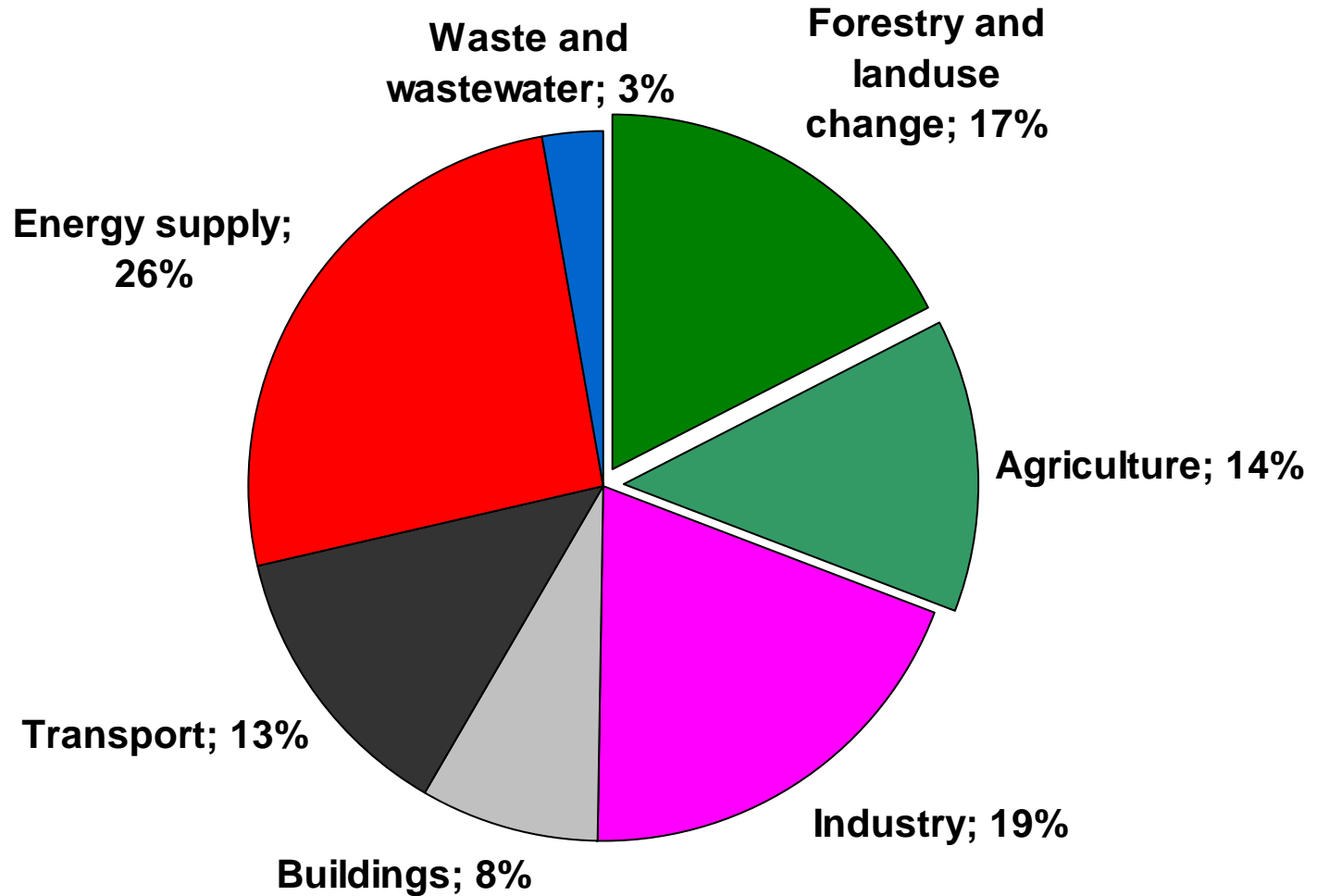


Is Organic Farming sequestering Carbon Dioxide from the Atmosphere?

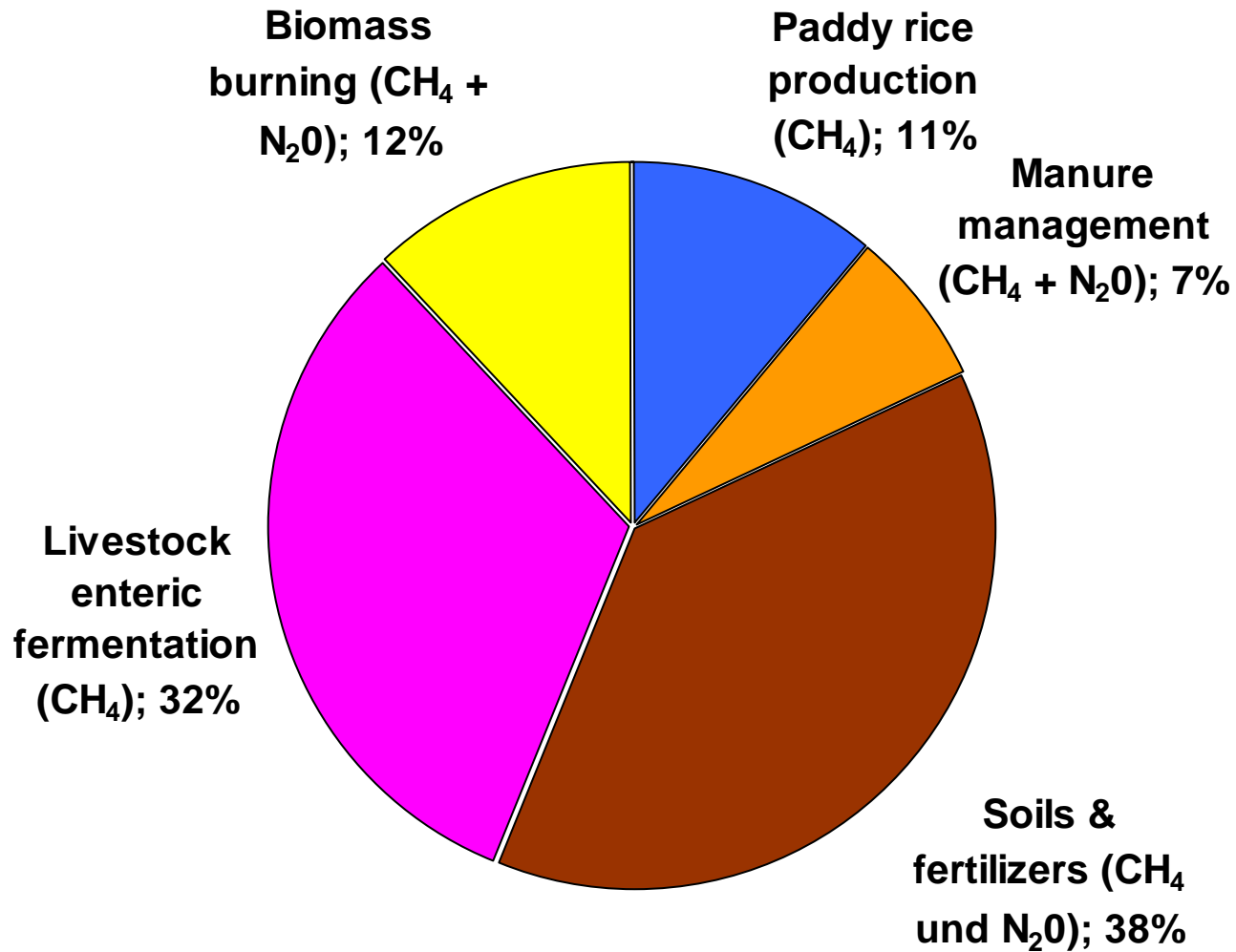
Andreas Fließbach

Global Emissions by Sector



IPCC (2007) 4th assessment report

Sources of Agricultural Emissions



IPCC (2007) 4th assessment report

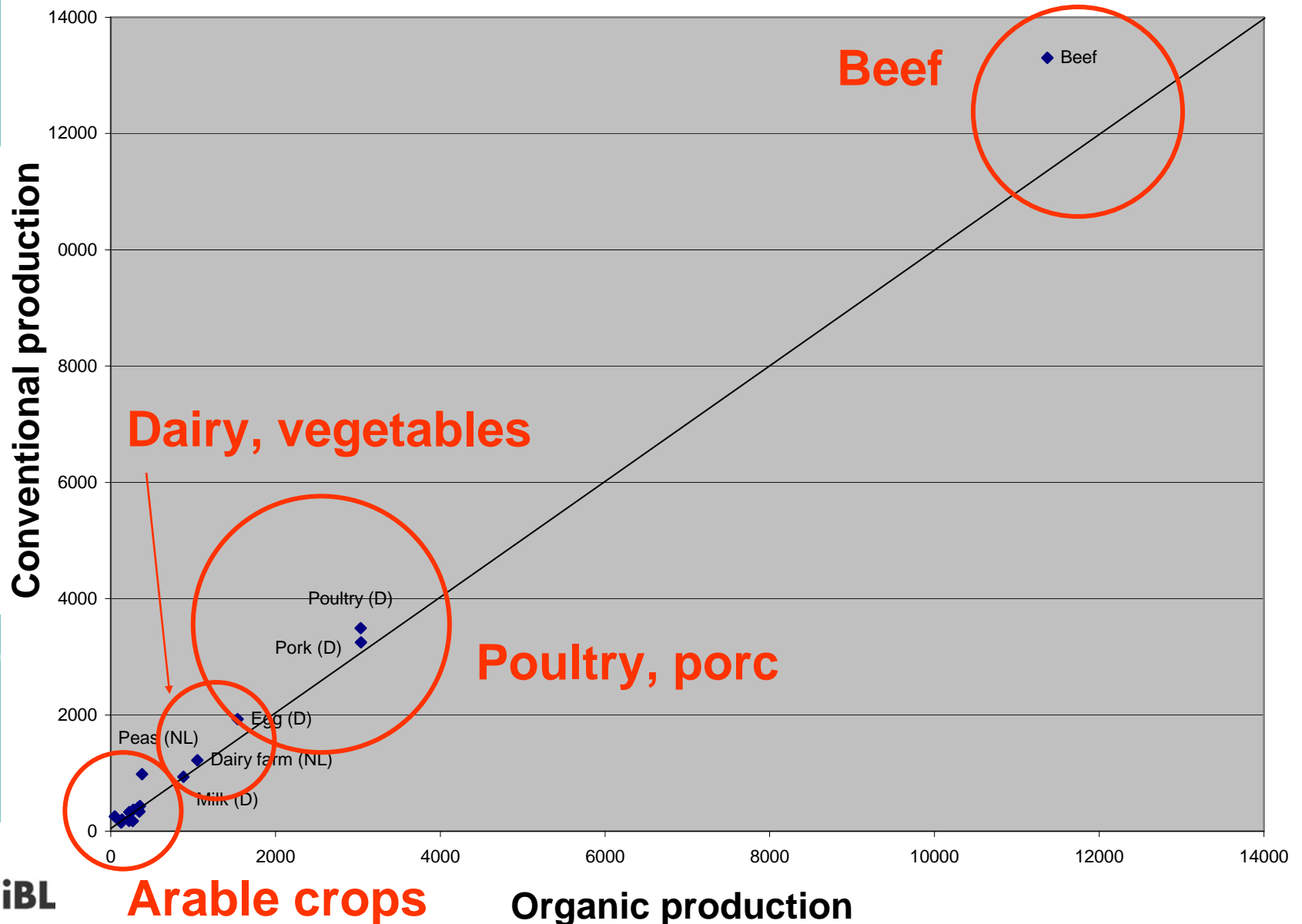
Sources of Agricultural Emissions

- **CO₂ emissions from land use change, decreasing soil carbon levels and N-fertilizer production – but they are largely balanced in crop production (assimilation and decomposition)**
- **N₂O from fertilizer production and soil emission out of nitrification and denitrification (2 step processes) at high mobile N-concentrations in soil**
- **CH₄ from ruminants, manure handling and soils, but soils also serve as sinks by oxydation of methane**

Future challenges of the agrosector

- The world population is expected to peak at 9 Billion in the year 2025.
- 60 % of ecosystem services are degraded because of food production in agriculture (*Millennium Ecosystem Assessment* , 2005).
- 30 % of fertile soils were destroyed between 1950 bis 1990 by erosion (*Pimentel et al., 1995*). Continuing losses of approx. 10 Mio hectares annually.
- Agriculture is energy intensive, even though it could be autarkic (*Smith et al., 2007*).
- The adaptability of agriculture to climate change in southern countries is insufficient (*Lobell et al., 2008*).

GHG-emissions of agricultural products



Expected Impact and Vulnerability