

# Engaging with Academia and Research Institutions (ARIs) to support Family Farmers and Food System Transformation During and Post COVID-19 Pandemic in Asia



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# When myths become fact: how misleading information can become a threat to food security

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# Agro-ecology

Forum for Food Sovereignty in Sélingué, Mali, 27<sup>th</sup> Feb 2007

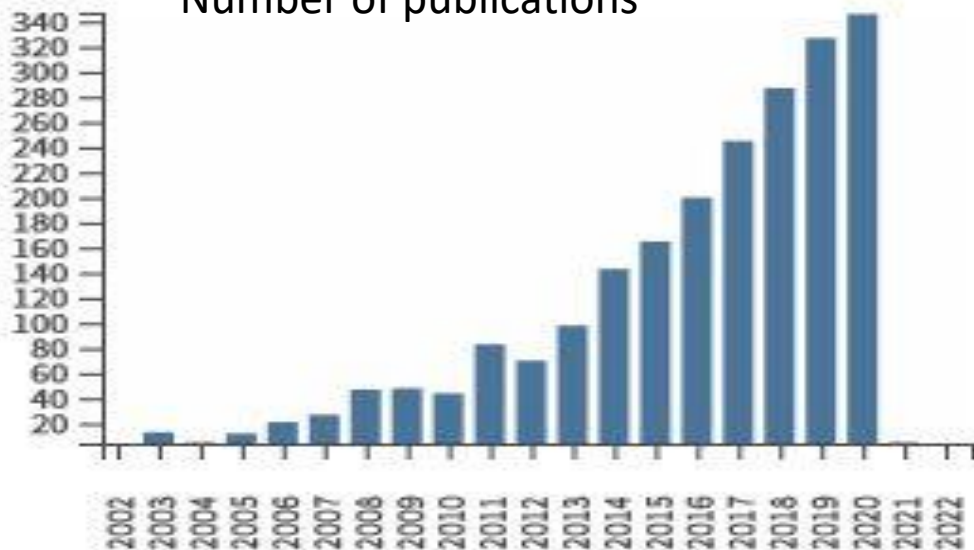
## => Declaration of Nyéléni

New 'push' for Agroecology with FAO meetings in 2015

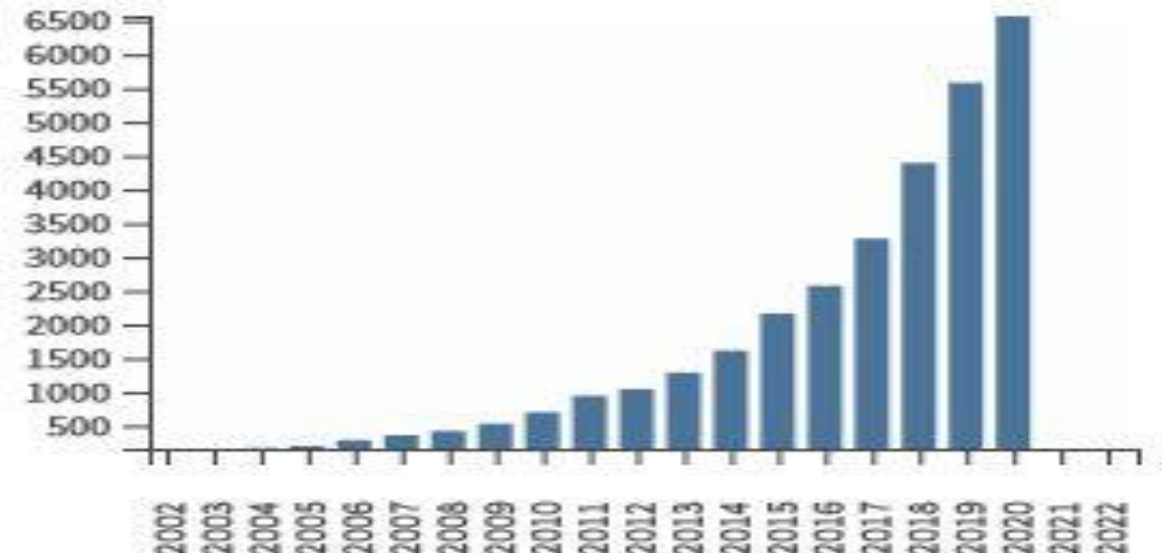
1. Latin America - Brasilia, Brazil in June
2. Africa - Dakar, Senegal in November
3. Asia-Pacific – Bangkok, Thailand in November



Number of publications



Number of citations



## Potential of agroecological practices

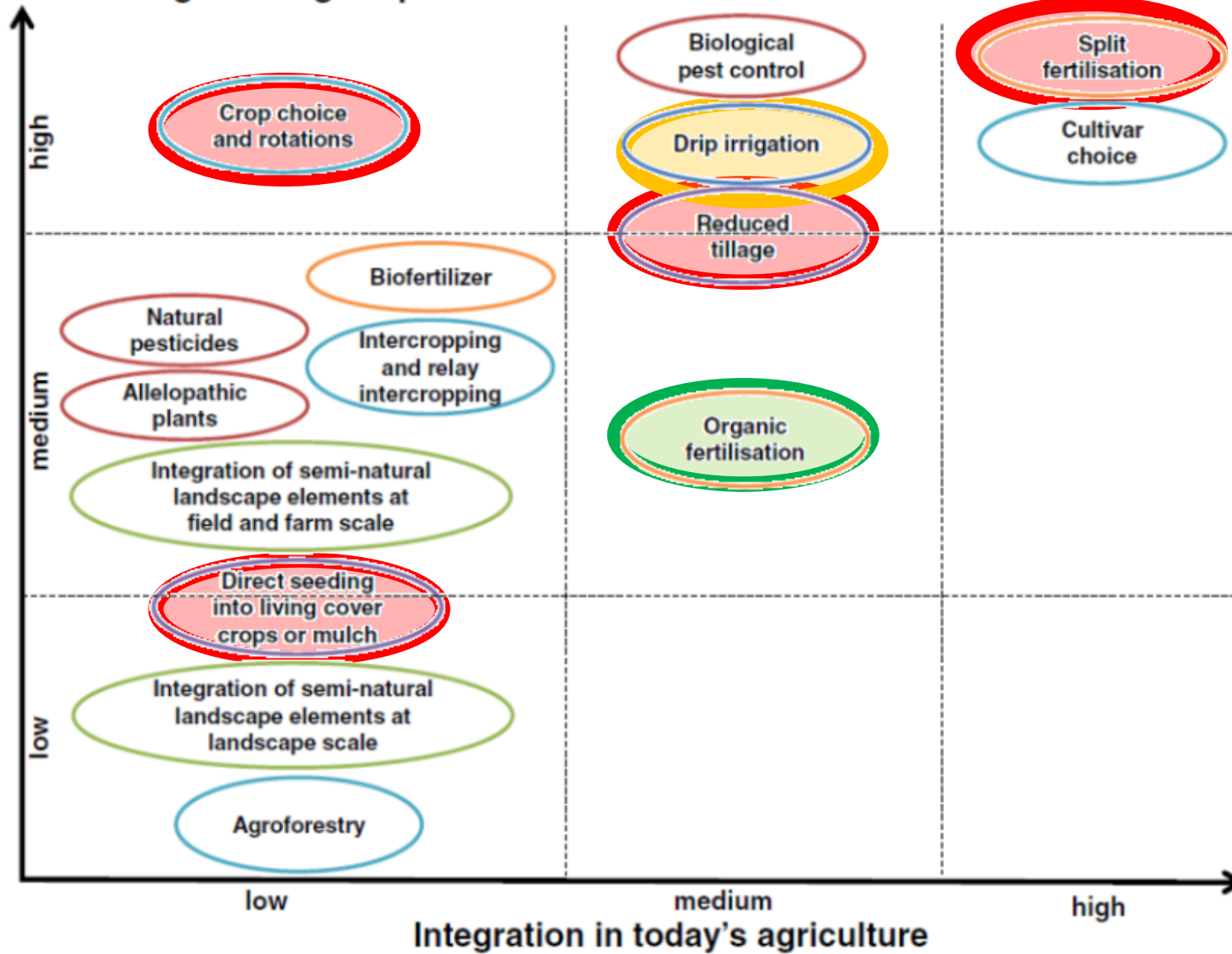
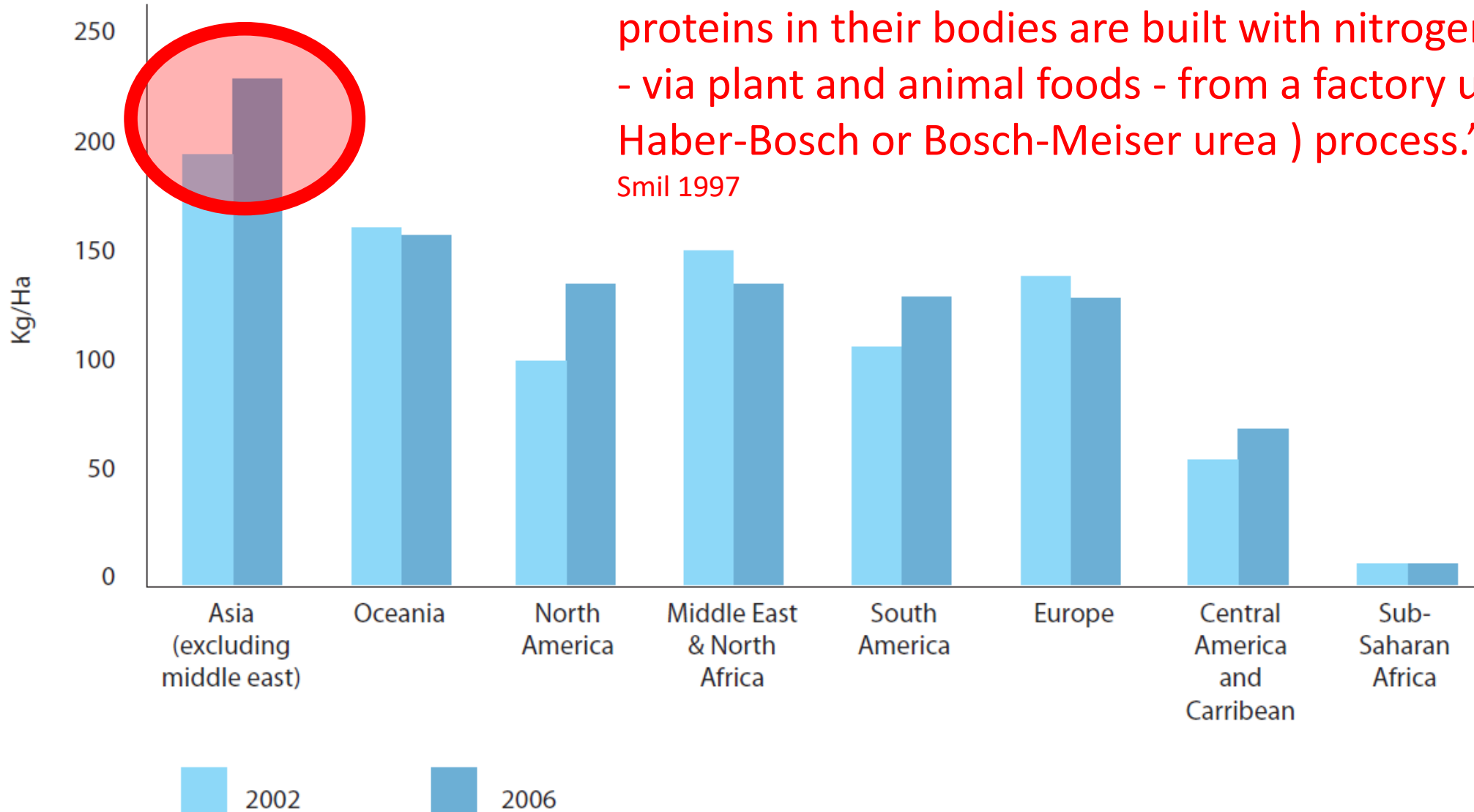


Figure 2.2: Potential for agroecological practice to be implemented within the next decade (Wezel, A et al. 2014).

# World Fertilizer use (Dettoh et al., 2012)

“Currently at least 2 billion people are alive because the proteins in their bodies are built with nitrogen that came - via plant and animal foods - from a factory using (the Haber-Bosch or Bosch-Meiser urea ) process.”

Smil 1997



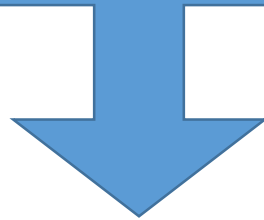
Source: Hernandez & Torero, 2011

# Cash and food crops – the agribusiness revolution



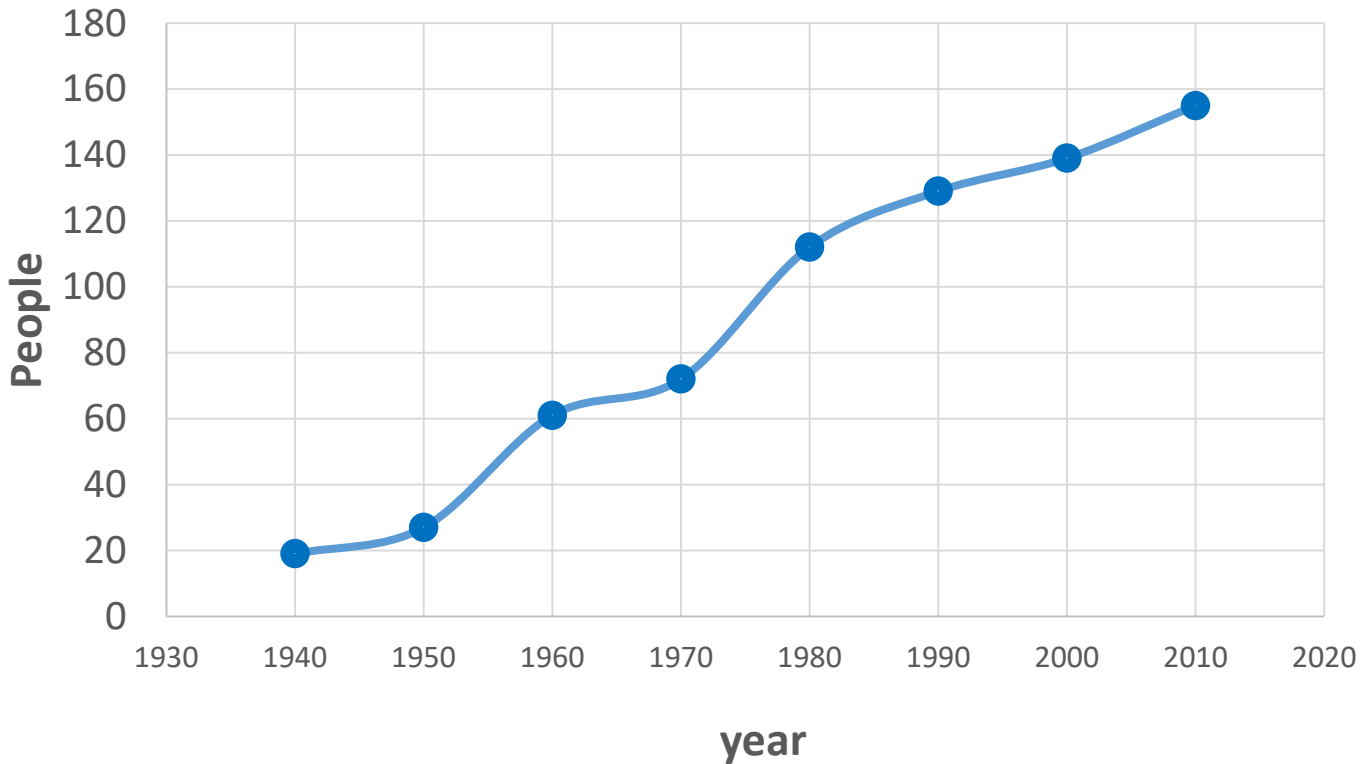
- Traditional subsistence agriculture:
  - grow food for own consumption (food crops)
  - sell surplus (cash crops)

With increasing emphasis on Agribusiness,  
Move towards Industrial type agriculture



- Industrial agriculture
  - all crops are cash crops, even the crops that are consumed (*eaten*)

People fed by one American farmer (USDA 2010)



- Mineral fertiliser
- Agrochemicals
- Improved genetics
- More efficient water use

2014 (globally):

- 43.7 million ha mainstream organic (1%)
- 2.3 million farmers (0.4%)
- These small values lead to remarkable growth rates!

# Organic Farming

No use of agro-chemicals:

- pesticides, fertilizers, herbicides, growth hormones

*More:*

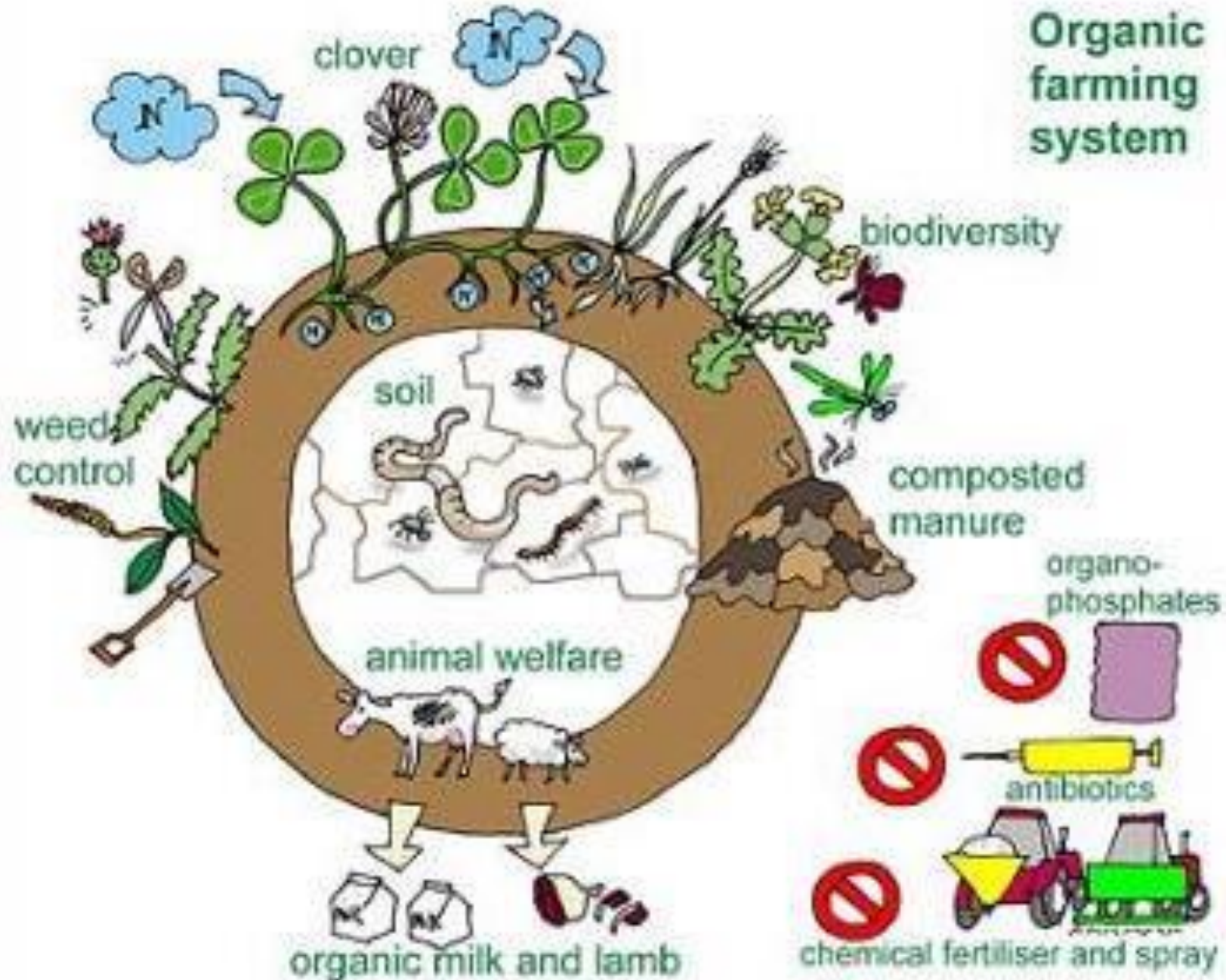
- Uses ecological processes, like crop rotation

*More:*

- Promote fair relationships and animal welfare

*More:*

- Organic certification, biodiversity





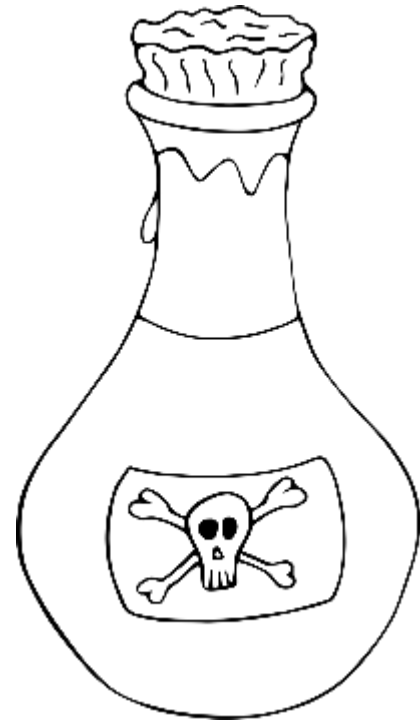
# Common knowledge about

artificial  
chemical  
synthetic

# fertiliser:

## *Quotes from farmers:*

- The food is unhealthy, tastes bad.
- If you use chemical fertiliser, our women will become infertile (Ethiopia)
- It poisons the ground and makes it sour (PNG)
- It is the *Suanggi* (West Papua)
- Biological transmutation ( $\text{Ca} + e^- = \text{K}$ )
- Microbes will make nutrients



# Where do these *powerful* messages come from?

- non-reviewed internet sites => accessible everywhere!
- NGOs who lack technical expertise => who are the volunteers?
- Predatory free-online journals, pay to publish and the push to publish!
- *extremists* 😊 where faith is more important than fact!
- EU, in particular Germany?
  - What is the real reason why organic farming is promoted and so successful in the EU?
  - Waste management!

# Yield and food production issues

UK:

Organic farmers themselves can only generate  $\frac{1}{2}$  the N they need!

Sewage:

Can recover 85% P and 15% N => but not allowed!

Country of 60 million can generate 35,000 t P

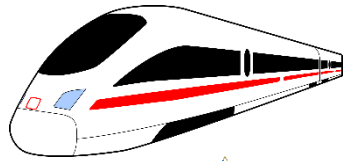
*Don't underestimate the benefit to soil structure which will also impact on yield!*

2.3 dairy cows, if kept indoors for 6 months, can produce the required 35 t manure to maintain high yields

If all wheat in the UK grown on 2 million ha, need 70 million t of manure

=> Twice the manure is needed than produced!

# Nutrient accumulators and emitters (*resource relocation*)



Developed Countries



Developing Countries



Urban areas



Rural regions



## Organic waste recycling/reuse

- Plant material
- Animal Waste
- Human Waste



Mineral fertiliser  
supported organic farming