



An assessment of the impacts of reducing air pollution from livestock farming in Hungary

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Economy versus the Environment – Competitiveness or Complementarity

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Outline

Background and research objective

Focus points and assumptions

CAPRI projections

AKI projection methodology

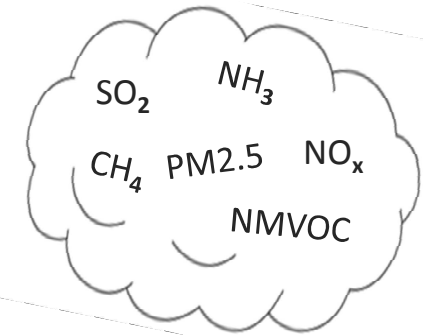
Modelling results (preliminary)

Conclusions and discussion

Background and research objective

Review of the National Emission Ceilings (NEC) Directive*

- ☞ new national emission reduction commitments for 2020 and 2030
 - ☞ proposal based on the calculations by IIASA (⇒ CAPRI)
- ☞ considerable challenge to maintain the profitability and competitiveness of food production while enhancing the protection of the environment
- ☞ compliance requires investing at the farm level in new technologies and implementing new farming practices
- ☞ influence on structural developments



Research objective

- ☞ to project the development of livestock numbers and to assess the impacts of the reduction of air pollutant emissions by applying certain farming techniques in Hungary

* COM(2013) 920 final

Focus points and assumptions

Agent-based simulation model*

- ☞ FADN data from individual farms
- ☞ agents maximize revenues

Focus points

- ☞ air pollutant: ammonia
 - ☞ 90-95% of agricultural origin
- ☞ action: covering manure stores
- ☞ livestock sectors: dairy cows & slaughter pigs

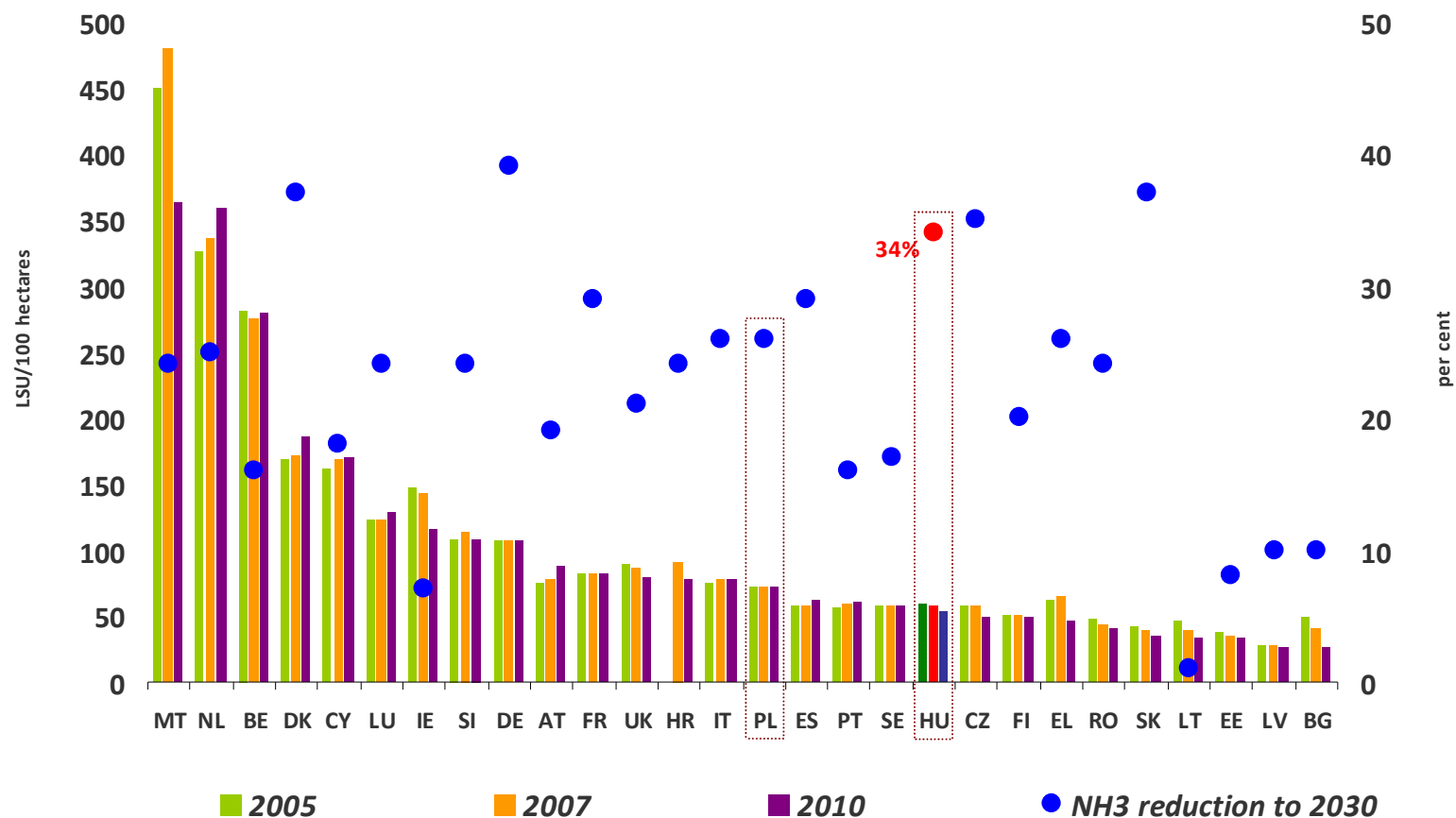


Assumptions regarding the action

- ☞ baseline: CLE
- ☞ scenario: no covered manure storage except for livestock farms with biogas production facilities
 - ☞ costs of covering calculated according to official construction standards and regulation (59/2008/FVM) on the size requirement of manure stores
- ☞ action and relevant additional costs taken into account from 2015 on

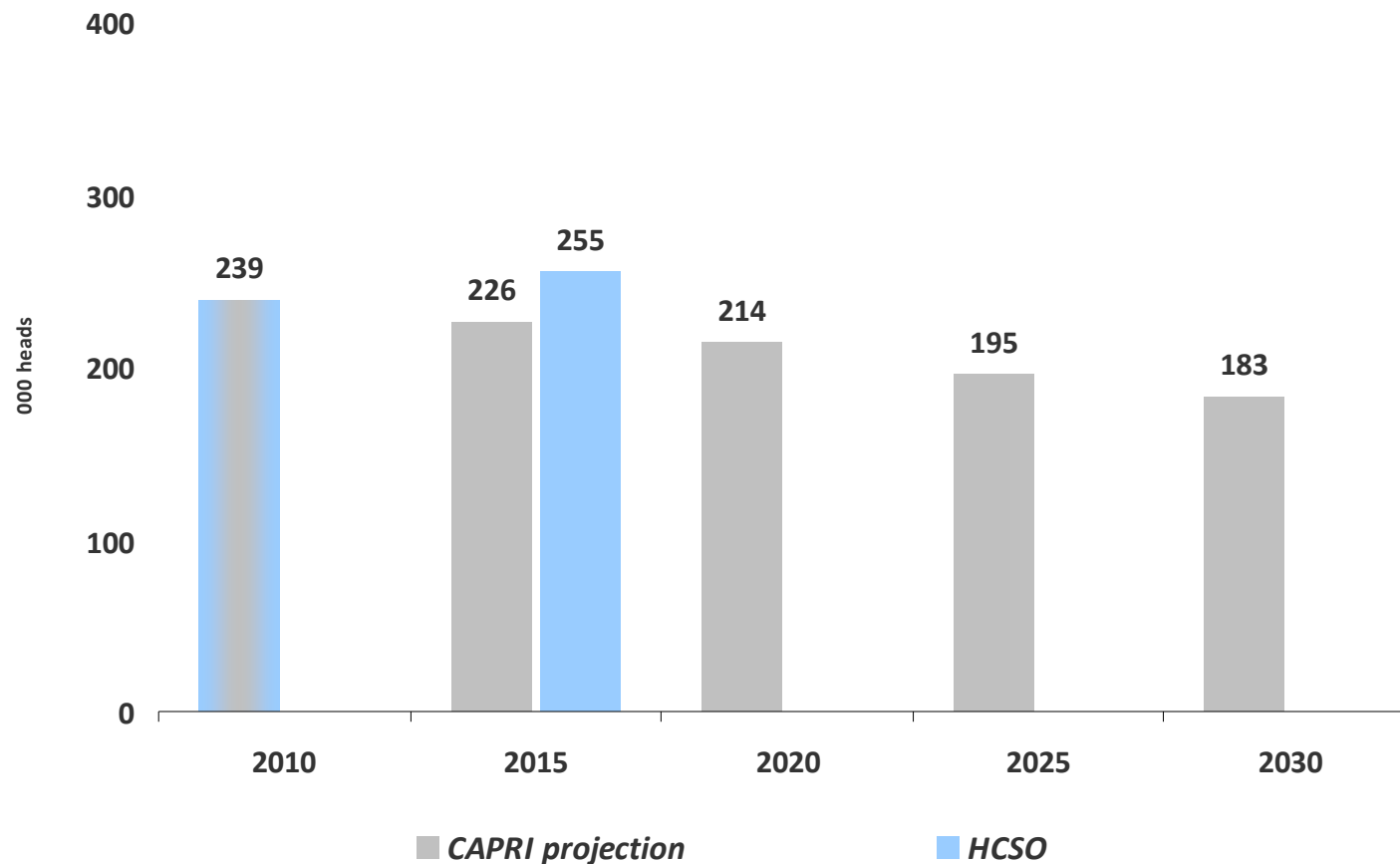
* Potori, N., Kovács, M., Vásáry, V. (2013) The Common Agricultural Policy 2014-2020: an impact assessment of the new system of direct payments in Hungary, *Studies in Agricultural Economics*, no. 115, pp. 118-123.

Livestock density in the EU versus the NH₃ reduction ceilings proposed by the European Commission in 2013



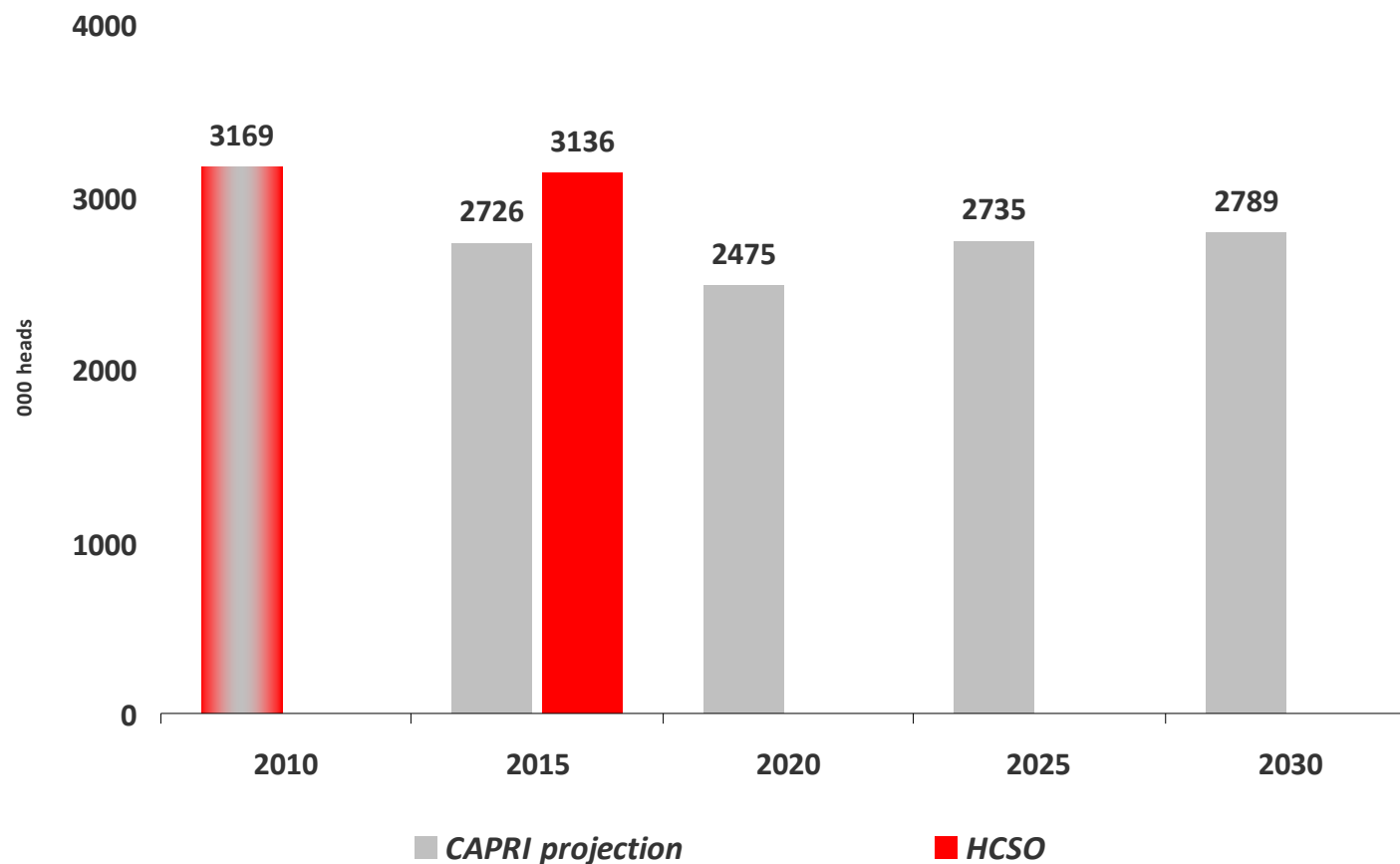
Source: Eurostat and COM(2013) 920 final

CAPRI: projected development of the number of dairy cows in Hungary until 2030*



Source: IIASA and Hungarian Central Statistical Office (2015 = 1 December, 2014) * Including dual purpose breeds

CAPRI: projected development of the number of pigs in Hungary until 2030



Source: IIASA and Hungarian Central Statistical Office (2015 = 1 December, 2014)

AKI projection methodology

Time frame

- ☞ 2015-2030
- ☞ base year = 2013 FADN data

Exogenous variables

- ☞ Central Statistical Office data
- ☞ OECD-FAO Agricultural Outlook 2015-2024
- ☞ Prospects for agricultural markets & income in the EU 2014-2024 by the EU Commission

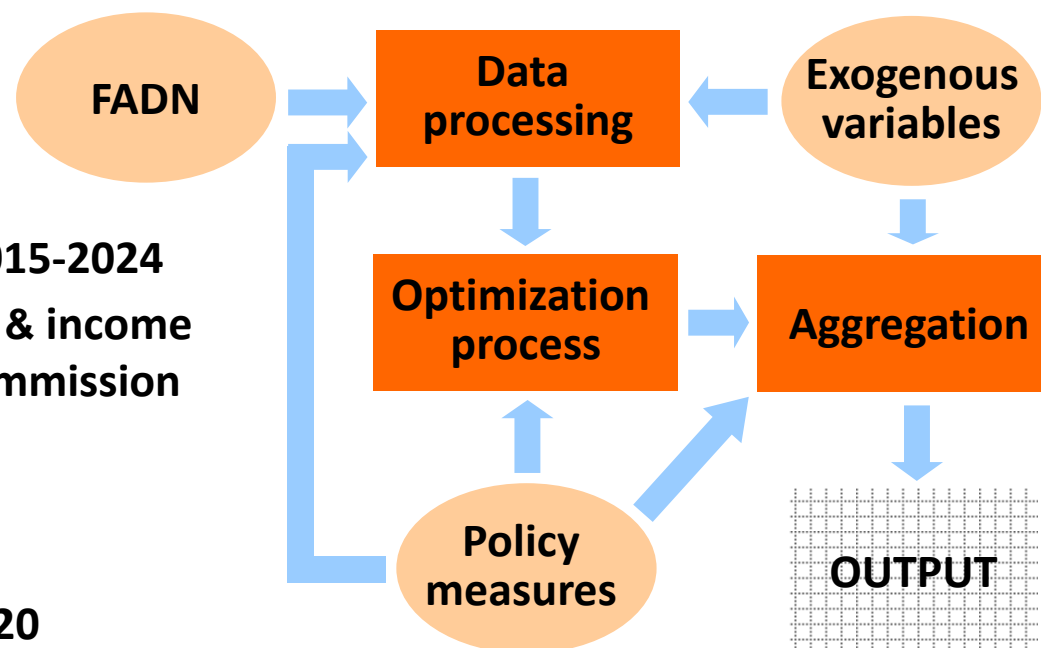
Policy assumptions

- ☞ CAP direct payments 2015-2020
- ☞ national direct payments 2015-2020
- ☞ status quo after 2020

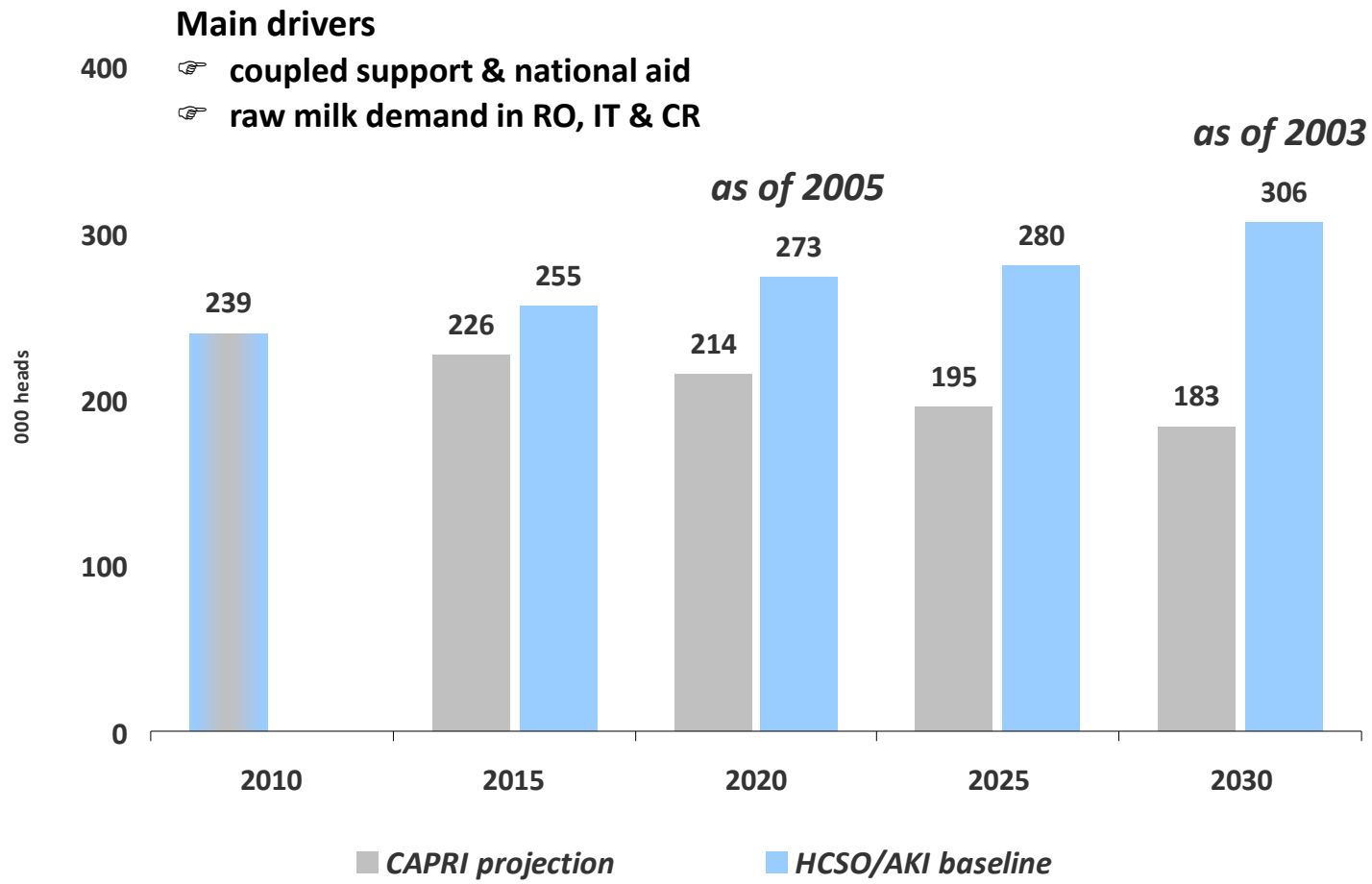
Method of projections

- ☞ dynamic cycle: 2015-2024
- ☞ linear projections: 2024-2030

Projection process

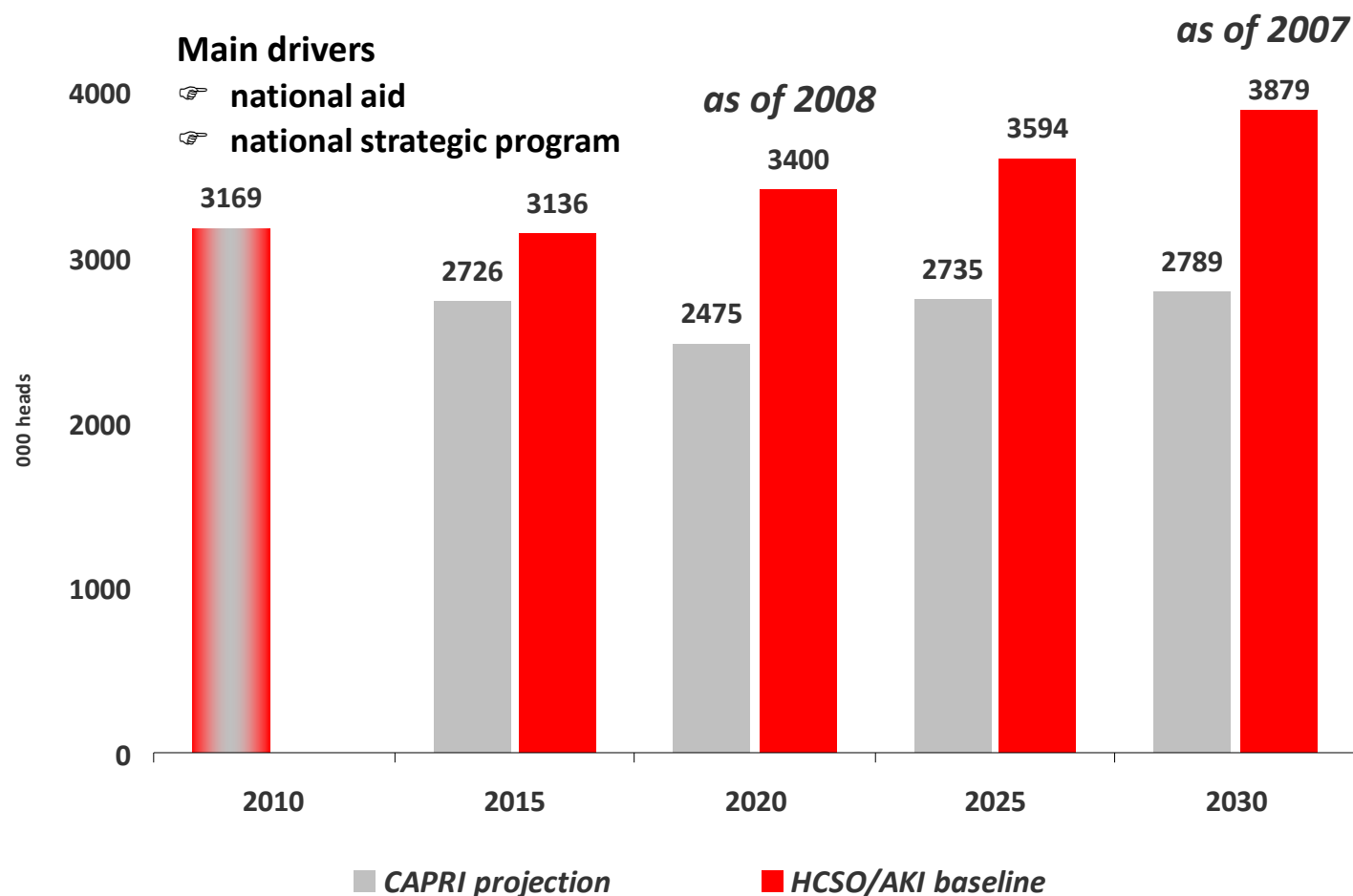


AKI: projected development of the number of dairy cows* in Hungary until 2030 versus CAPRI



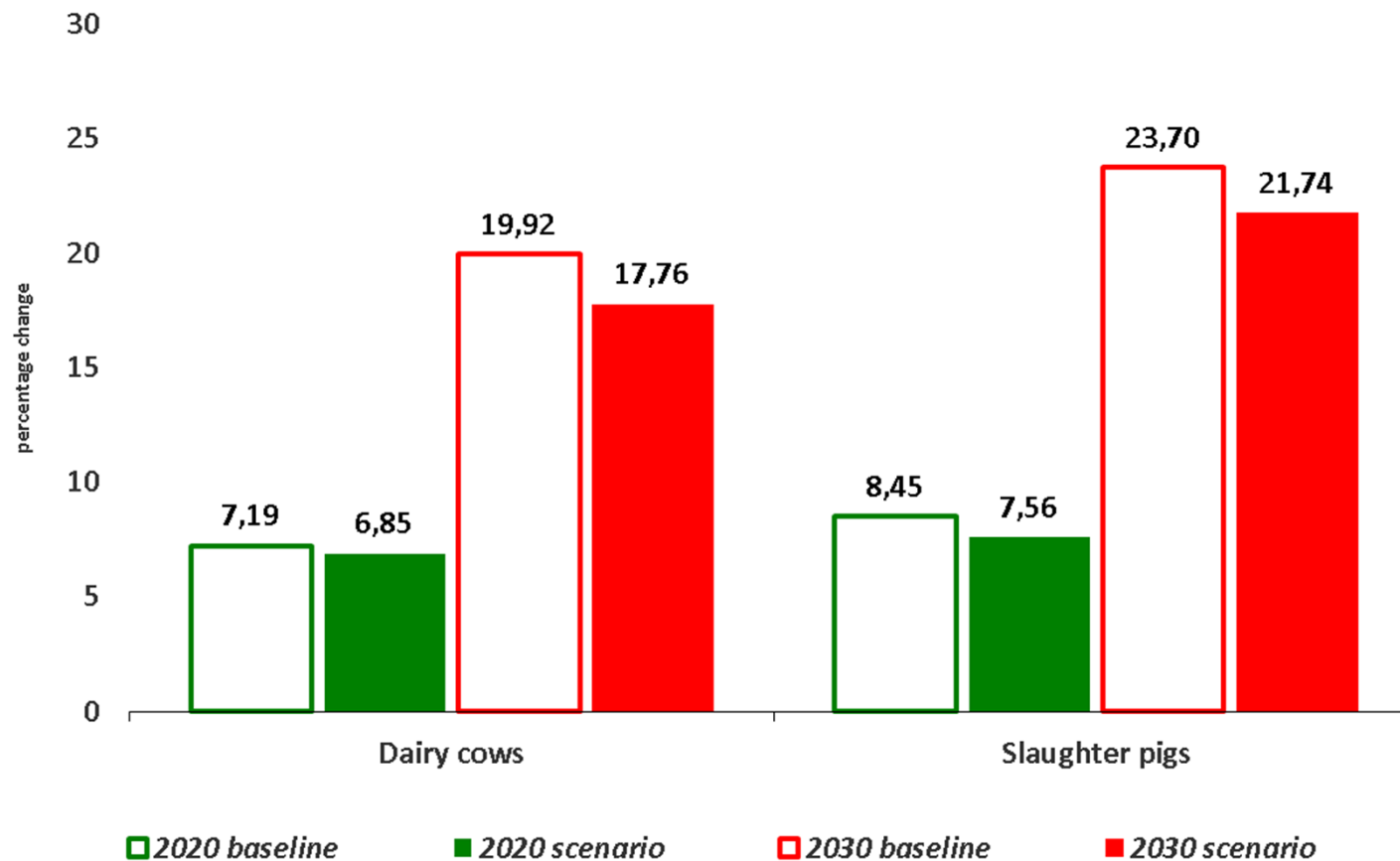
Source: IIASA, Hungarian Central Statistical Office (2015 = 1 December, 2014) and AKI calculations * Including dual purpose breeds

AKI: projected development of the number of pigs in Hungary until 2030 versus CAPRI



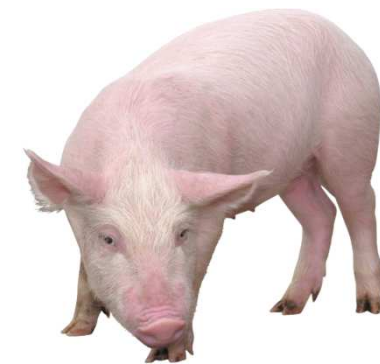
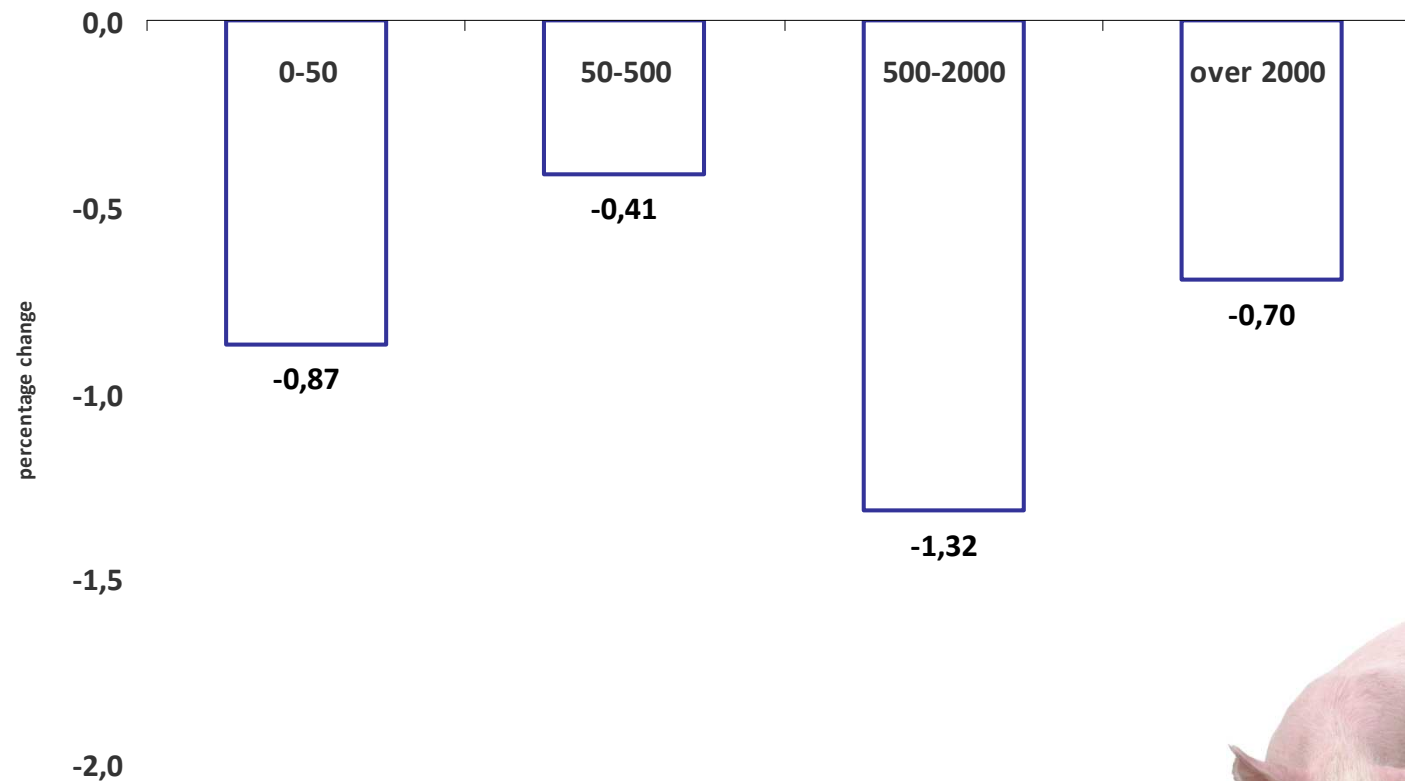
Source: IIASA, Hungarian Central Statistical Office (2015 = 1 December, 2014) and AKI calculations

Modelling results*: changes in livestock numbers versus 2015



Source: AKI calculations * Preliminary

Modelling results : slowdown of growth in the number of pigs for slaughter by herd size in the 2020 scenario*



Source: AKI calculations * Preliminary

Conclusions and discussion

CAPRI versus AKI baseline projections: contradicting results

- ☞ **proposed emission reduction ceilings may need to be reassessed**
- ☞ **development of livestock numbers are indirectly 'locked in' these, thus legislation may have a distorting effect on the EU market**
- ☞ **flexibility measures may need to be considered to help livestock sectors adjust to internal and international market developments**

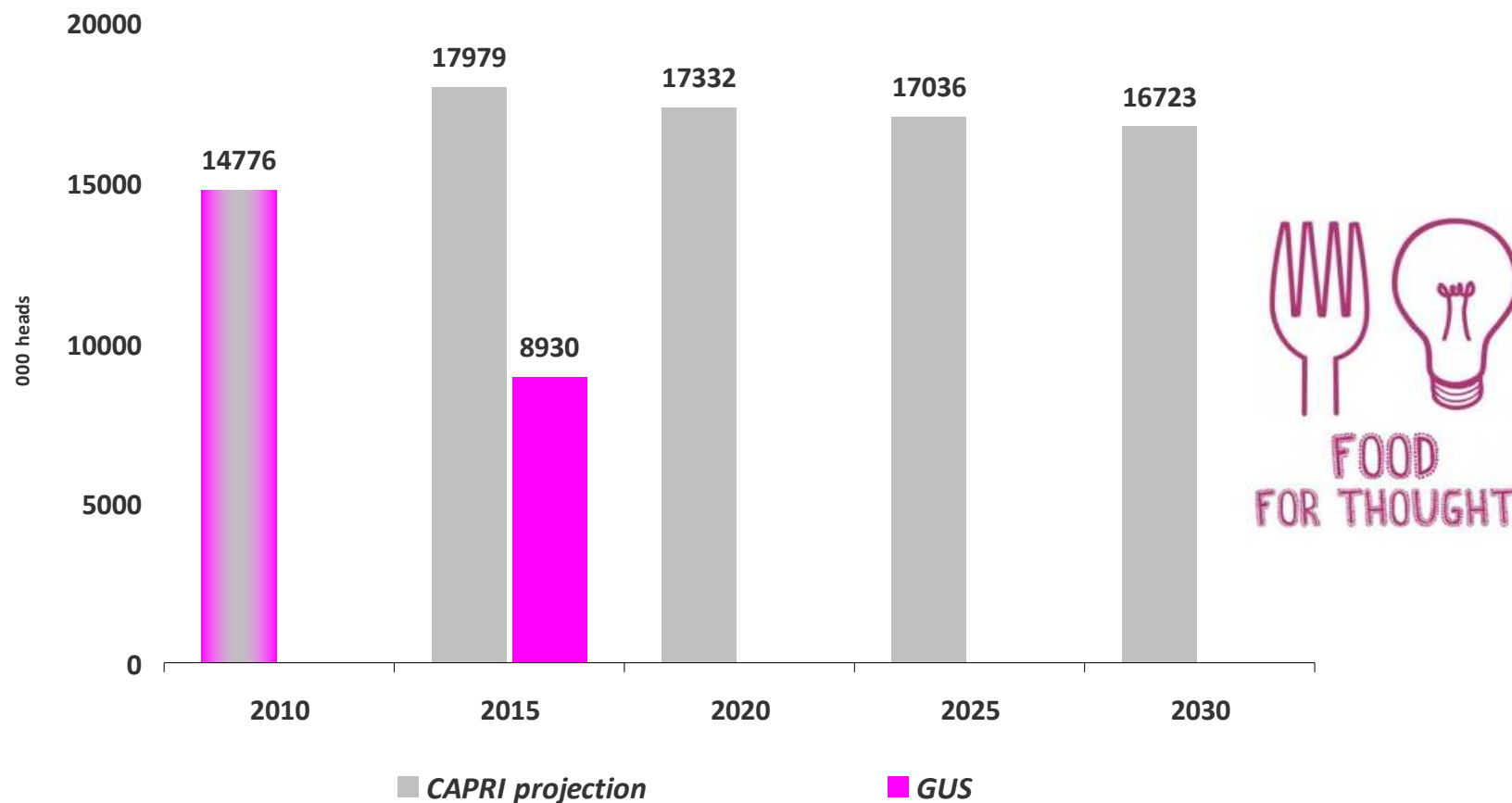
AKI baseline versus AKI scenario: slowdown of growth

- ☞ **as demonstrated in the case of pig farming, different herd size categories could be impacted differently which may affect the development of the production structure**

Not considered

- ☞ **monitoring of compliance with ever stricter environmental standards puts additional administrative burden on farmers, thereby rendering production even more difficult**
- ☞ **decline in CAP support after 2020 may trigger further decrease in livestock numbers**

CAPRI: projected development of the number of pigs in Poland until 2030



Source: IIASA and Polish Central Statistical Office (2015 = 1 December, 2014)

Dziękuję za uwagę!