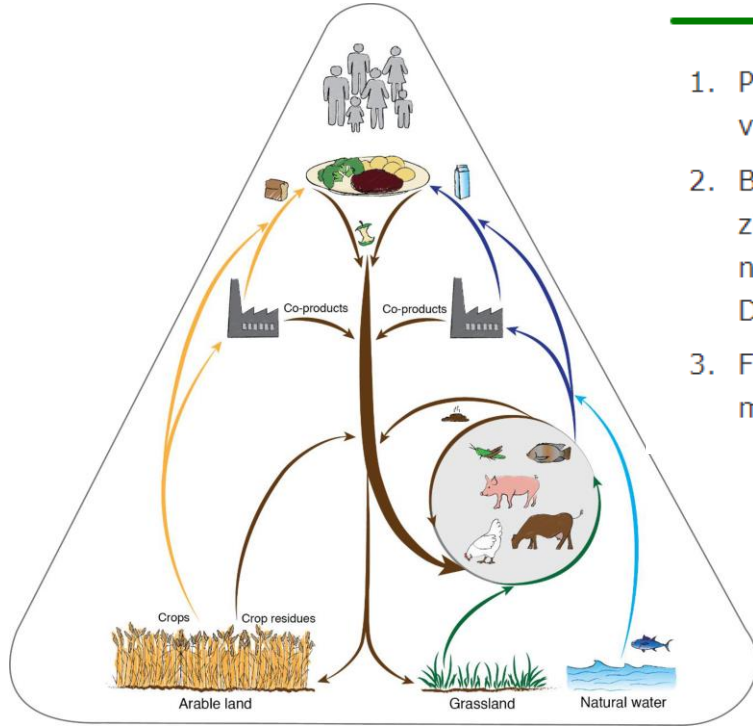


# Olifantenpoep in Amsterdam

Lezing voor Bodemkundige Vereniging, 22 januari 2021



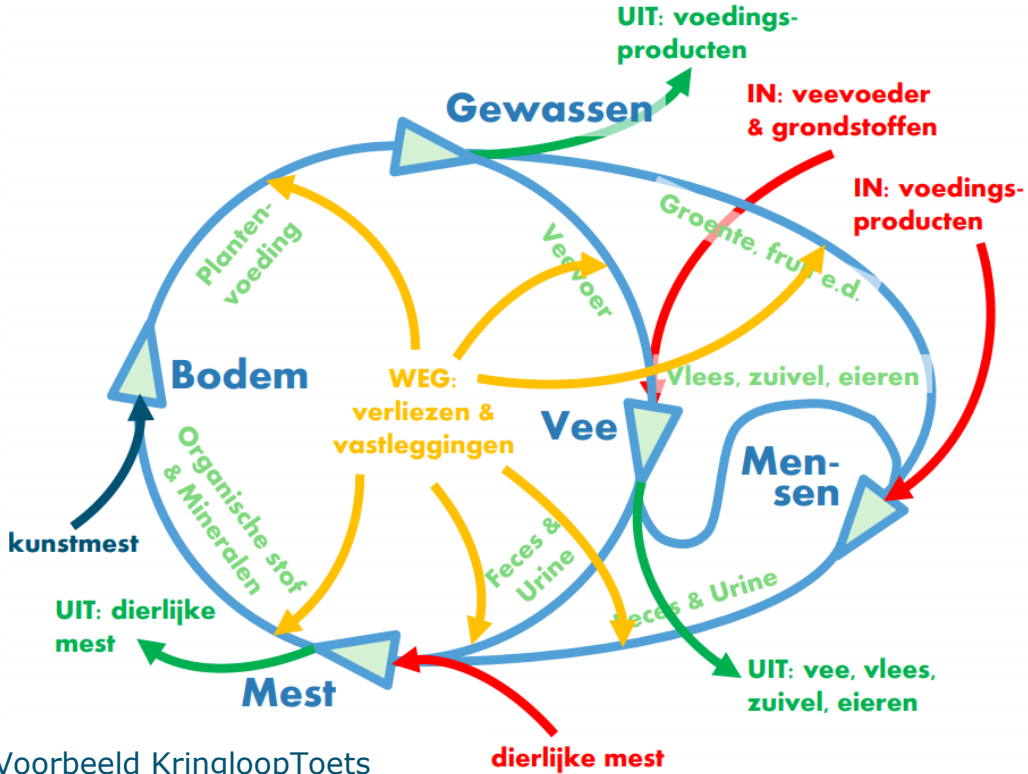
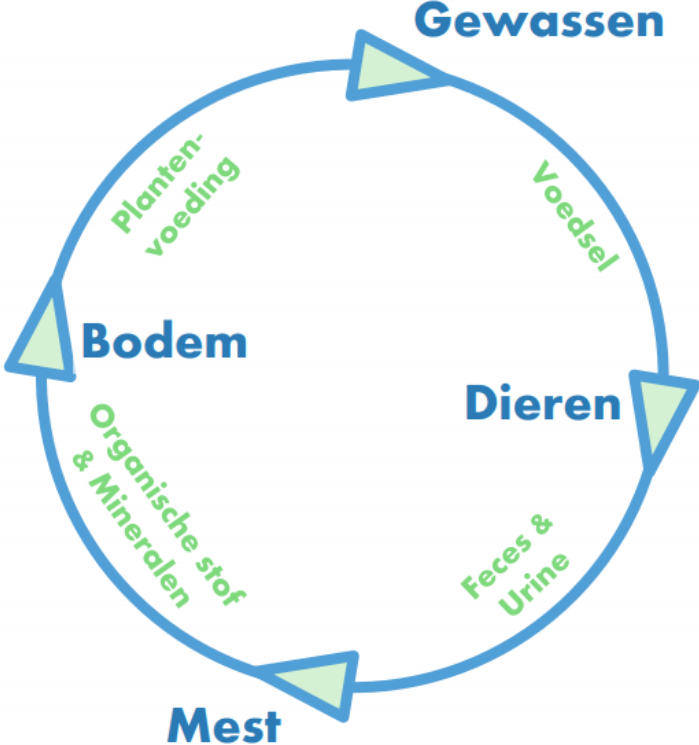
# Circulariteit?



## In een circulaire bio-economie staan drie principes centraal:

1. Plantaardige biomassa uit land en water is de basis van ons circulaire voedselsysteem.
2. Bijproducten van plantaardige biomassa, zogenaamde reststromen, moet je zien te voorkomen. Als ze onvermijdelijk zijn moeten ze worden teruggevoerd naar de bio-economie, met een gezonde bodem als eerste prioriteit. Daarnaast als basismateriaal voor biomaterialen of als veevoer.
3. Functie en rol van het dier is om biomassa die niet geschikt is voor directe menselijke consumptie, terug te brengen in het voedselsysteem.

# Circulariteit?

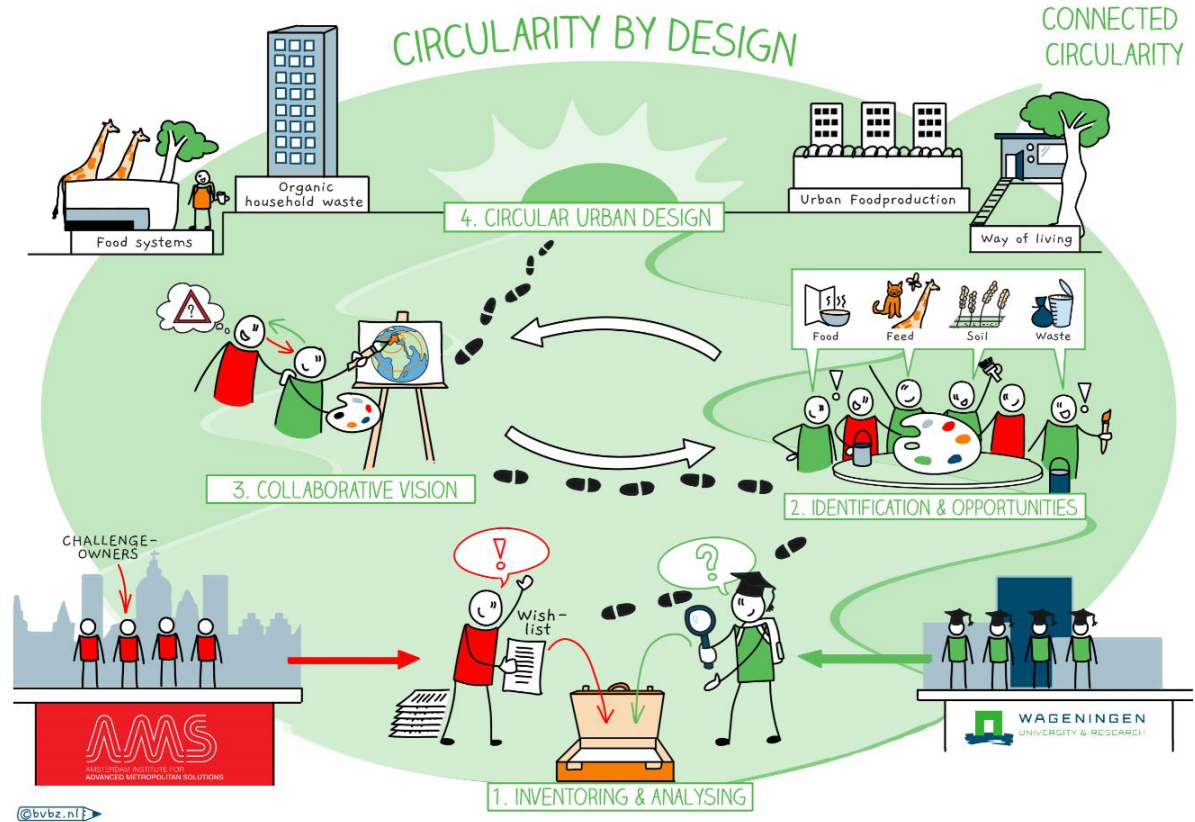


Voorbeeld KringloopToets (WUR Livestock Research)

# Circularity by design project

Demonstreren van de 'haalbaarheid' van **"Circularity by design"** binnen de context van de metropoolregio Amsterdam

"to create designs for urban circular agri-food systems"



# In de stad?

**AMS**  
AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS

**ARTIS**  
AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS (AMS Institute)

Memorandum of Understanding  
Between  
AMS Institute  
and  
The Memorandum of Understanding (MOU) sets out the terms and conditions between AMS Institute and ARTIS to explore opportunities for collaboration in education and innovation activities, projects and other cooperative activities in the field of metropolitan solutions.

**THE UNDERSTANDING:**

- AMS Institute and ARTIS are referred to jointly as "parties", or each as "party".

**WHEREAS:**

The world is witnessing a transition rate. Cities increasingly face challenges of sustainability and quality of life, challenges that put our resources, food security, mobility and health, under and under management, health and wellbeing at risk. Cities need metropolitan solutions, made possible by innovations in technology, research and design methods, to address these challenges. Finding metropolitan solutions requires collaboration between metropolitan institutions, companies, cities and citizens.

AMS Institute is an internationally leading institution where talent is educated and employed, designed, and built around and social economy, smart design and urban design solutions. ARTIS is an internationally leading institution where talent is educated and employed, designed, and built around and social economy, smart design and urban design solutions.



**AMS**  
AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS

Circular Organic household waste in high-rise buildings

Develop a circular collection & valorization system:

Organic waste  
Black Water  
Grey Water

**AMS**  
AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS

Collaboration Agreement  
Between  
AMS Institute for Advanced Metropolitan Solutions ("AMS Institute")  
and  
Rijkswater Ombudsing ("RWO")

AMS Institute for Advanced Metropolitan Solutions, a foundation under Dutch law (AMS Institute) with its corporate seat in Amsterdam, with its registered address at (1018 CA) Amsterdam, Postbusnummer 7, Chamber of Commerce Business Registration Number 63340022 ("AMS Institute"), and  
Rijkswater Ombudsing, a foundation established under Dutch law (RWO), as well as its corporate seat in Amsterdam, with its registered address at (1018 CA) Amsterdam, Postbusnummer 7, Chamber of Commerce Business Registration Number 20899956 ("RWO").

AMS and RWO are referred to jointly as "parties", or each as "party".

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## The city challenges

**AMS**  
AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS

**Urban Tree Village**  
AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS (AMS Institute)

Memorandum of Understanding  
Between  
AMS Institute for Advanced Metropolitan Solutions ("AMS Institute")  
and  
The Urban Tree Village ("UTV")

AMS Institute and UTV are referred to jointly as "parties", or each as "party".

**THE UNDERSTANDING:**

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**WHEREAS:**

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**AMS**  
AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS

Community with a circular and inclusive way of living  
*'The Urban Tree Village living lab'*

**AMS**  
AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS

Redesign the food production-to-consumption system  
*'Green Tower'*

Food production → Food preparation → Food Consumption

Resources → Waste

**Circularity in Urban Regions**

**AMS**  
AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS

Memorandum of Understanding  
Between  
AMS Institute for Advanced Metropolitan Solutions ("AMS Institute")  
and  
Creative City of Amsterdam ("CCA")

AMS Institute and CCA are referred to jointly as "parties", or each as "party".

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# Bodem binnen circulariteit

## **Wat is er eigenlijk beschikbaar & nodig?**

- 'output' vanuit de stad: DATA-verzameling
  - o.a. 160 kton (nat) groenten-fruitafval (160ton fosfaat) / 1.2 kton fosfaat uit urine/faeces
- Hoe ver kijk je om Amsterdam heen voor collectie & toepassinggebieden: schaalvraagstuk

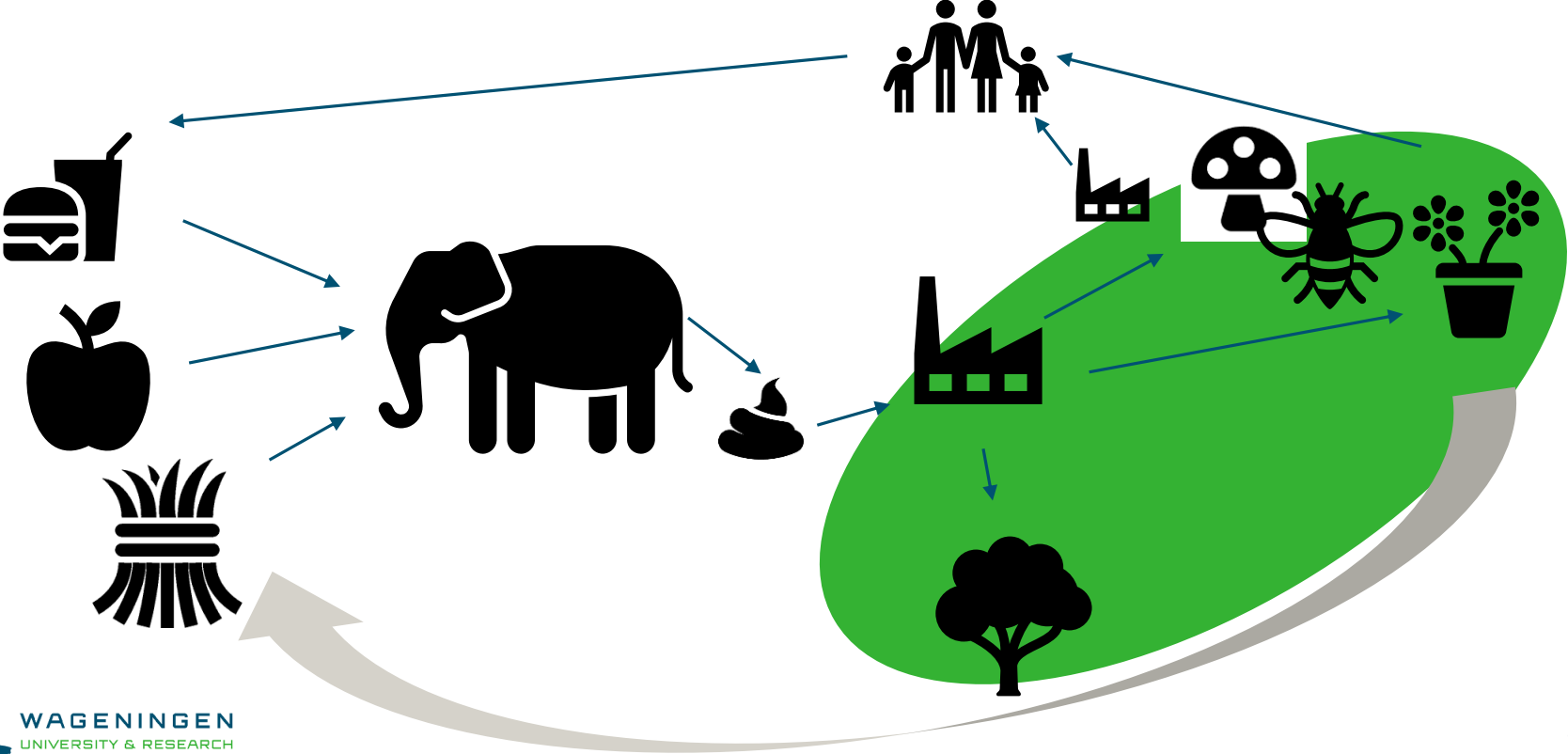
## **Wat zijn interessante verwerkingstechnologieën voor het herwinnen van nutriënten (nuttig voor bodemverbetering / kringloopsluiting)?**

- Black water / urine separation / new sanitation incl. technieken om slimme technologie in hoog- en nieuwbouw toe te passen

## **Verbinden aan de city challenges in 2021-2022:**

- Olifantenpoep & hergebruik
- Kader om 'fertilisation value' te evalueren van verwerkte/bewerkte bio-waste (secundaire) grondstoffen

# Olifantenpoep in Amsterdam






# Ontwerpprincipes voor circulariteit

- Niet alleen circulaire economie, maar ook maatschappij
- Van dichten naar lekken naar een 'waterdicht'-systeem vanaf het begin
- Gebruik maken van krachtige kantel-punten (leverage)
- Breed kijken over de verschillende bestemmingsmogelijkheden
- Houdt zicht op relaties met andere ketens, stakeholders en schaalniveaus (afschuiven/barrieres elders)
- Urbane omgeving is echt anders dan nationaal of wereldschaal

# Bedankt

Contact:

[Hilke.bos-brouwers@wur.nl](mailto:Hilke.bos-brouwers@wur.nl)



To explore  
the potential  
of nature to  
improve the  
quality of life