

Recycled nutrients for organic crops

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OrganicPlus webinar
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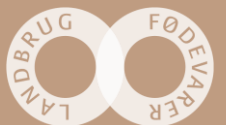
SEGES



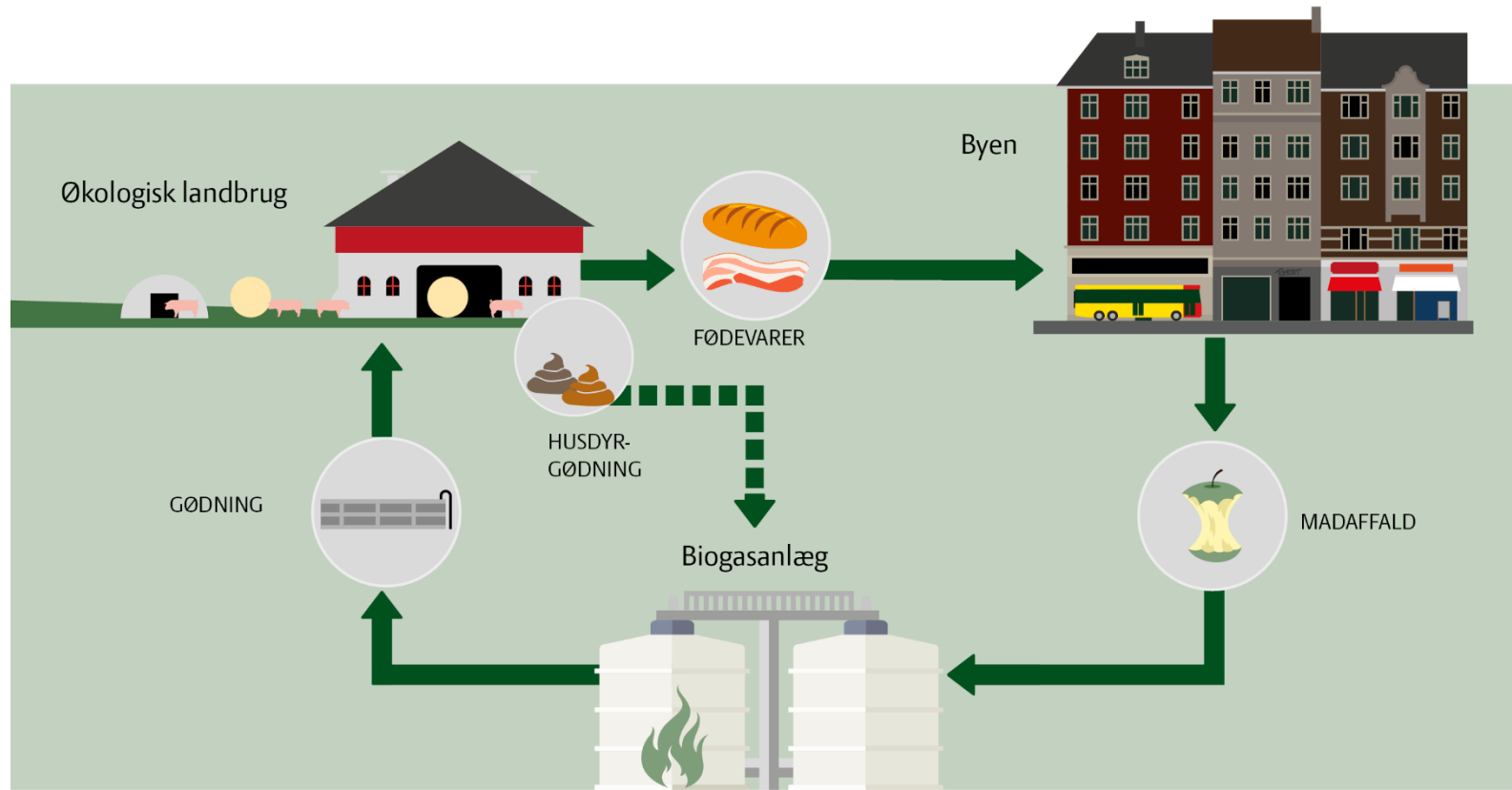
HOLKEGÅRDFONDEN

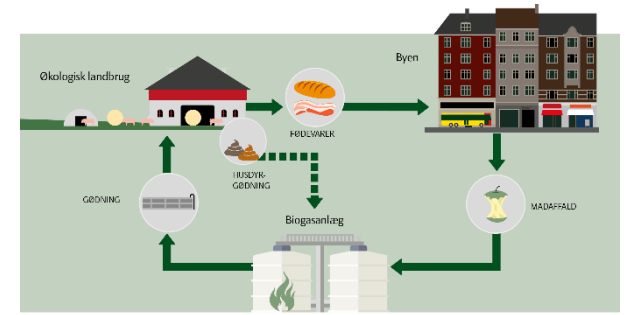
STØTTET AF
Promilleafgiftsfonden for landbrug

STØTTET AF
Fonden for **økologisk landbrug**



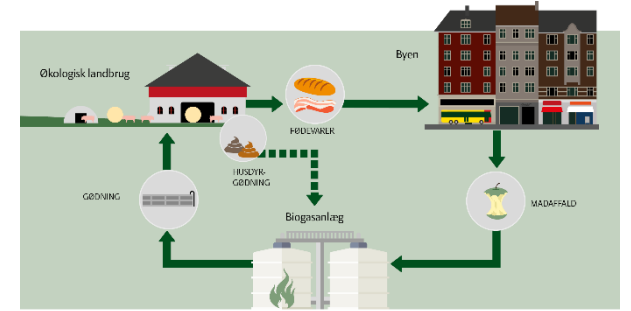
RECYCLING



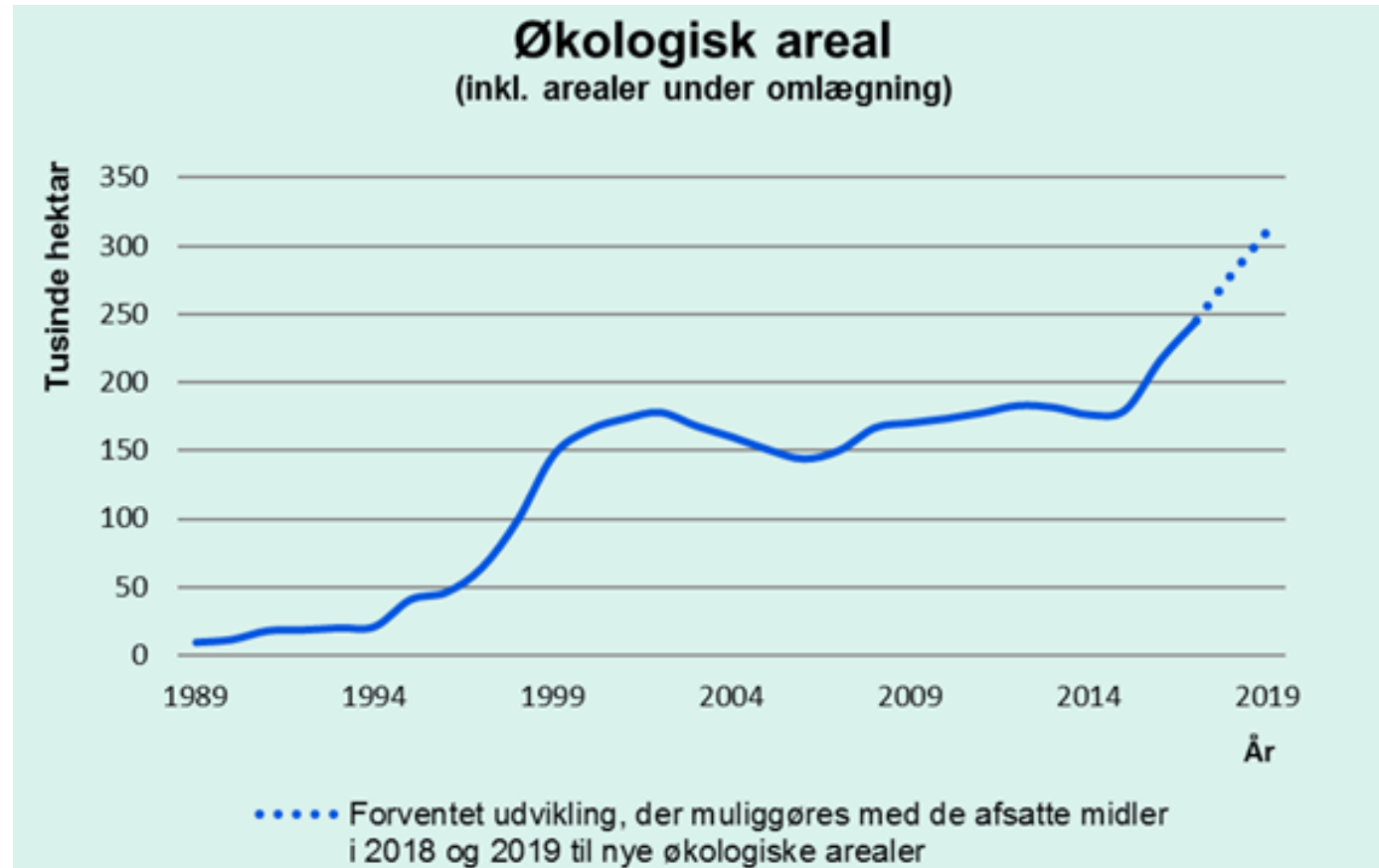
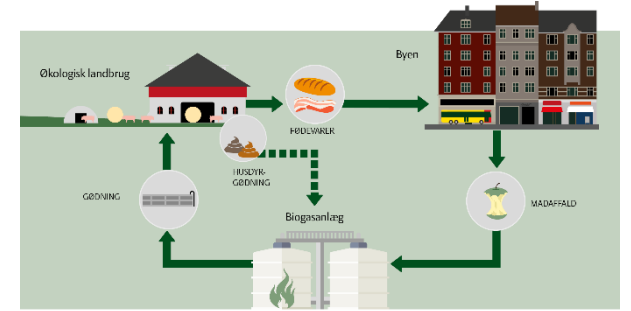


Agenda

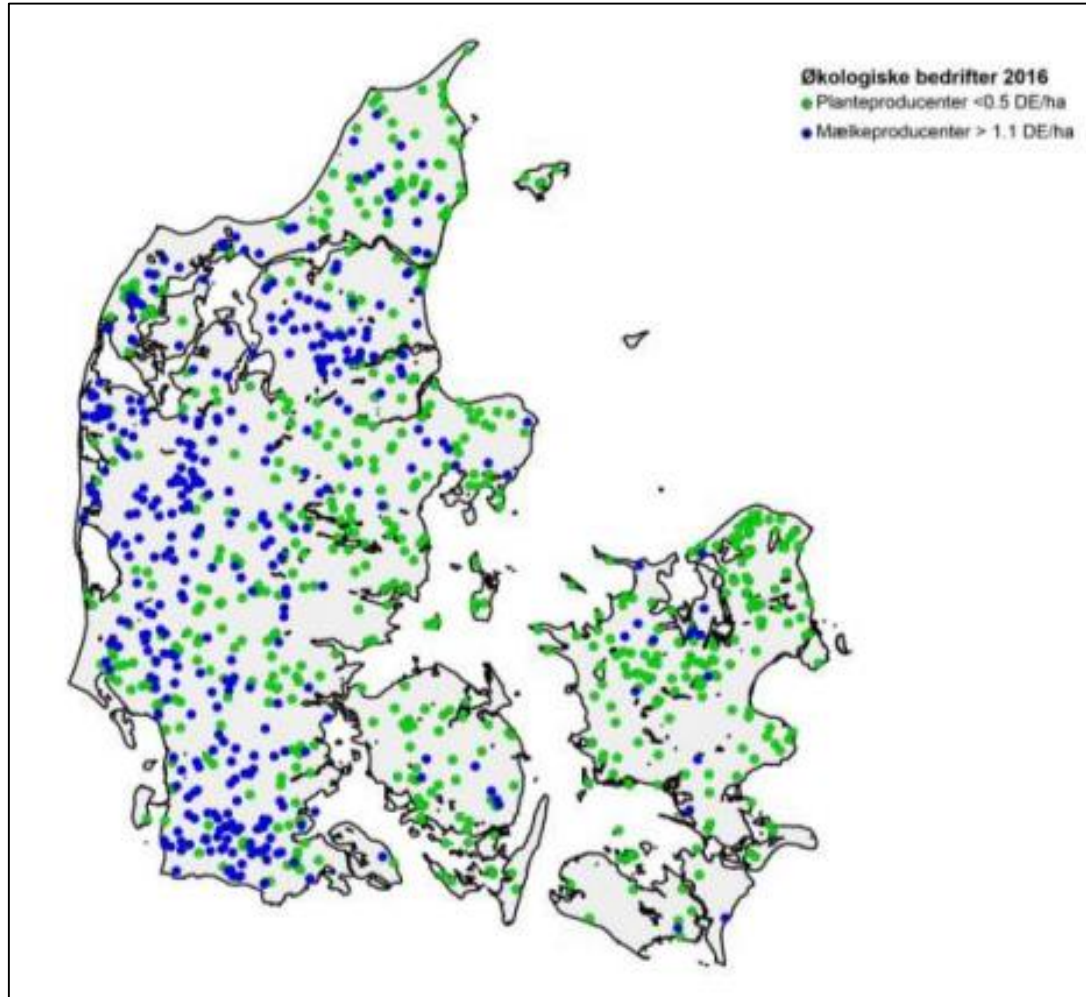
- Organic agriculture in Denmark
 - Dependence of conventional slurry
- Field trials
 - Which products are tested?
 - What are the value of the fertilizers?
 - Heavy metals, plastic and other contaminants



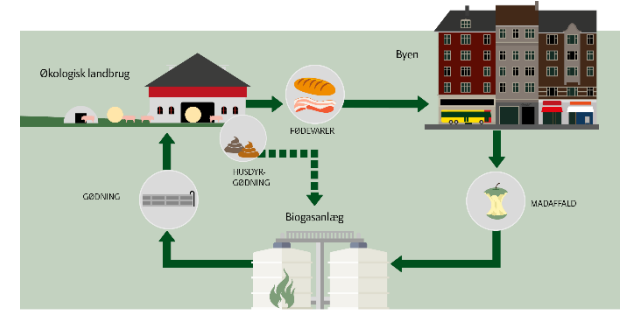
Organic agriculture in Denmark – today



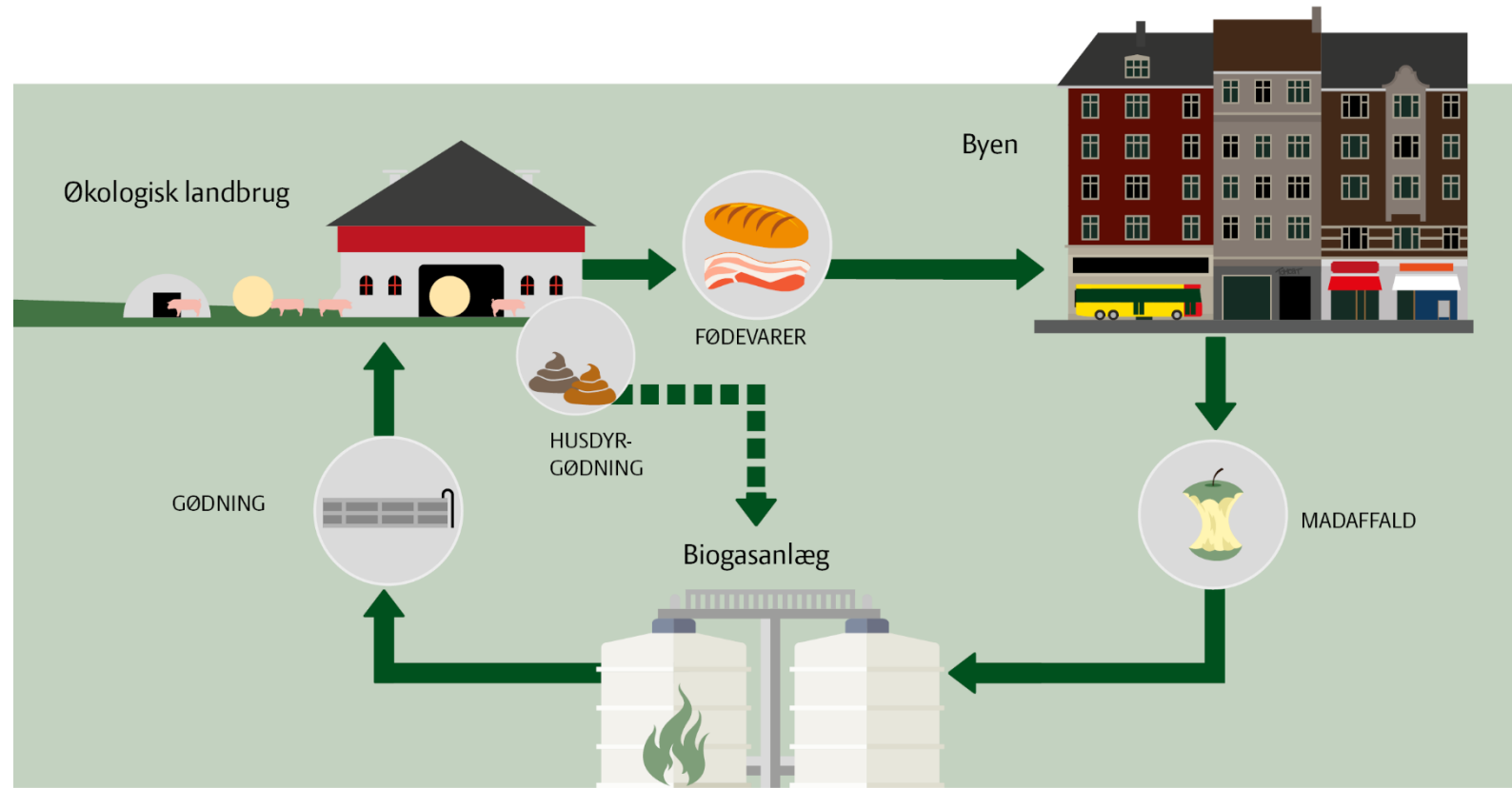
Organic agriculture in Denmark – today



Lars Holdensen, L&F, 2016



Organic agriculture in Denmark – future



Organic field trials



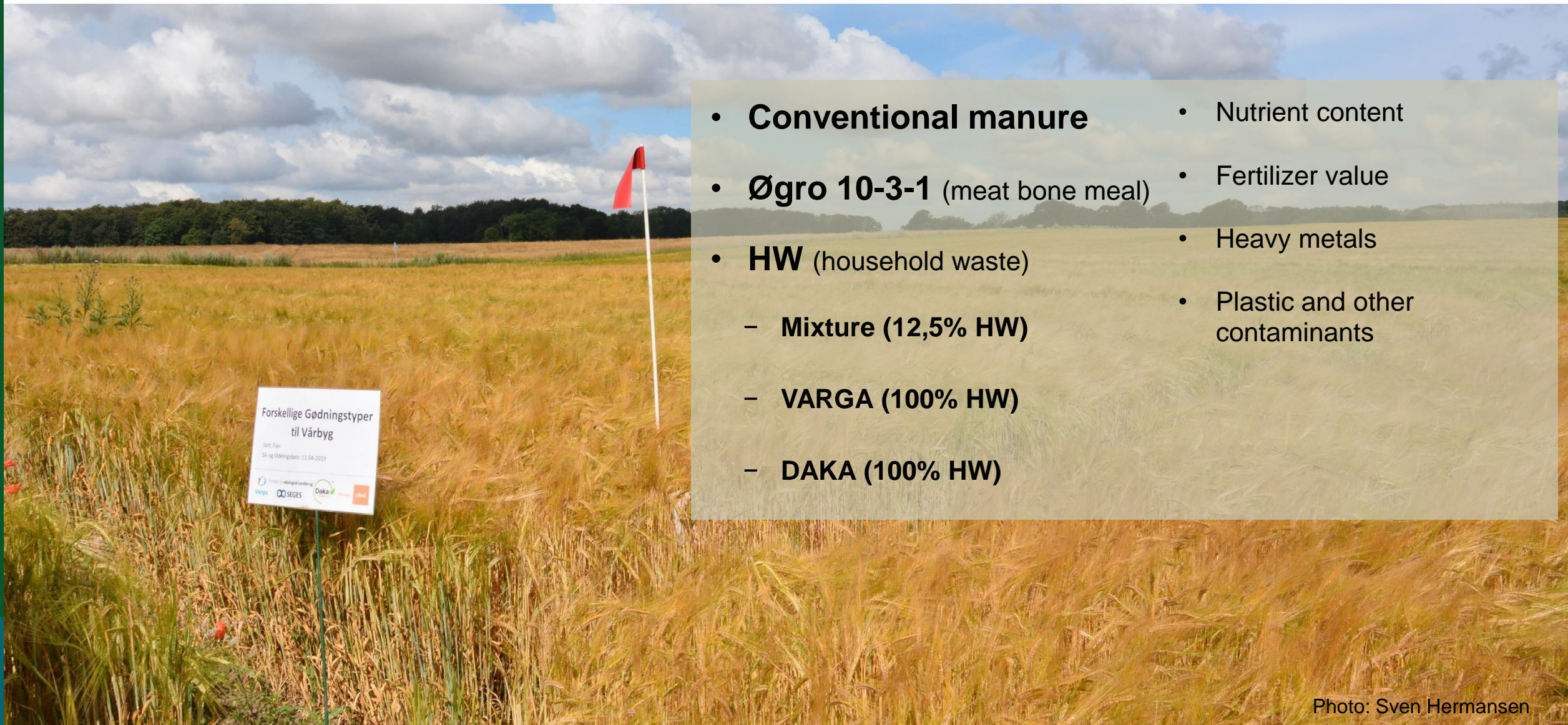
Photo: Sven Hermansen

Organic field trials

- **Conventional manure**
- **Øgro 10-3-1** (meat bone meal)
- **HW** (household waste)
 - **Mixture (12,5% HW)**
 - **VARGA (100% HW)**
 - **DAKA (100% HW)**



Organic field trials



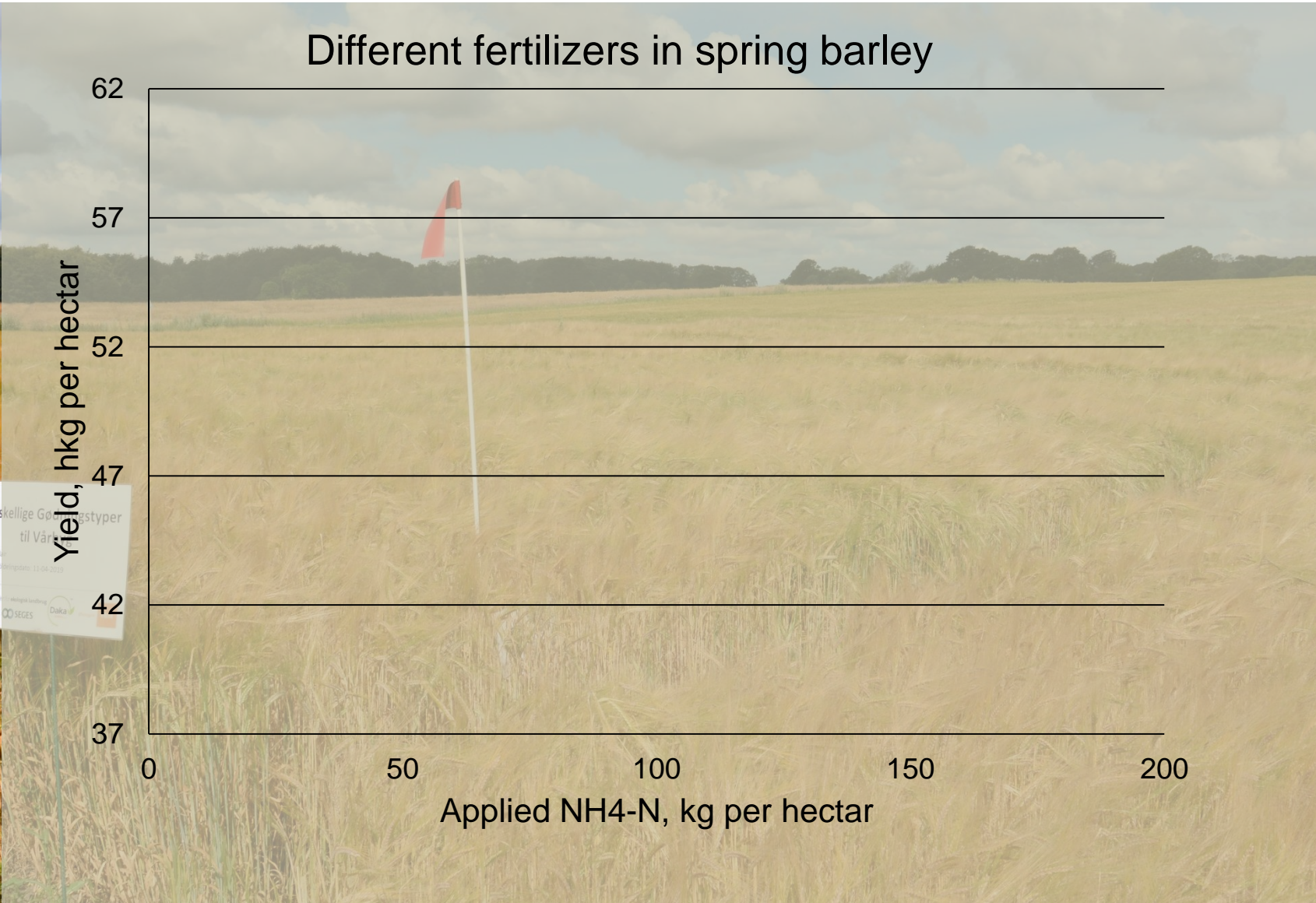
- **Conventional manure**
 - **Øgro 10-3-1** (meat bone meal)
 - **HW** (household waste)
 - **Mixture (12,5% HW)**
 - **VARGA (100% HW)**
 - **DAKA (100% HW)**
- Nutrient content
 - Fertilizer value
 - Heavy metals
 - Plastic and other contaminants

Organic field trials



Fertilizers	Nutrient content, kg per ton				DM, %
	Total-N	NH ₄ -N	P	K	
Pig manure	4,5	3,4	1,2	2,6	4,5
VARGA	3,8	2,8	0,4	1,8	2,9
DAKA	7,2	5,6	0,8	2,5	3,2
HW + slurry	3,3	2,1	0,4	2,7	4,2

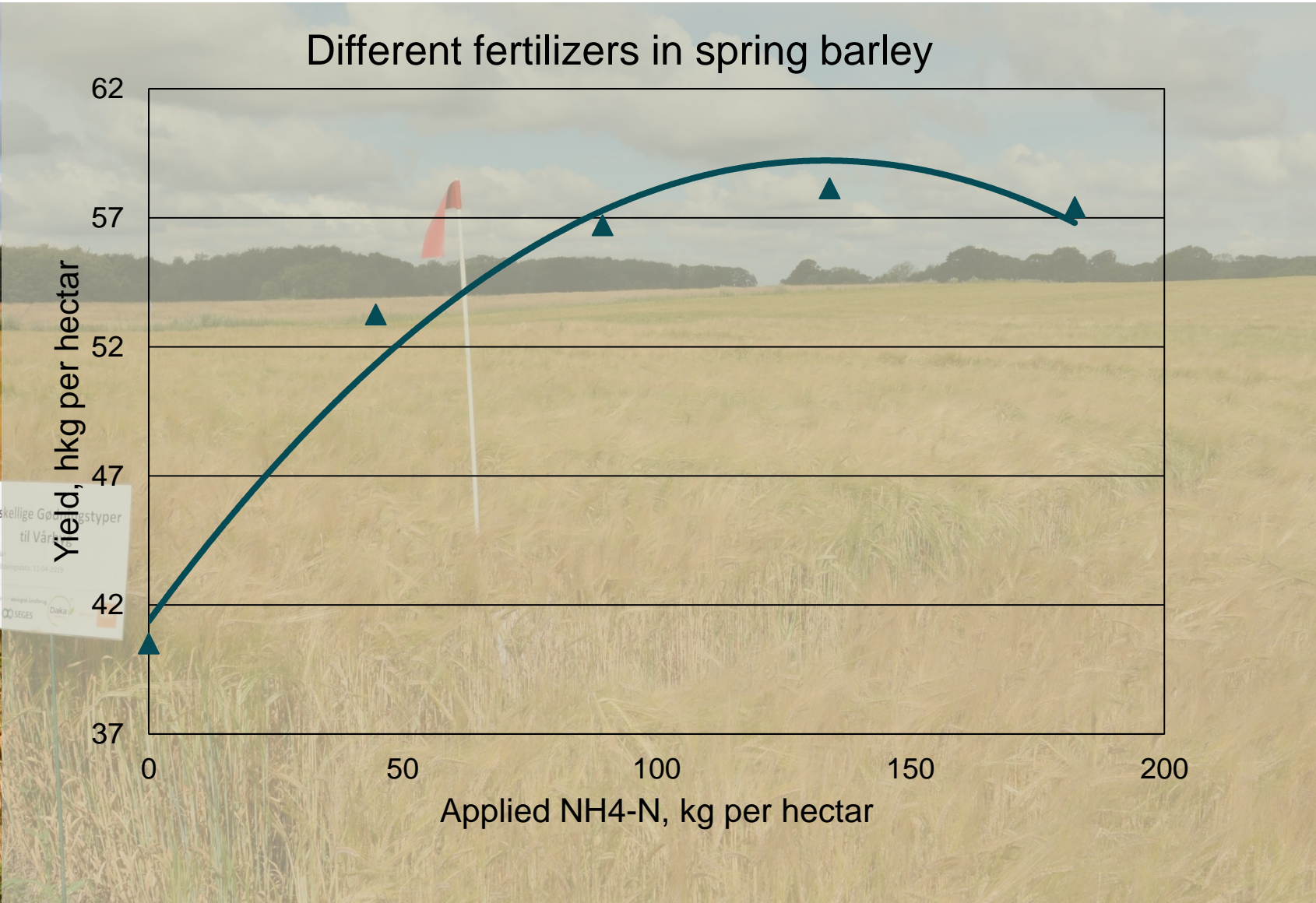
Organic field trials



Oversigt over Landsforsøgene 2019, s. 248-249

Photo: Sven Hermansen

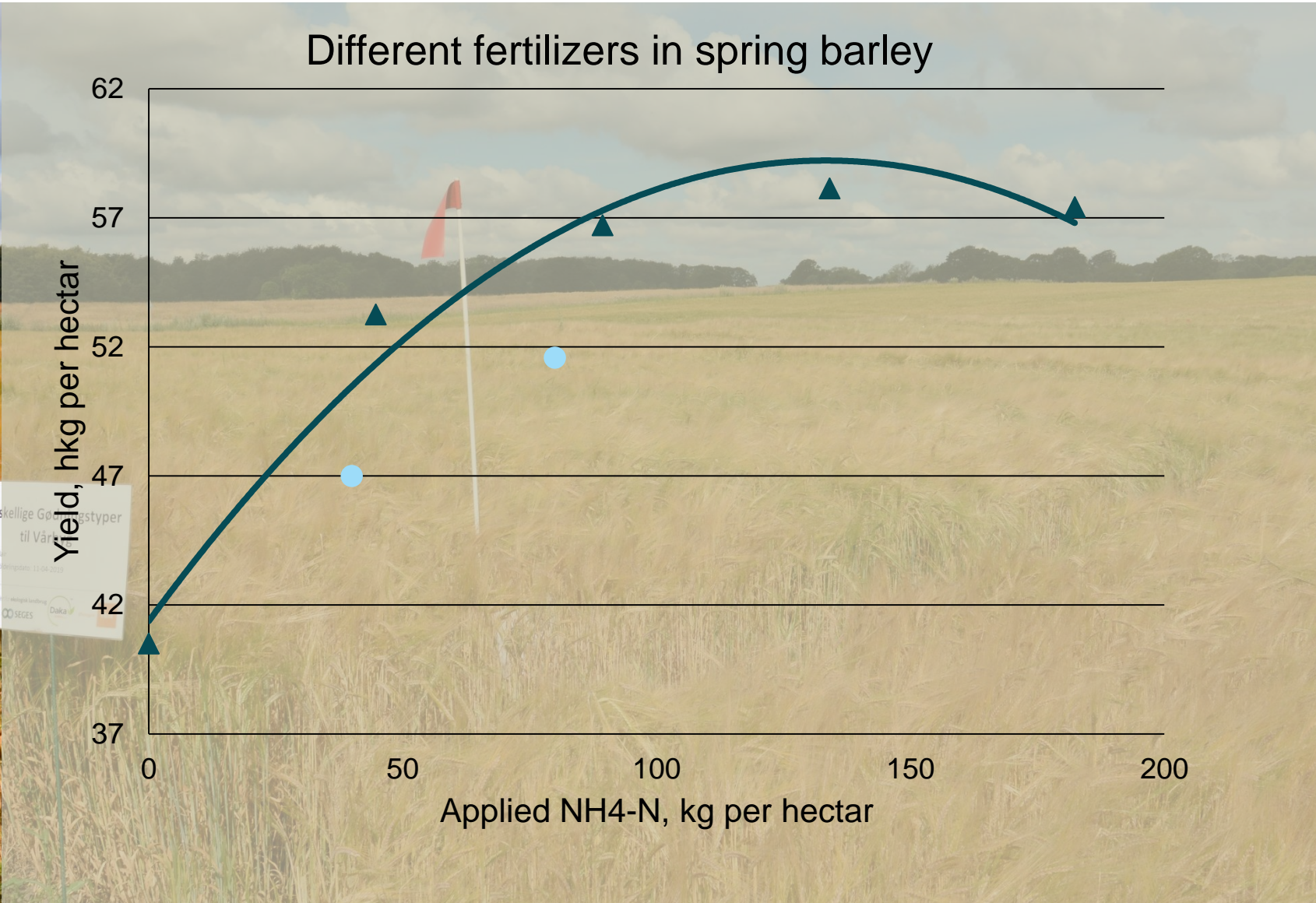
Organic field trials



Oversigt over Landsforsøgene 2019, s. 248-249

Photo: Sven Hermansen

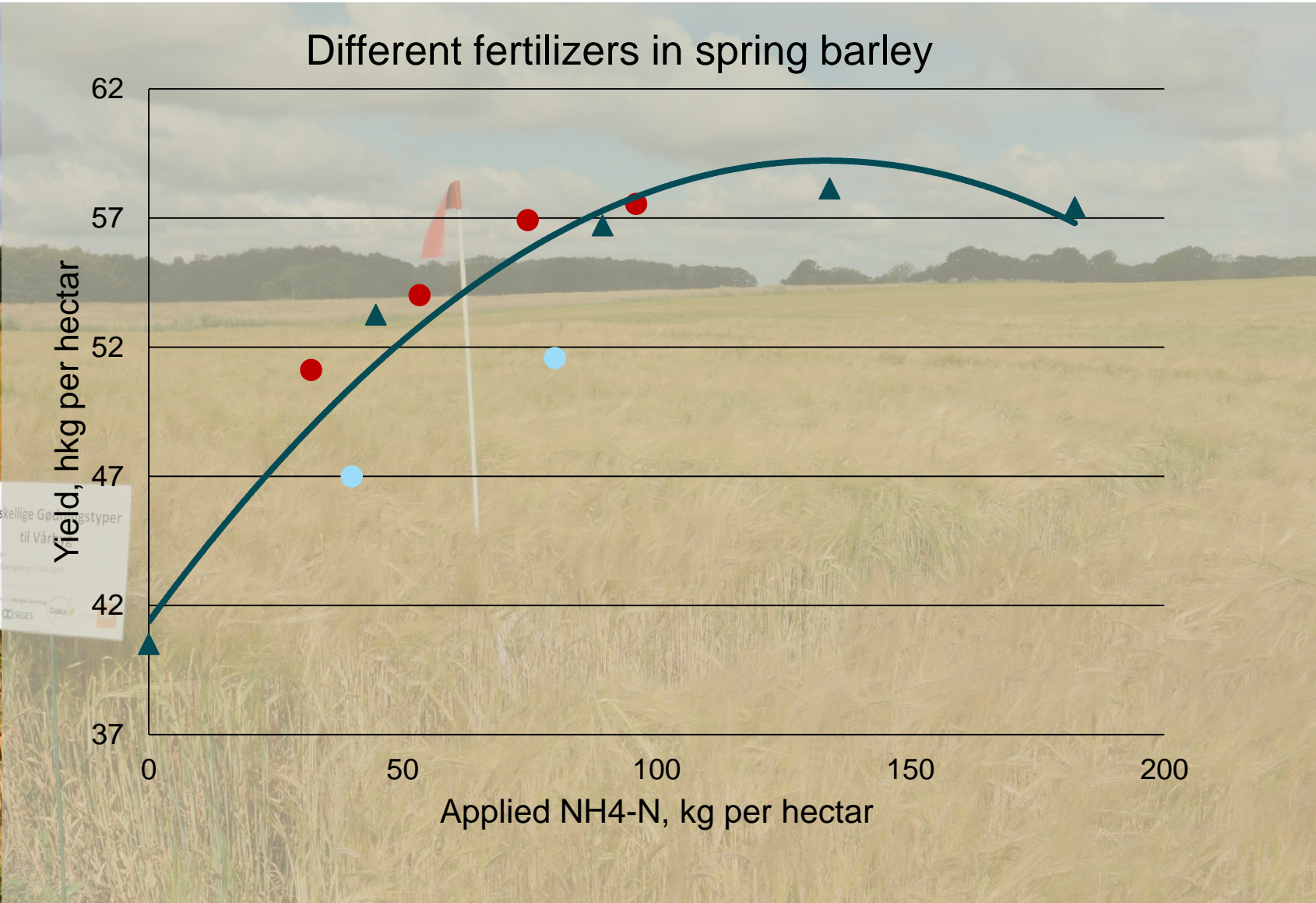
Organic field trials



Oversigt over Landsforsøgene 2019, s. 248-249

Photo: Sven Hermansen

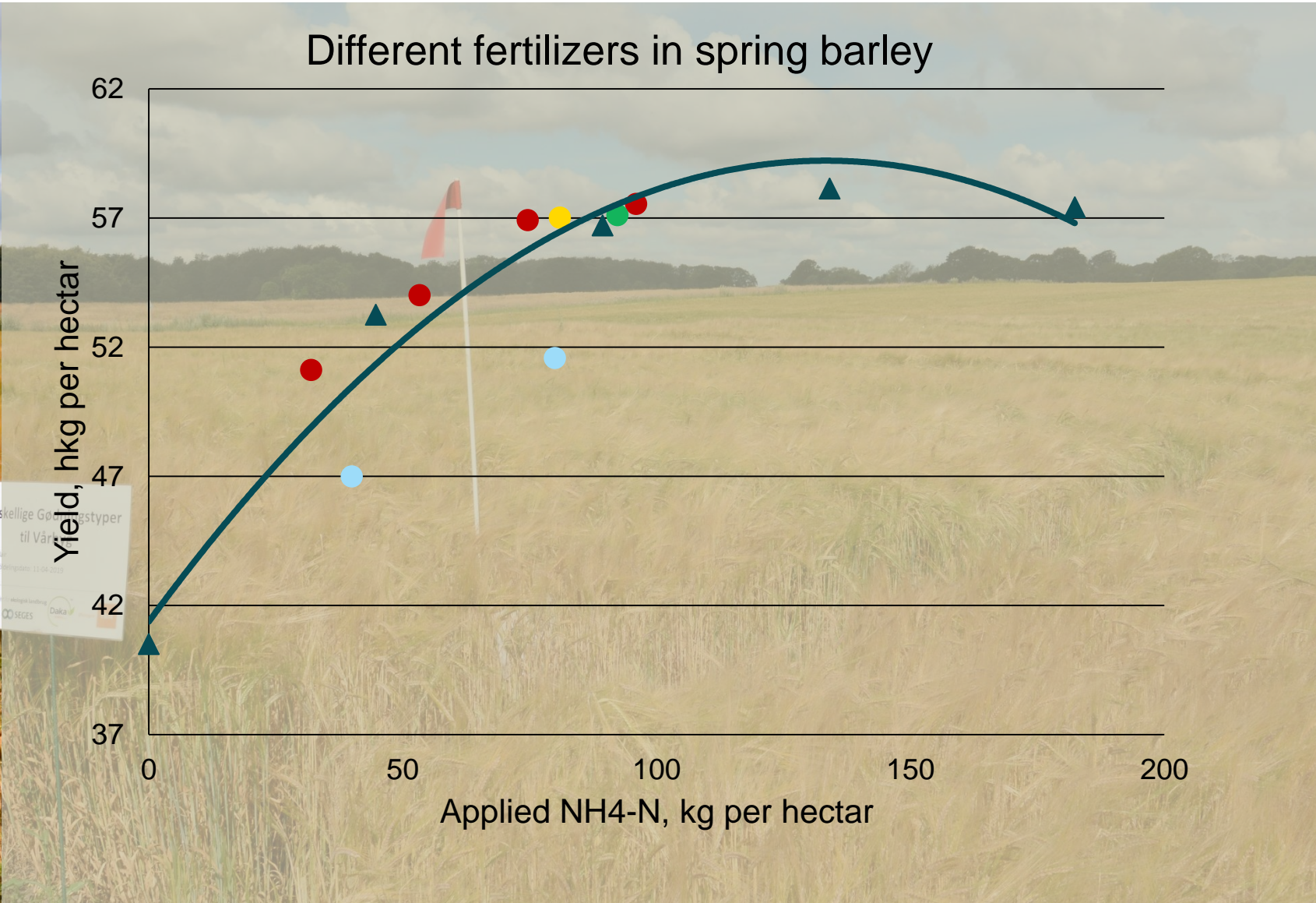
Organic field trials



Oversigt over Landsforsøgene 2019, s. 248-249

Photo: Sven Hermansen

Organic field trials



Organic field trials



Fertilizers	Heavy metals, mg/kg DM			
	Cd	Cu	Ni	Zi
Pig slurry	0,37	263	10,2	1017
Household waste	0,12	33	3,5	127

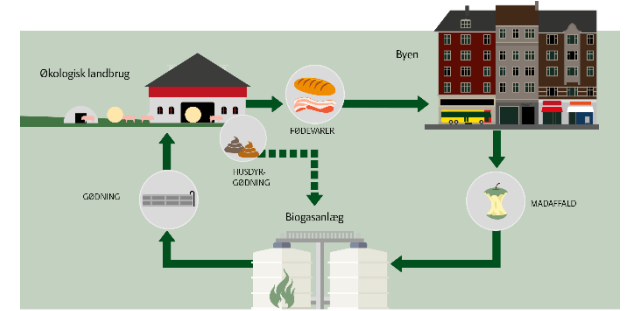
Organic field trials



Contaminants > 2 mm.	Allowed levels, current legislation	VARGA
Contaminants, % DM	0,50	0,03
Plastic, m ² per hectar	8,58	2,86
Plastic, % DM	0,15	0,01

2020 field trials

- Digestate from household waste in mixture with slurry
- Meat and bone meal (pelleted)
- Pig bristles (pelleted)
- Biostimulant



Take-home message...

- A need to introduce nutrients in order to be effective and climate friendly
 - without compromising consumer credibility
 - recycling can be part of the solution
- Digestate from HW as fertilizer:
 - similar to pig slurry
(method of application, consistency, nutrient content, fertilizer value)
 - Low amount of heavy metals
 - Contains plastic

