



## Mitigation of enteric methane for French cattle: potential extent and cost of selected actions

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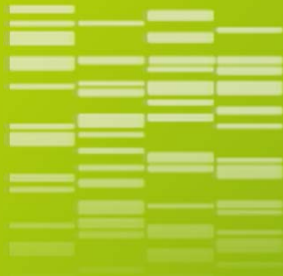
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# Mitigation of enteric methane for French cattle : potential extent and cost of selected actions

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# The statement



**Livestock sector accounts for 14.5% of anthropogenic greenhouse gases (GHG) emissions (FAO, 2013)**

**Public policies aim to decrease GHG emissions**

**Scientific community works at finding ways for GHG mitigation**

**How to bridge the gap between scientists and policy makers ?**

➡ **Determine the best available and applicable mitigation techniques**

➡ **Determine the extent of abatement and the cost**

# The French government order



Propose 10 mitigation actions for French agriculture,  
evaluate effectiveness, calculate abatement extent and  
cost from now on until 2030

This presentation: action for decreasing enteric methane  
(> 50% GHG)

## Constraints

- ➡ No change in production  
No adverse effects on other sustainability issues
- ➡ No significant changes in farming systems but changes in practices  
i.e. not business-as-usual ~~genetic merit~~
- ➡ Proof of effectiveness, availability at present ~~vaccination~~  
Acceptability by farmers and citizens ~~ionophores~~

# Selected actions and methodology



## Dietary fats (unsaturated) Nitrates as dietary additives

Guyader et al., 2014

**Fats** Extruded linseed and rapeseed  
3.5% additional fat  
for a 14% methane abatement  
All cattle receiving concentrates  
  
Replacement of cereals and meals  
Rapid adoption



**Nitrates** 1% in the diet for a 10% methane abatement  
Only for cattle fed diets low in fermentable N (maize silage-based)  
  
Replacement of other fermentable N sources (urea)  
Slow and incomplete adoption

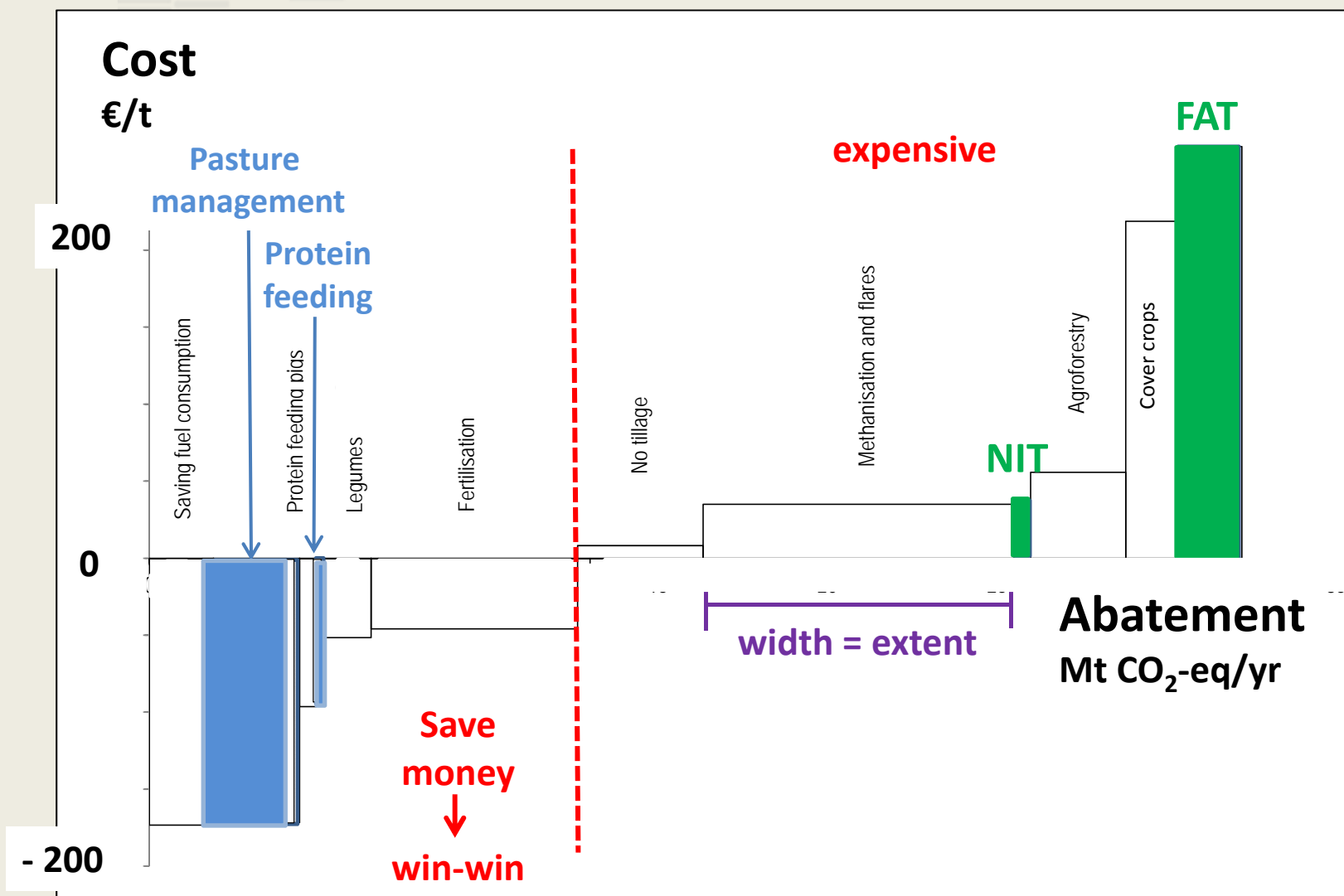
Abatement extent (t CO<sub>2</sub>-eq/yr) calculated from: Number of animals / yr  
kg of nitrate / animal  
abatement / kg nitrate

# Abatement and cost

	FAT	NIT
Abatement potential (Mt CO <sub>2</sub> -eq)	27.0	4.5
Total cost for farmers (M€)	7209	170
Cost per t CO <sub>2</sub> -eq avoided	267	38

High sensitivity to hypotheses for unitary emissions (per cow)  
for prices

# Marginal abatement cost curve : FAT & NIT among all actions for agricultural GHG



# Concluding remarks

- ➔ Selection of options depends on initial constraints
- ➔ A significant methane abatement is possible now but may need incentives for application by farmers
- ➔ Other options may be possible in a near future

*Decisive role of policy makers*



**THANK YOU FOR YOUR ATTENTION**

