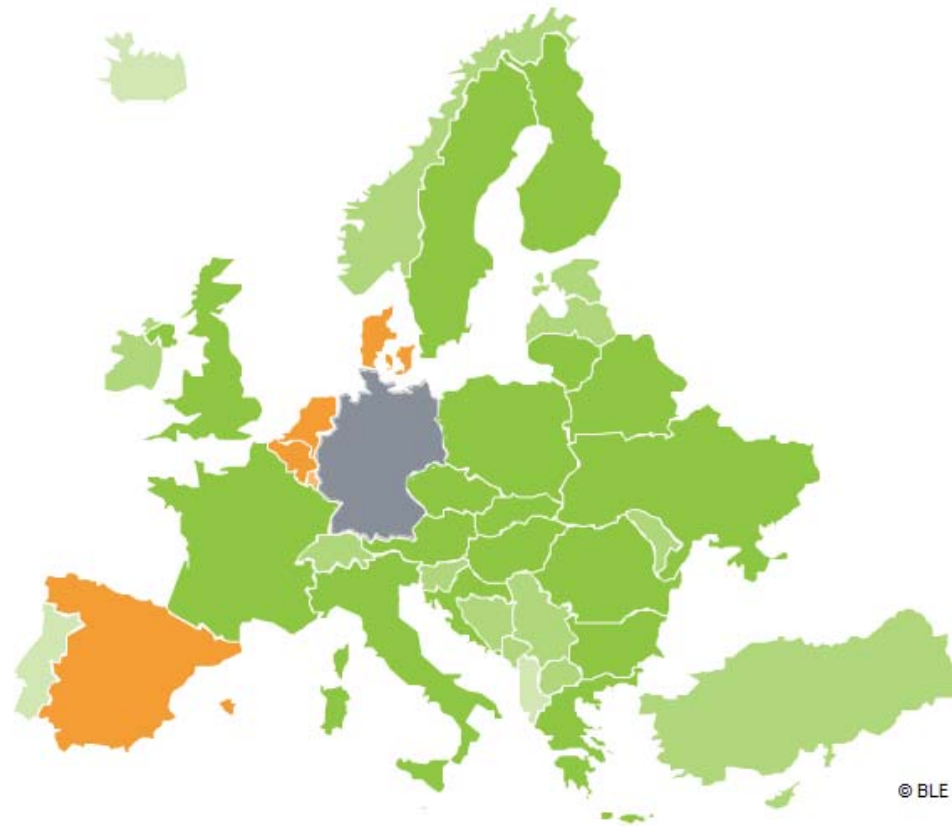


C) Germany's import & export of meat - Europe

Region Europa Welt

Warengruppe: 1. Ebene

Schlachtvieh, Fleisch u. Zubereit.

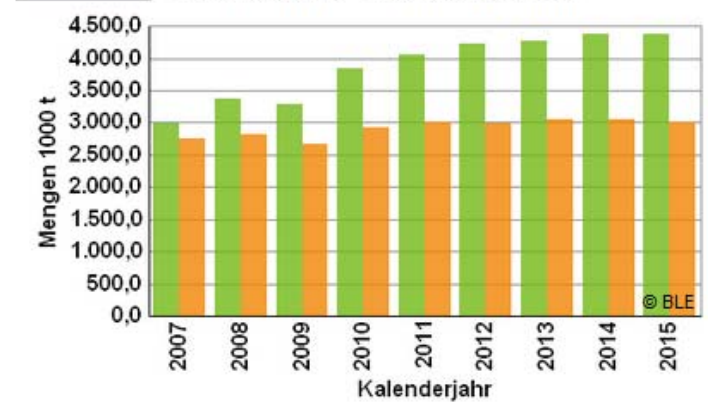
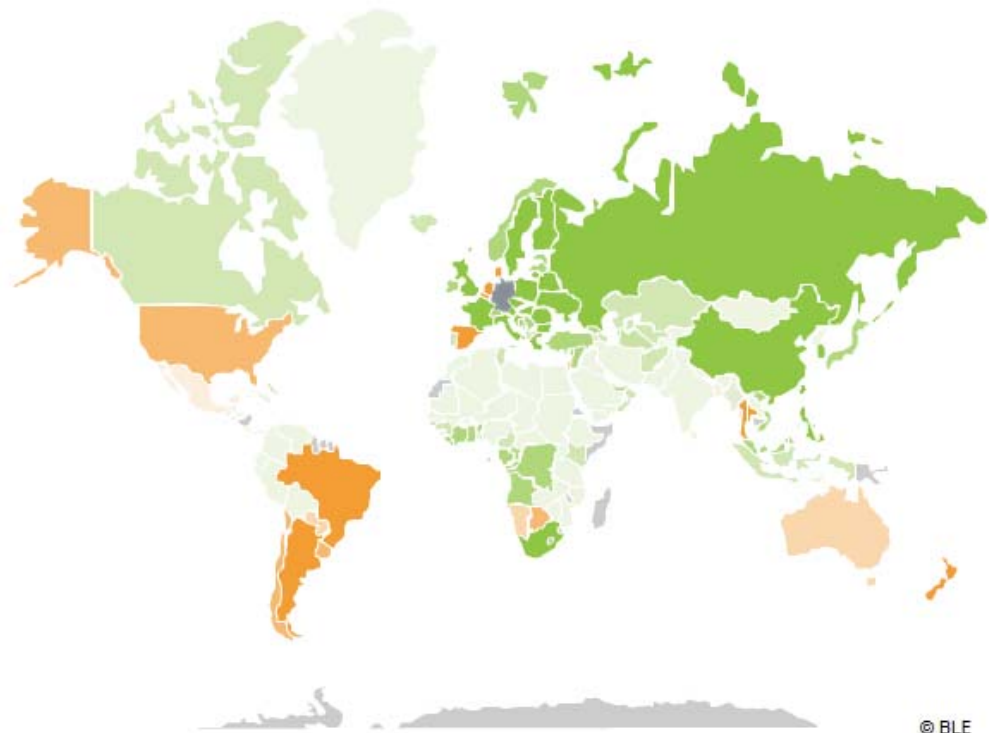


■ Ausfuhr ■ Einfuhr

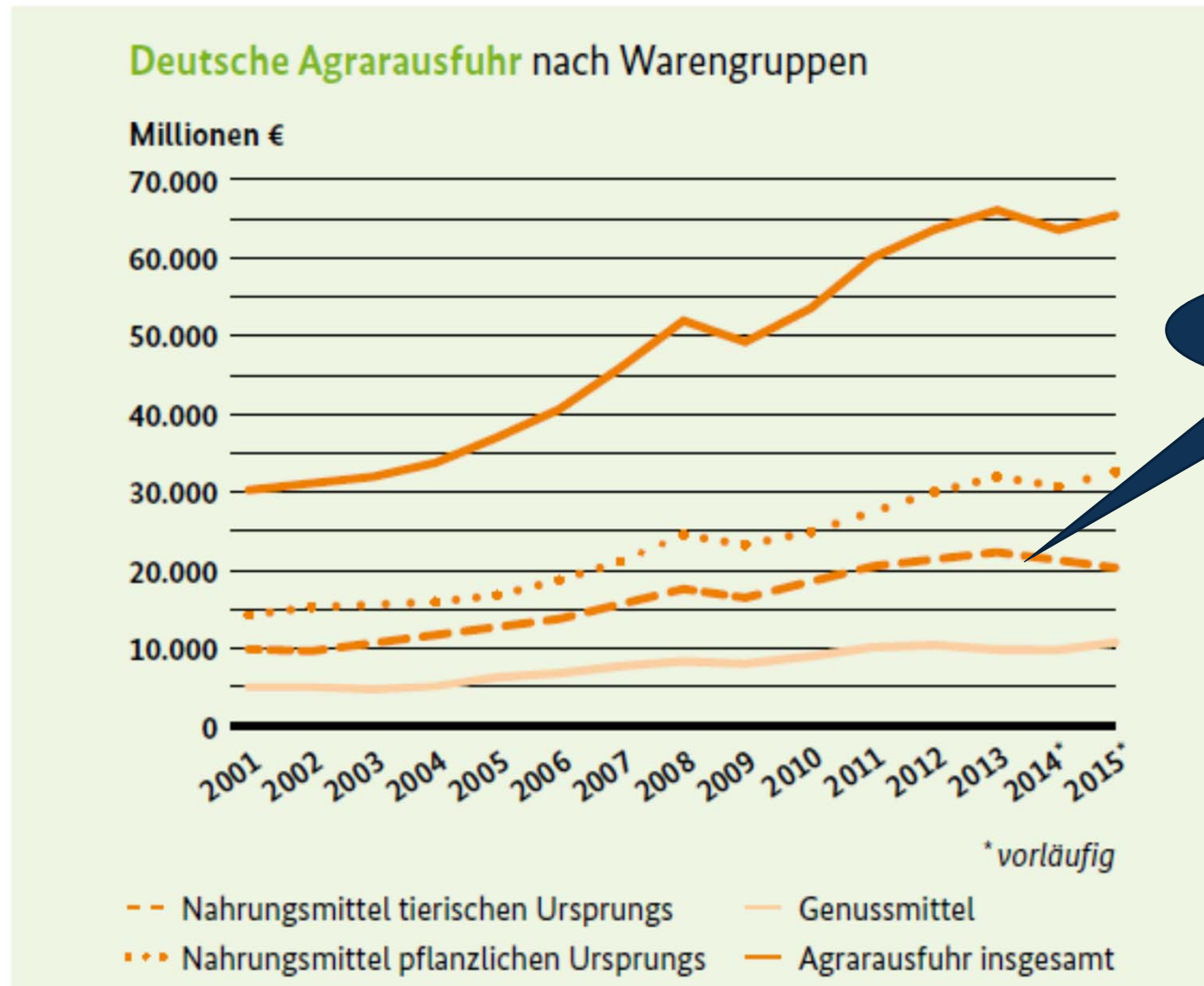
C) Germany's import & export of meat - World

Region Europa Welt


Warengruppe: 1. Ebene
Schlachtvieh, Fleisch u. Zubereit.



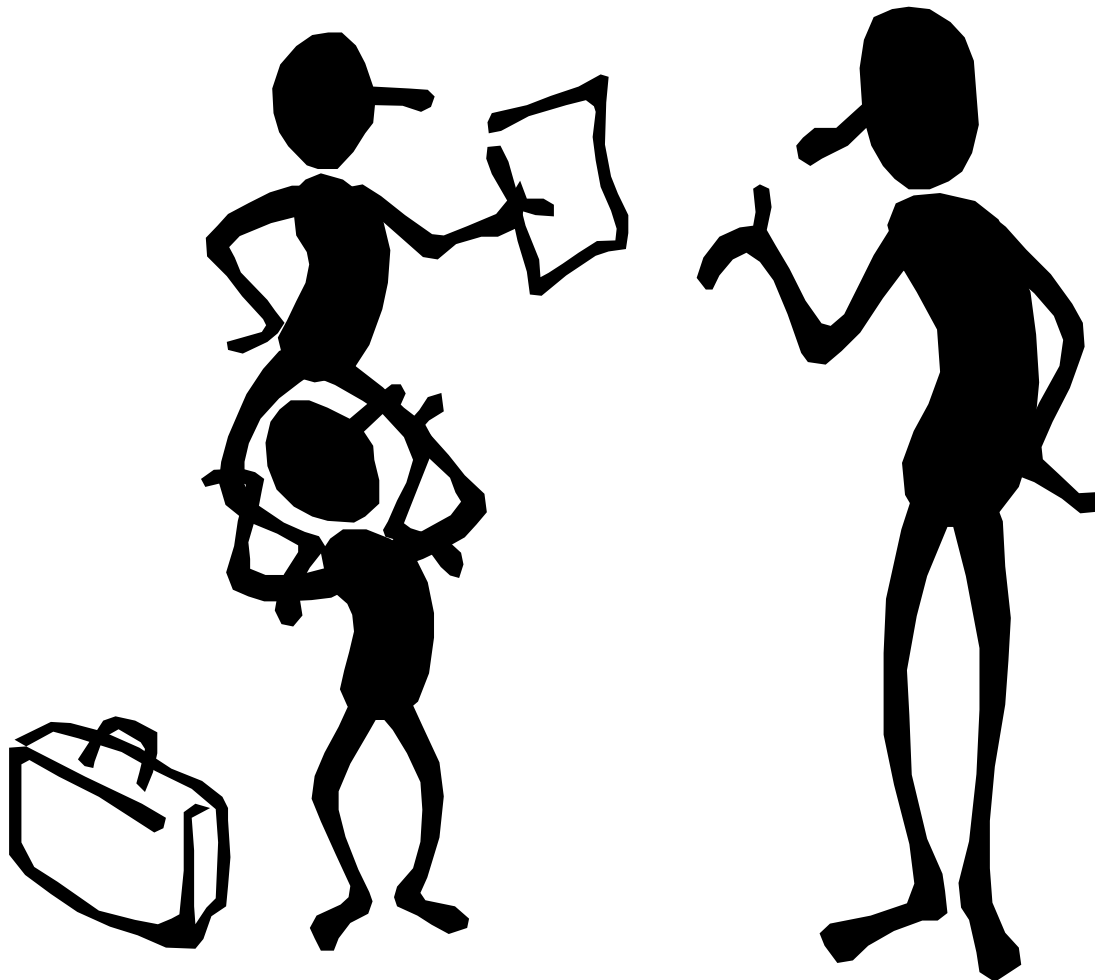
■ Ausfuhr ■ Einfuhr



Food from animal husbandry

- Meat consumption declined in the first half-year of 2016 by 1,4%
 - This long term trend may be caused by
 - Germany's aging society
 - Increased "external" consumption (i.e. in restaurants, canteens, etc.)
 - more conscious food selection
 - Meat production increases minimally
-  Increased importance of export business
- Consumers ask for safe, high quality food
 - Preferably of the bakery and confectionery industry as well as, meat and dairy products

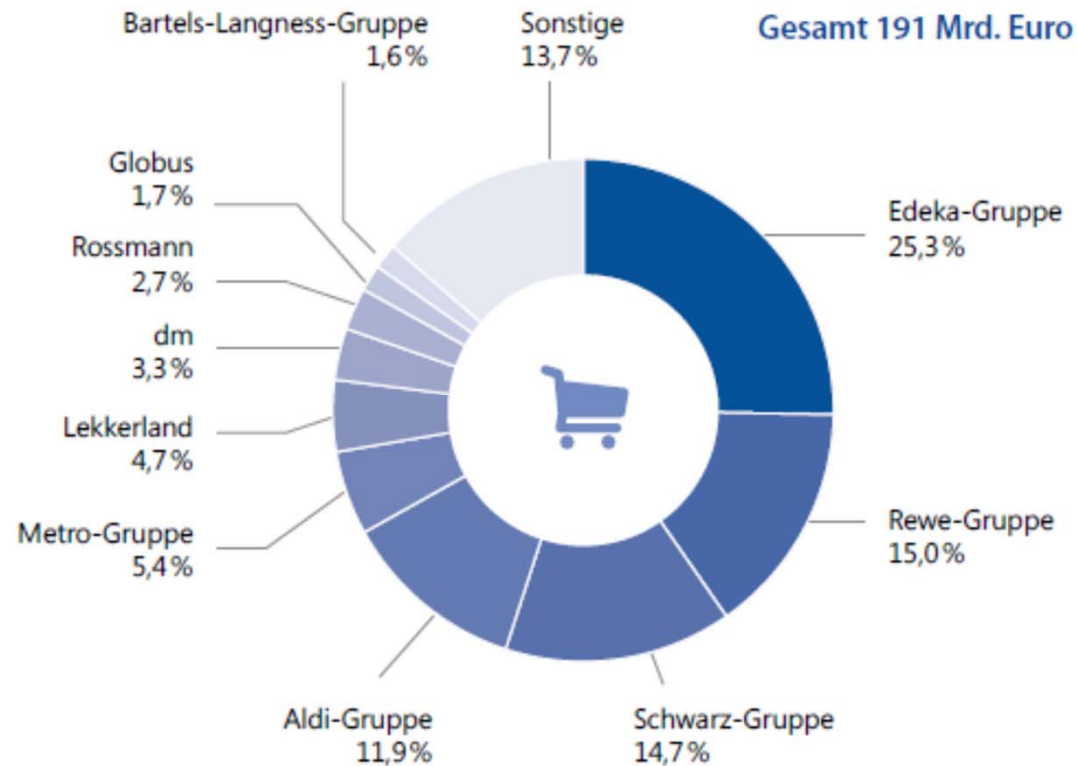
D) Stakeholders impacting meat production



Trading companies are the main actors

- 10 trading companies have 85% of the food market in Germany
- This concentration is increasing

Anteile am Lebensmittelumsatz im Einzelhandel 2015



Quelle: TradeDimensions

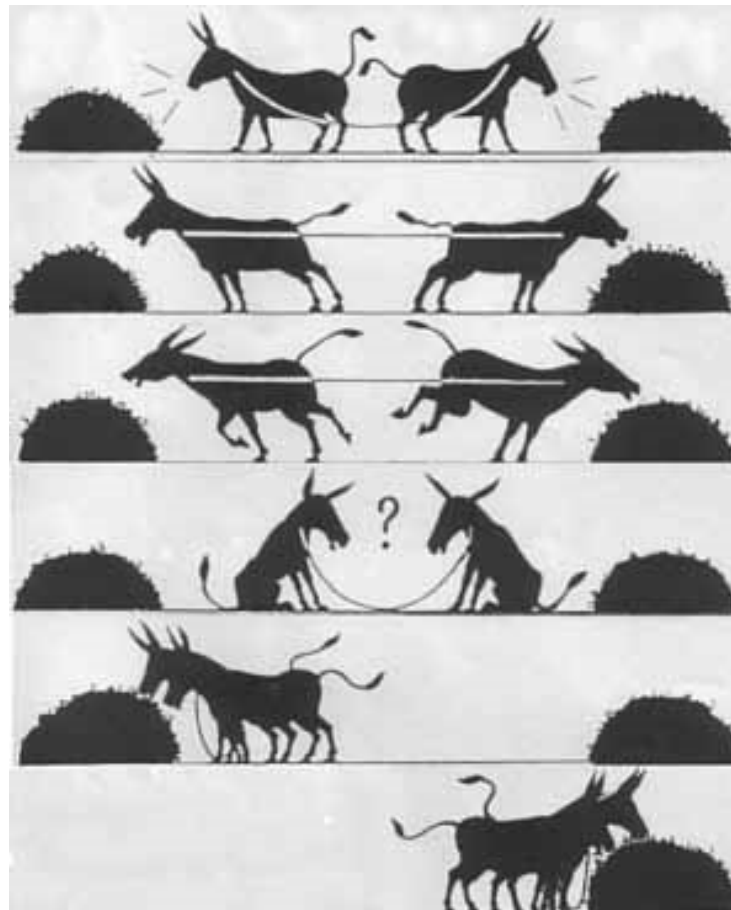
Direct marketing

- Direct marketing is a niche for a very few farm
- Consumer prefer super markets with full range

- Farmers are not in the position to define what is good meat
- Farmers association acts old fashioned
- Awareness and acceptance in the society is missing
- Farmers should communicate more active

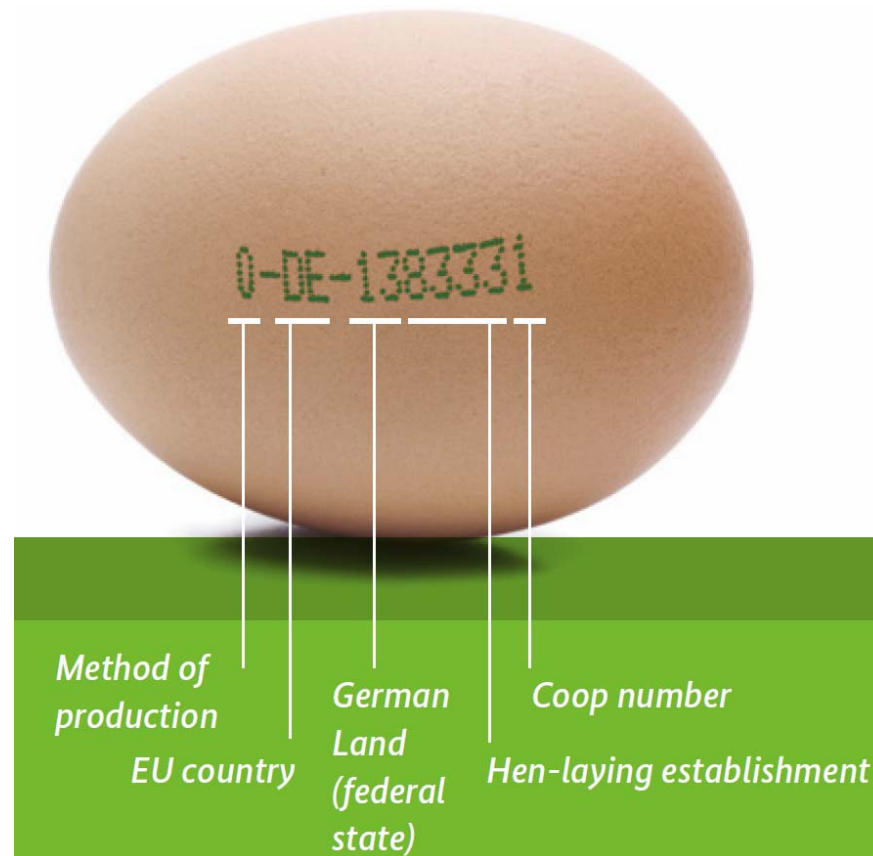
- Consumer display inconsistent or even contradictory behavior:
They dream of a picture book farm however they buy cheapest meat product
- Consumer have less understanding of the agriculture production
- Consumer information and education
 - Animal husbandry
 - meat production
 - Meat quality

E) How to bring social acceptance and economic competitiveness of German meat production together?

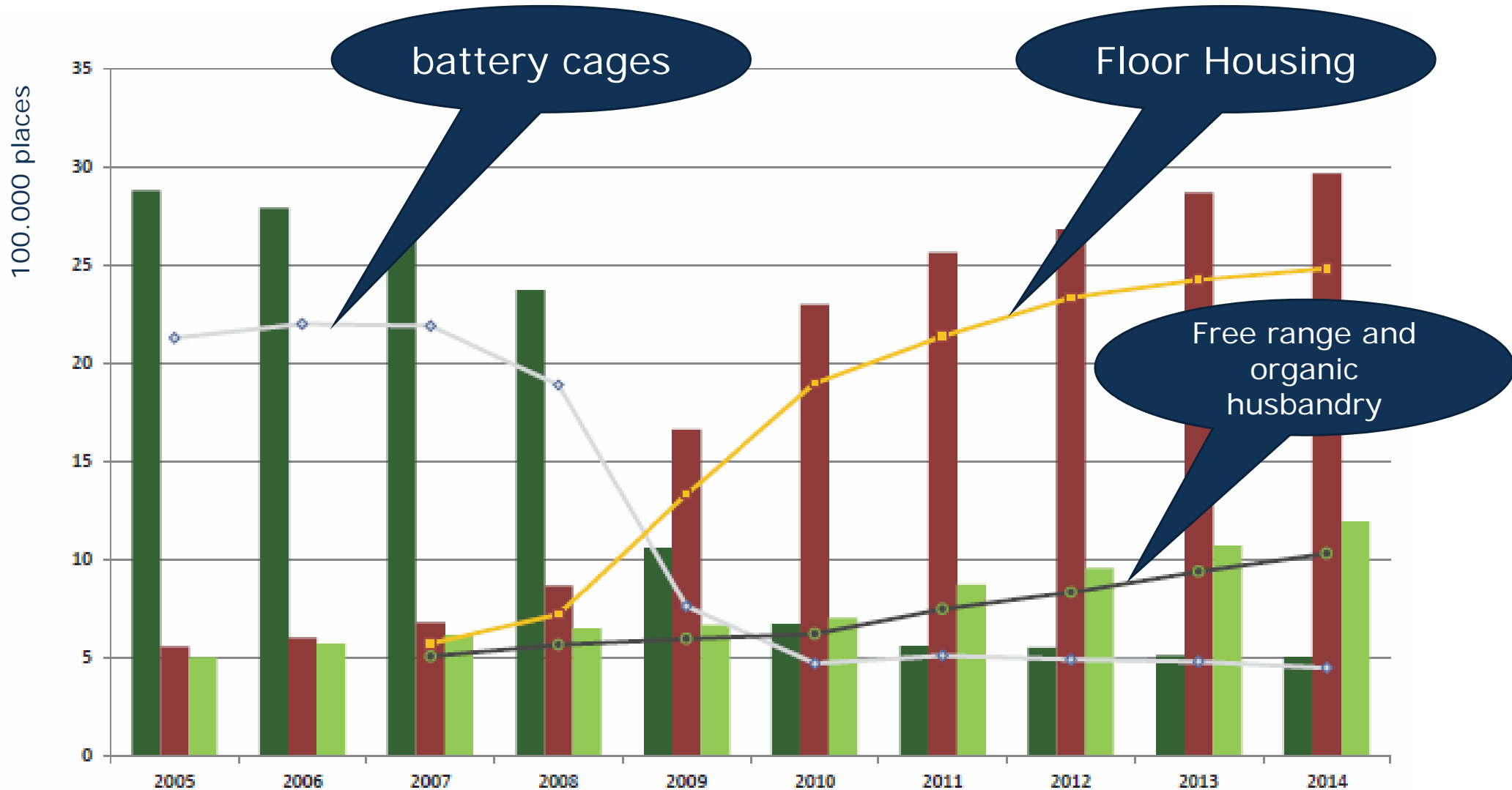


Example Laying hens

- Change to more animal welfare was driven by EU-legislation and consumer behavior
 - Battery cages are forbidden since 2012
 - Eggs have to bear codes for more consumer transparency since 2004



Change in husbandry systems for laying hens



Husbandry systems for laying hens

	Battery cages	Floor housing	Free-range husbandry	Organic husbandry
Stall space per hen	0,055 m ²	0,11 m ²	0,11 m ²	0,16 m ²
Out door run	0	0	4 m ²	4 m ²
Production system	conventional	conventional	conventional	organic
Selling price per egg at the stable door		8 ct	9 ct	16 ct

E) Summary:

Combine conflicting goals

- More research for animal husbandry for more animal welfare, its environmental impact and consumer behavior
- Research needs to address these areas at the same time
- Animal welfare related topics should be managed at the same level as environmental protection topics
- Necessary efforts:
 - EU Legislation for animal welfare
 - Financial support for animal welfare production
 - Better consumer information and education
 - More communication between farmer and consumer

- Prof. Grethe is member of the Scientific Advisory Board for Agricultural Policy, Food and Consumer Health Protection (WBA) at BMEL, the German Federal Ministry for Food and Agriculture
- **„With sufficient political will and the necessary efforts of governance, economics and civil society it is possible to make the objectives social acceptance and economic competitiveness of German meat production compatible“**

It's even up to us!

KTBL

