

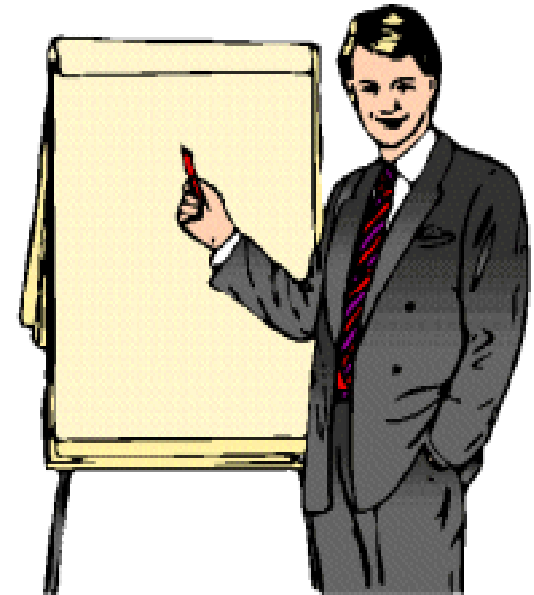


## **Impact of Large-Scale Conversion to Organic Farming on Greenhouse Gas Emissions**

Dr Darko Znaor

# Contents

1. Question
2. Metodology
3. Results (HR, UK, EU)
4. Conclusions



**QUESTION**

**What if...**

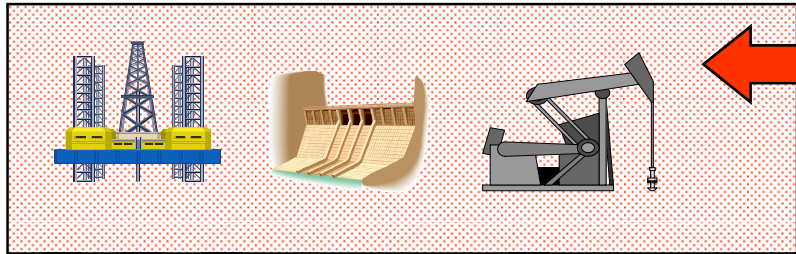


**Policy relevant question**

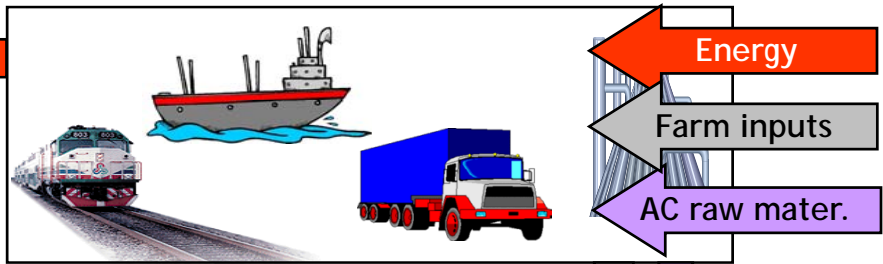
# **METHODOLOGY**

## **(Croatia study)**

# ENERGY SECTOR



# TRANSPORT SECTOR



### INDUSTRY

Fertilisers      Pesticides      Vet. medicine      Feedstuff      F. machinery

The Industry box contains five icons: a factory with smoke, a chemical plant with pipes, distillation columns, storage tanks, and a tractor. Red arrows from the Energy Sector point to Fertilisers, Pesticides, and Vet. medicine. A purple arrow from the Transport Sector points to F. machinery.

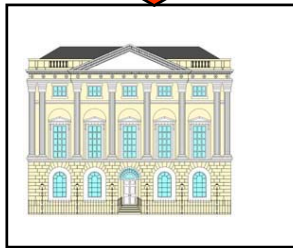
### TRANSPORT

The Transport box contains two icons: a truck and a tractor. A yellow arrow labeled 'Farm inputs' points from the Industry sector to the tractor. Multiple arrows (red, yellow, grey) point from the Transport sector to the Trade sector.

### TRADE



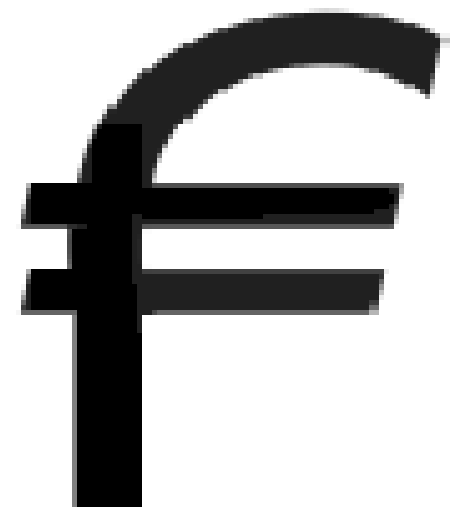
### SERVICES



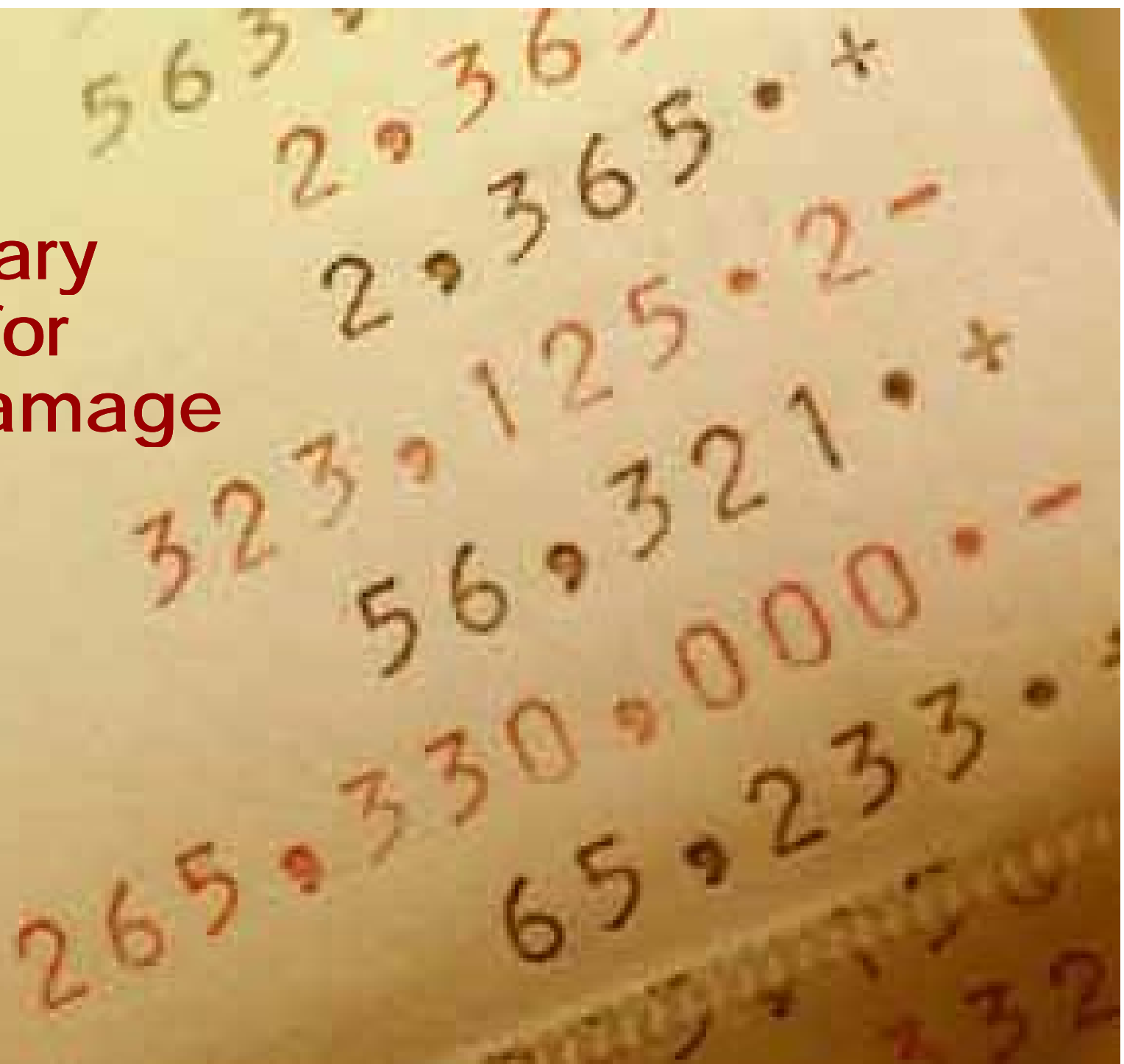
### FARMING



External  
costs

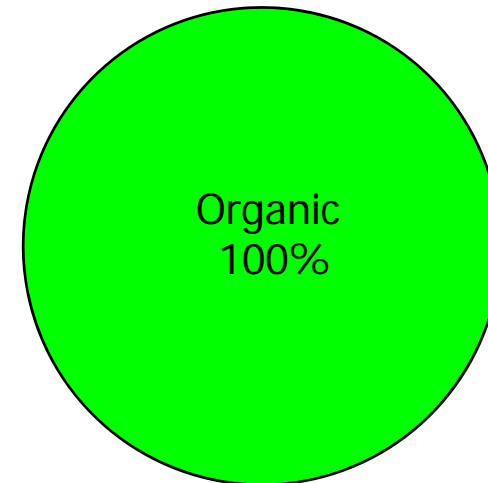
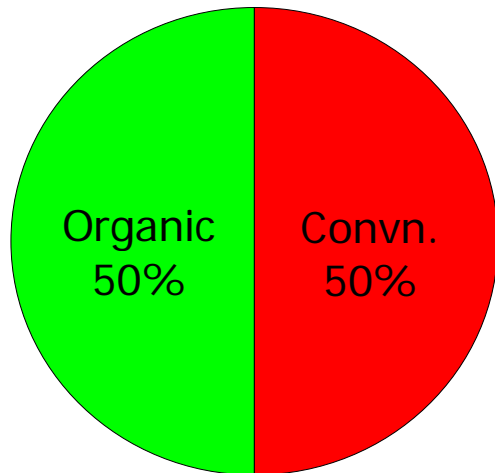
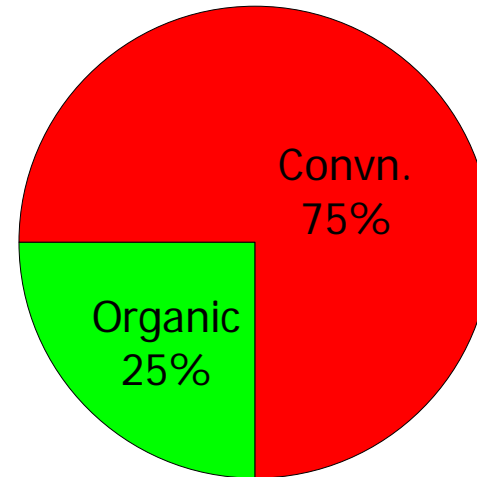
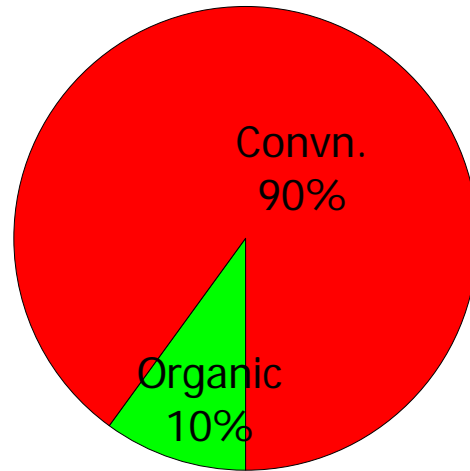


**Monetary  
value for  
CO<sub>2</sub> damage**





# Organic scenarios: area

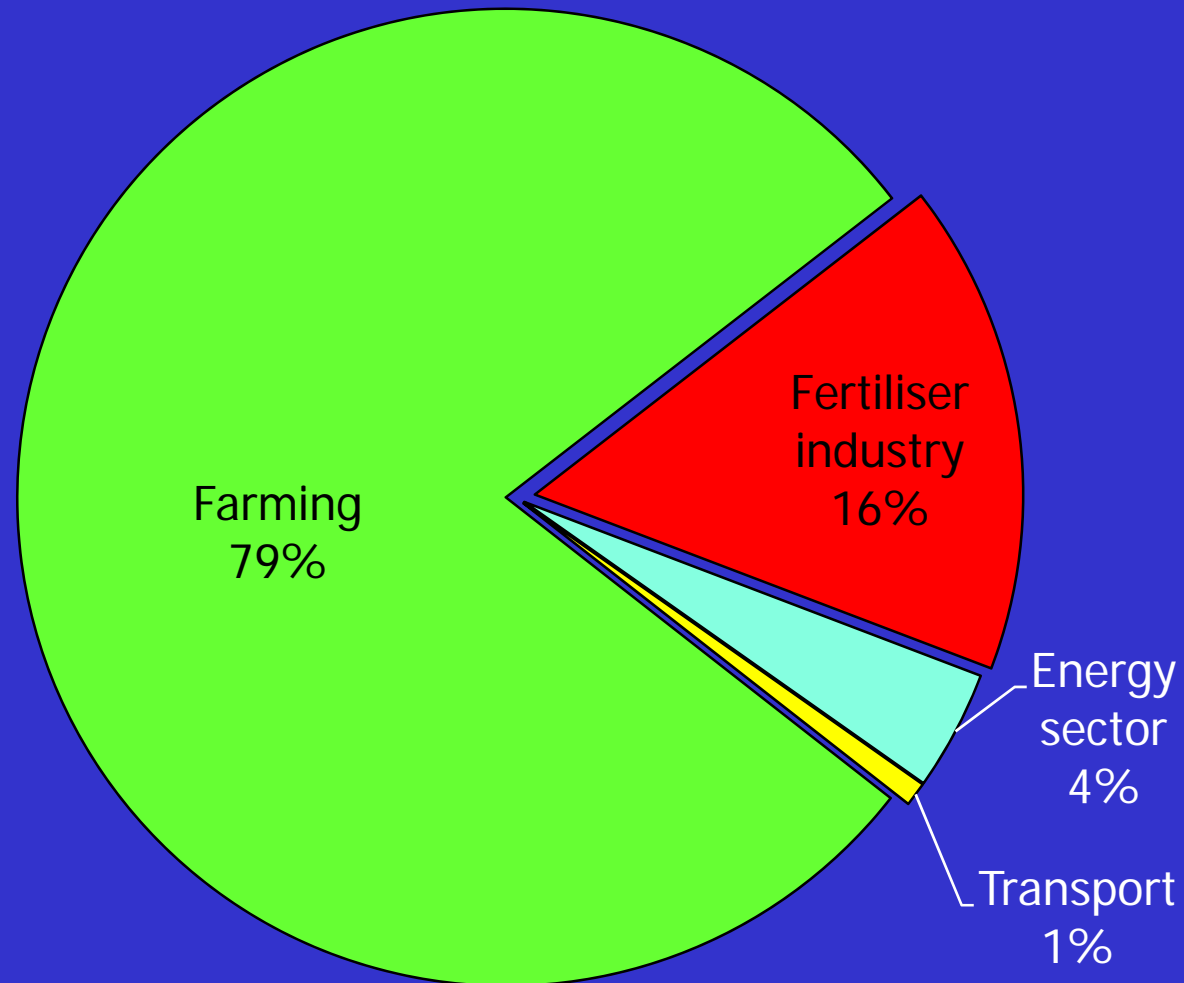


**RESULTS**  
**(Croatia study)**

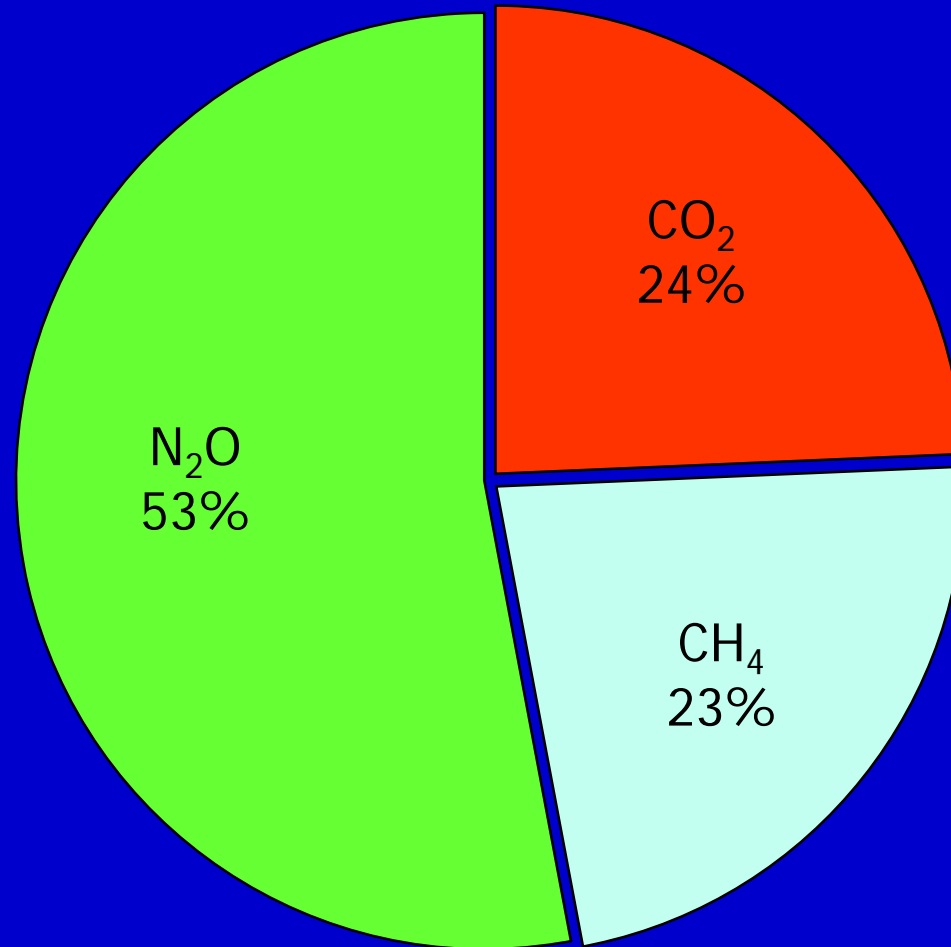
**BASELINE**

**(2001-2005)**

# Sectoral contribution to GHG emissions (CO<sub>2</sub> eq)



# Split of emissions by GHG



# External costs

£ = 50% of GVA created

# Price of agric. commodities



Market price



Price with internalised costs

# Fertilisers

- 40% of all GHG
- 3% of national GHG
- 5% of national FED
- 12% of national gas consumption

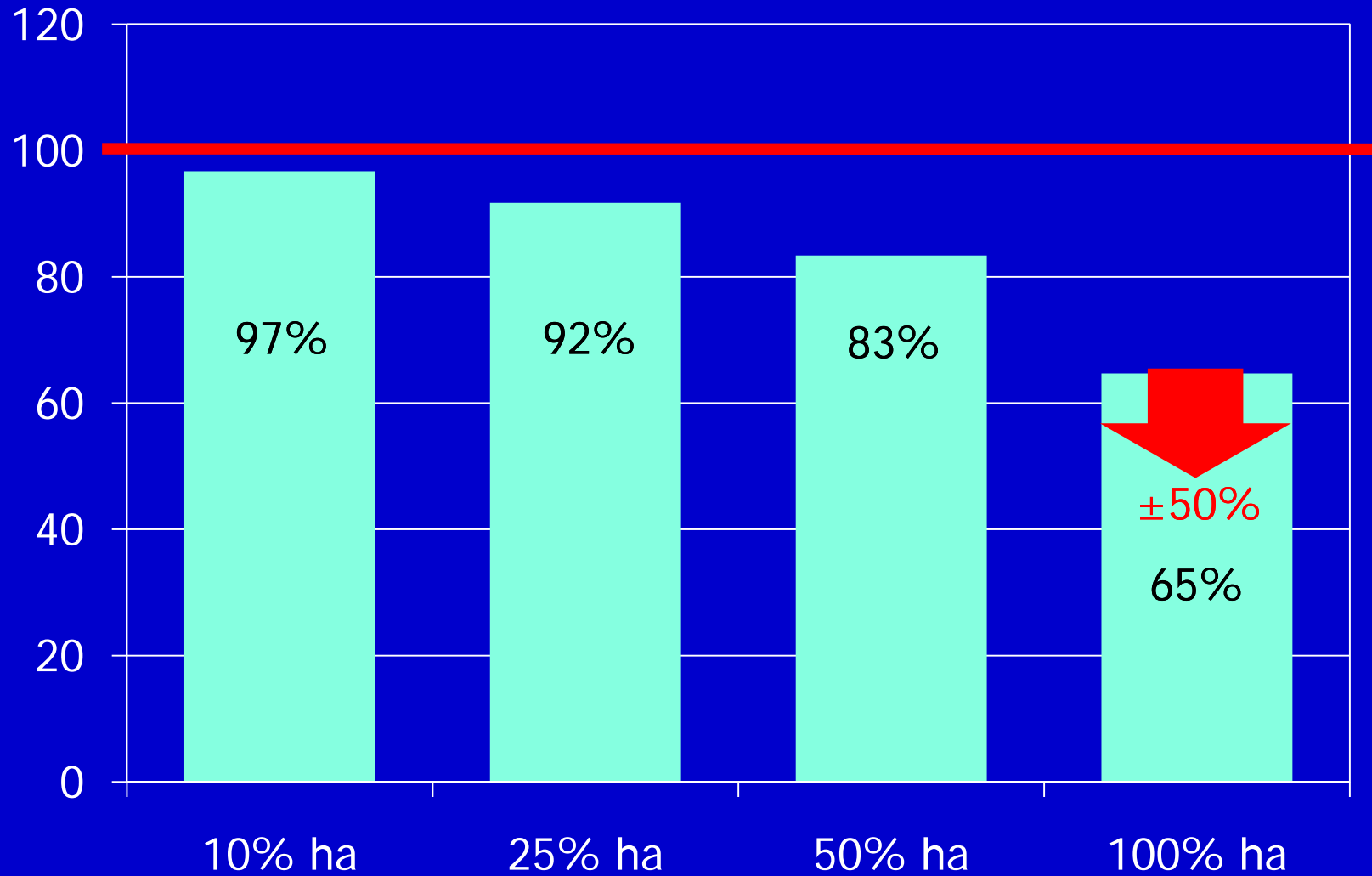


**RESULTS**  
**(Croatia study)**

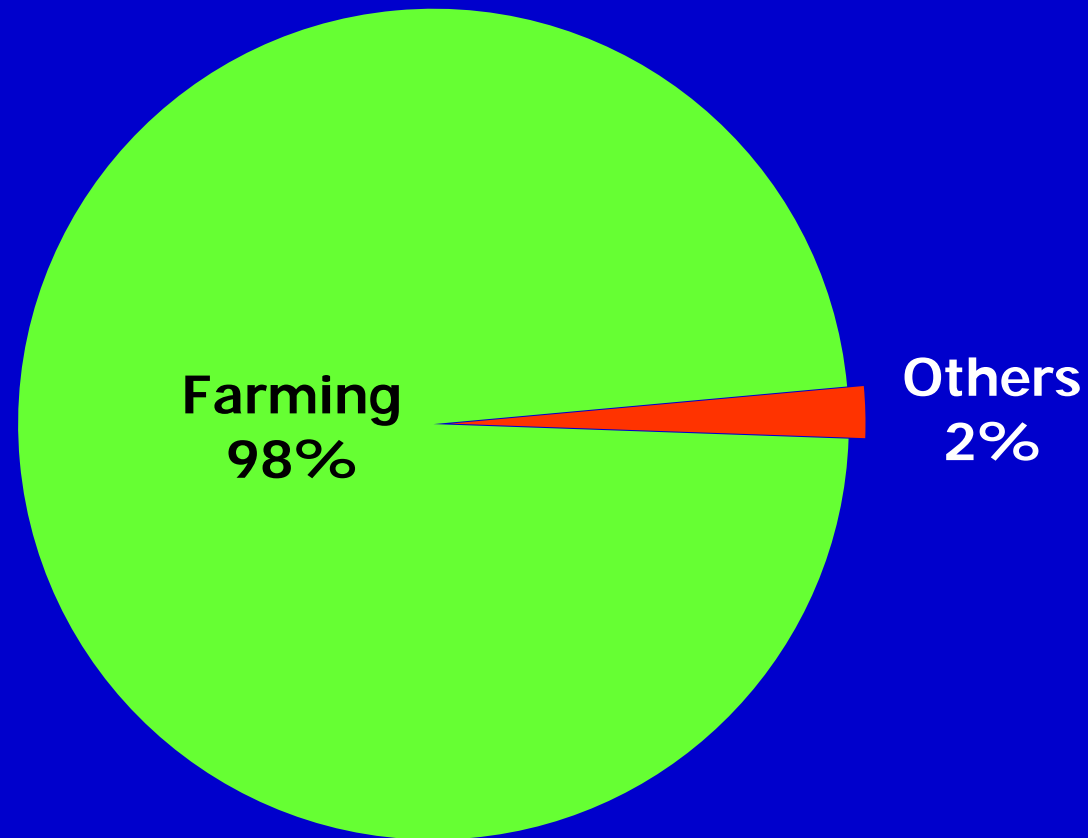
**ORGANIC scenarios**



# GHG emissions as compared to baseline (=100)



# Sectoral share in GHG emissions under the total conversion to organic



# **An UK scenario**

# An UK study

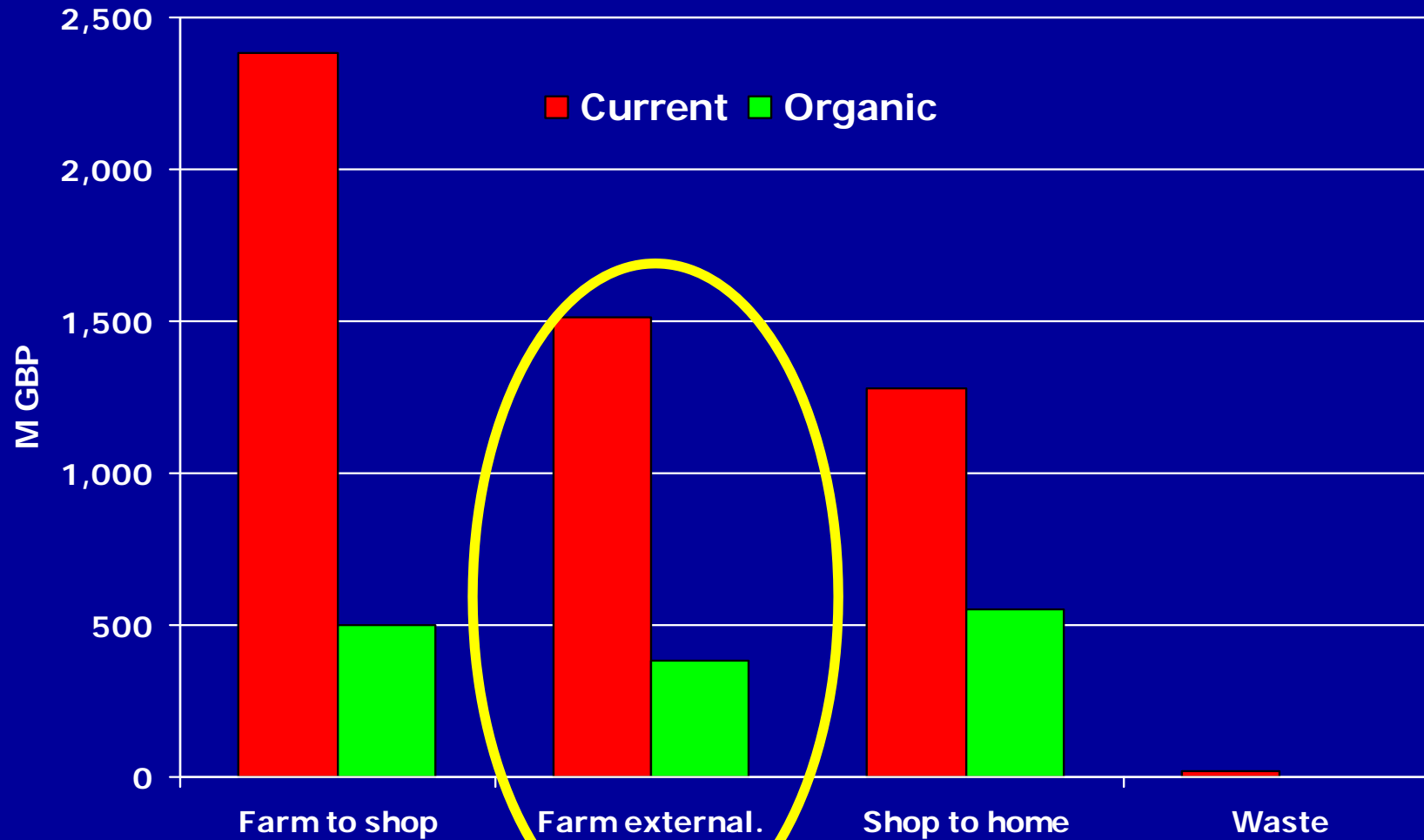
(Pretty et. al. 2004)

GHG reduction under 100%  
conversion to OF = 60%

Household GHG emissions

- 4 t CO<sub>2</sub> = car
- 4 t CO<sub>2</sub> = house
- 8 t CO<sub>2</sub> = food!!!

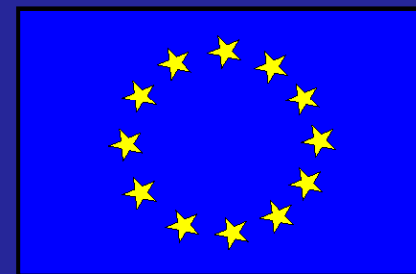
# Current vs. home-delivered organic food



Source: Pretty et al., 2004.

**EU-27**

# EU-27



- Fertiliser production = 1.8% GHG emissions
- Farming sector = 9% of all GHG
- If all organic =  $\pm 4\%$  GHG reduction  
= 50% Kyoto target (2008-2012)

**CONCLUSIONS**



# Critical messages

1. Pioneering work
2. Methodological issues
3. Fertilisers are the key!
4. Only 100% conversion =  $\pm 50\%$  GHG reduction
5. OF great contribution to Kyoto targets

# EU Ministers meeting on CC and agric, Sep 15



**Thank you!**

