

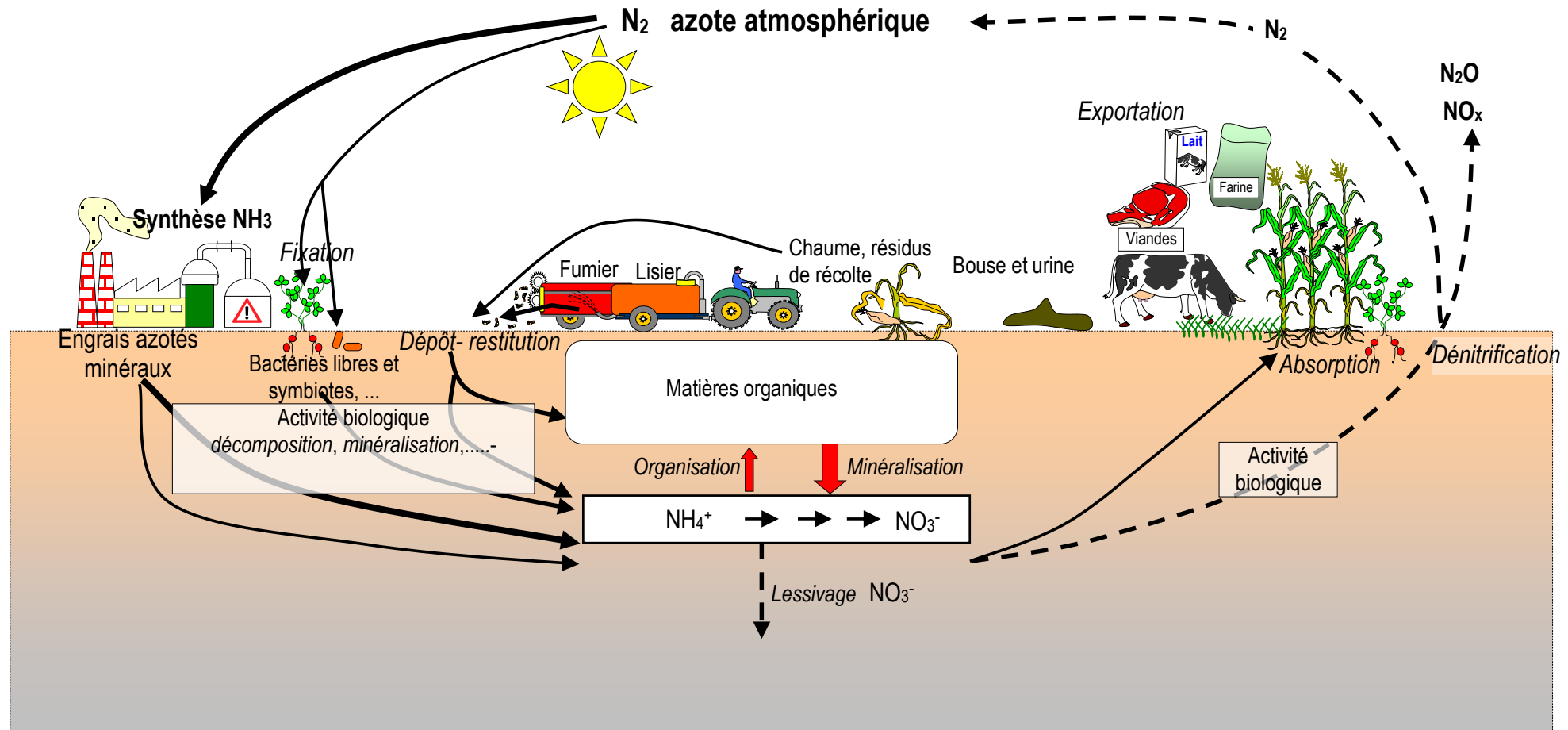
# Symbiophyt days

- What are the challenges of symbiotic fixation in terms of nitrogen introduction into agricultural systems and protein autonomy?

Bernadette Julier and Gaëtan Louarn – 27 mai 2021

# ➤ Nitrogen: a compulsory resource

## Nitrogen cycle



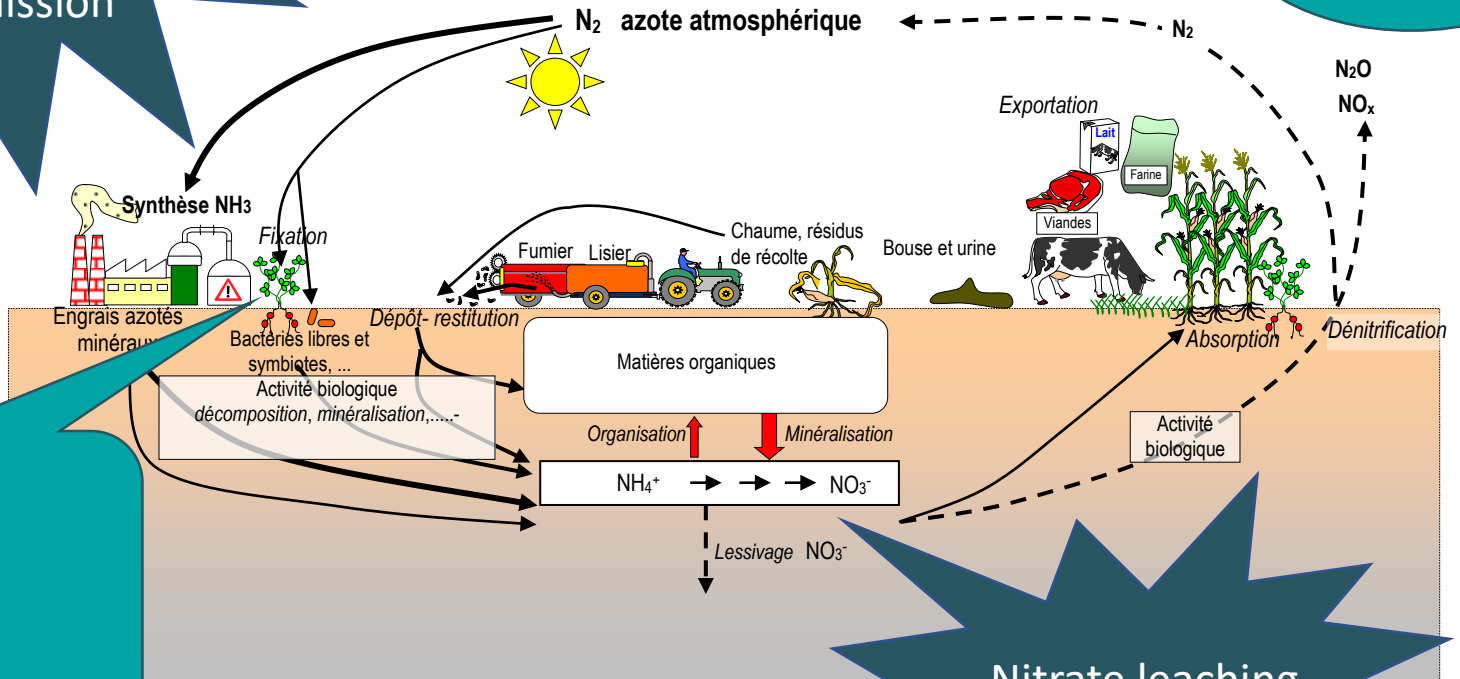
# ➤ Nitrogen: a compulsory resource

Chemical synthesis: energy cost and source of GHG emission

$N_2$ : Non limiting resource (78% atmosphere)  
Non reactive

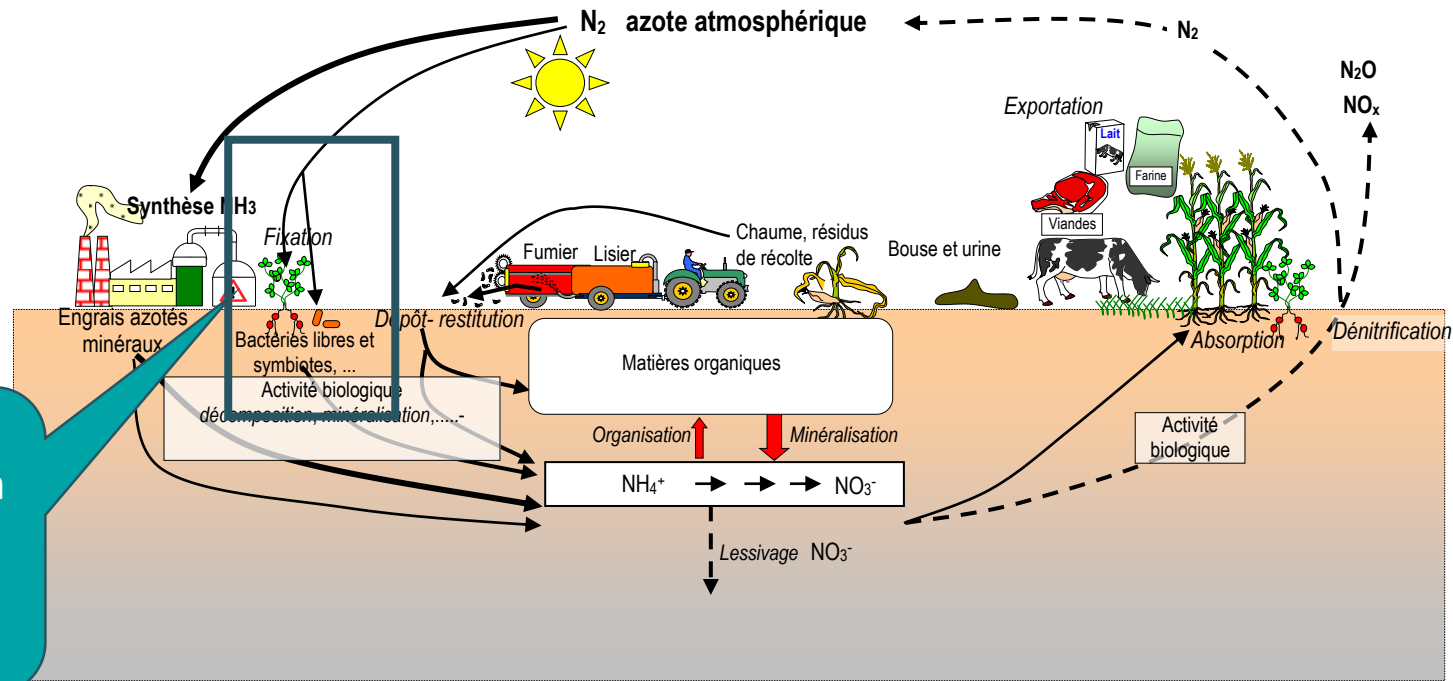
$N \equiv N$

Symbiosis



Nitrate leaching

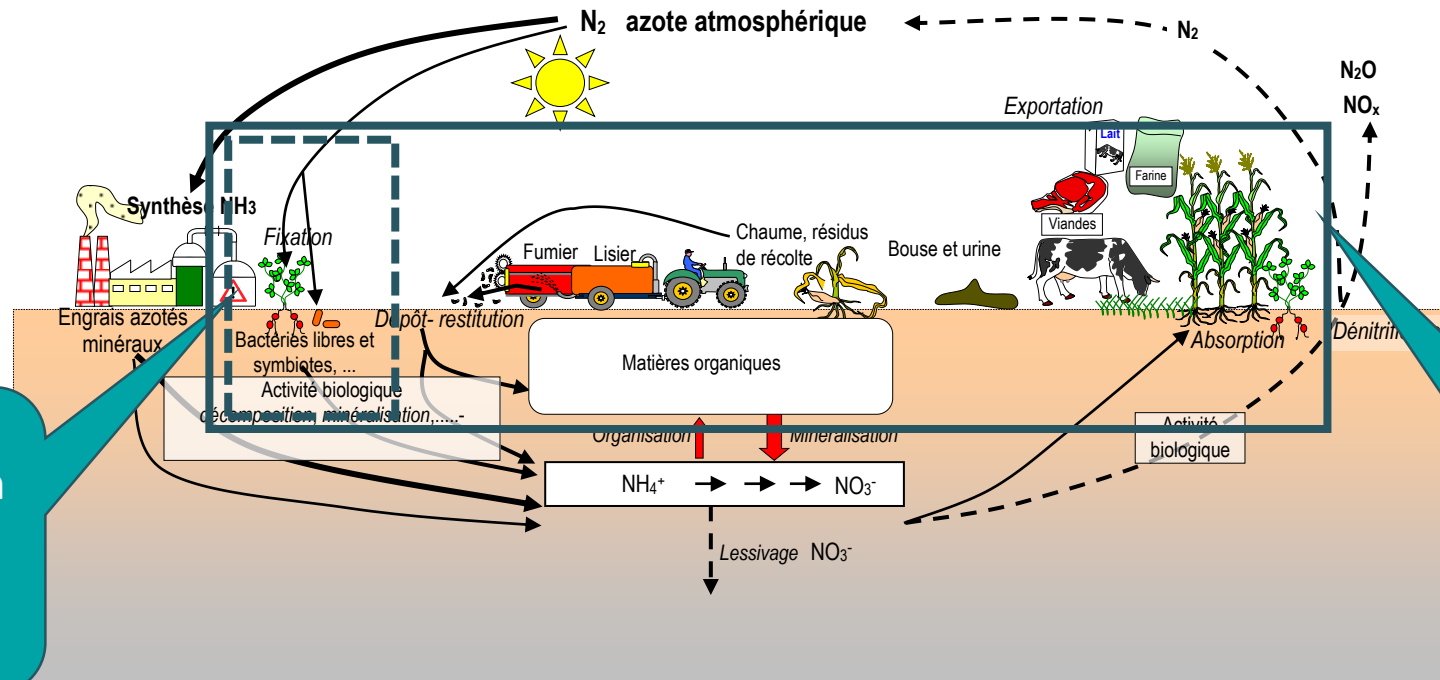
# ➤ Nitrogen: 3 levels of analysis



Plant-micro-organism level: physiology, genetics



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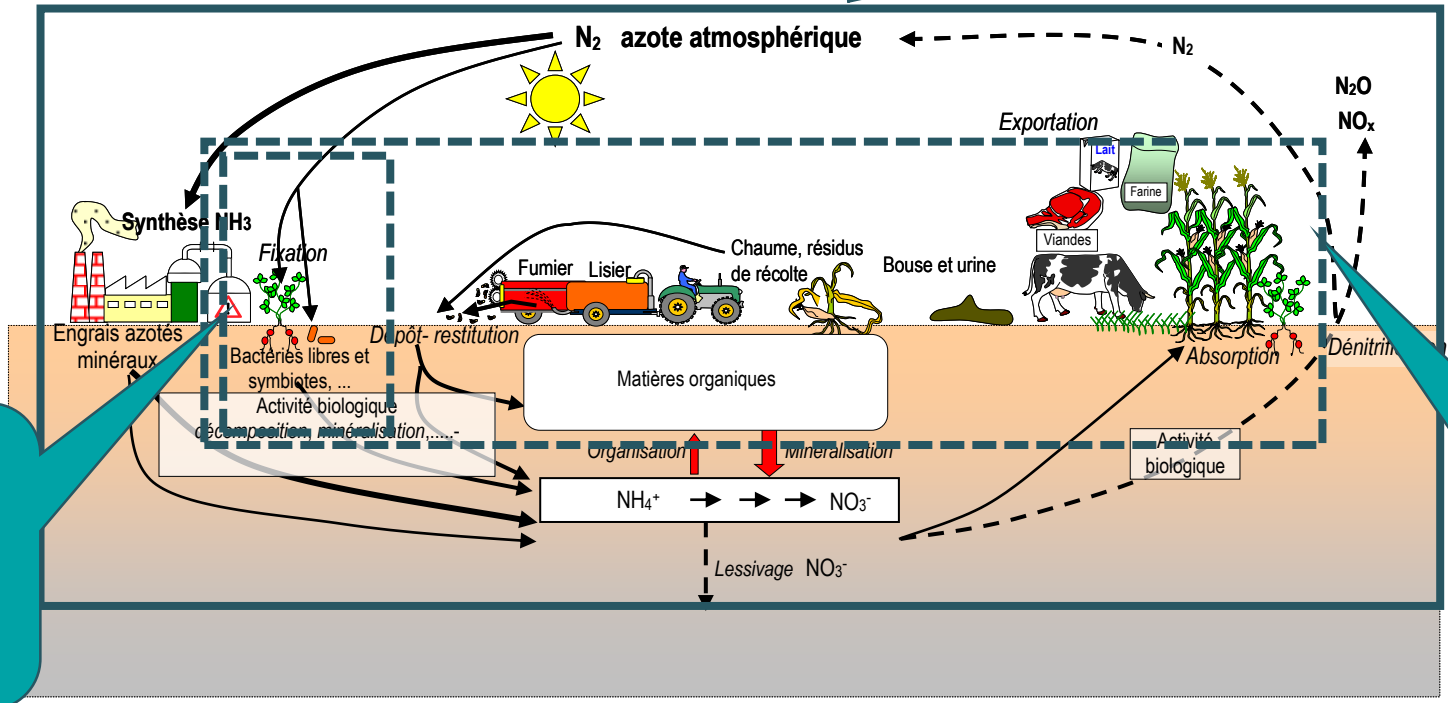
Plant-micro-organism level: physiology, genetics

Plot level: ecology and management, interaction at the time and space scales



# ➤ Nitrogen: 3 levels of analysis

Agro-ecosystems (farm and territory levels): production and other ecosystem services, socio-technical organisation



Plant-microorganism interaction: physiology, genetics

Plot level: ecology and management, interaction at the time and space scales



## ➤ Programme of the session

Analysis of the functioning at different scales

- Thomas Nesme (Bordeaux Sciences Agro, Gradignan)

Role of legume species in cropping systems to reconnect plant and animal productions at the farm or territory scales

- Gaëtan Louarn (URP3F, Lusignan)

Impact of legume species on nitrogen entry at the field scale

- Virginie Bourion (UMR Agroécologie, Dijon)

Genetic control of the interactions between legumes and favorable micro-organisms

- General discussion

