Breakout session

Enhancing the role of soils in future nutrient supply

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EJP SOIL
European Joint Programme

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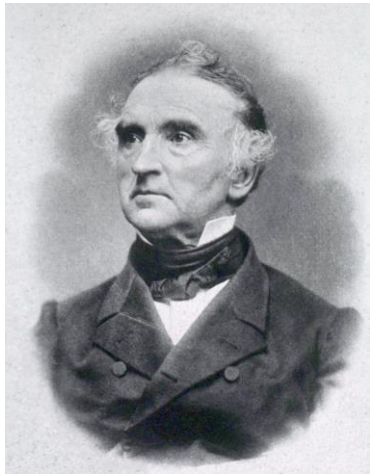
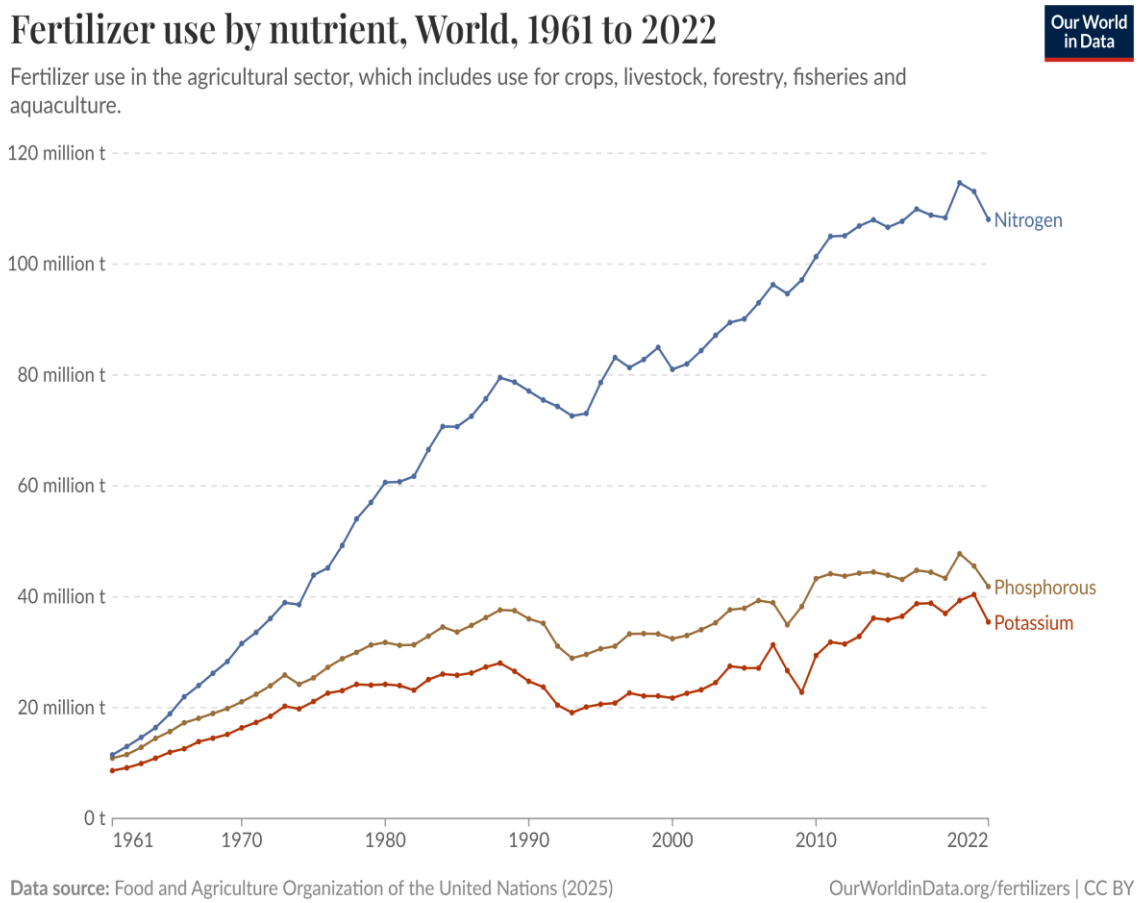
Program

1. Introductory presentation
2. Discussion in groups
3. Plenary recap

History fertilization in agriculture





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Nutrient supply in relation to societal challenges

GHG emissions

Healthy food

Human health

Finite resources

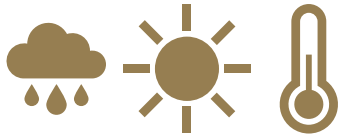
Biodiversity

Water pollution

Optimization needed

Farm

Farmer

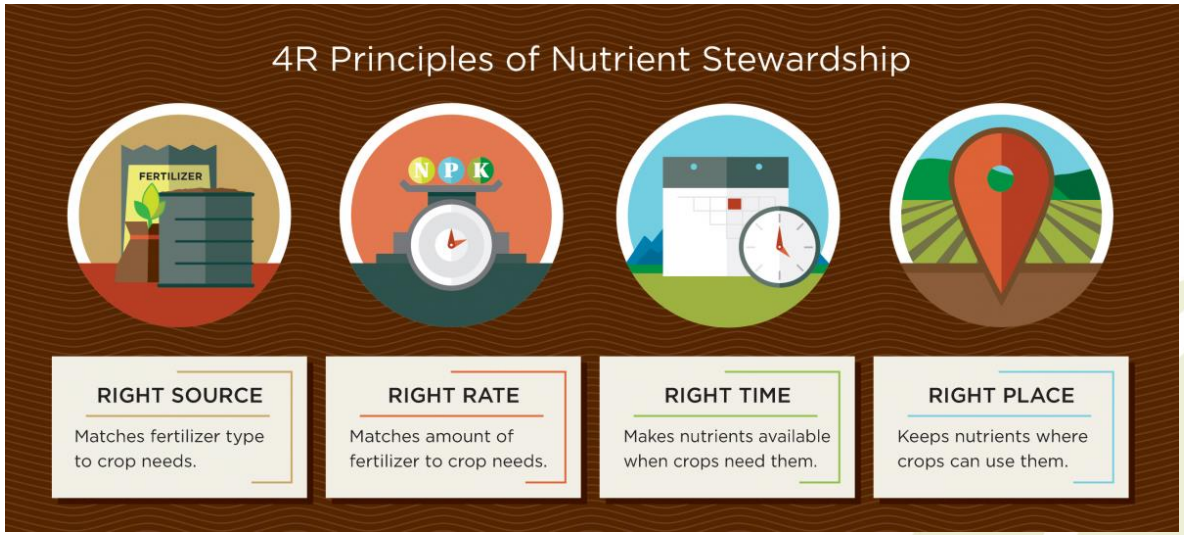


Climate

Water

Soil

Crop



→ What are important research questions?

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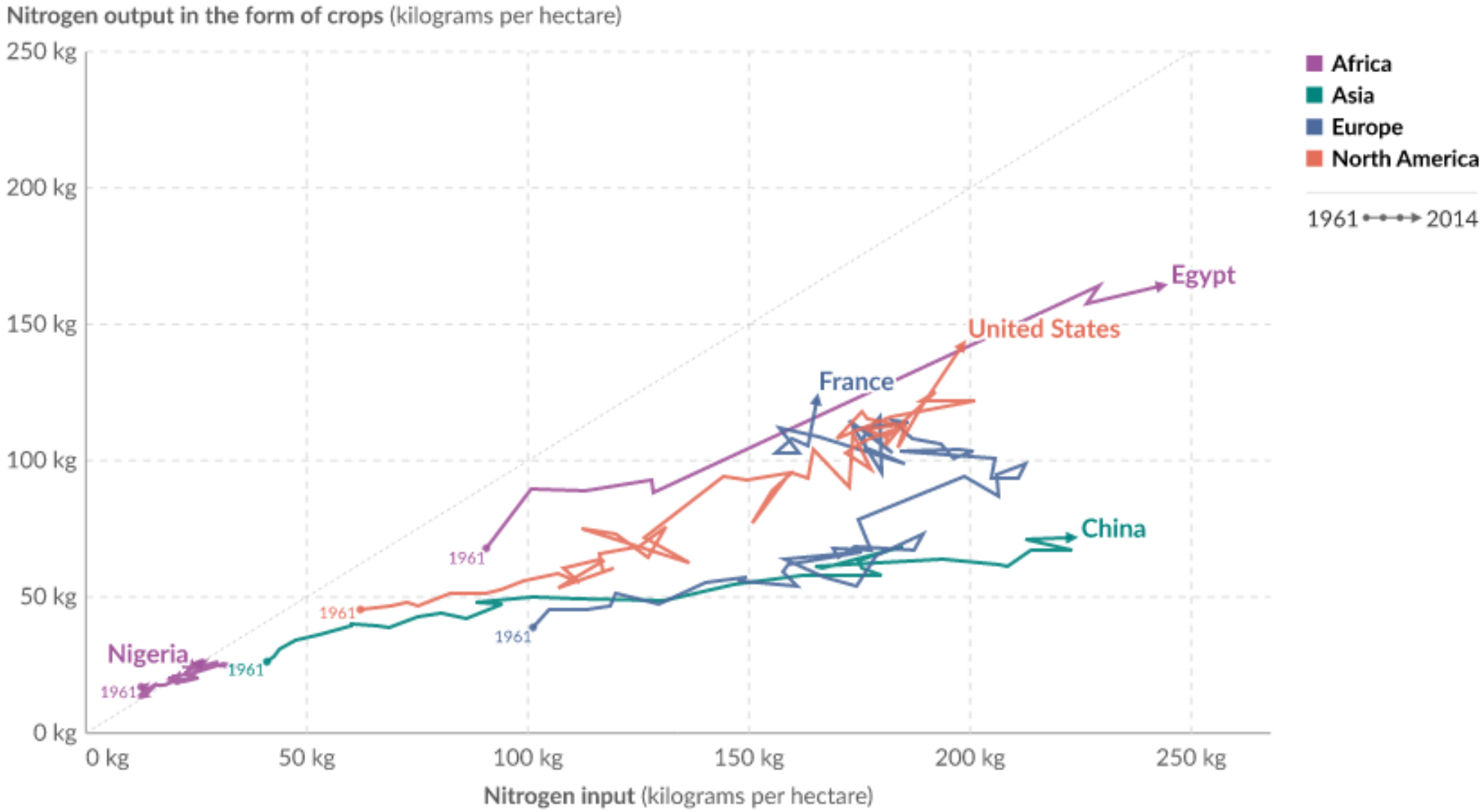
Nitrogen output vs. nitrogen input to agriculture

Our World in Data



Data source: Lassaletta, Billen, Grizzetti, Anglade & Garnier (2014). 50 year trends in nitrogen use efficiency of world cropping systems: the relationship between yield and nitrogen input to cropland. Environmental Research Letters.

OurWorldinData.org/fertilizers | CC BY

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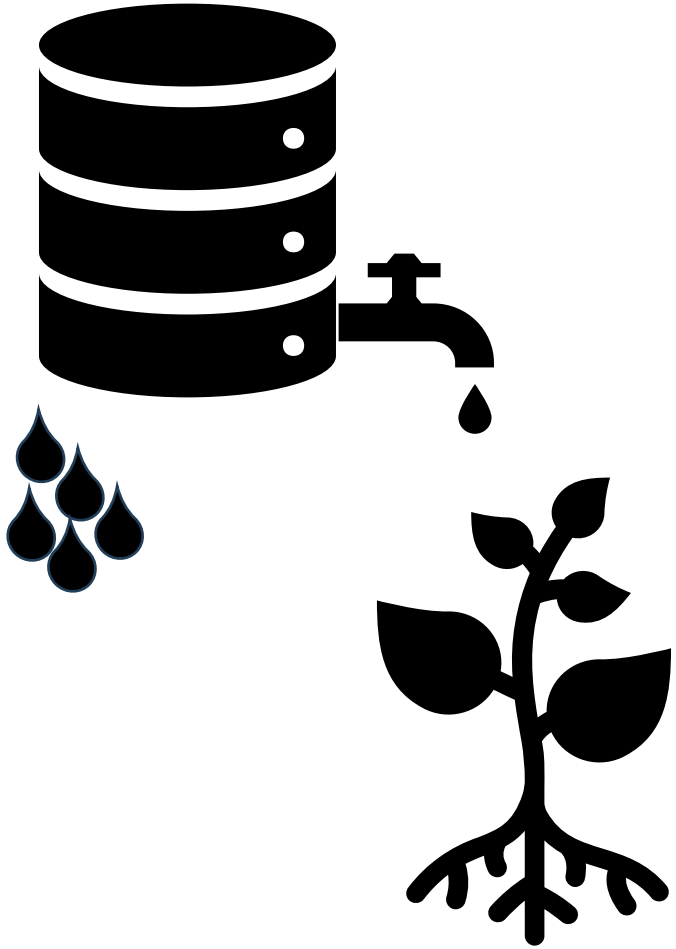
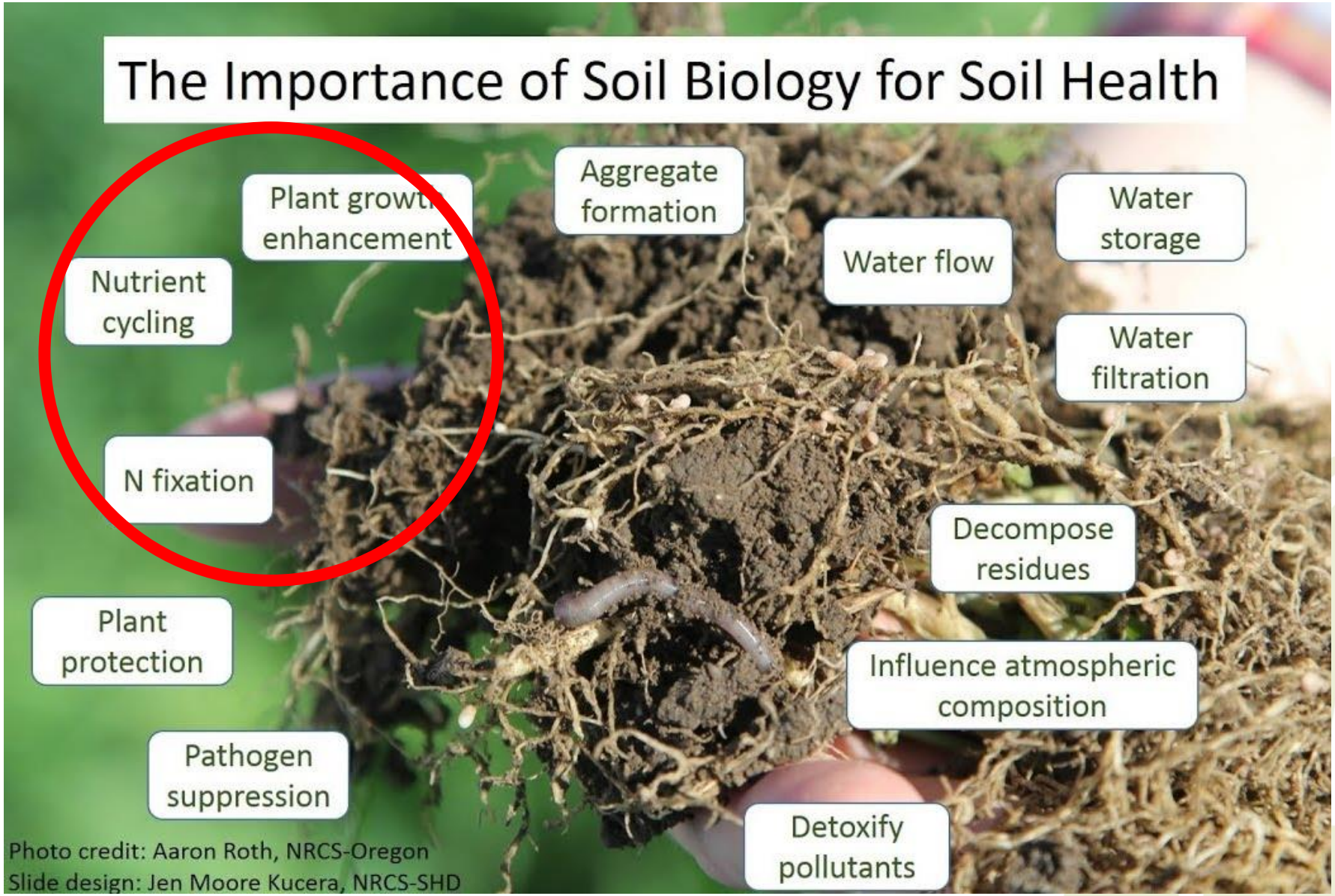
Role of soil in nutrient supply



How to improve nutrient supply

1. Role of soil biology in storage and delivery of nutrients
2. Role of organic fertilizers in closing nutrient cycles and improving nutrient availability
3. Role of soil sensing and precision farming techniques in improving nutrient efficiency
4. Role of water management in improving nutrient efficiency
5. Role of other agronomic options in improving nutrient efficiency

1. Role of soil biology in storage and delivery of nutrients



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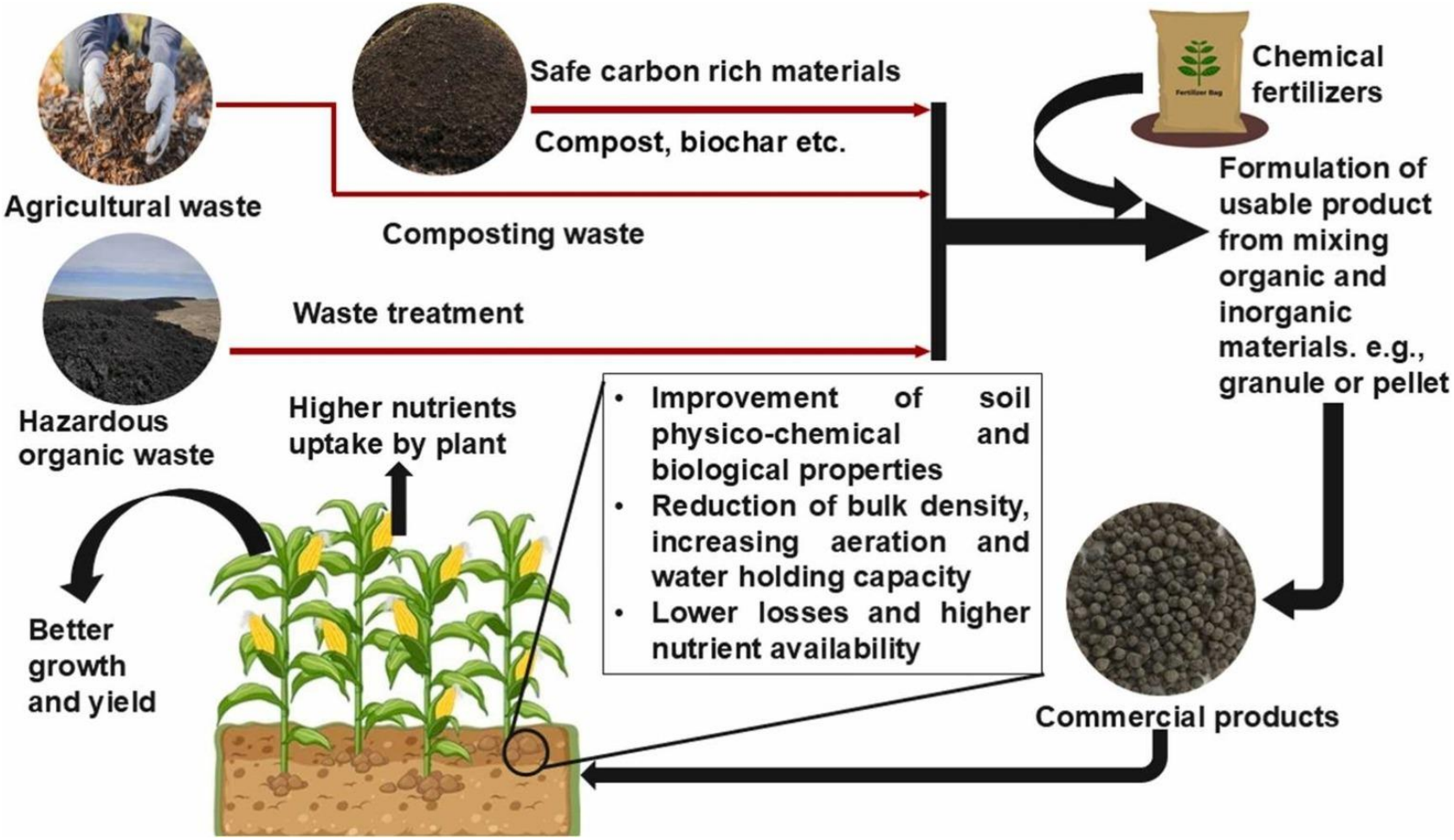
2. Role of organic fertilizers in closing nutrient cycles and improving nutrient availability



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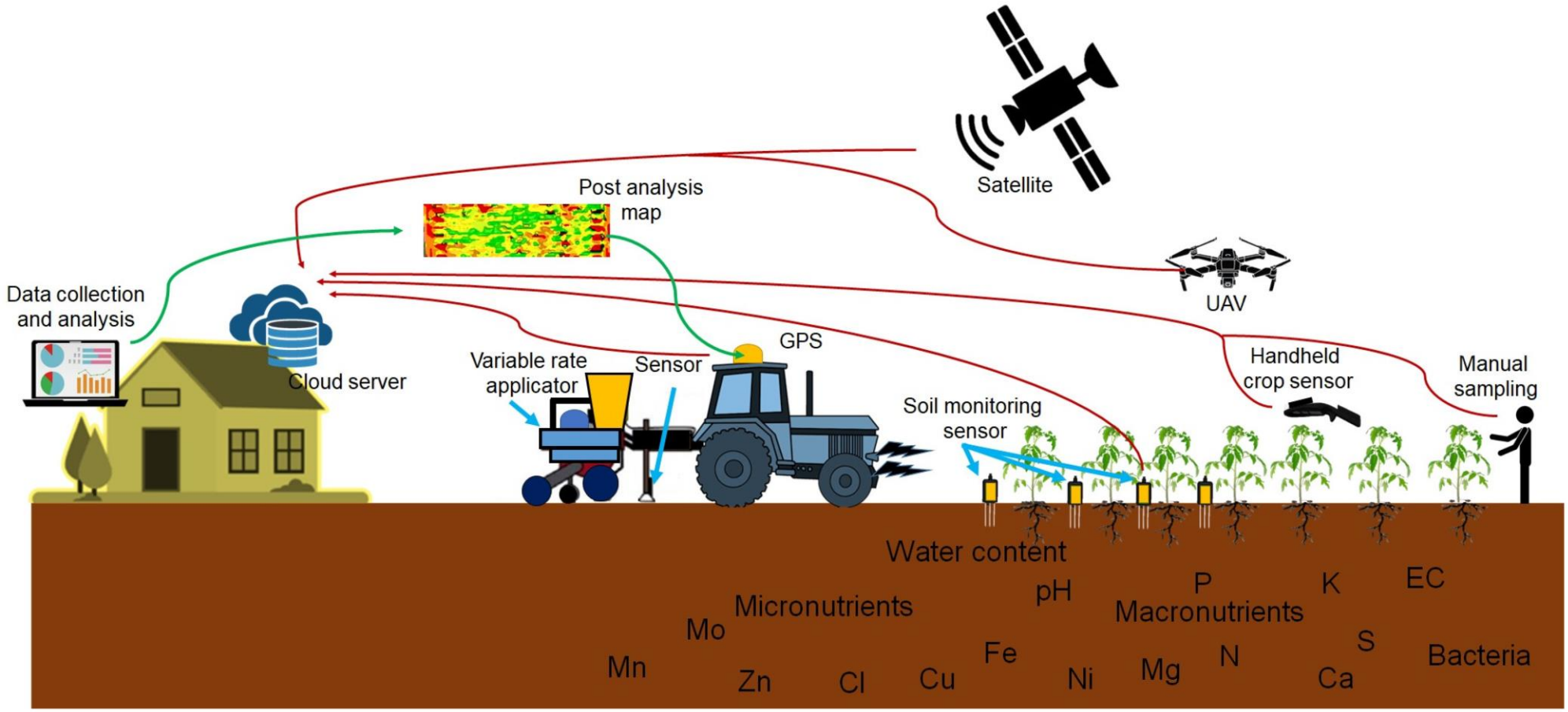
3. Role of organic fertilizers in closing nutrient cycles and improving nutrient availability



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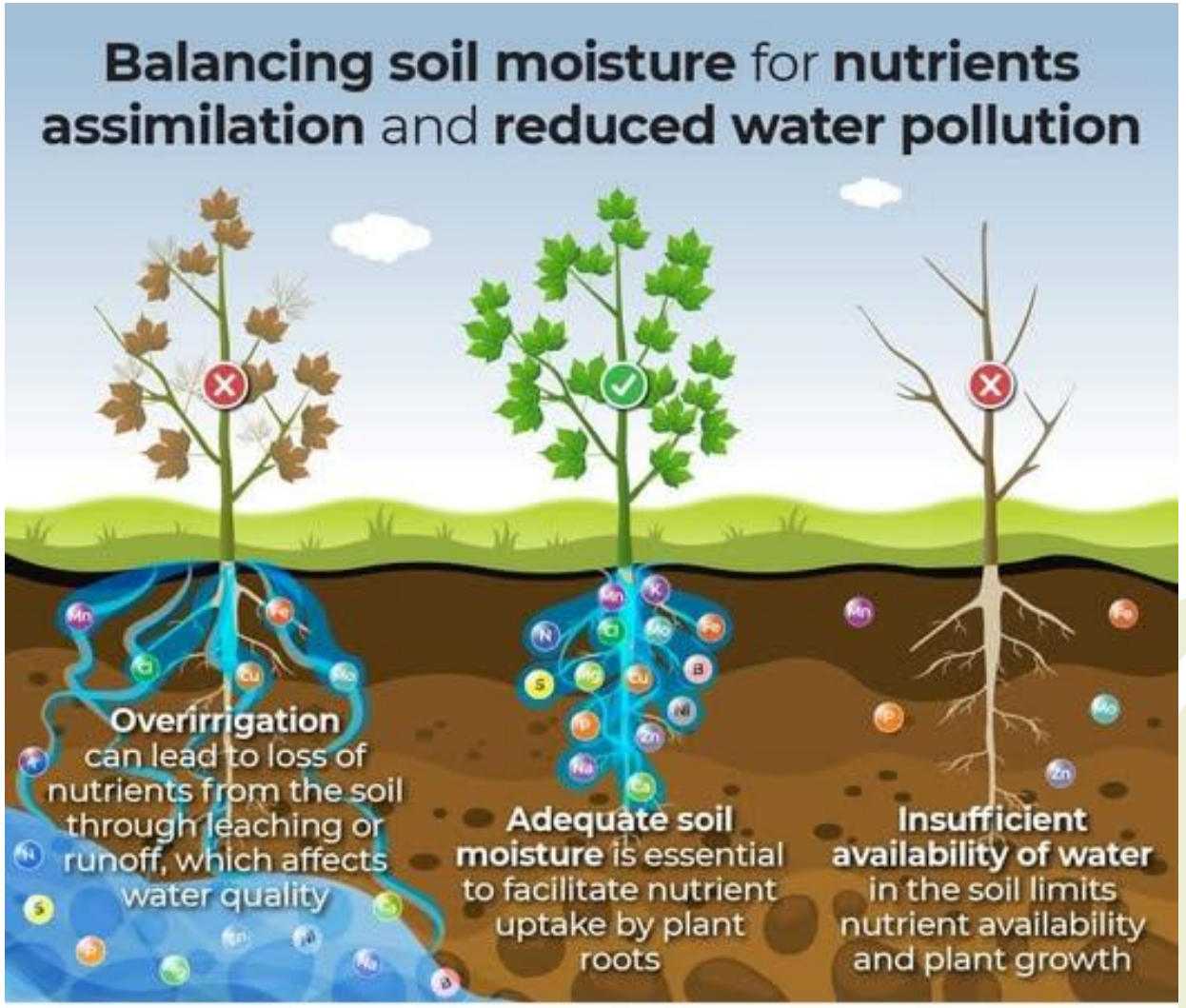
4. Role of water management in improving nutrient efficiency



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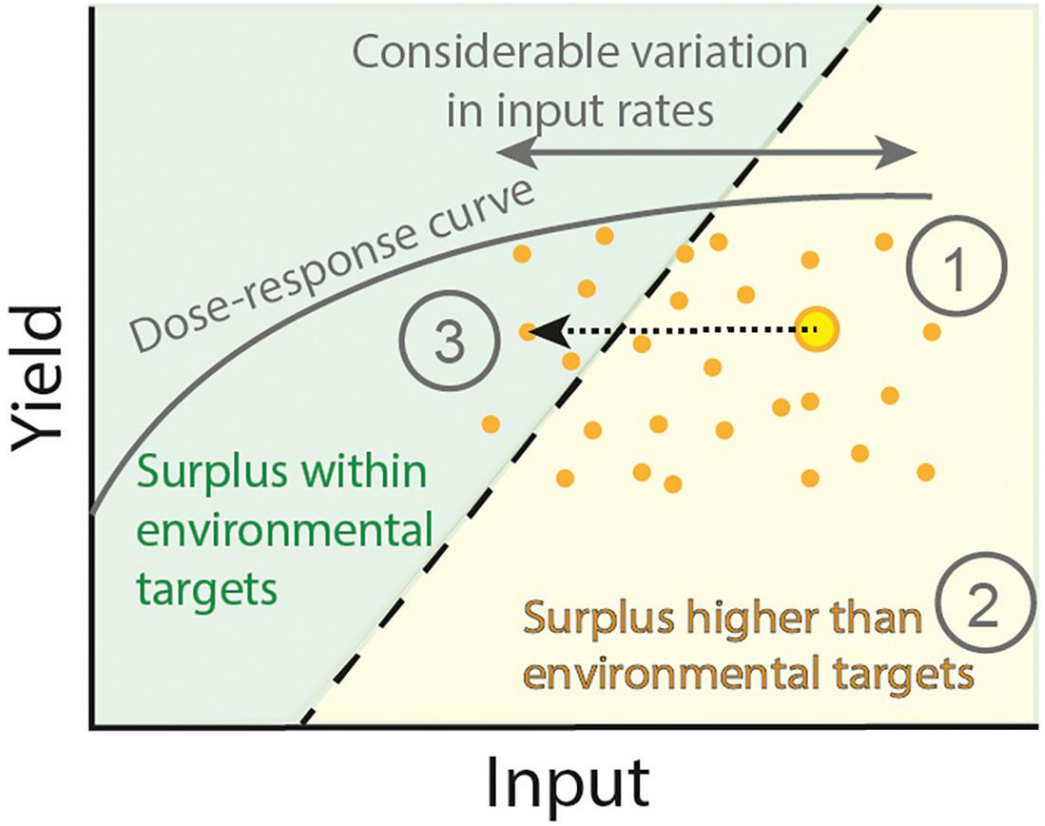
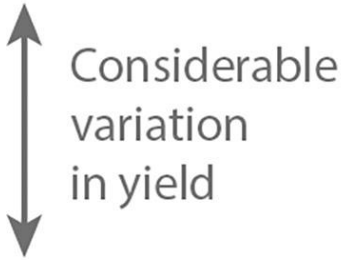
5. Role of other agronomic options in improving nutrient efficiency





Conclusions

(1) Currently, no relation between inputs and yield

(2) Surplus higher than environmental targets

(3) Scope to reduce inputs and environmental impact, without compromising yield

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Ravensbergen et al. 2024

Discussion groups

Topics

1. Role of soil biology in storage and delivery of nutrients (Anke)
2. Role of organic fertilizers in closing nutrient cycles and improving nutrient availability (Amanda)
3. Role of soil sensing and precision farming techniques in improving nutrient efficiency (Saskia)
4. Role of water management in improving nutrient efficiency (Janjo)
5. Role of other agronomic options in improving nutrient efficiency (Susanne)

Assignment

1. Get to know each other (5 min)
2. List the knowledge demands on the topic on flip chart (20 min)
3. Select the two most important knowledge demands and discuss them in more detail, summarize discussion on flip chart (20 min)
4. Pitch these two knowledge demands short in the plenary recap (2 min)