



Swedish production of organic grain legumes for food – insights from research and practice

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Swedish production of organic grain legumes for food – a researcher's perspective

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Potential to replace part of the meat consumption in Sweden with domestic grain legumes?

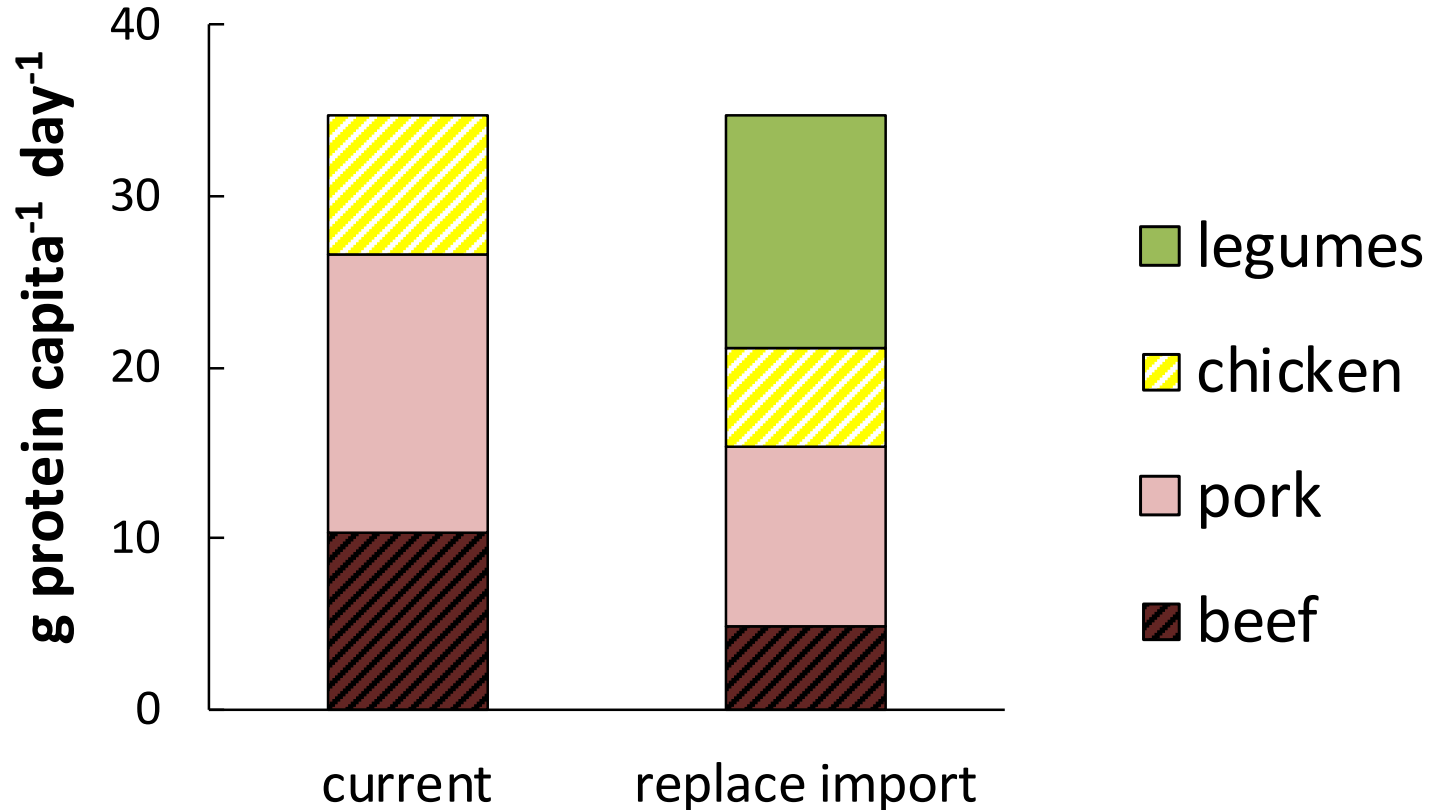
70% of Swedens agricultural land is used for animal feed production

More grain legumes could be grown in Sweden, e.g. pea, faba bean, *Phaseolus* beans, lupins, lentil, soybean.



Photo: Pamela Yah Konfor

Protein supply, comparing current meat consumption with a scenario that domestic grain legumes replace imported meat



Calculations based on data in *Hallström et al. (2014). Food Policy 47, 81–90.*

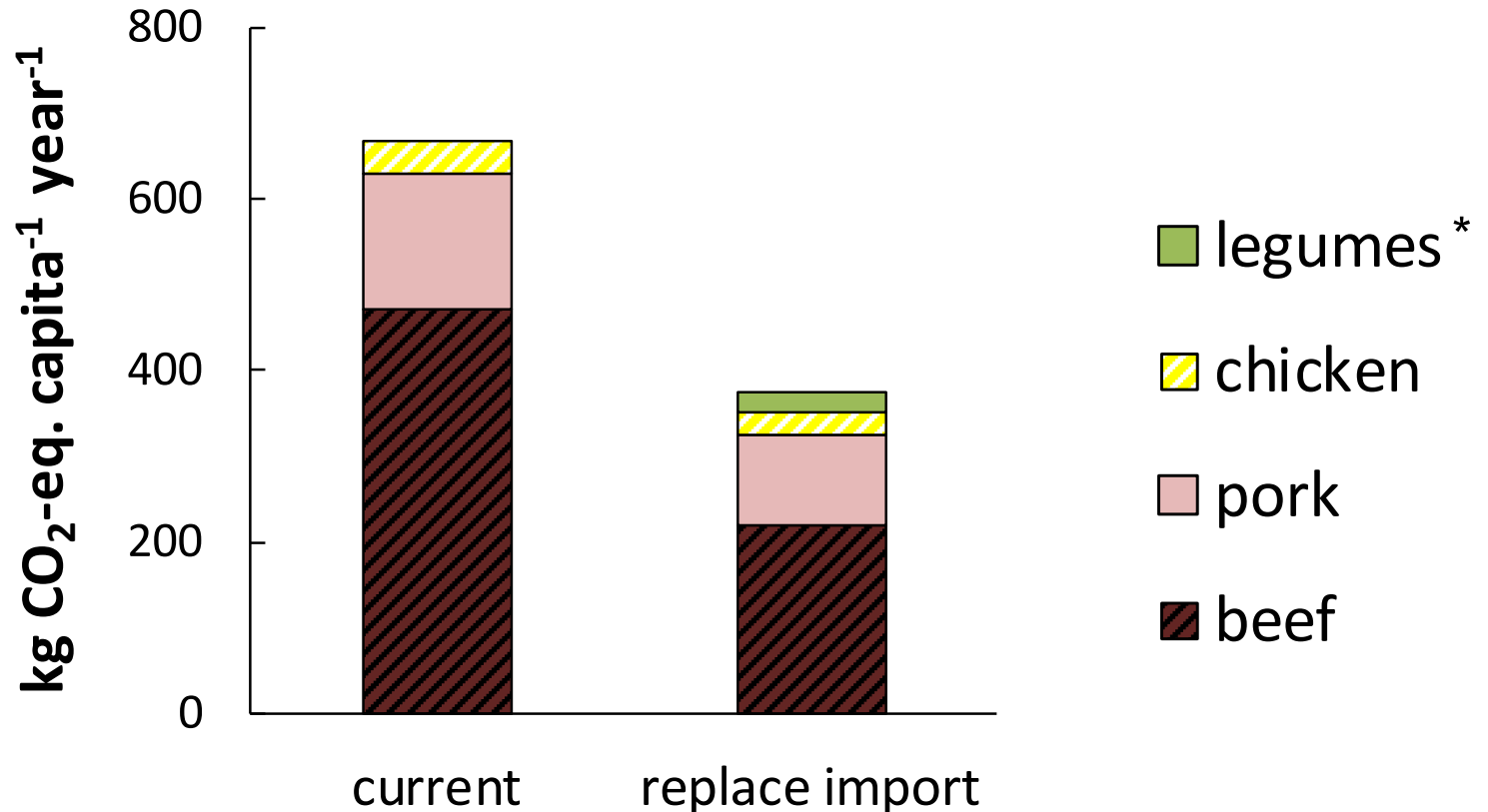
Protein supply, comparing current meat consumption with a scenario that domestic grain legumes replace imported meat

This replacement requires a per-capita consumption of about 110 g cooked beans, peas or lentils per day.



Photo: G. Carlsson

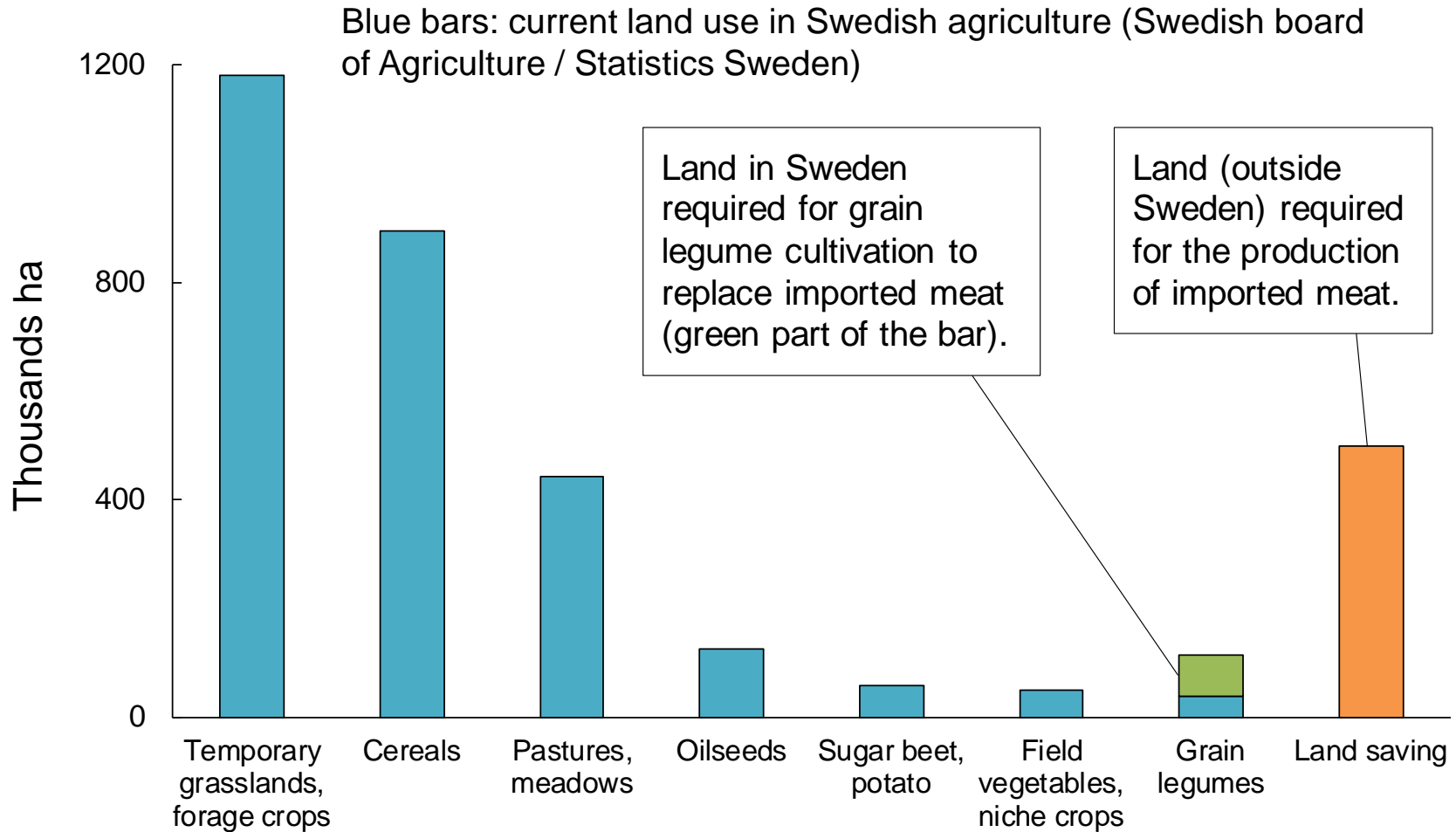
Climate impact, comparing current meat consumption with a scenario that domestic grain legumes replace imported meat



* Assuming greenhouse gas emissions corresponding to 1,3 kg CO₂-eq. per kg dry GL. Data for meat based on *Hallström et al. (2014). Food Policy 47, 81–90.*

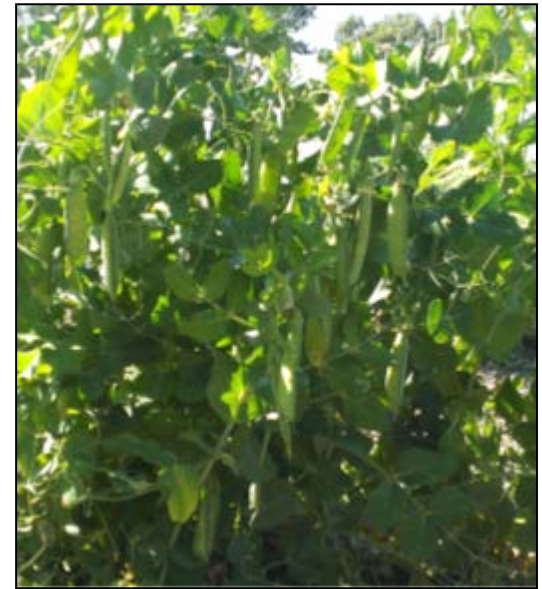
Land use: the replacement requires about 60 000 ha for increased Swedish grain legume cultivation

Assuming average GL yield of 3 ton/ha, containing 26 % protein



Increased grain legume cultivation → cropping system diversification

- Reduced need for N fertilization and pesticides in conventional production
- New opportunities for grain legume production on organic farms without animals



Photos: G. Carlsson

Yield stability in organic grain legume production



Abundant weed growth in fields with organic cultivation of lupins, faba beans and lentils (photos: G. Carlsson).

Complementarity in grain legume-cereal intercropping enhances crop performance



Lupin/barley

(photo: G. Carlsson)



Faba bean/wheat

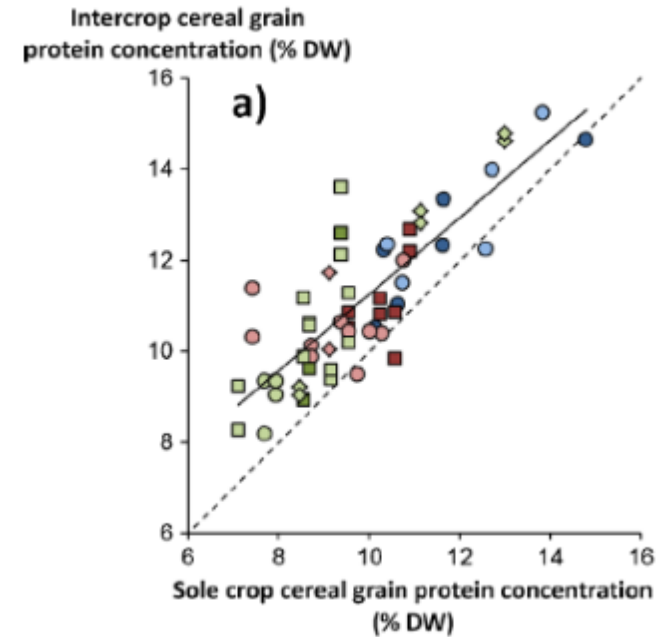
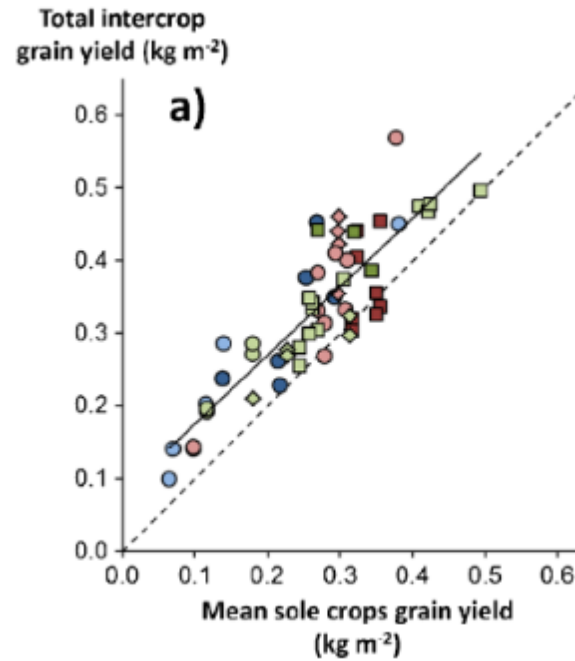
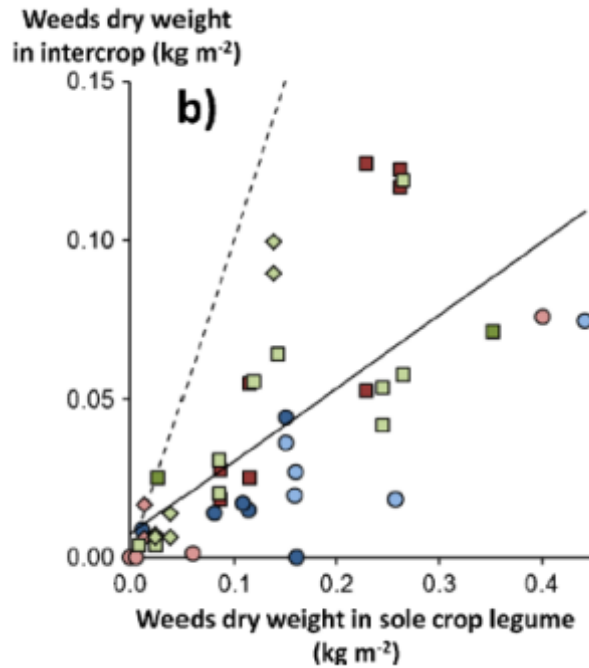
(photo: E.S. Jensen)



Lentil/oat

(photo: G. Carlsson)

Complementarity in grain legume-cereal intercropping enhances crop performance



Bedoussac et al. 2015. *Agron. Sustain. Dev.* 35, 911-935.

Why not more intercropping?

Despite the mentioned benefits, intercropping for production of mature grains is rarely adopted by Swedish farmers

Technical challenges for cultivation and harvesting



Photos: E.S. Jensen

Focus on Intercropping in Organic Legumes (FIOL)

Ongoing research aiming to identify problems, market opportunities and technical solutions for Swedish organic grain legume production.

Participatory design and assessment of grain legume-cereal intercropping systems.

Focus group meetings linking key actors in the grain legume-based food system



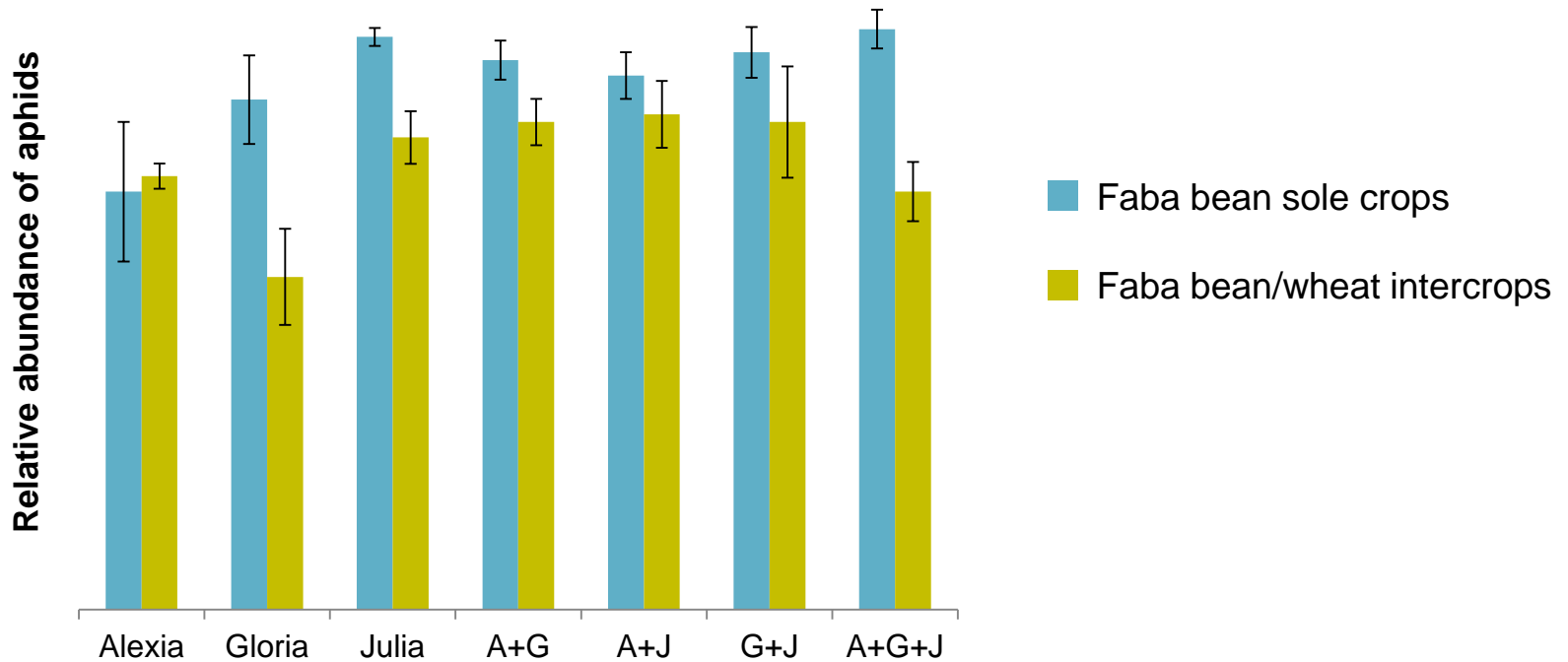
Photo: G. Carlsson

Thank you for your attention!

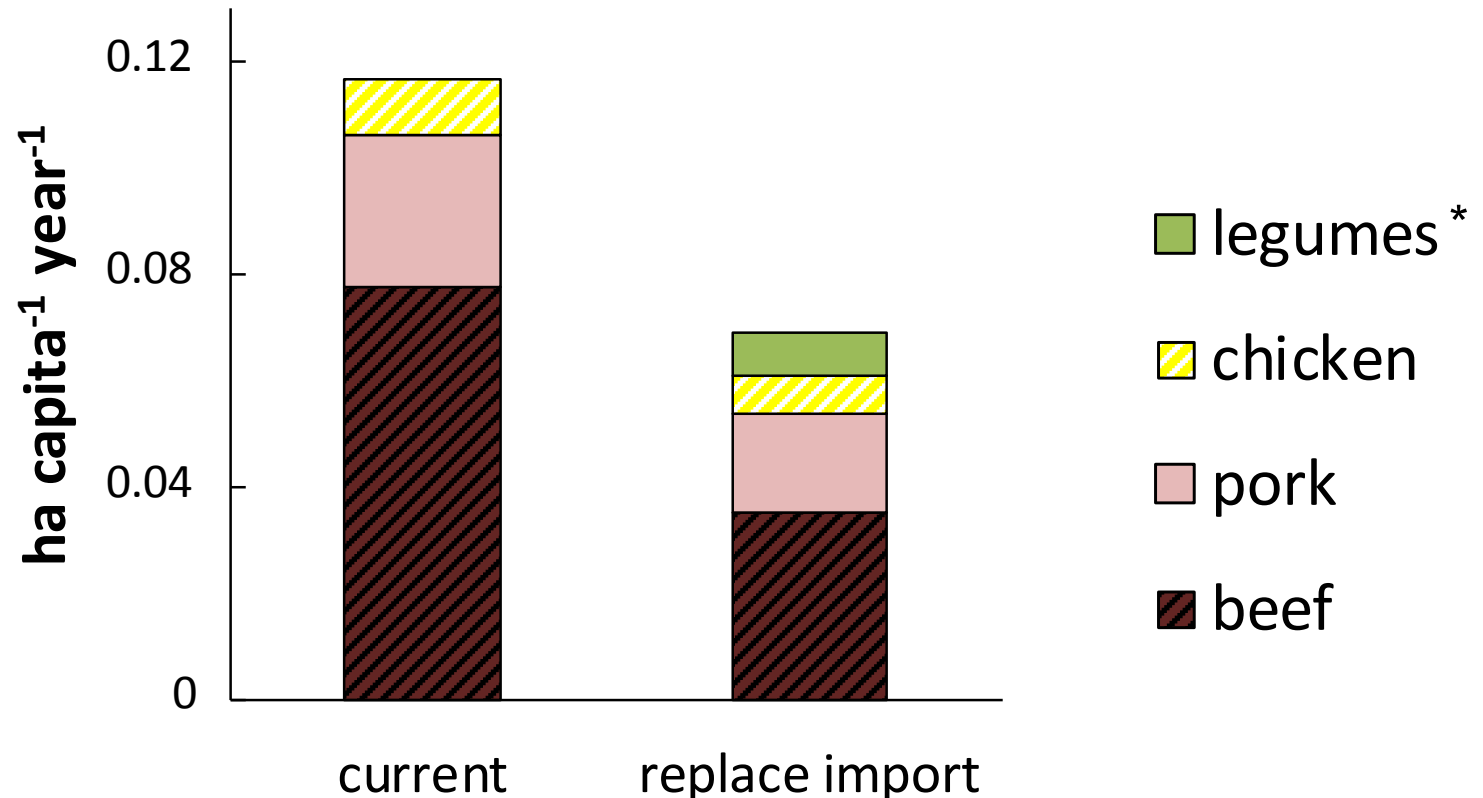


Photo: G. Carlsson

Additional benefits of intercropping – potential to prevent pests damages



Land use, comparing current meat consumption with the scenario that domestic grain legumes (GL) replace imported meat



* Assuming average GL production of 3 ton / ha and 26 % GL protein concentration
 Data for meat based on *Hallström et al. (2014). Food Policy 47, 81–90.*