



# Manure and Organic Fertilizer Trials

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# Field trial studies at SEGES Innovation

- SEGES Innovation conducts about 50 field trial studies annually focusing on fertilization effects of organic fertilisers. An increasing share of those includes studies of the emission of  $N_2O$
- All trials are carried out similar the condition used in practical agriculture
- All trials are managed and processed via the Nordic Field Trial System (NFTS)
- All trials are conducted with equipment adapted to the task and by personal trained for the job
- All results are published in the book "Landsforsøgene"





# Field trial for measurement of fertilisation effects and emission of greenhouse gases from organic fertilisers



Each experimental plot is:

- 3 x ca. 20 m
- Replicated four times
- Randomly situated



All fertiliser is applied by use of experimental equipment adapted the design of the experimental plots



Emission of N<sub>2</sub>O is measured by use of static chambers





**All fertilisers are applied by use of experimental equipment developed to fit the design of the experimental units**





# The ammonia emission from land applied manure is depending on the land application technology used

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So is the  $N_2O$  emission



Ammonia loss



$N_2O$  emission



Broad spreading



Trailing hose application



Shallow injection



Black soil injection

Trailing shoe

Shallow injection

Deep injection

# New desing of soil injection technology to reduce the emission of N<sub>2</sub>O emission – without reducing the Nitrogen fertiliser effects



Narrow tine  
injector



Goose foot tine  
injector



Tine injector

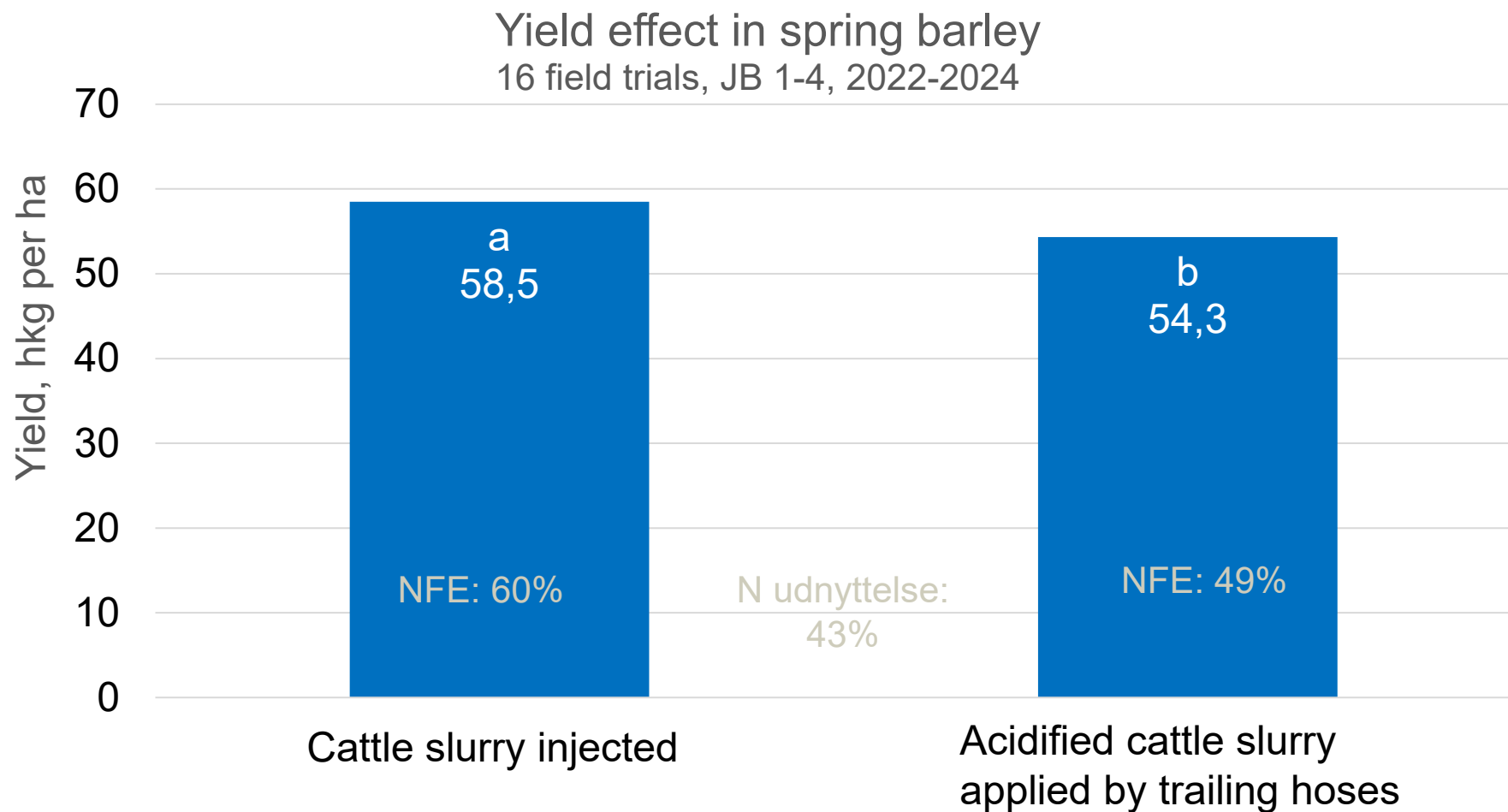


Disk injector



# Injection increases yield and nitrogen utilisation

Additional yield of injection: 4,2 hkg pr. ha





# Studies of application technologies in Conservation agriculture

Injection



Acidification



Shallow injection



Tine injector



Disk injector





# Yield effects of pig slurry to spring barley in CA systems

Spring barley 2025, 3 forsøg, JB 1, 4 og 7	Acidificatio n	Plants per m <sup>2</sup>	Yield, kg N pr. ha	Yield and additional yield, hkg per ha
Tine injector	-	210	114	<b>81,2 a</b>
Tine injector, goose foot	-	215	115	-1,2 a
Trailing hoses + acidification	+	210	101	-5,0 b
Trailing hoses + acid and incorp.	+	224	105	-2,0 ab
Trailing hoses + acid (Bomech)	+	209	106	-1,9 ab
Shallow injection	+	213	104	-1,8 ab
Diskinjection	-	219	108	- 0,5 a



Foto: Henning Sjørslev, SEGES



A large field of green crops, likely corn, with a path running through the middle. A yellow marker is visible in the foreground on the path. The background shows a line of trees under a cloudy sky.

# Thank you

– and thanks to the people doing all the hard work.

## Questions, comments?

