

# SUREVEG – fertilization trial

## Luke Mikkeli, Finland

SUREVEG meeting 24.-26.9.2018, Gent, Belgium

Pirjo Kivijärvi & Tapio Salo

[pirjo.kivijarvi@luke.fi](mailto:pirjo.kivijarvi@luke.fi)

[tapio.salo@luke.fi](mailto:tapio.salo@luke.fi)

# Field trial: soil improvers and strip-cropping

## Fertilizers

1. REF = Bone meal (Agra 8-4-8) + FF (potato cell sap: BioKali)
2. SS1 = by-product of plywood mill + FF (potato cell sap: BioKali)
3. SS2 = solid biogas digestive + FF (potato cell sap: BioKali)

## Crops

1. Cabbage (autumn): Castello
2. Faba bean: Sampo
  - Pure cabbage plots, pure faba bean plots and cabbage/faba bean strip-cropping plots
  - Split plot design
  - Plot size: 3 m x 5 m, 4 replicates

	2 C		1 C/FB
	2 FB		1 FB
	2 C/FB		1 C
	3 C		2 C/FB
II	3 FB	IV	2 FB
	3 C/FB		2 C
	1 C		3 C/FB
	1 C/FB		3 C
	1 FB		3 FB
	1 C		1 FB
	1 C/FB		1 C/FB
	1 FB		1 C
	3 FB		2 C/FB
I	3 C/FB	III	2 C
	3 C		2 FB
	2 C/FB		3 C
	2 C		3 C/FB
	2 FB		3 FB

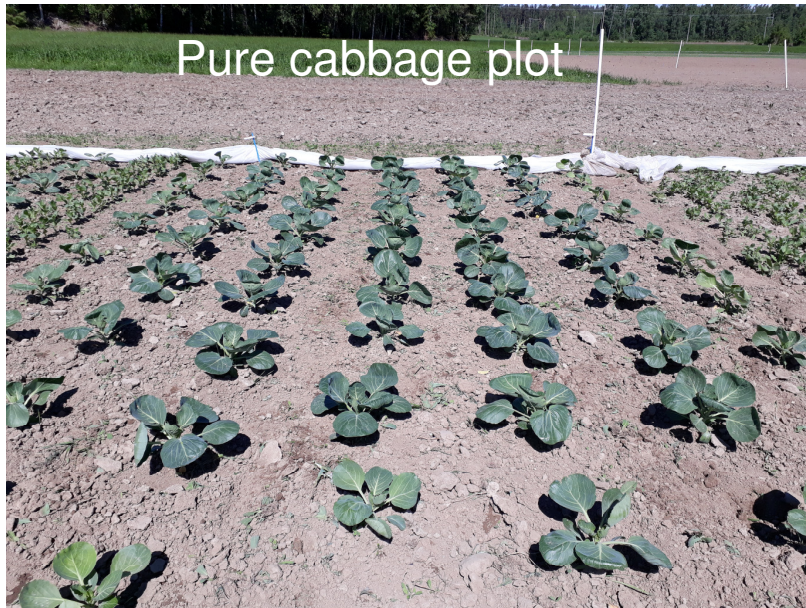
# Fertilizing

	Fertilizing before planting						Fertilizing during growing period		
	Agra 8-4-8		SS1 (plant based)		SS2 (animal based)		FF (BioKali)		
	Amount t/ha	Tot N kg	Amount t/ha	Tot N kg	Amount t/ha	Tot N kg	Tot N, kg/ha 12.6.	Tot N, kg/ha 27.6.	Tot N, kg/ha 6.7. (only to SS1)
Cabbage	2	160	64	160	21,6	160	30	30	60
Faba bean	0,4	30	12	30	4,1	30	-	-	-
Cabbage/faba bean	1	80	32	80	10,8	80	30 (to cabbage)	30 (to cabbage)	60 (to cabbage)



FF =  
potato cell  
sap

# Field trial: soil improvers and strip-cropping 12.6.2018



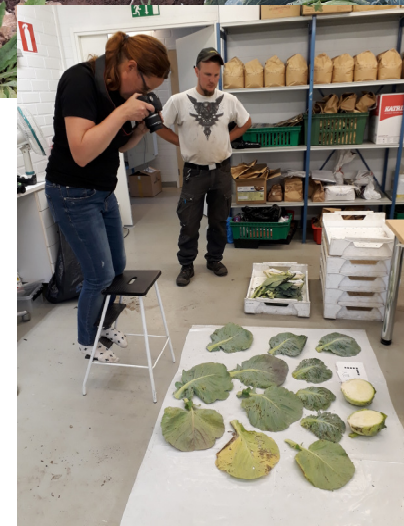
# Field trial: soil improvers and strip-cropping 6.7.2018



# Samples and analyzies

- Soil quality assessments:
  - Nutrien status per block (0-25 cm)
  - Total organic C (TOC) and total N (TN) per plot (0-25 cm), no results yet
  - 26.6. and 6.9. soil mineral N (0-25 cm and 25-50 cm), per plot, no results yet
  - Easily available P (0-25 cm), at harvest, no results yet
- Crop assessments:
  - Above ground biomass: cabbage and faba bean, per plot
  - N and P content
  - Yields
- Also analyses of fertilizers

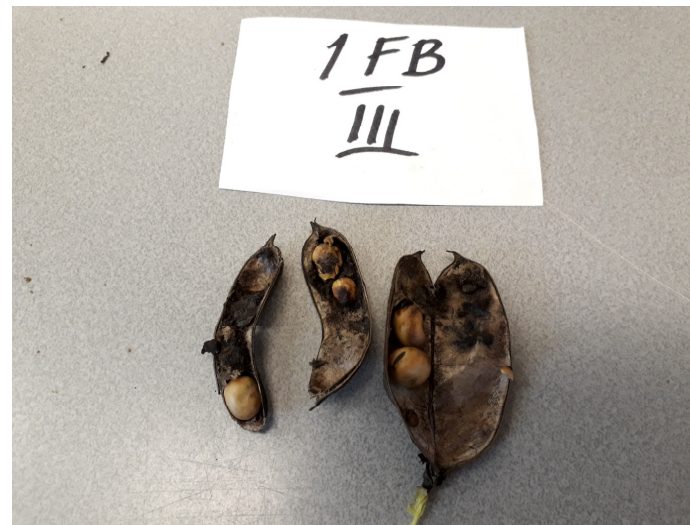
# Soil and crop assessments



## Some observations of the trial

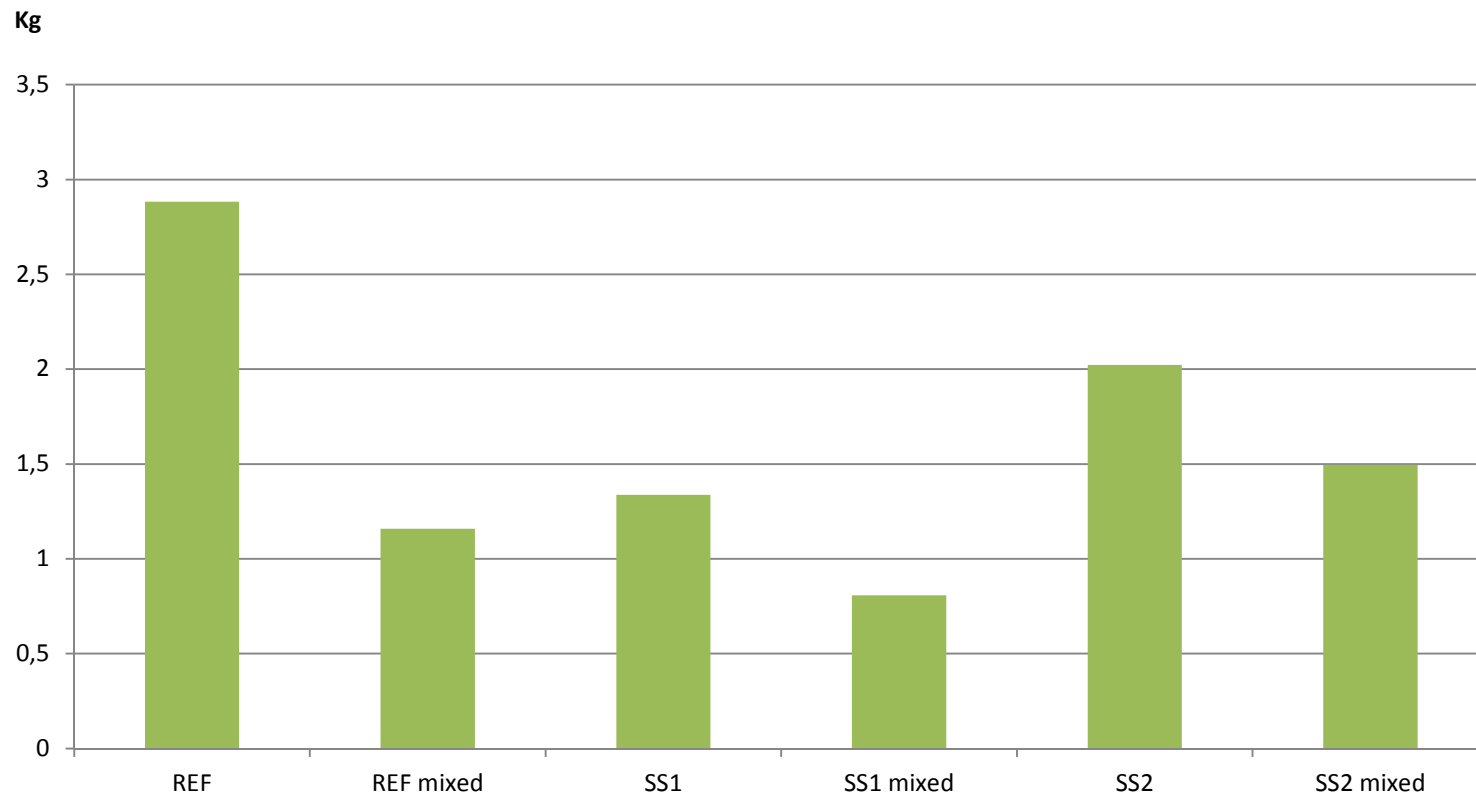


- Lot of pests injuries in cabbage
- Disease injuries in faba bean
- Problems with perennial weeds
- SS1 treatment differed clearly from the other treatments; cabbage suffered from the lack of nitrogen (light green colour, small size)
- Cabbage-faba bean mixed strip-cropping is not ideal system (shading)



# Above ground biomass of cabbage

Means of above ground fresh biomass of individual cabbage



## To discussion



- Recommended tillage system ?
- Do we use soil improvers next year ?
- Can we replace faba bean with some other crop (onion) ?



Thank you!

