

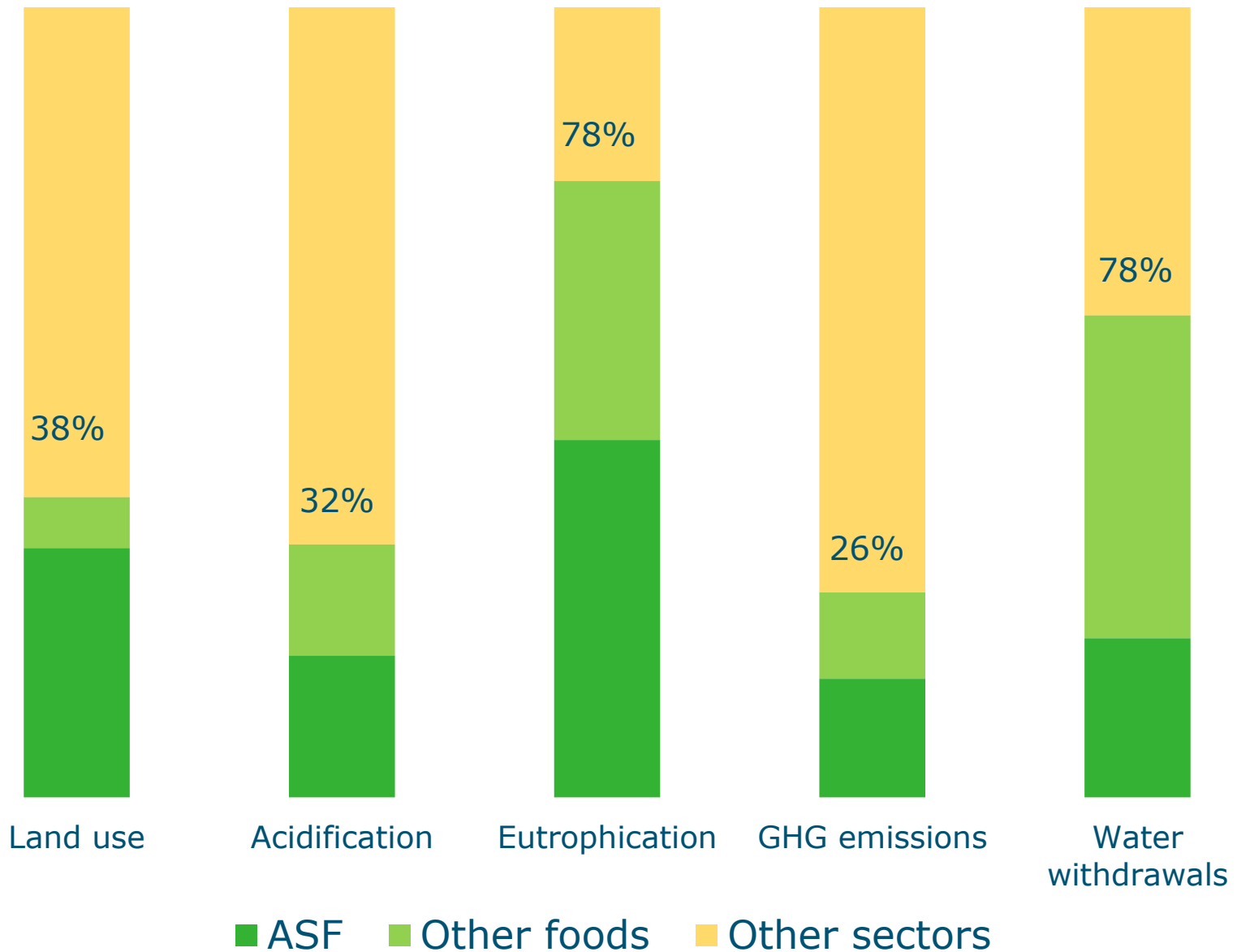
Understanding and implementing circularity – opportunities and challenges

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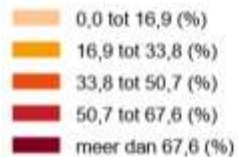
Impact of global food system



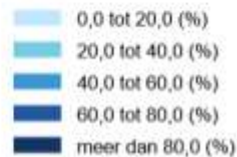
Agricultural land use NLs 2018 (Statline, CBS)



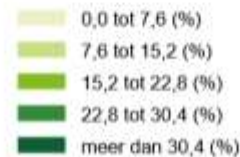
Cropland, %



Grassland, %



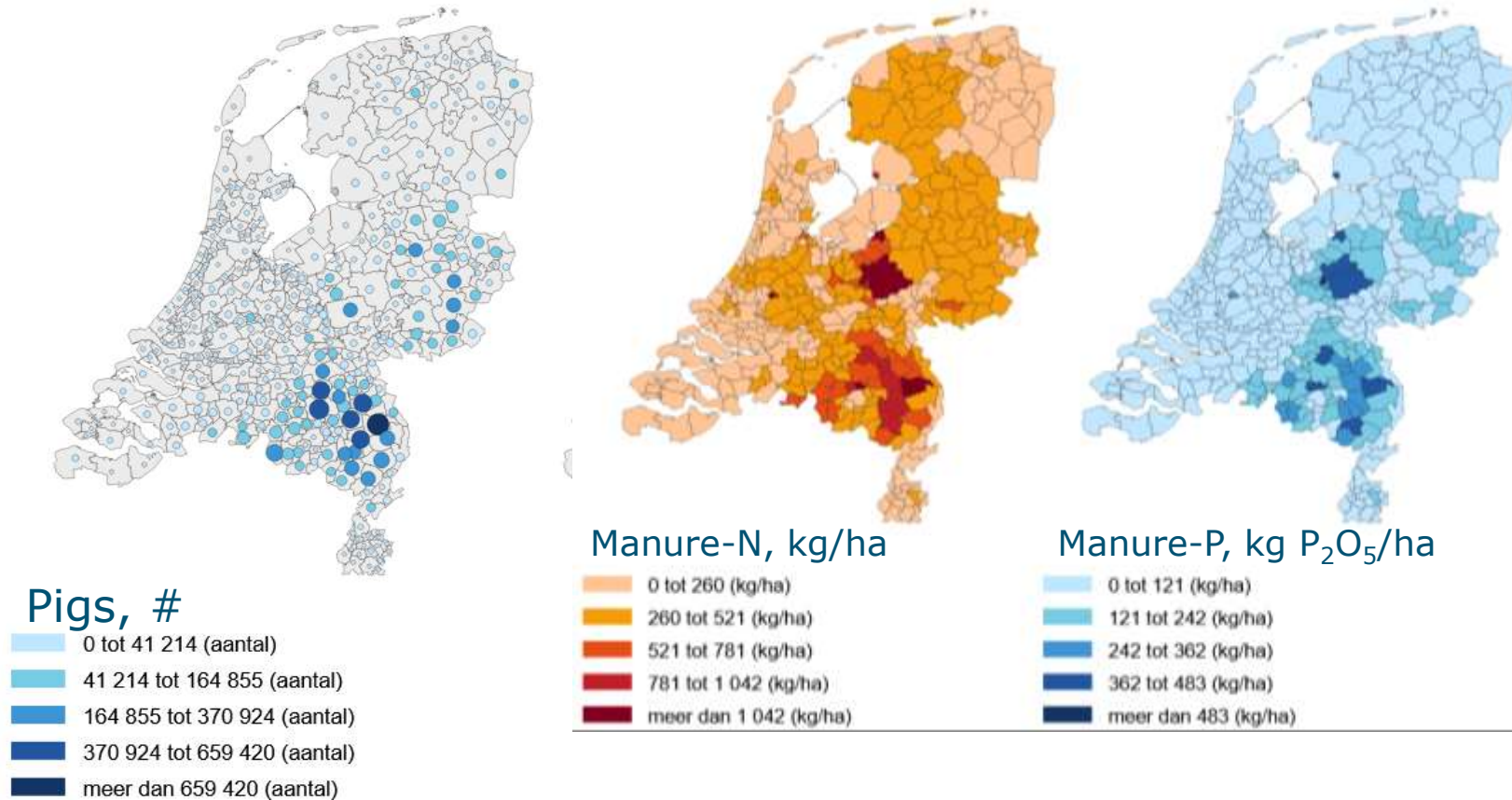
Fodder crops, %



Cattle, #



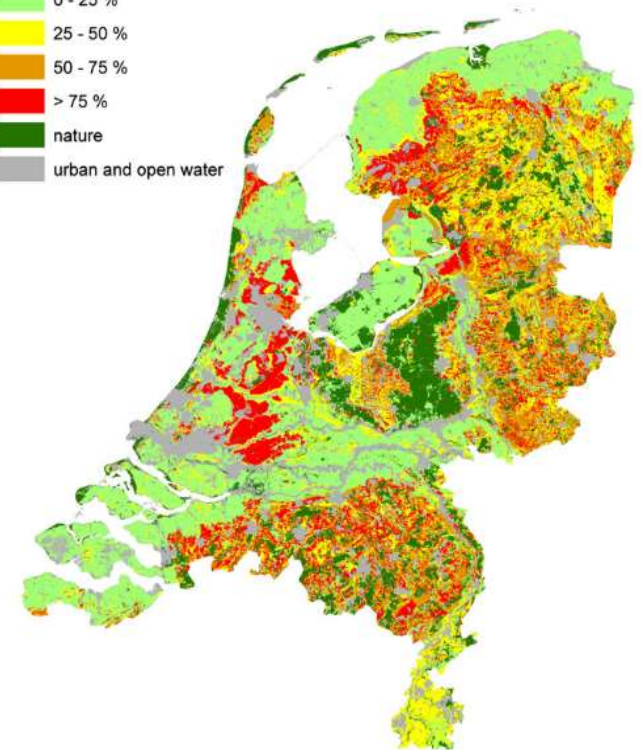
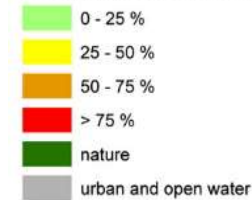
Regional specialisation in 2018 (Statline, CBS)



Environmental consequences...

- 1. Nitrate in waterways, groundwater
- 2. Phosphate saturation of soils
- 3. Emission of NH_3 and NO_x
- 4. GHG emissions
- 5. Loss of biodiversity

Phosphate Saturated Area



Schoumans & Chardon, 2015. Geoderma

The licence to produce of linear systems is under pressure!!

Key question

How to produce food while respecting the planet?



A product footprint approach



Produce
with less impact



Eat
with less impact

Product footprint approach



Produce

with less impact

Herd productivity



Nutrient-dense feed



Feed-food competition

Eat

with less impact

Eat chicken
and no beef



Go vegan



Co-products
&
Grass?

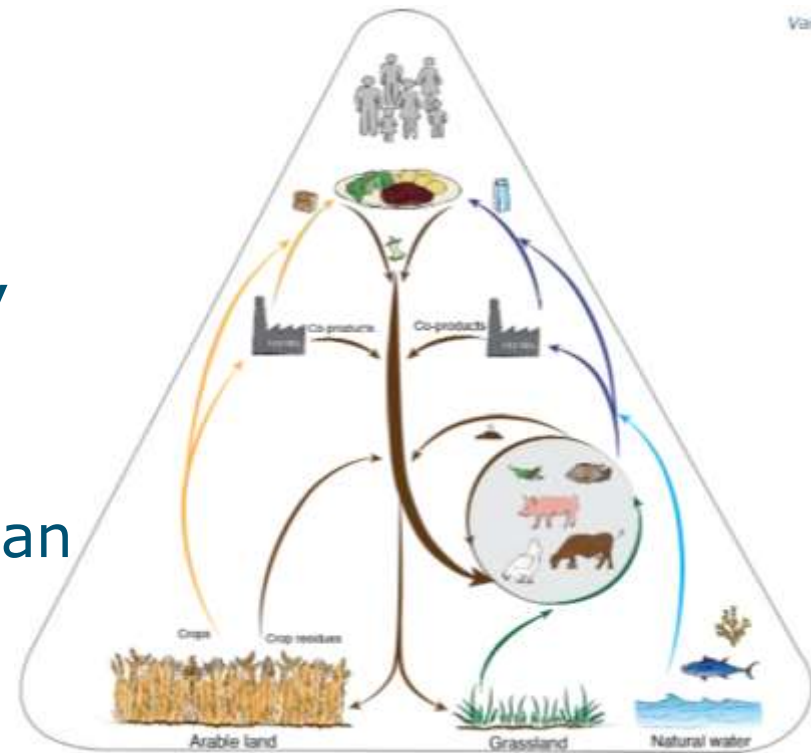
A footprint approach does NOT address feed-food competition or interlinkages in the food system

Circularity: a new policy paradigm



Guiding principles for Circular Food Systems

- Plant biomass for food first
- By-products of food system should be recycled back into the system with a prioritisation (soil, livestock, industrial purposes)
- Use animals for conversion of human inedible biomass into food

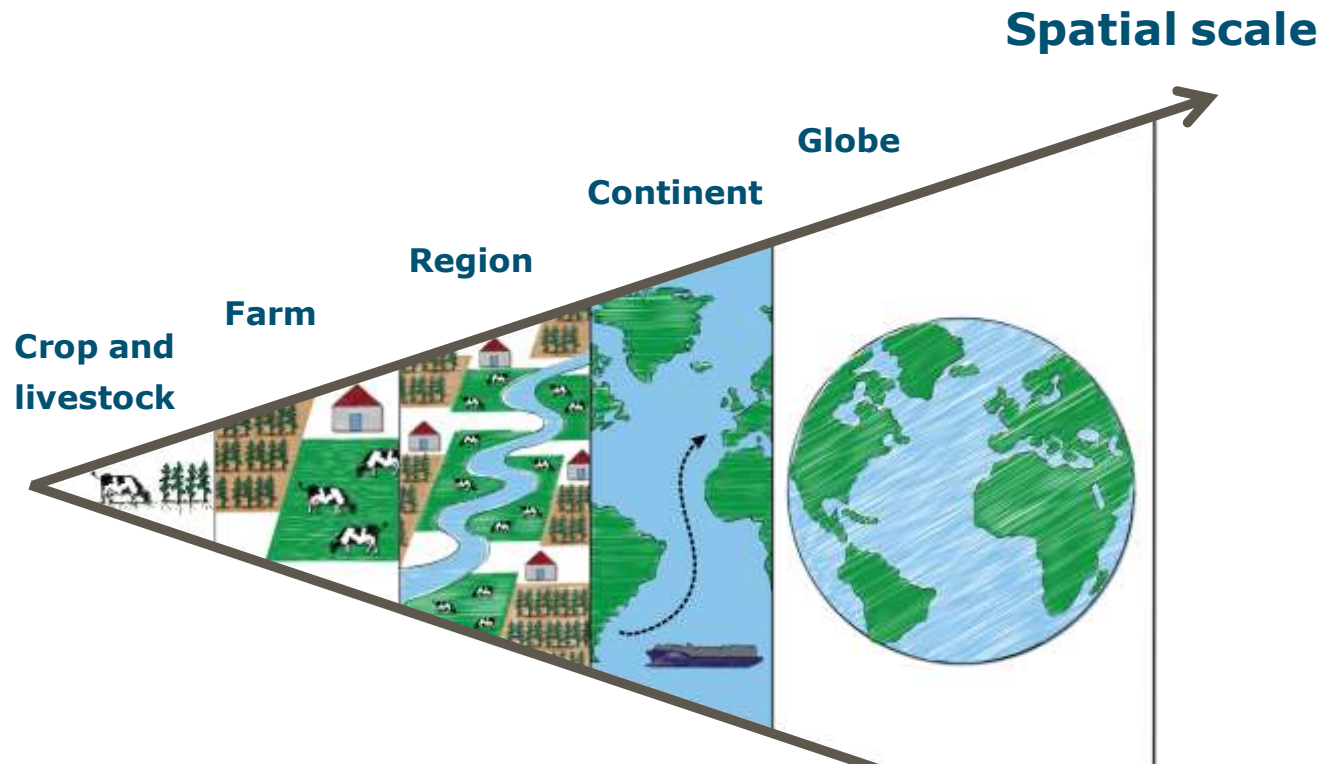


De Boer & van Ittersum, 2018. Mansholt lecture, WUR

Van Zanten et al. 2019. Global Food Security

Rethink interactions

And derive proper scales of circularity



Combine ecological principles with smart technology

Future harvest

Thank you for your attention!

