



#### **Central Baltic Programme**

#### Sustainable Silage

# **Key findings from Finnish pilot farms**

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Sustainable Silage conference in Tartto on 8th of Oct 2025







#### PILOT FARMS IN FINLAND

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Preventing and minimizing nutrient leakages in silage production

Micronutrient deficiency hinders growth potential

Good TMR
management
prevents silage
losses

Better nutrient efficiency with herbal plants



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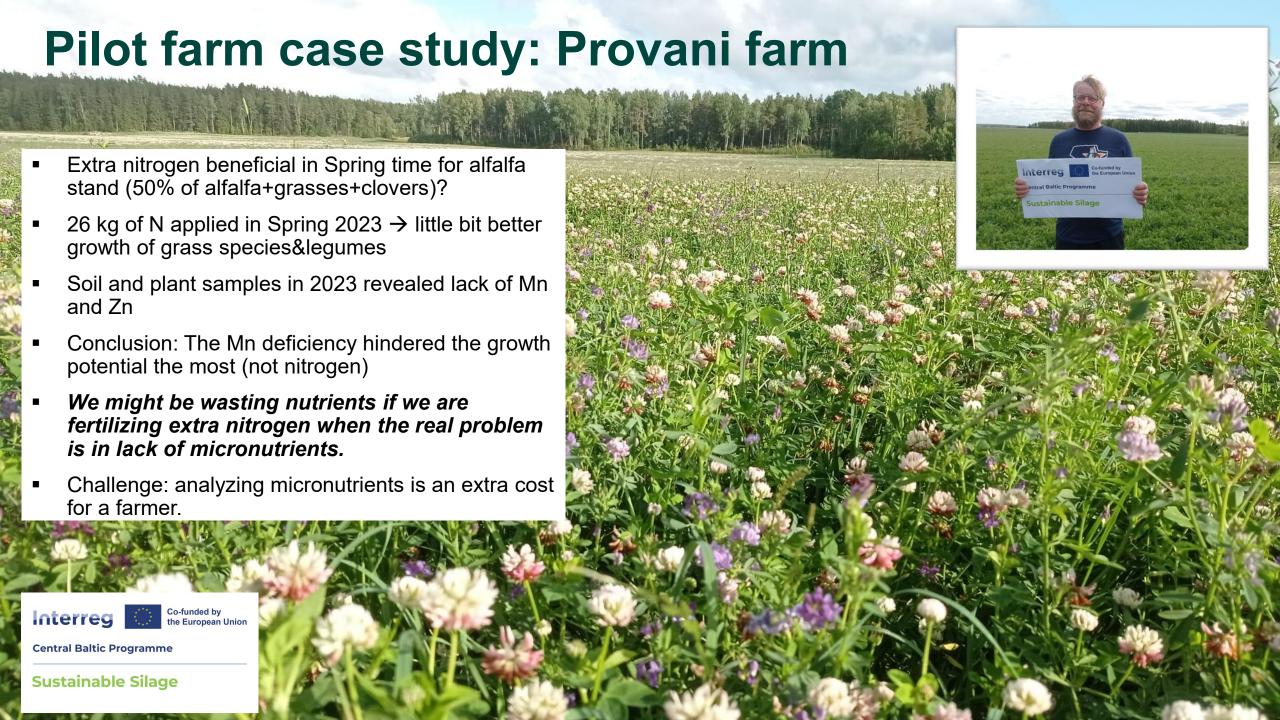




Good TMR management prevents silage losses



Better nutrient efficiency with herbal plants



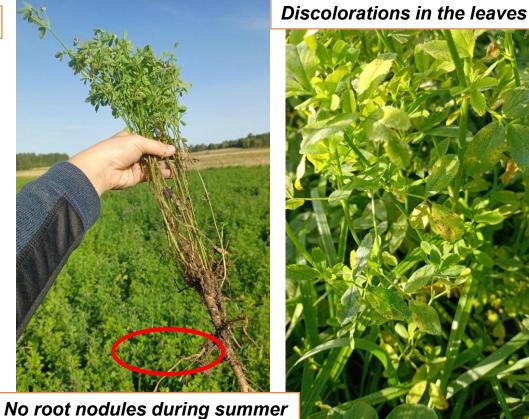
- We also used Spectra Crop device to measure plant stress, P & Mn levels at pilot farms.
- Signals of stress/nutrient deficiencies observed at pilot farms:
  - Root rot
  - Absence of root nodules (lack of copper?)
  - Discolorations in leaves
- In our Spectra Crop measurements especially alfalfa and bigger leaf type clovers showed stress whereas white clover and grasses were ok.
- The primary cause for alfalfa challenges in Finland: harsh winters but also micronutrient deficiencies in the soil?











#### Pilot farm case study: Koliha Oy

- Elevating crude protein level in feeding was one of this farm's targets in this project.
- Very low levels of S (and lack of Zn & Mn) were detected in grass samples at this pilot farm.
- Lack of sulphur can negatively affect the protein formation in the plant.
- Farm started to use fertilizers that contain sulphur.
- Now it's possible to produce good quality silage with adequate protein levels (no need for more expensive purchased protein supplements).





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Analyysit	Tulos	Ohjearvo	Tulkinta
Fe (mg/kg dm)	140	50	Normaali
Zn (mg/kg dm)	29.0	37.0	Matala
Cu (mg/kg dm)	7.0	6.0	Normaali
B (mg/kg dm)	11.0	6.0	Normaali
Mn (mg/kg dm)	29.0	50.0	Matala
S (g/kg dm)	1.70	3.00	Hyvin matala
Ca (g/kg dm)	6.70	3.80	Normaali
Mg (g/kg dm)	2.20	1.90	Normaali
K (g/kg dm)	27.00	30.00	melko matala
P (g/kg dm)	2.60	3.50	Matala
N (g/kg dm)	24.10	35.00	Matala

## Find the primary reason of the problem!







Micronutrient deficiency hinders growth potential



Good TMR management prevents silage losses

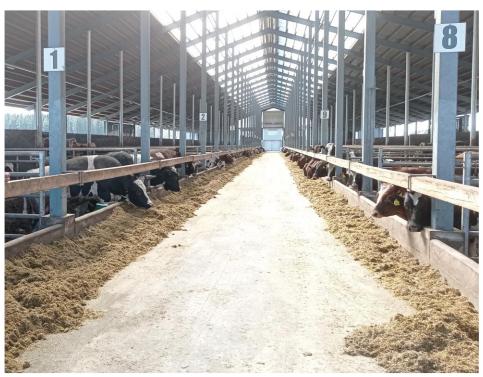


Better nutrient efficiency with herbal plants



#### Pilot farm case study: Koliha Oy

#### Farm target: increase protein self-sufficiency





- There was a problem of TMR heating up. Silage was suspected first but the reason was actually poorly preserved crushed grains in the TMR.
  - Single TMR component can spoil the whole ration.
  - Also the nutrients/inputs used for silage are lost.
- The poor palatability of TMR was then easily fixed by removing the crushed grains from the ration.
- Better TMR palatability resulted in higher feed intake rates. There was no longer need to iclude more expensive purchased feeds into the TMR as the good quality silage was able to meet the protein needs of the animals.

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#### Pilot farm case study: Koliha Oy





- Samples taken from different parts of the feeding passage showed inconsistency in the TMR served for the bulls.
- This variety in TMR content resulted in varying growth rates of bulls in different parts of the barn.
- The bulls that we're served TMR the first, got more concentrates&grain than the ones that got served the last.
- → Health risks for bulls that received higher concentrate rates & unbalanced use of nutrients.

The problem was solved by longer mixing time and different loading order of feeding components





OneTMR component can spoil the whole TMR



Better nutrient efficiency with herbal plants



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#### Pilot farm case study: Herrakunnan Lammas

## CHANGE IN FARMING PRACTICES: Establishing herbal leys for better nutrient efficiency and soil structure!

- Seed mixture: chicory, plantain, red clover, alsike clover, timothy, meadow fescue and kentucky blue grass
- Best establishment style was without a nurse crop (oats-pea mixture
   shadowing effect → poorer growth of herbal plants in the spring)
- Potential option especially on areas where manure is spread (chicory can catch efficiently P → minimizing nutrient runoff risks)





Yrttiseospelto toukokuussa vuonna 2024.



Yrttiseospelto elokuussa vuonna 2024.

# Herbs as part of a grass seed mixture

- Catch nutrients efficiently
- Improve fodder palatability and animal health
- Fast regrowth in rotational grazing
- Improve drought tolerance
- Create more air in the soil and improve topsoil structure (better growing conditions also for the grasses)
- Chicory and plantain were most featured herbal species in EGF event in 2024





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Source: Anu Ellä

