



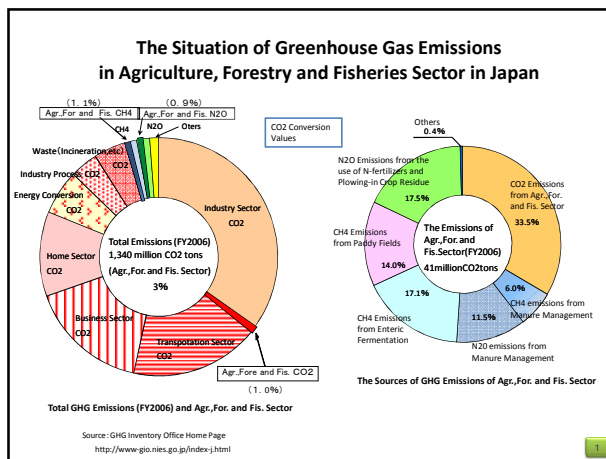
The Japanese Effort and Proposals against Global Warming in the Sector of Agriculture

December 2008
JAPAN

MAFF

Ministry of Agriculture, Forestry and Fisheries



Agricultural Sector's Measures against Global Warming

- Strengthening of energy saving technology for agricultural machineries
 - Heat pump system in a green house
 - High speed puddling machine
- Promotion of environmentally-friendly agriculture
 - Environmentally-friendly agriculture
 - Tractor using bio-diesel
- Efforts in livestock farming
 - Carbonization facilities of livestock excretion
 - Methane fermentation facilities of livestock excretion

-emission control of GHG by low chemical inputs
-expanding the use of rice straw as feed
-local cyclic type animal farming using carbonization /methane fermentation facilities of livestock excretion

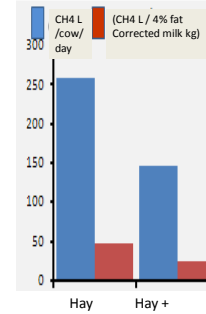
Appropriate Treatment of Livestock Excretion ~1999

A part of livestock excretion was unsuitably treated in the belows. Then there were serious odor problems and groundwater pollution by nitrate nitrogen.

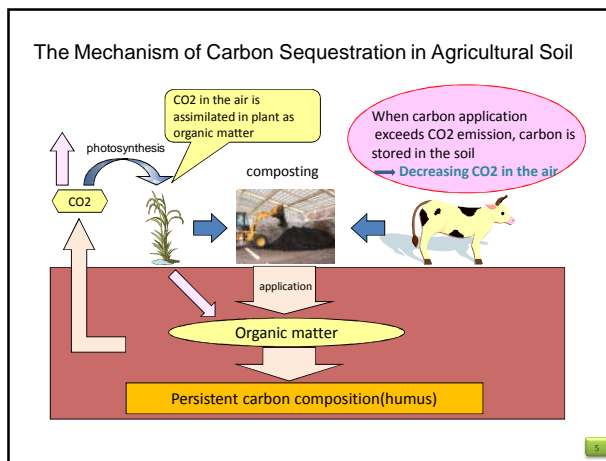
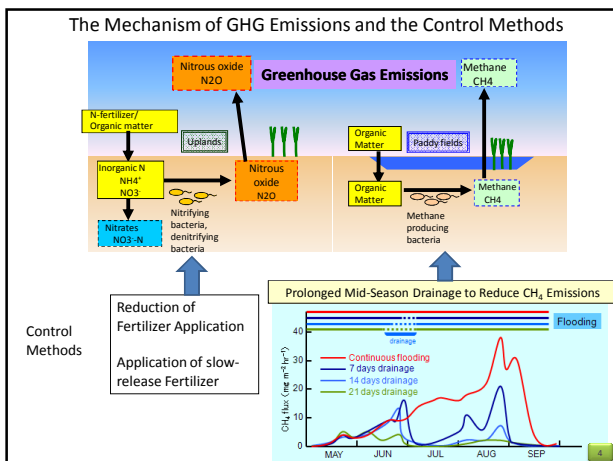
Exposed to the air | Percolated through the soil

Act on the appropriate treatment of livestock manure (enacted in Nov. 1999)
It prohibits unsuitable treatment of livestock excretion except for a small scale.
*Enforcement of the prohibition (Nov. 2004~)

The Control Technology of CH4 from Enteric Fermentation



Effect of feeding sweet potato on methane emission(milk cows)



The Methods of Organic Matter Application

Compost is sprayed on the field and plowing into the soil



Subsoil improvement using compost



Laying drain pipes with rice husks as filter material

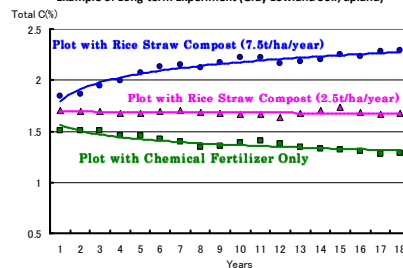


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The Result of Soil Carbon Sequestration

- Cropland soils under appropriate management can contribute to mitigate global warming through the accumulation of soil organic matter.
- Since 1975, the MAFF has conducted long-term experiments with continuous organic matter application under typical soil type and cropping system of each prefecture (over 150 fields in total), which demonstrated that soil carbon stock can be increased through organic matter application such as compost.

Example of Long-term Experiment (Gray Lowland Soil, upland)



Data: "Basic Survey on Soil Environment (Benchmark Survey)" (Yamaguchi Pref. Agricultural Research Institute)
 * Figure for a year is the three-year average including the previous and the next year to that year.

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