Problems and opportunities of climate change adaptation in North Savo region

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Abstract: The North Savo region in Finland is located in the center of the country and is characterized by a moderate climate with a well-defined growing season. Climate change is expected to have significant impacts on agriculture in the region, with changes in temperature, precipitation, and extreme events. This study reviews the adaptation challenges and opportunities for agriculture in North Savo region, with a focus on crop production.

Keywords: Climate change, adaptation, crop production, North Savo region.

Managing grassland yield variation at the farm level - Cost of drought risk approach

In farm decisions making, grass area is usually determined by the variation of yield. To be adequate in every situation, the lowest expected yield level determines the cultivated area. Other way to manage the grass yield risk is to increase silage storage capacity over annual consumption. Variation of grass yield in climate data from years 1961-1990 was compared with 15 different climate scenario models simulating years 2045-2046. A model was developed for evaluating the silage inadequacy risk in terms of cultivated area and storage capacity.

Results suggest slowly increasing grassland yields. However there are specific concerns on winter damages and feed quality losses, as well as soil compaction concerns related to heavy axle loads and wet conditions, that need further analysis.


Adaptation challenges:

- Overwintering problems, warmer winters
- Increased frost damage
- Weakening winter hardiness of grasslands
- Changes in yield patterns
- Loss of species diversity
- Increased weed pressure
- Soil compaction

Possible impacts:

- Increased costs for feed production and farm management
- Effects on crop yields and quality
- Impacts on livestock production
- Effects on soil quality

Outcomes:

- Increased risk and drought investments
- Successful adaptation dependent on policies and prices

Good adaptation practices may provide reduced costs and other benefits, exceeding extra work and costs to avoid problems. Examples include: costs due to droughts, floods and winter time damages for grassland could be mitigated by improved soil structure and grass cultivars of improved feed quality.