Organic grass and legume seed production in Sweden

Ann-Charlotte Wallenhammar[1,2]

[1]Rural Economy and Agricultural Society|HS Konsult AB Örebro

[2]Swedish Agricultural University, Department och Crop Production Ecology, Uppsala

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Outline

- ✓ Introduction to organic seed production
- ✓ Weed regulation by cutting the herbage in clover crops
- ✓ Field trials in white clover
- ✓ Cutting put into practice
- ✓ N-application in grass seed

A journey that started more than 20 years ago

- Harvest of red clover seed in September

- Swathing about 10 days earlier

Participating authors

- Lars Andersson, SLU
- Eva Stoltz , REAS, Örebro
- Eva Edin, REAS, Västerås
- Gunilla Larsson, Swedish
- Seed and Oilseed Growers

- Per Ståhl, Crop Advisor organic Production,
- Rural Economy and Agricultural Society (REAS), Östergötland

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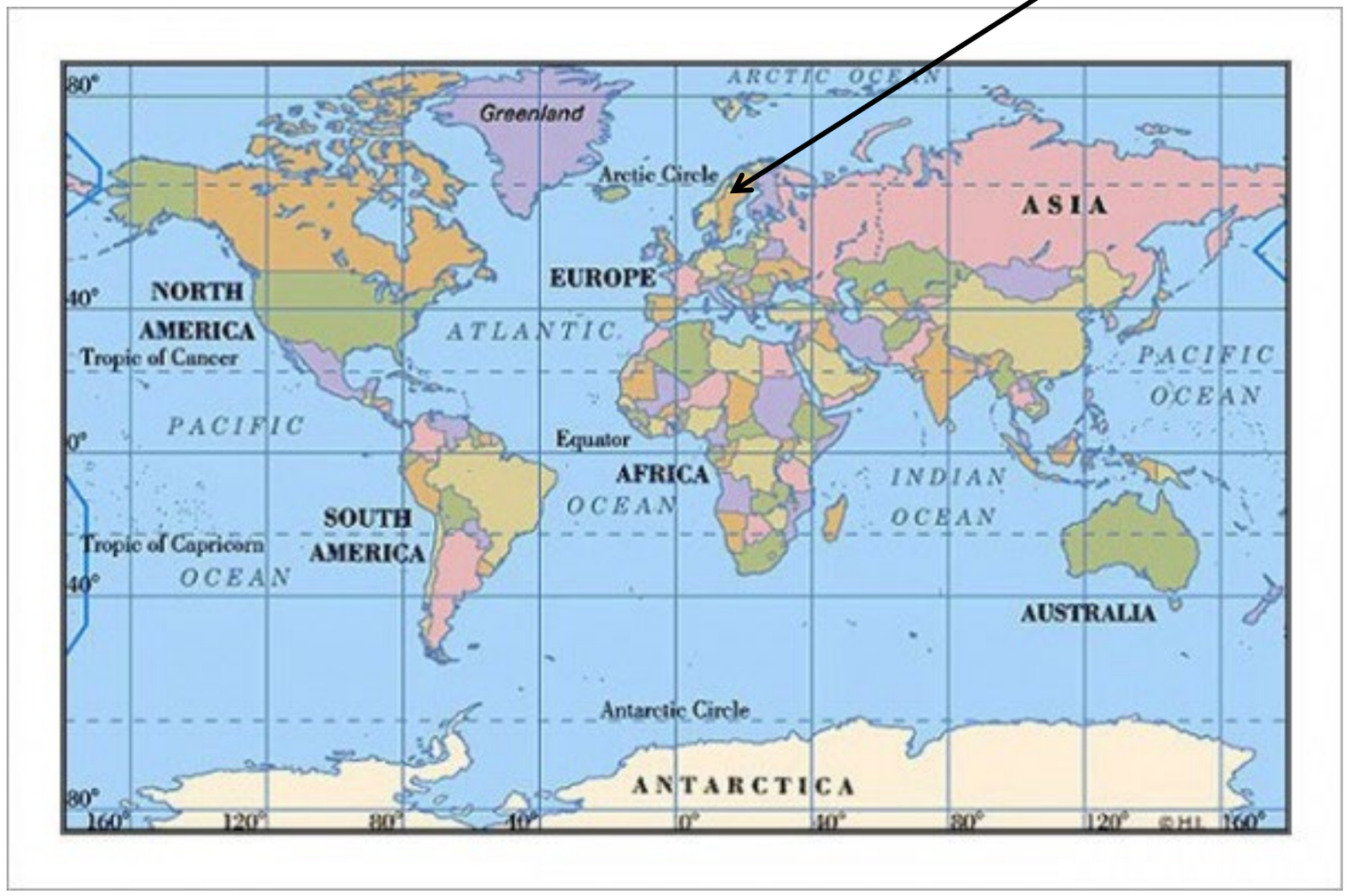
SLU

Jordbruks verket

County administrations in region Skåne, Västra Götaland and Örebro

The European Agricultural Fund for Rural Development: Europe investing in rural areas

Sweden



Örebro
Lat 59° N

Sunrise 03:45 am, sunset 22:12 pm

Mixed grass-legume leys

Red clover is the most important legume crop in mixed leys

Meadow fescue

Timothy

Production of organic certified seed of grass and legume crops

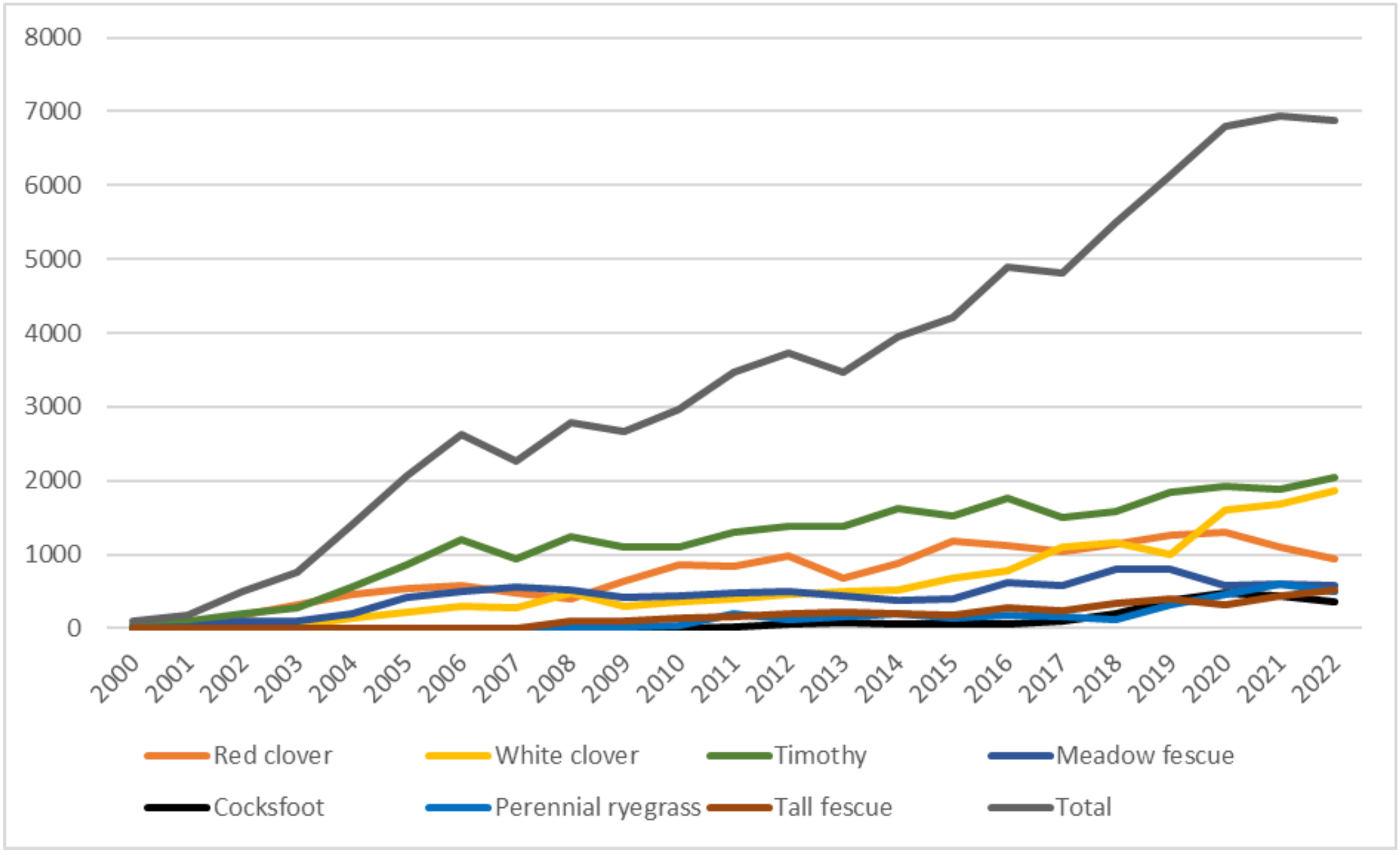
Certified organic ley seed

The same requirements apply for purity and germination as for conventional seed

Efficient weed regulation

- No tolerance of docks (*Rumex* spp)
- Admixture of other economic species difficult to separate (white clover and Alsike clover in timothy)

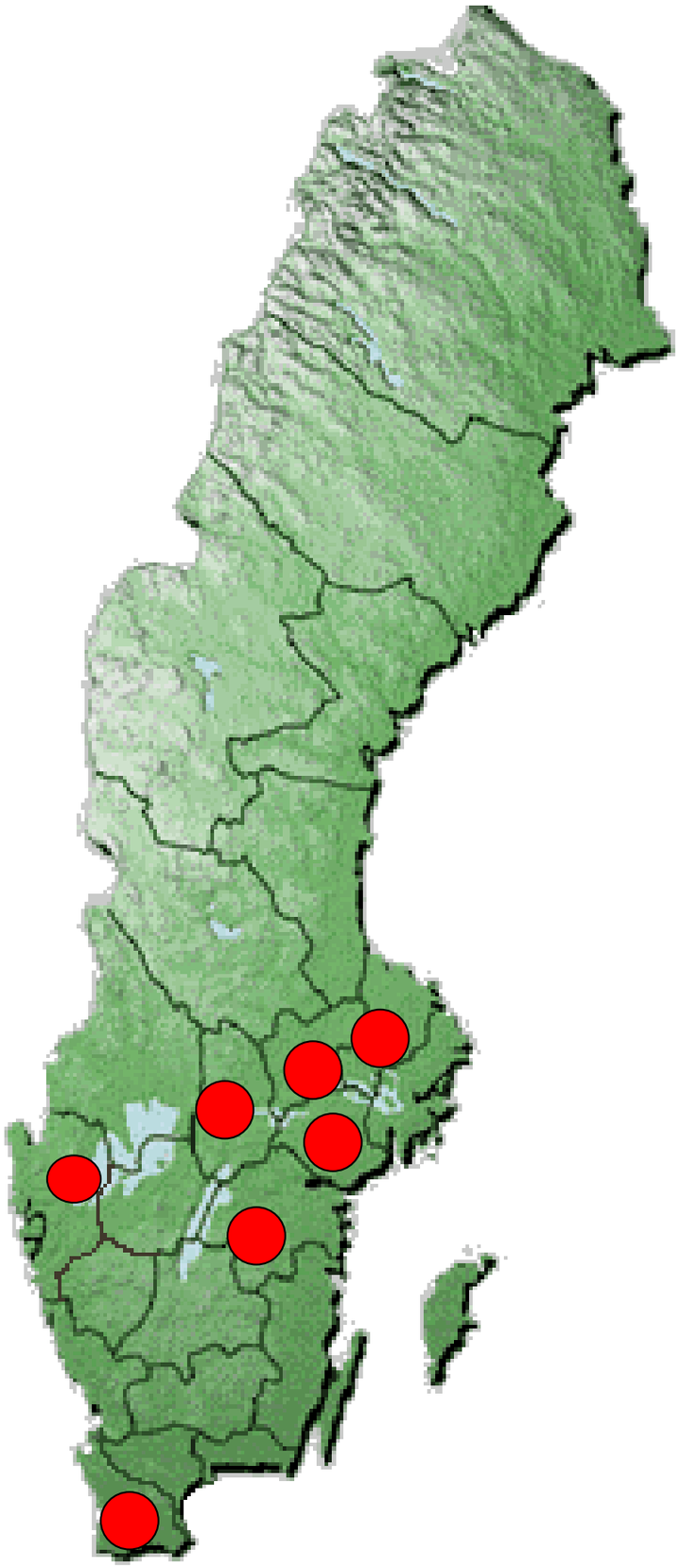
Area in hectares of certified seed farmed in Sweden 2000-2022



Source: Swedish Board of Agriculture

Successful collaboration

Important discussions in the field sharing knowledge



✓**Location of field experiments and activities**

Weed regulation by cutting the herbage

Weed regulation by cutting the herbage of the seed crop of white clover- field trials

Cutting treatments performed 3-5 cm above the ground surface at:

1. control without cutting (no C)
2. budding (CB)
3. 1-2 flowers (CF)
4. full flowering (CFF)

Sandby gård Österlen
29 June 2007

Seed crop of white clover after cutting the herbage at different developmental stages. Average of six field trials conducted in cultivars SW Sonja, SW Hebe; SW Ramona and Riesling in 2005-2007

Treatment	**Seed yield (kg per hectare)**	**Flowers (number per m^2)**	***T. inodorum* Fresh weight per m^2**
1. No cutting	233*ab*	471*a*	1326*a*
2.Cutting at budding stage (CB)	262*a*	608*a*	321*b*
3. Cutting att 1-2 flowers per m^2 stage (CF)	188*b*	554*a*	73*c*
4. Cutting at full flowering (CFF)	98*c*	407*a*	15*c*

Different letters show significance according to Tukeys test, $p<0.05$

Cutting in practice

Optimal time point for cutting

The stalk on the ground. Cutting can be performed at a low height (5-8 cm), until the buds elongate and the first white flowers are visible.

Photo: Per Ståhl

Wide dubble knives – multi purpose forage cutter

Photo :P. Ståhl

Strategy for cutting red clover

- Time point
- Cutting height

Early cutting

Best performed in the stem elongation phase of red clover usually in late May.

Cut when **scentless mayweed** extends above the clover stand

Harsh cutting is most effective for weed reduction and has shown increased seed yield

Harsh cutting

Mild cutting

Photo: Per Ståhl

Checking the cutting height with a Swedish folding rule

Cutting in practice

Mild cutting
above the growing point

Half the crop stand
(compromise)

Harsh cutting

Design: P. Ståhl

Nitrogen application in grass seed

Organic amendments

Spreading of Vinasse cattle slurry

Conclusions timothy

✓Low N-level (50 N) was underoptimal

✓ High N-level (90 N) Vinasse and digestate increased lodging

✓ Digestate is a future product!

First experiments with digestate from biogas production

Grass seed a multi purpose crop

Harvest of timothy regrowth 2018

11,5 MJ

176 g cp

Environmental benefits

- Seed production of clover has a great impact on biodiversity
- Important for N-managment

Nordic Association for Agricultural Research

Herbage Seed Group

Plants section working group

Seminars every 4th year

Thank you for your attention!