

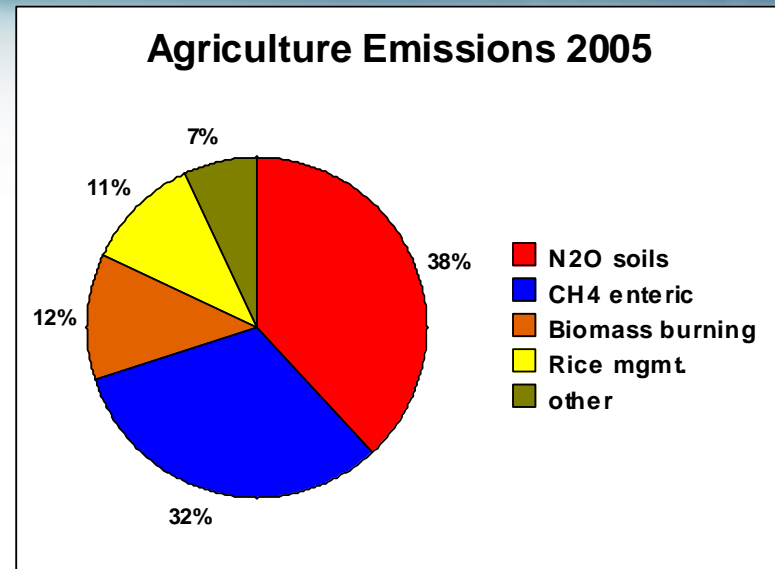
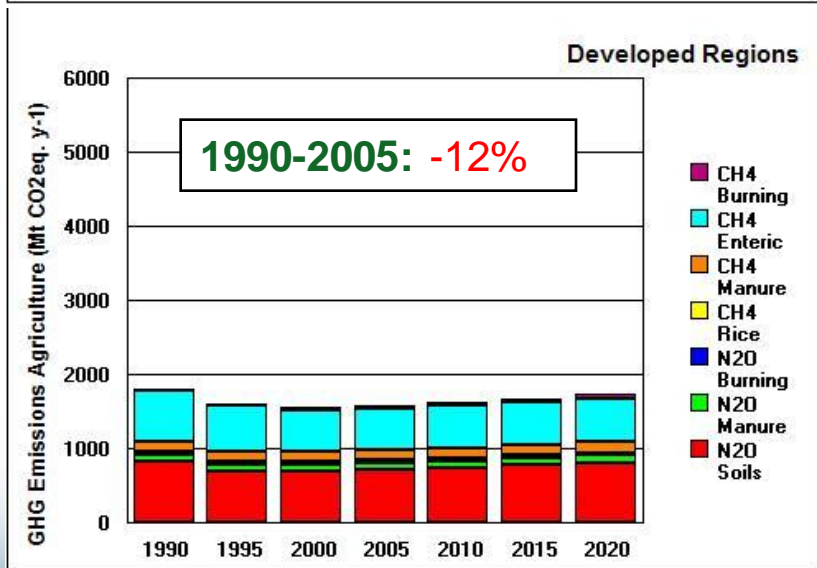
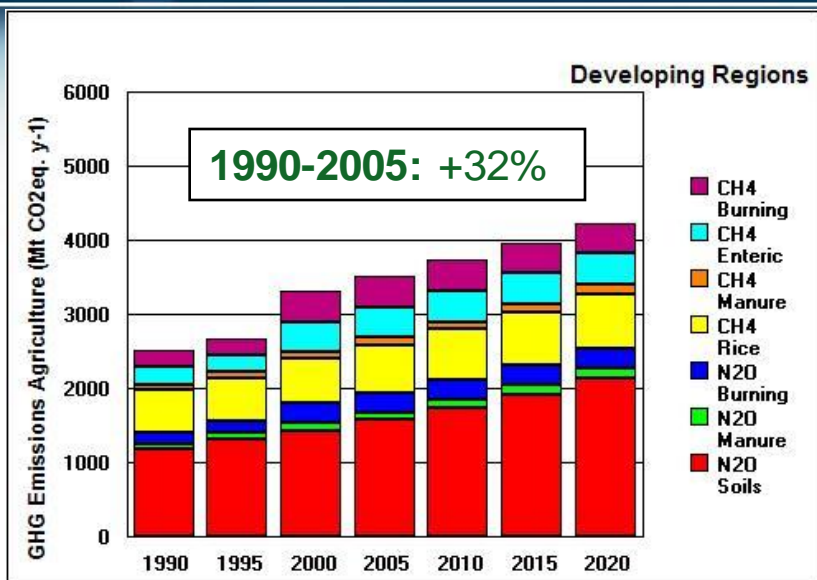
Mitigation in Agriculture: Main Findings of IPCC AR4

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Opportunities and Challenges for Mitigation in the Agricultural Sector
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Baseline emissions: Agriculture



Main drivers for trends

- Increase in GHGs: population pressure, income increase, diet changes, technological changes
- Decrease in GHGs: increased land productivity, conservation tillage, non-climate policies

Economic Mitigation Potential in 2030

IPCC

Intergovernmental Panel
on Climate Change

Carbon price (US\$/tCO₂-eq)	Mitigation Potential (Gt CO₂-eq/yr)
20	1.6 (0.3-2.4)
50	2.7 (1.5-3.9)
100	4.4 (2.3-6.4)
Emissions 2030	8.2

Mitigation practices in Agriculture

Cropland management; Restoration of organic soils; Rice management;
Grazing land management – 90% of potential is carbon sequestration

Relative contribution of Agriculture to total mitigation potential

US\$ 20/tCO₂ – 12%

US\$ 50/tCO₂ – 14%

US\$ 100/tCO₂ – 19%

Contribution to Energy Sector

- **Biomass as energy feedstock** produced in agricultural land may cause indirect emissions reductions of **70-1,260 Mt CO₂-eq./yr** (at US\$ 20/tCO₂) by 2030.
- In addition, emissions reductions of **770 Mt CO₂-eq./yr** can be achieved through **energy efficiency**
- Associated impacts:
 - Competition with other land uses, positive or negative environmental impacts, implications for food security

Limitations of the Assessment

- Mitigation potential in livestock systems may have been underestimated. Emphasis was on per-head emissions, but relevance of **per-unit-product emissions** (i.e., getting certain amount of products with lesser animals) was overlooked.
- Some possible **synergies between mitigation options** were not quantified (e.g., grazing land/cropland productivity and reduced deforestation)
- Estimates of some options with possibly good potential (lifestyle changes) are not provided
- Sink enhancement or reversal due to climate change are identified, but uncertainties remain high

Key Messages

- Carbon sequestration in agricultural soils has a mitigation potential of **1 to 4 billion t CO₂/yr** at carbon prices of 20 to 100 US\$/tCO₂
 - This represents between **11 and 17% of total mitigation potential**
 - C stock in soils is highly correlated with productivity/resilience and soil conservation
 - Historical transfer of C from terrestrial ecosystems: 500 billion t CO₂
- **70%** of mitigation potential is in developing regions
 - This potential was neglected by Kyoto, thus wasting an opportunity for adaptation and sustainable development benefits.
 - The other 30% is also not explored by Kyoto, since very few Parties selected cropland/grassland management under Art. 3.4
- Potential of mitigation of livestock emissions may have been underestimated (especially for grazing systems in warm regions).

A world map is visible in the background, rendered in a dark blue color. The map is overlaid with a pattern of small, light blue squares. The overall background is a gradient of blue, with wavy lines and a pattern of small squares.

www.ipcc.ch

**The report of IPCC Working Group III is available at
www.mnp.nl/ipcc**