



Focus Group 'Production of protein crops under climate change'

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Protein crop experiences in Western Finland

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PROTEIN CROP EXPERIENCES IN WESTERN FINLAND

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Utilised agricultural area (UAA) in Finland

- 86% forest land (of which 77% is good-quality forests)
- **7,5% agricultural land**
- 6,5 % urban and other constructed areas

- 2,25 million hectares in total utilised agricultural area (UAA) of which 90% cultivated land and 10% fallow land

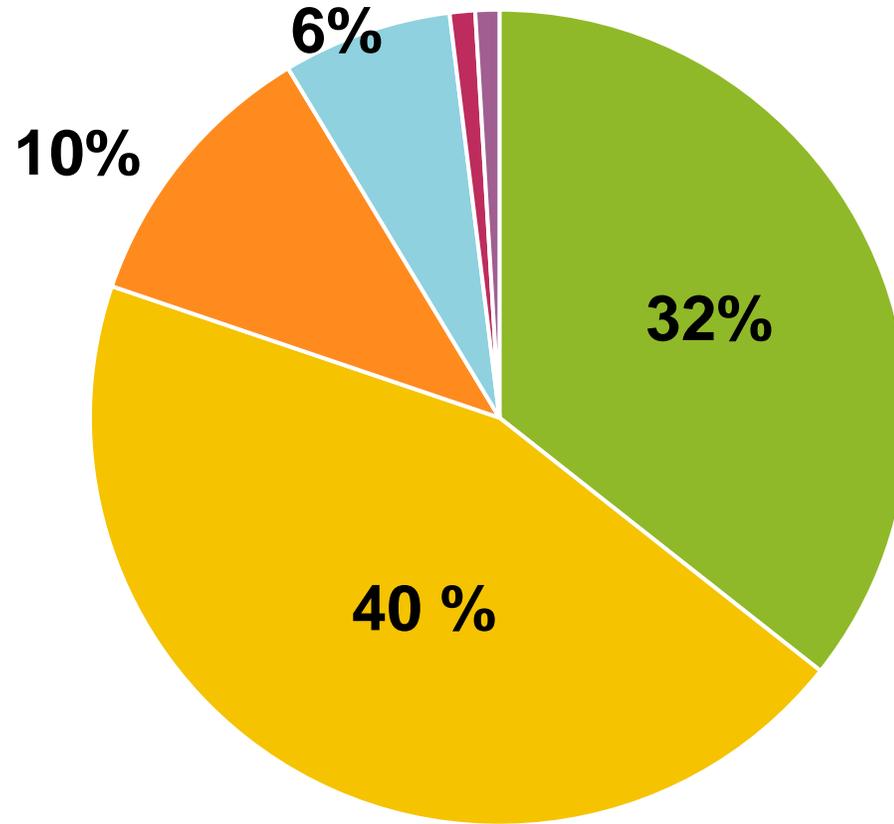
- About 20% of the total farming land locates in **Southwest Finland area (17% of all the farms).**
- Out of the cultivated land
 - 52% is under cereals
 - 39% grasslands (under 5 yrs)
 - 9% other crops (peas, oilseeds, potatoes, sugarbeet etc)





Farm numbers by production type in Finland

- Cereal farms 32%
- Other arable farms 40%
- Dairy farms 10%
- Beef farms 6%
- Pig farms 0.9%
- Poultry farms 0,85%



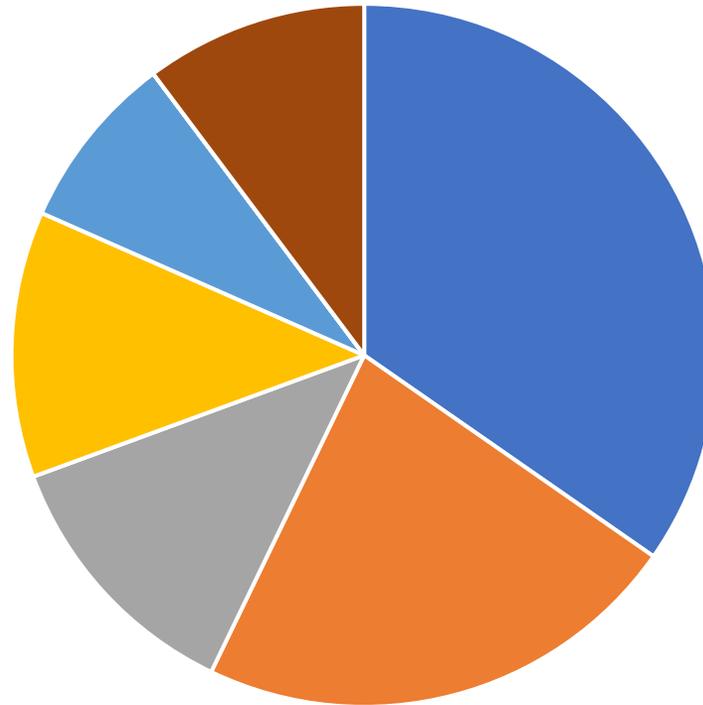
- 85 % family businesses
- 9 % farming syndicats
- 3 % limited companies
- 2 % heirs

- Cereal farms
- Other arable farms
- Dairy farms
- Beef farms
- Pig farms
- Poultry farms



The most important protein crops on dairy, sheep and beef cattle farms in Western Finland?

Most important protein sources,
Western Finland discussion group farms 2024



■ Grass silage ■ Clover silages ■ Alfalfa silages ■ Clover-alfalfa silages ■ Pea mixes as silage ■ Vetch mixes ■ Triticale silage ■ Harvested protein crops



Soya bean is forbidden to use on Valio dairy farms



Our farm and protein crops

- We produce about 13 000 kg ECM milk for dairy cows on a family farm (50 dairy cows, 100 ha of field + forests)
- The feeding is based on very good quality grass and grass/legumes silage and some whole crop silage (all together about 60%) Silage is the basis of protein in the feeding.
- Own grown barley&oats 50% (4-8 kg/cow/day) of concentrates + 50% (4-8 kg/cow/day) concentrates from Lantmännen to add protein and energy. The better the silage, the less of concentrates.
- The target level for crude protein of the silage is 150-160 g



Why protein crops?

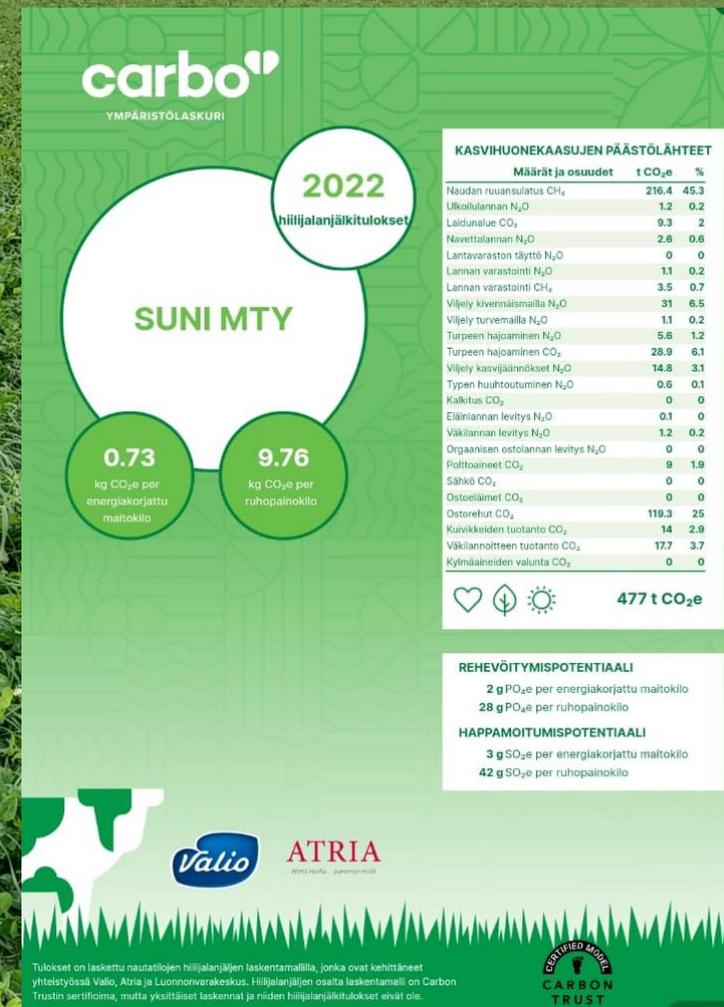
LEGUMES:

- High density of sward, full fotosyntesis
- Multiple grass mixture with deep roots and nitrogen fixation, more carbon
- Less chemical fertilizing, dry manure in establishment
- Better soil health when legumes or vetch compared to many other crops
- Crude protein already from the fields next to the farm with less transportation

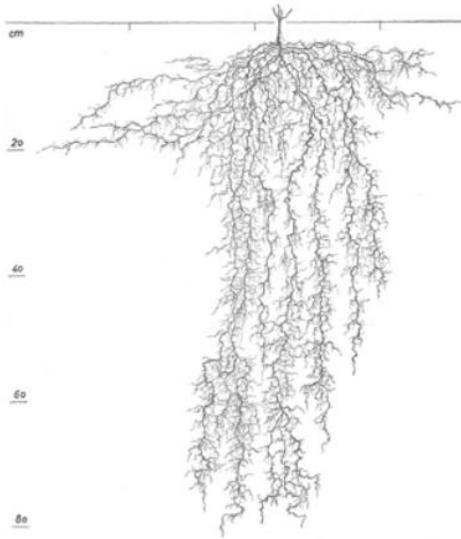
MENU of grassland mixture

Timothy
Tall Fescue
Meadow Fescue
Cocksfoot
Perennial ryegrass diploid
Brome grass (B. inermis type)
Red clover
Alsike clover
White clover
Lucern (mostly yellow varieties)

30-35kg/ha



Vetch (hairy + winter vetch) + persian clover + crimson clover +italian ryegrass



Establishment in mid May, one cut of silage in mid July and grazing with just 10 days rotation the rest of the growing season

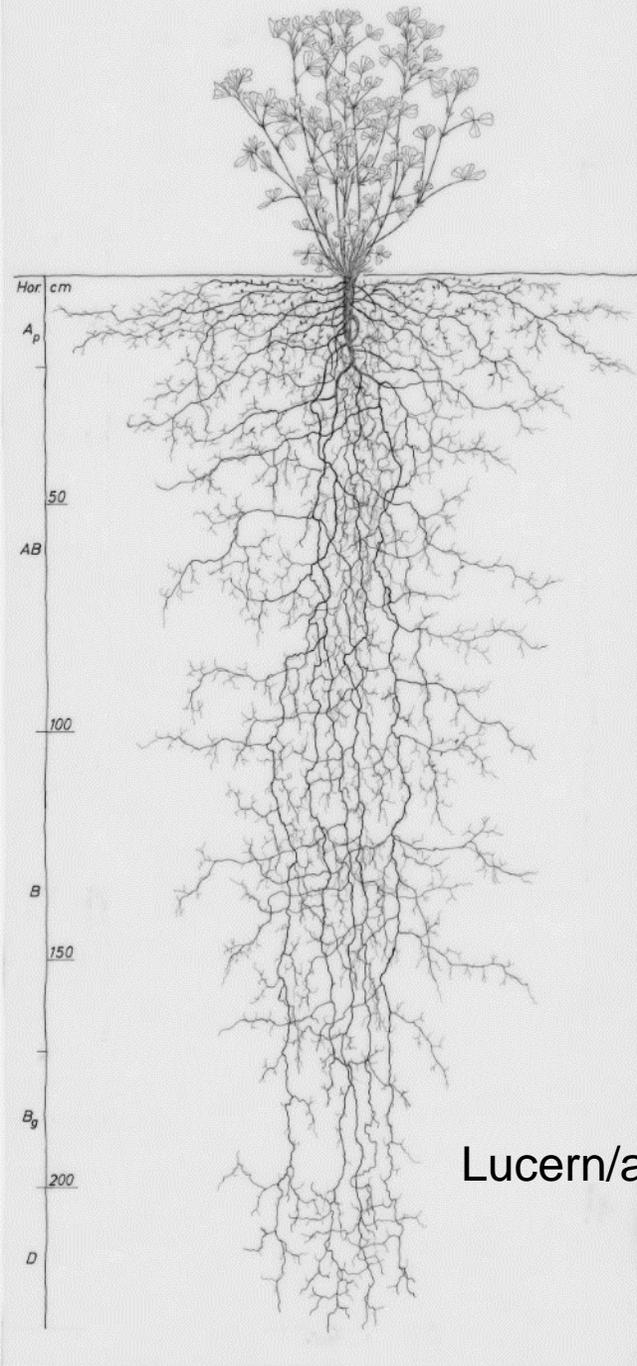




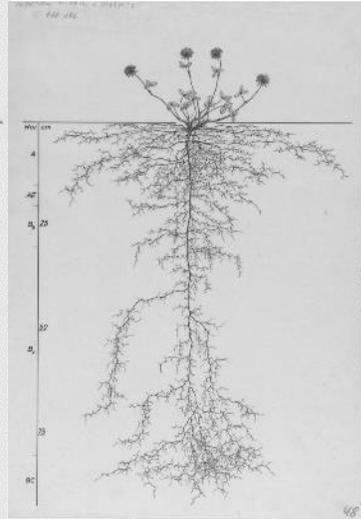
Annual grazing paddock for the young cattle to add protein in the Autumn season



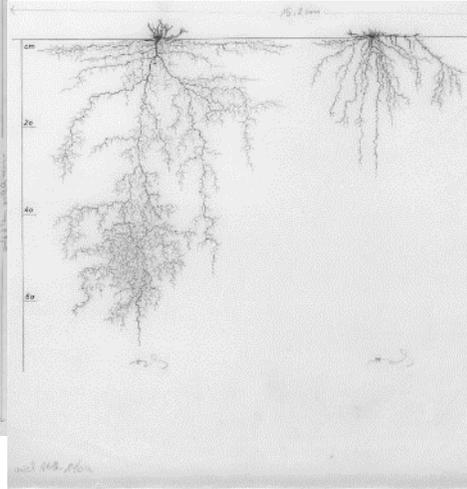
Legumes and climate



Lucern/alfalfa



Red clover



White clover

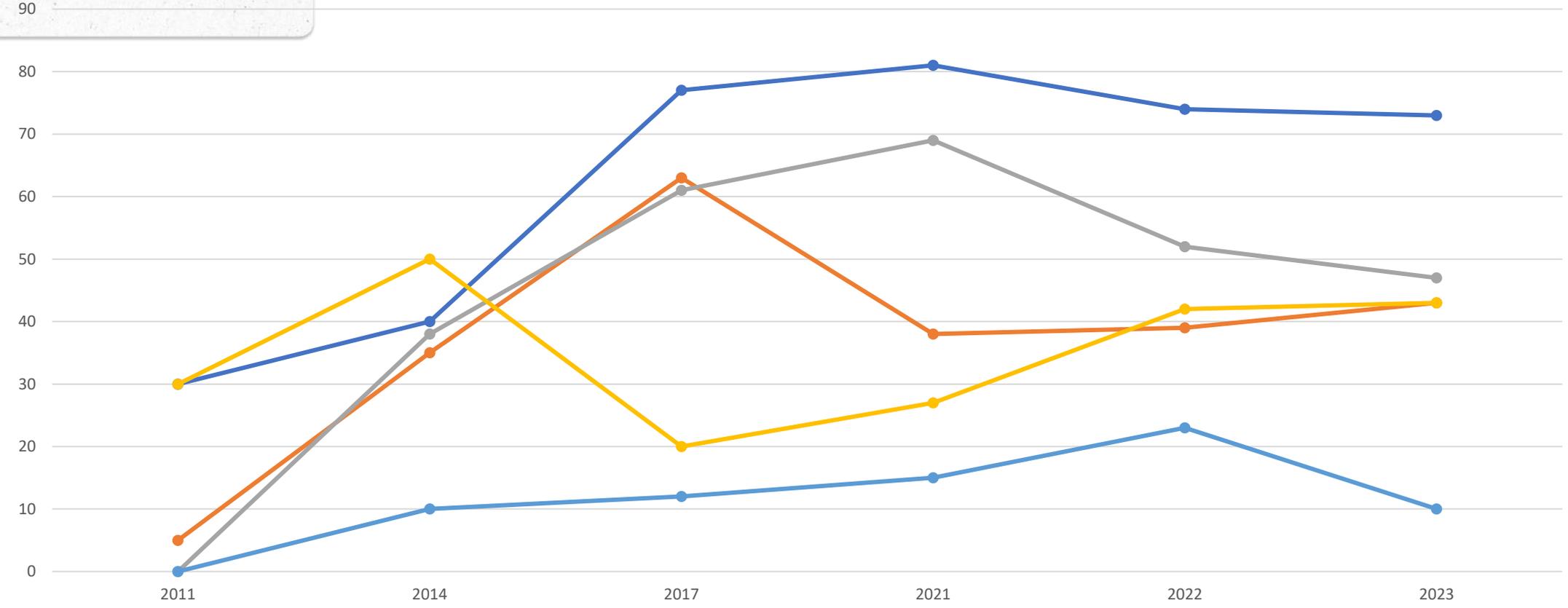


- Alfalfa has especially deep tap root and large root system
- Red clover deepest of the clovers
- Tap root and root nodules for nitrogen fixation



Average yield 2021-2023: **9070** kg DM/ha

Change in use of legumes in Western Finland 2011-2023

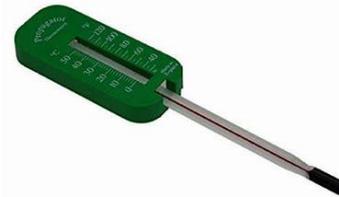


● Puna-apila Red clover
 ● Alsikeapila Alsike clover
 ● Valkoapila White clover
 ● Sinimailanen Lucern (blue)
 ● Rehumailanen Lucern (yellow)



Problems:

- Soil temperature is too low until the end of May in Finland –slowly N fixation
- Spring frost – growth – frost – growth... Then hard drought and hot... then the Autumn which can be warm and long or cold and snowy: **Challenging to plan!**
- Very fast growth before the first cut of silage -300 kg DM/day is normal –difficult to catch the optimal harvesting time





Fusarium



Ice damage

Future plans with protein crops in Finland

- Most of the farms want to keep it simple and have no extra land
 - > **Top quality silage**
- Increasing interest for deep root species, legumes and carbon farming
- Winter cereals and faba beans show growing interest
- 20 years ago it was "suspicious" to have a multiple grass mixture, to talk about soil health or to trust biology (N fixation etc), now it's trendy!
- Discussion groups to develop protein production



Thank you!



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From January 2025 -> anu.ella@mtk.fi

EU CAP Network Focus Group 'Production of protein crops under climate change'

20-21 November 2024 | **Berlin, Germany**

All information on the Focus Group is available on the webpage:

<https://eu-cap-network.ec.europa.eu/focus-group-production-protein-crops-under-climate-change>

