Brief of grass sward yields in South Ostrobothnia and in Västerbotten and in sampling on pilot farms and in experiments

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Grasses hectare yield estimation is challenging

Swards area harvested from one to three times a season

(utilization of the area may change from silage to grazing)

Dry matter percentage of the harvest differ (hay, prewilted silage, fresh silage)

Grass yield statistics are based on the whole yield of the farm participating in the census

* several field parcels in grass production on farm

* the age of swards, seed mixture and management effects hectare yields.

In this project we took reference samples and did remote sensing estimation by drone and satellite

The provinces in Interreg Botnia Atlantica region:

In Sweden the areas in BA are:

Västerbottens län (Övre Norrland)

Västernorrlands län (Mellersta Norrland)

Gävleborgs län (Norra Mellansverige)

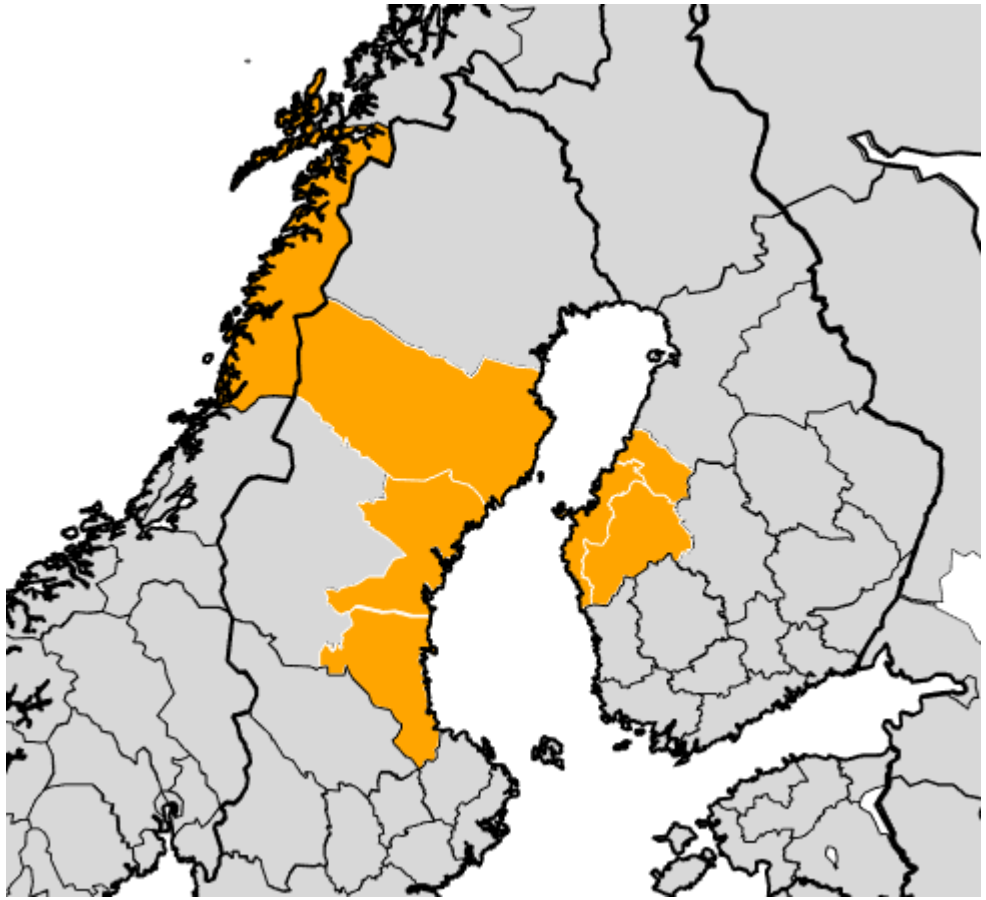
All ares are in NORRA SVERIGE.

In Finland:

Pohjanmaa (Ostrobotnia)

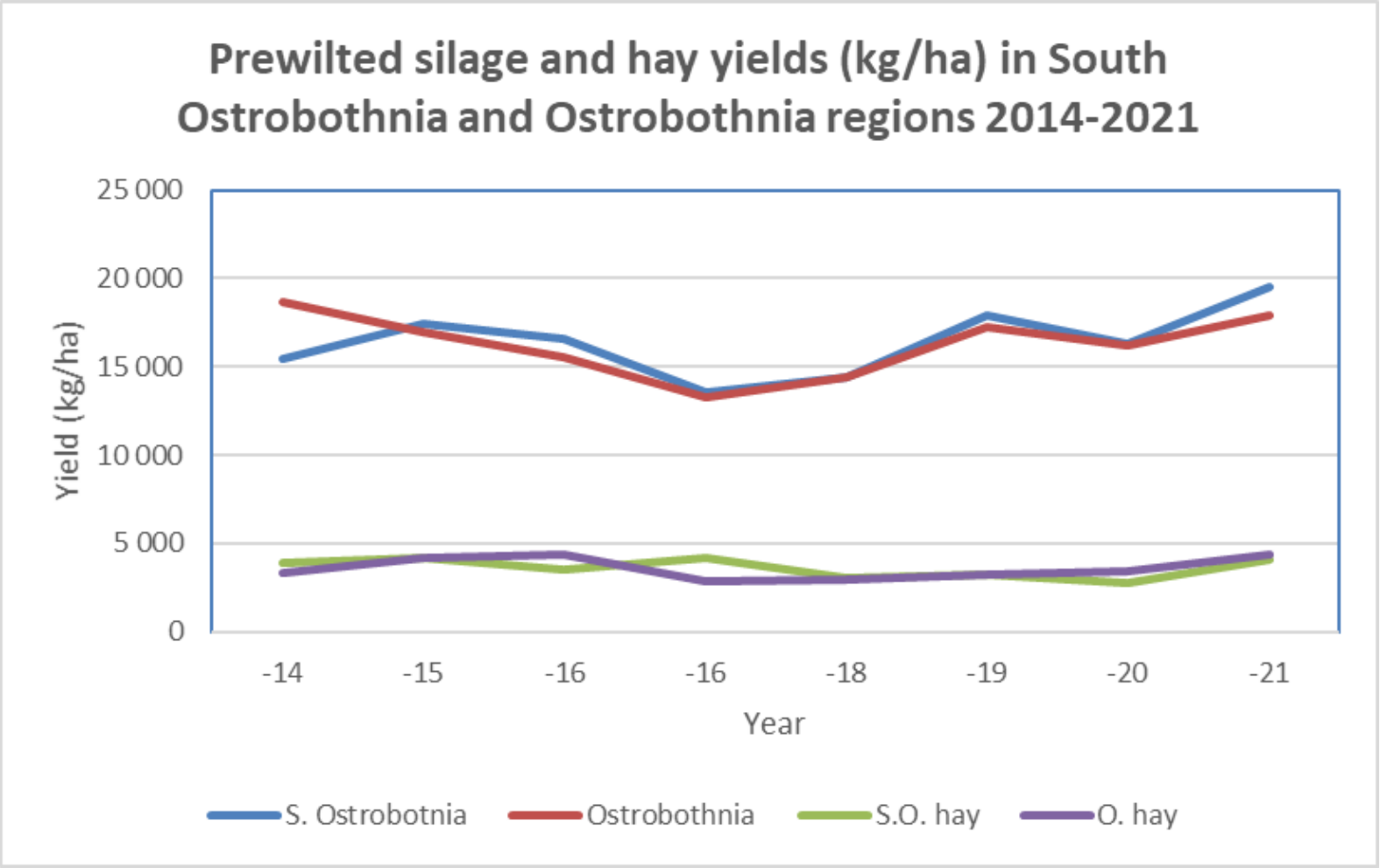
Etelä-Pohjanmaa (South Ostrobothnia)

Keski-Pohjanmaa (Middle Ostrobothnia

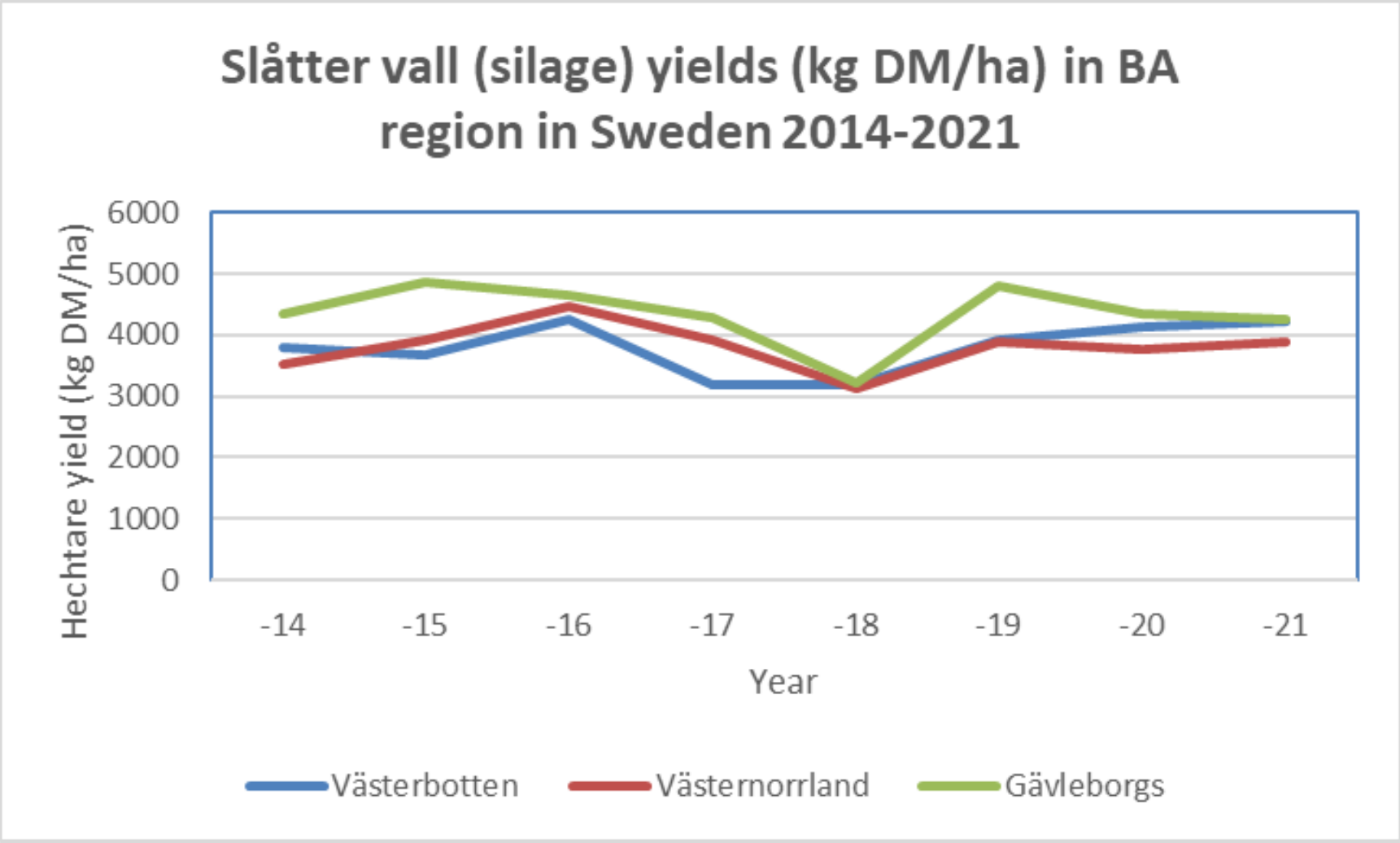


Despite the challenges Nordic agricultural statistics provide good estimates for grassland yields. Figure bases on

https://www.luke.fi/en/statistics information. Note that dry matter content of prewilted silage is around 30-35 and that of hay around 85.



Slåtter vall (includes grass silages) dry matter yields in Sweden 2014-2021 in Interreg Botnia Atlantica region (Data for figure is from Jordbruksverket)



Ten year average swards yields (kg DM/ha) in Sweden by provinces

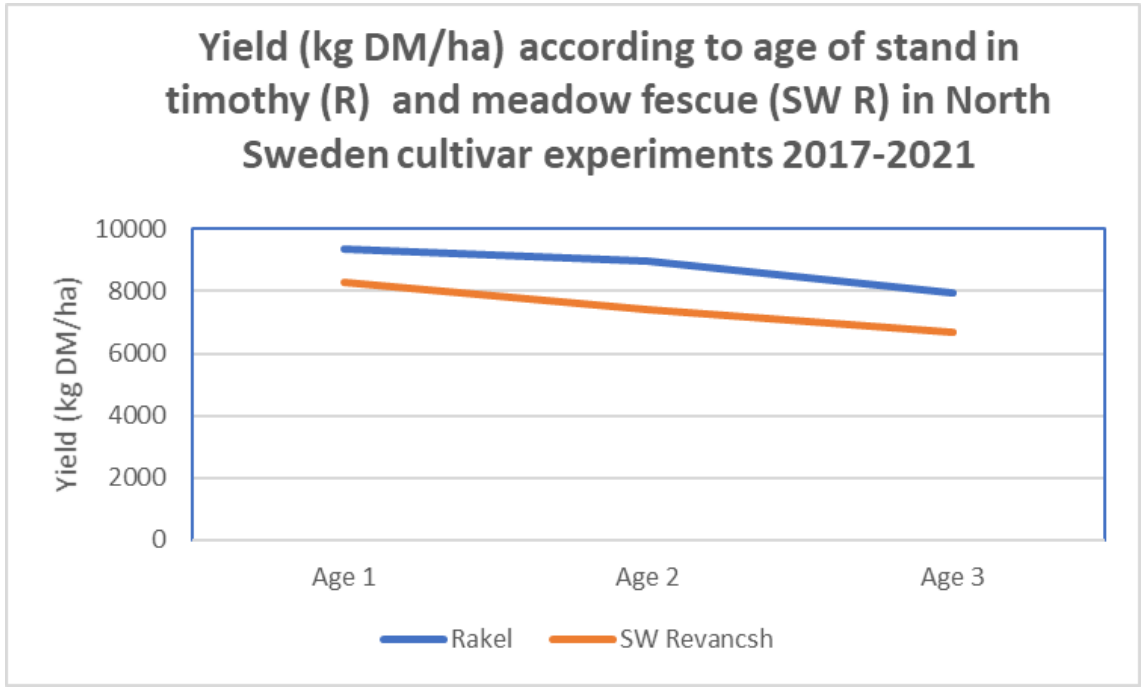
Västerbottens 3572
Västernorrlands 3860
Gävleborgs 4128

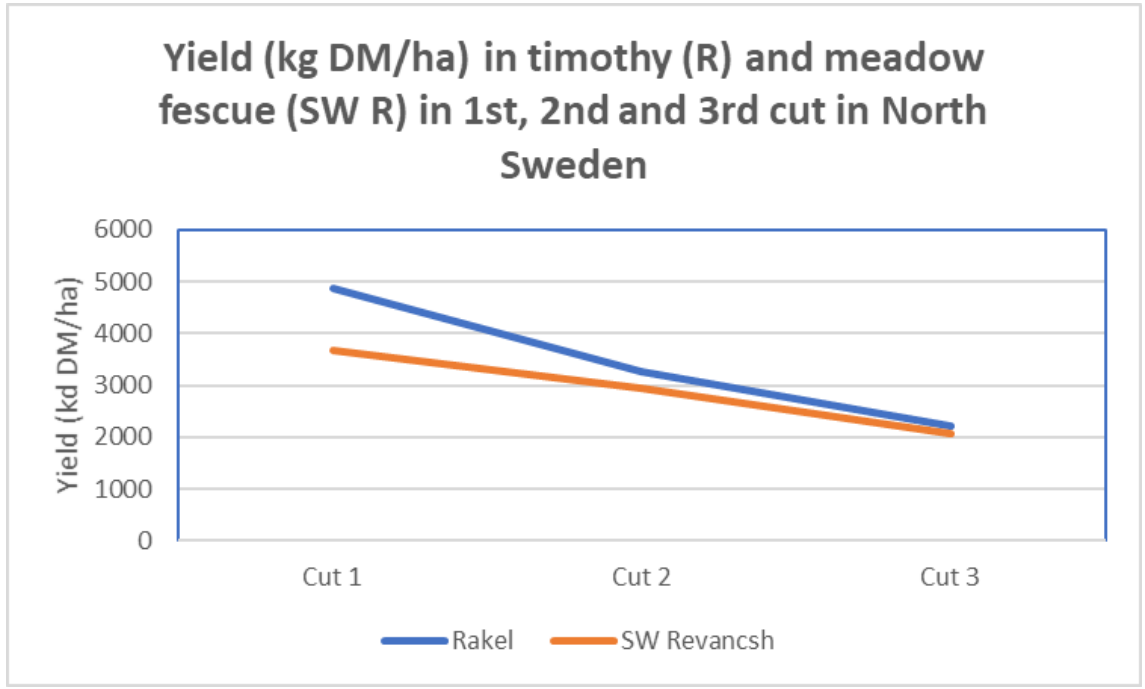
12k. Konventionell hektarskörd i kg/ha. Trimmat tioårsmedelvärde för län, produktionsområden och riket 2020, slåttervall totalt

12k. Non-organic yield per hectare, kg/ha. Trimmed ten-year mean for counties, production areas and Sweden in 2020, temporary grasses total

Område	Total slåttervall		
	Tioårsmedelvärde		*Antal företag*[2]
	kg/ha	konv/ord[1]	
Län			
Stockholms	3 807	104	*144*
Uppsala	4 274	102	*177*
Södermanlands	4 235	99	*163*
Östergötlands	5 177	108	*241*
Jönköpings	4 824	102	*250*
Kronobergs	4 963	102	*166*
Kalmar	5 320	103	*250*
Gotlands	5 509	105	*183*
Blekinge	5 263	97	*83*
Skåne	5 734	103	*491*
Hallands	6 160	101	*238*
Västra Götalands	5 280	106	*664*
Värmlands	3 649	99	*184*
Örebro	..	..	..
Västmanlands	..	..	..
Dalarnas	4 159	98	*144*
Gävleborgs	4 128	101	*142*
Västernorrlands	3 860	103	*155*
Jämtlands	3 849	106	*104*
Västerbottens	3 572	102	*260*
Norrbottens	3 676	100	*122*

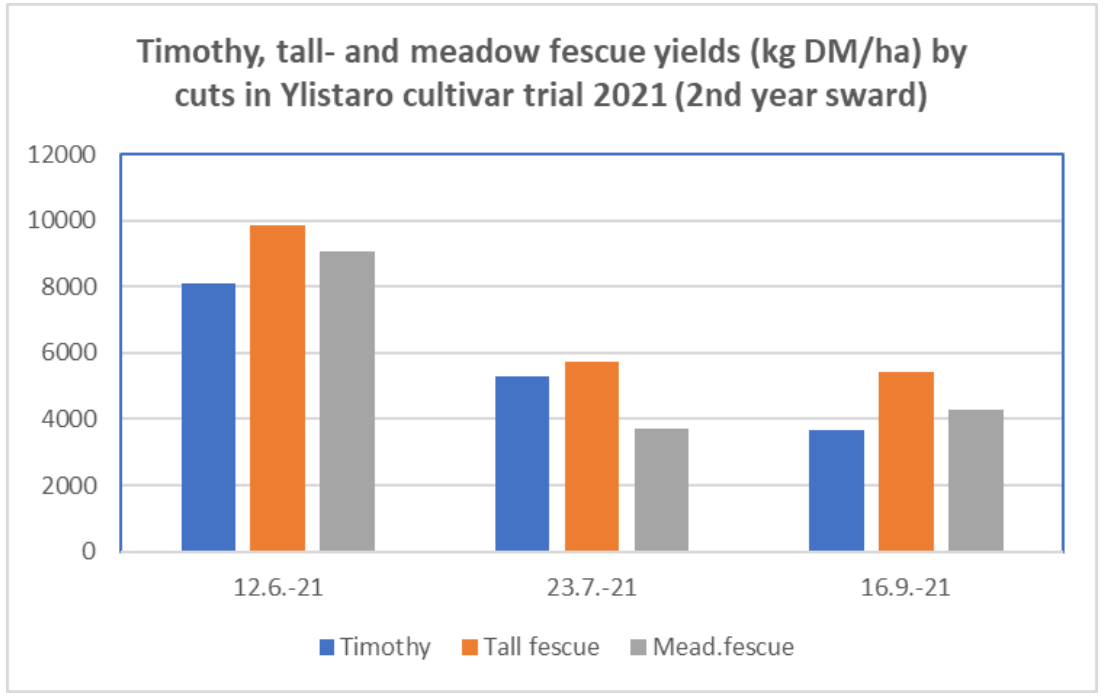
Yields in cultivar trials are much higher than in yield statistics. However, in yield statistics yields are based on whole farm data and not on individual field parcels.

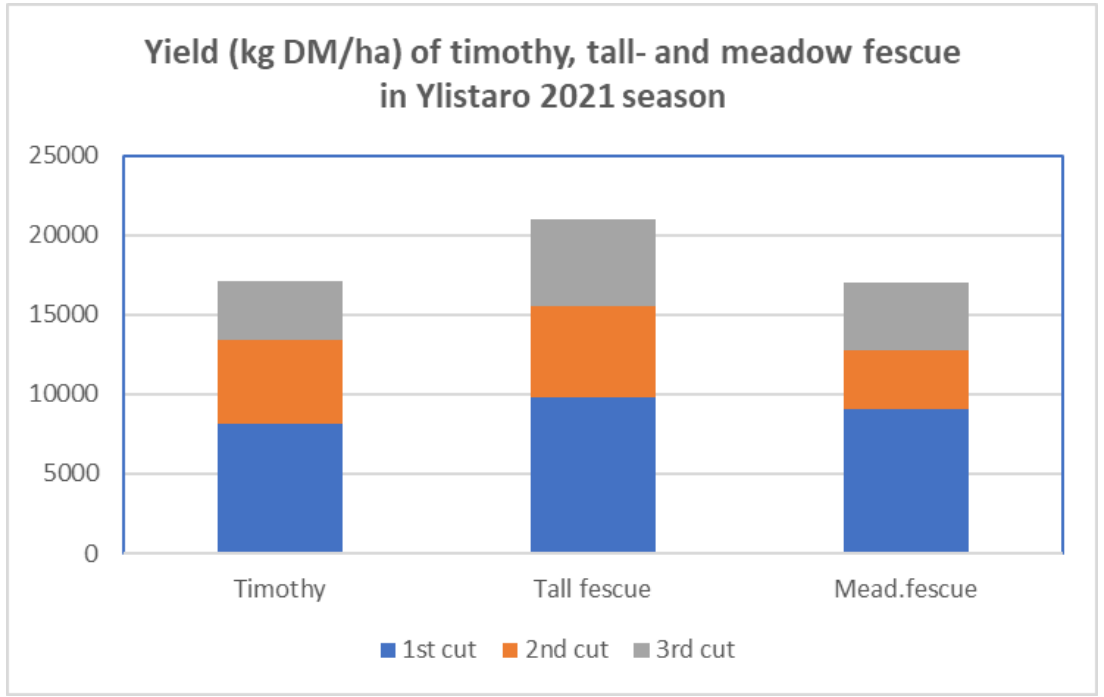




Data for figures from: Boel Sandström and Malin Barrlund. 2022. Sortprovning 2021 –vallgräs och vallbaljväxter. SLU. Institutionen för norrländsk jordbruksvetenskap. Nytt nr 1, 2022.

Dry matter yield (kg DM/ha) of standard cultivar of timothy, tall fescue and meadow fescue trial in Ylistaro in 2021.





In CyberGrass I we have done sampling and drone imaging and satellite follow up on pilot farms and through experiments in 2021 and in 2022. Collaboration with pilot farmers, Boreal Plant Breeding and ValioArtturi is highly appreciated bu the project. In Sweden sampling was carried out by SLU and Norrland Västerbotten HHS

Sampling prior to 1st cut (6-10.6.2022) in Finland. In total 11 fields. One field sampled twice.

	Mean	Min	Max
Dry matter yield (kg DM/ha)	3176	1680	3945
Protein (g/kg DM)	193	130	223
D-value	741	722	758
Fresh Yield (kg/ha)	19140	9440	25200

Four sub sample quadrats on each field each 0,5 m by 0,5 m. Area 0,25 m^2. Pooled sample 1 m^2.
On some fields big difference in sub sample yields observed.

Sampling prior to 2nd harvest (18-19.7.2022) in Finland. 6 fields.

	Mean	Min	Max
Dry matter yield (kg DM/ha)	3843	2561	5443
Protein (g/kg DM)	178	123	207
D-value	695	641	731
Fresh Yield (kg/ha)	18170	10900	24520

Thank you!

Collaborating farmers, ValioArtturi and Boreal Plant Breeding are warmly acknowledged for fruitful collaboration.

The project is funded by the European regional development fund with Region Västerbotten and Pohjanmaan liitto