

A vertical blue bar on the left side of the slide. It features a circular emblem at the top with a caduceus symbol, and several yellow and green stars arranged in a curve along its length.

# Environmental biotechnologies

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# Defining environmental biotechnology

**Narrow vs. wide definition**

**Do we define it by sector, or by environmental impact?**

# Some environmental impacts

Recombinant rabies vaccine: environmental use

## Large-scale eradication of rabies using recombinant vaccinia-rabies vaccine

B. Brochier\*, M. P. Kieny†, F. Costy‡,  
P. Coppens\*, B. Bauduin\*, J. P. Lecocq†,  
B. Languet§, G. Chappuis§, P. Desmettre§,  
K. Afiademanyo , R. Libois & P.-P. Pastoret\*

*Nature* **354**, 520 - 522 (26 December 1991);



# Some environmental impacts

Use of herbicide resistant crops:



- Zero tillage
- Improved carbon storage
- Reduced erosion

# Enzymes as environmental agents: the bio-based economy



## Bioethanol production processes

FIRST GENERATION



SECOND GENERATION



# GM insect resistant crops



# A glimpse into the future

The three pillars of climate change response:

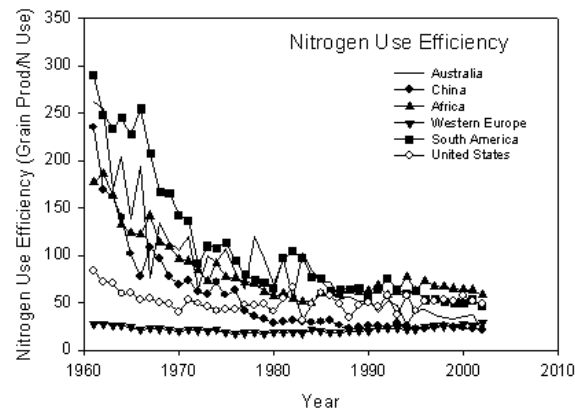
Prevention

Mitigation

Adaptation

# Prevention

- Developments in reducing GHG emissions: Nitrogen use efficiency





# Mitigation

Yield boosting: reducing the need to open up new land



# Adaptation

Stress tolerant crops: handling climatic extremes



# Conclusions

- Urgent need to redefine environmental biotechnology
- Part of the solutions toolkit
- Not currently part of the policy thinking!