

Project:

Scarification and carbon

Effect of scarification on the *carbon balance*
in the forest ecosystem

Head of section -Forestry

Eva Skagestad,
County Governor of Innlandet



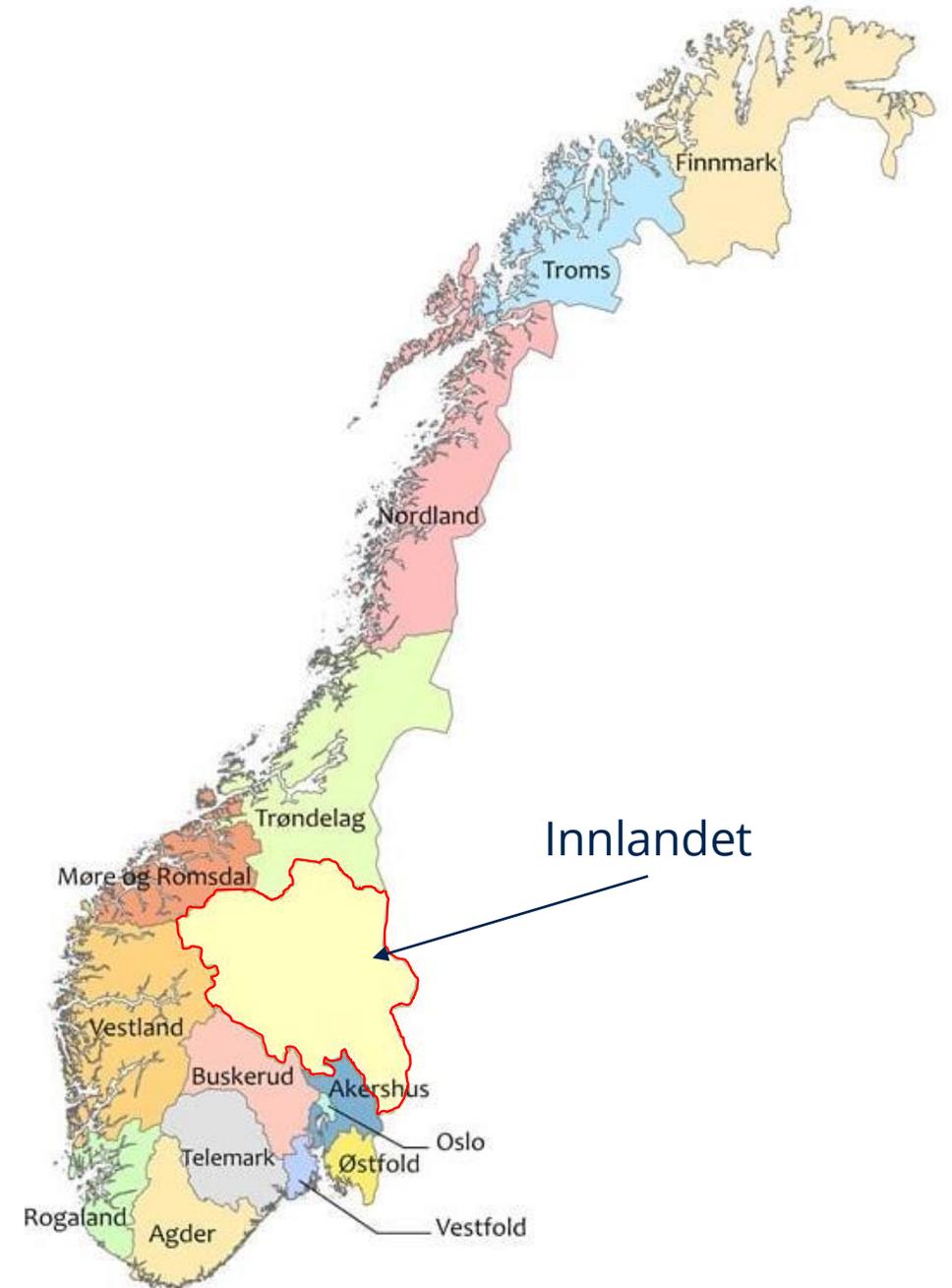
Statsforvalteren i Innlandet

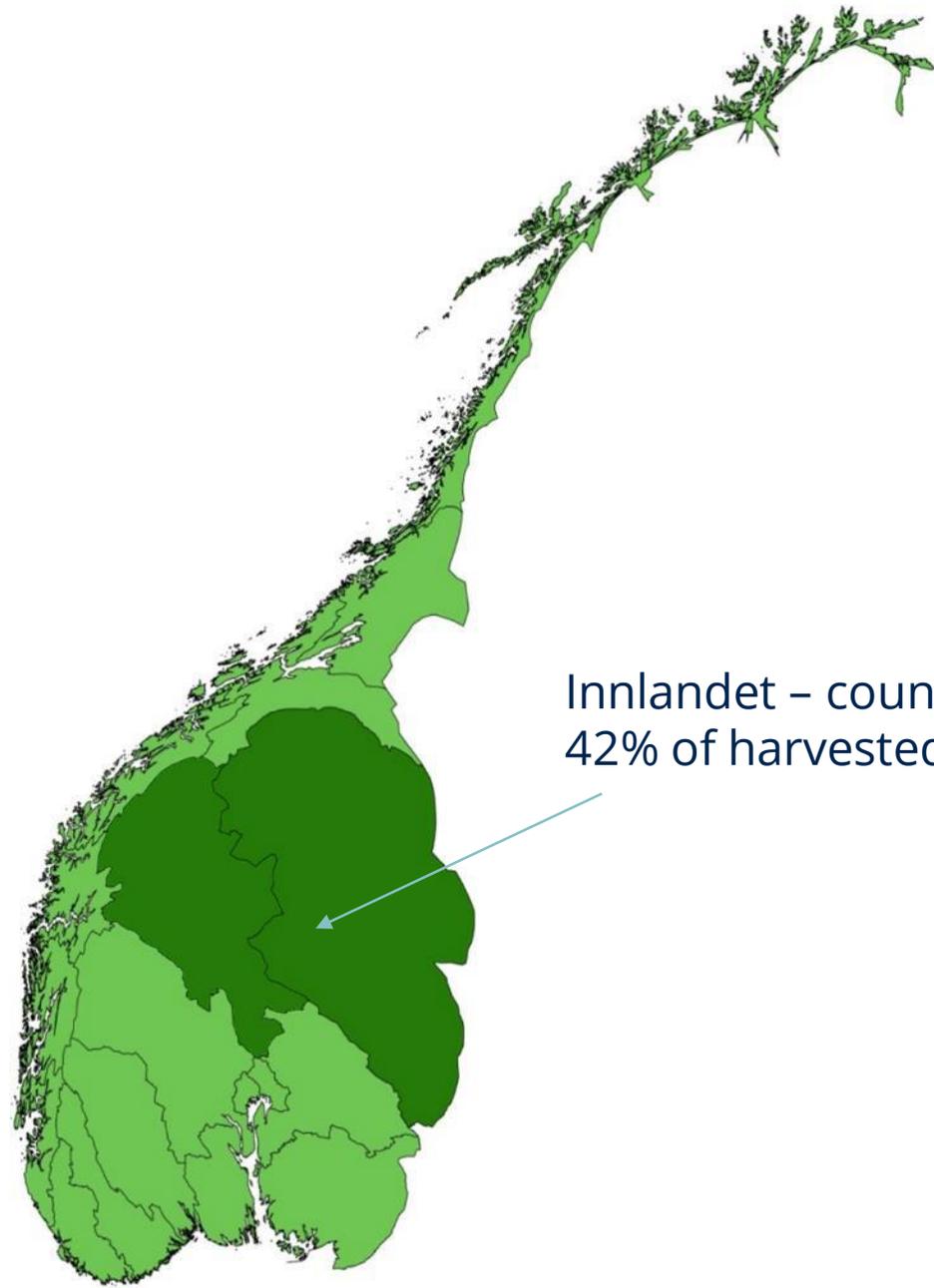
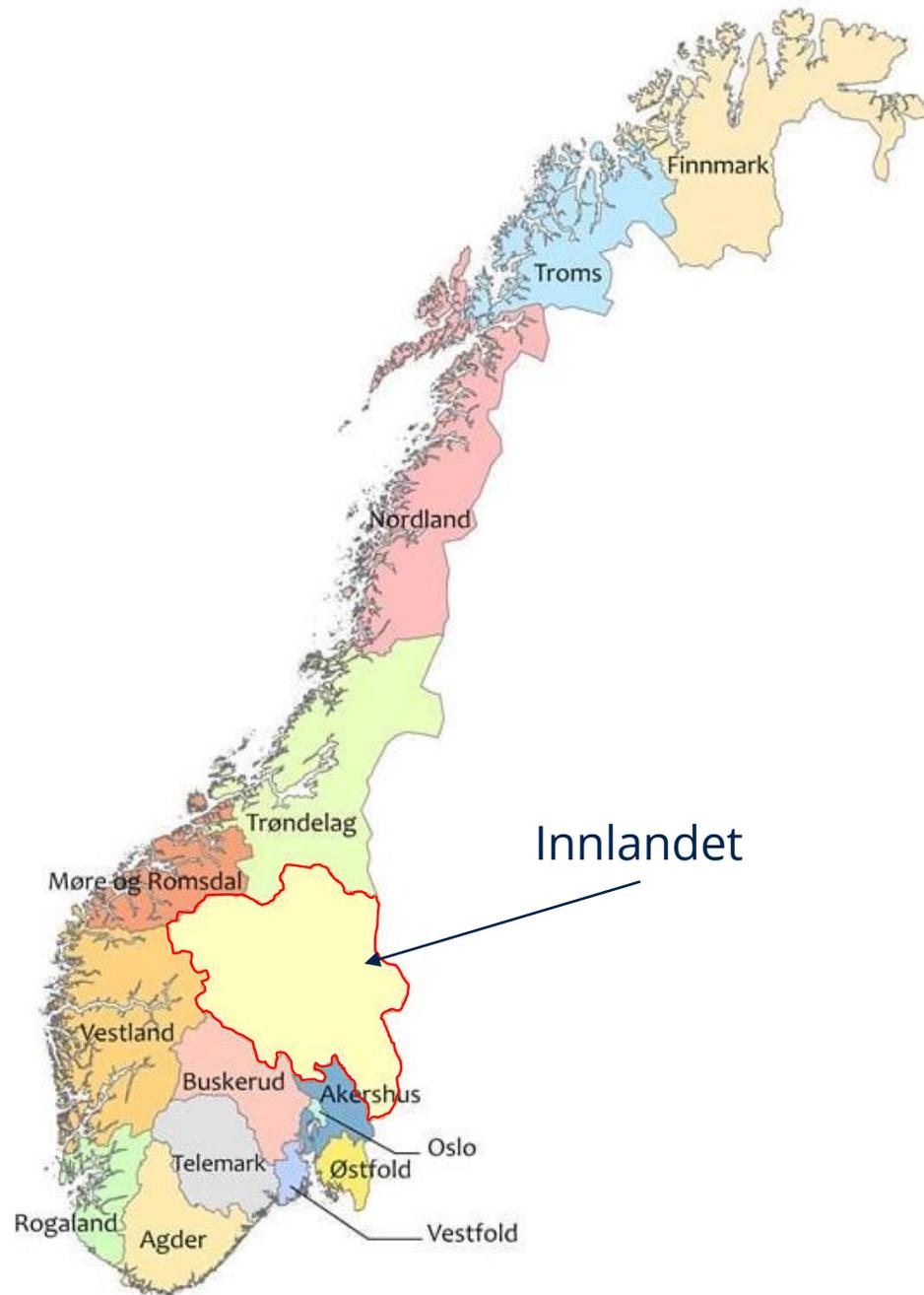


24.01.2024

The County of Innlandet

- Total area: 52 100 km²
 - 20 % of mainland Norway (170 % of Belgium)
 - 26 % of forest land in Norway
 - Only county without coastline
- Population: 370 000
 - 7 persons per km² (Belgium : 383 pr km²)



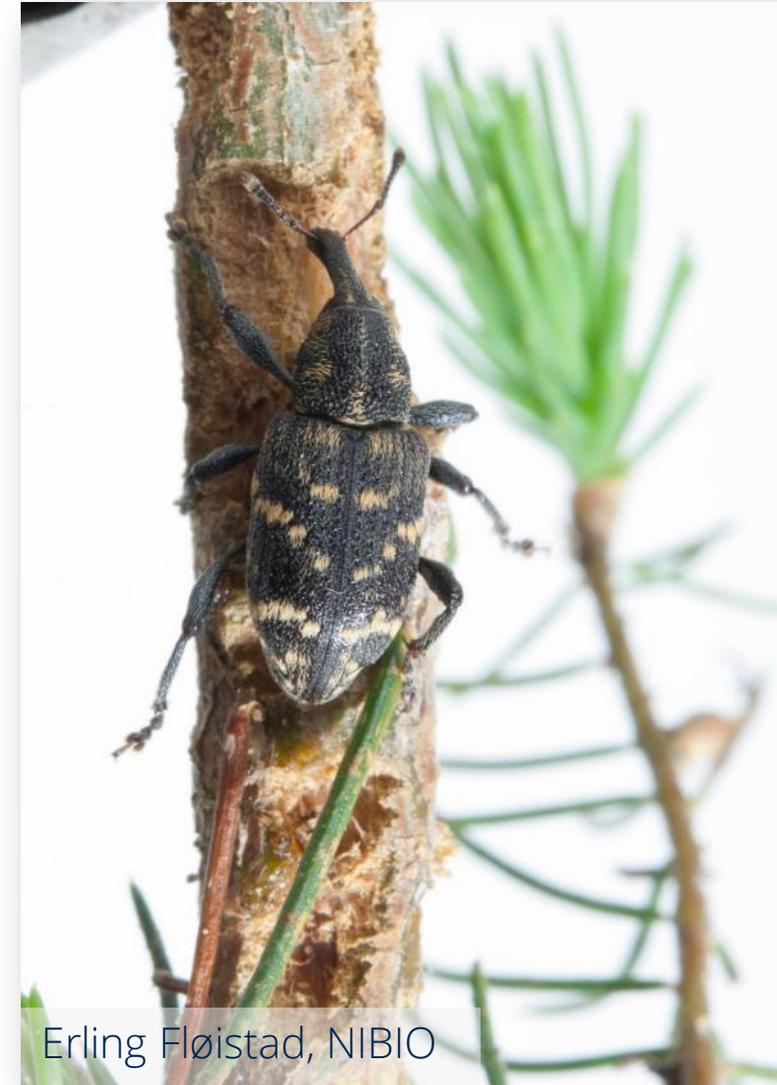


Innlandet – county of forestry!
42% of harvested m³ in Norway



Soil preparation provides:

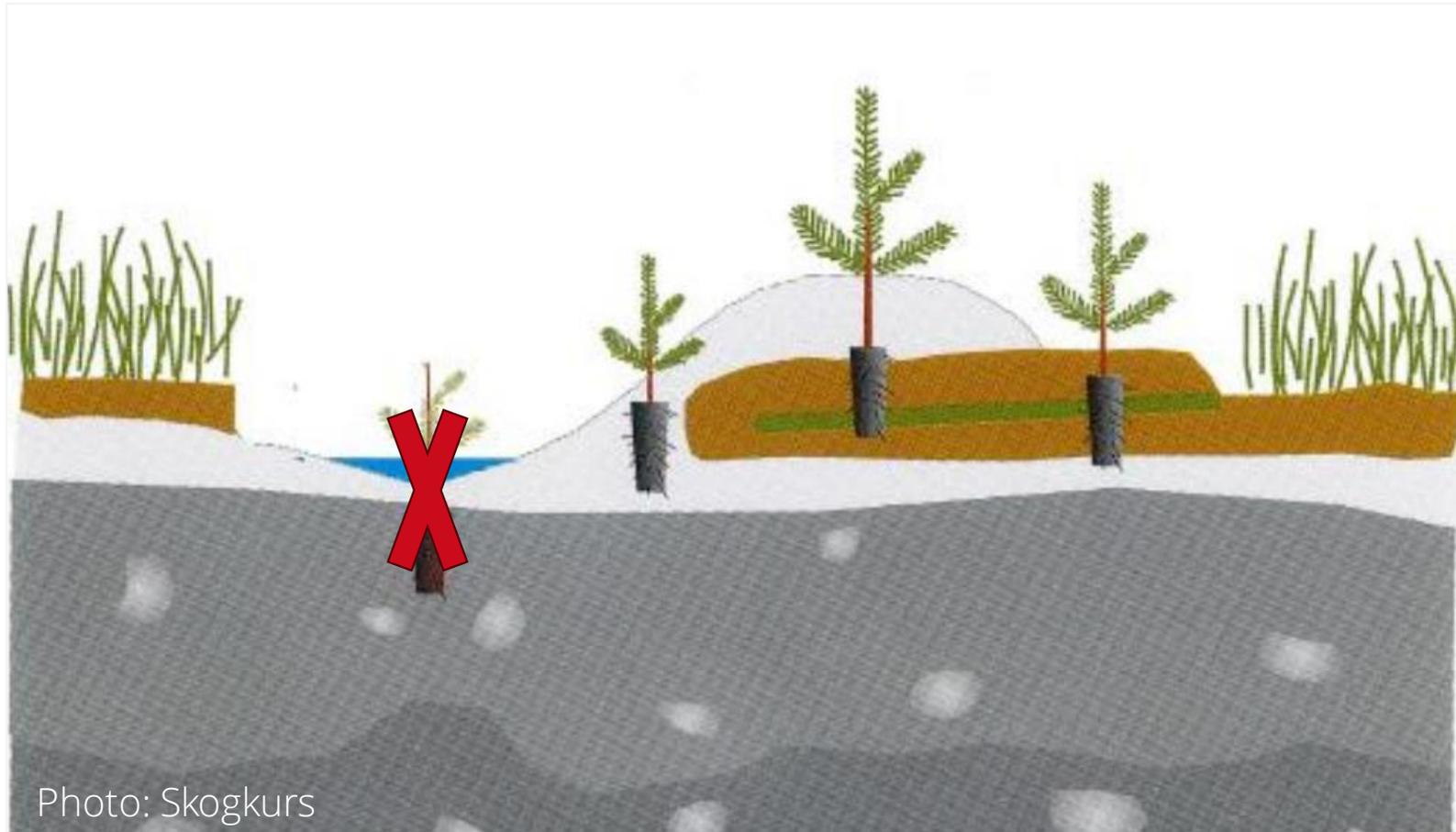
- Increased ground temperature
- Reduced risk of drought
- Reduced competition from other vegetation
- Increased production capacity
- reduced damage from Pine Weevil (*Hylobius abietis*)



Erling Fløistad, NIBIO



Create suitable planting sites for increased survival





Project goal

What are the short-term and long-term effect of scarification on soil carbon under Norwegian conditions?



CO₂ ?



Photo: Mathis Lunde

Partners

Project owner: Cooperative of private forest owners - Glommen Mjøsen Skog SA

Responsible for R&D: NIBIO -Norwegian Institute of Bioeconomy Research

Project lead: County Governor of Innlandet

Others:

NMBU (Norwegian University of Life Sciences), INN University, The Norwegian Forestry Extension Institute, forest owners organizations (Viken Skog and Norskog)

Funding:

- The Forestry Development Fund
- Forest Owners R&D fund
- Innlandet County Municipality
- County Governor of Innlandet



Photo: Eva Skagestad



Soil preparation with different types of scarification

1. Excavator

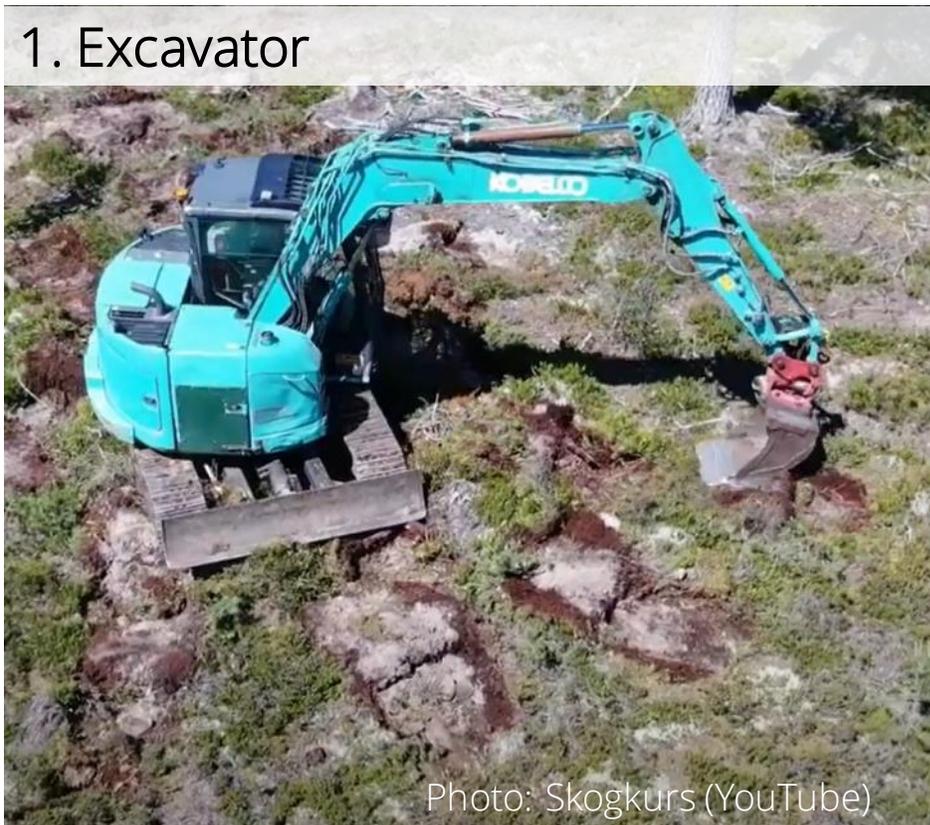
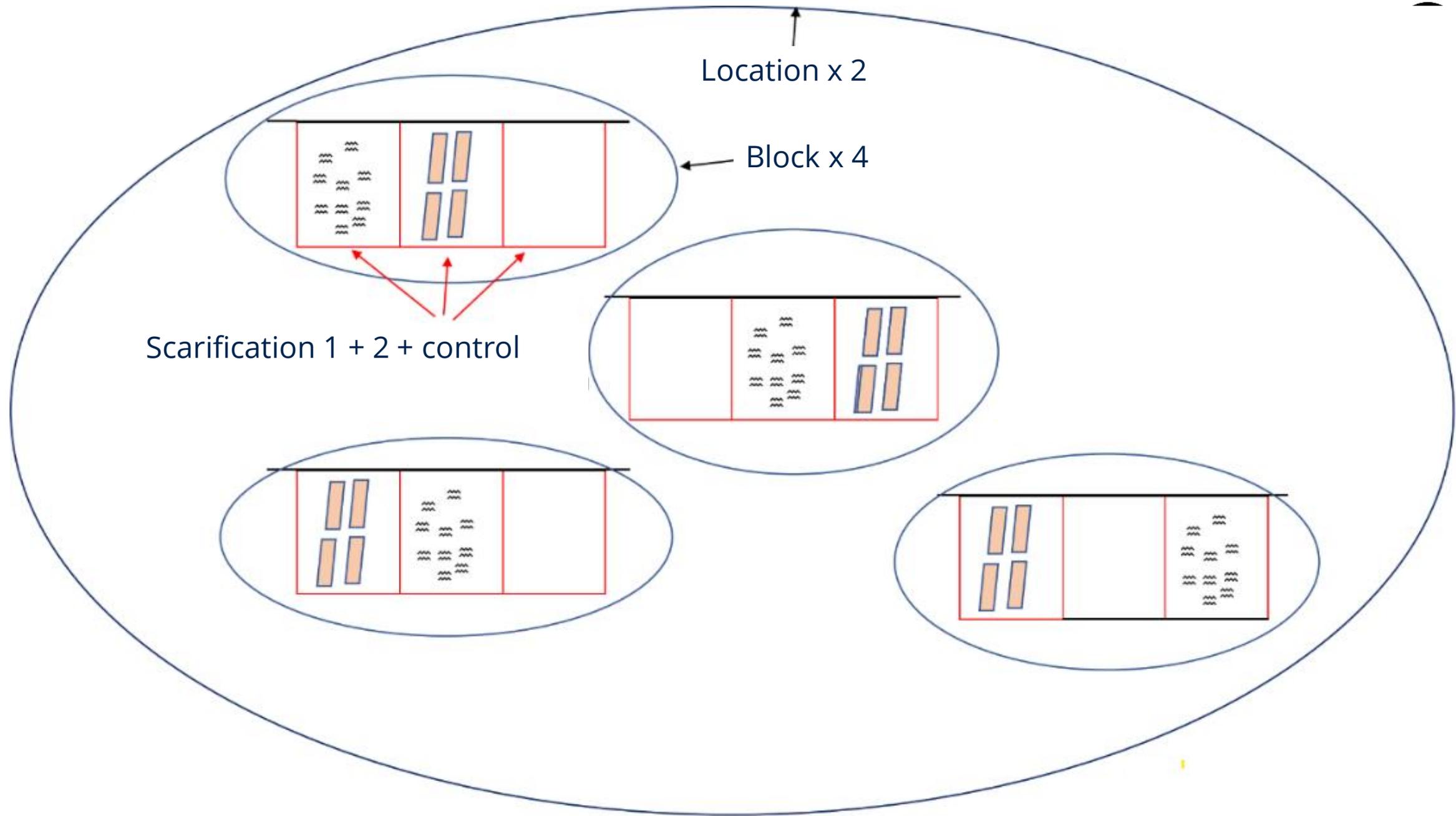


Photo: Skogkurs (YouTube)

2. Disc trencher on a forwarder



Photo: Jan Bjørnar Sankerud



Measurements

108 measurement points per location

- Measured every month from June to October
 - soil respiration
 - soil moisture and ambient temperature
- Before deforestation (2023)
- After deforestation (2024)
- After scarification and planting (2025)



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Photo: Dagfinn Haget

Measuring the stock of carbon

Collection of soil samples and soil profiles to be able to do:

- soil classification, density and chemistry
- estimates of representative C and N stocks

October 2023: Extremely high level of groundwater due to rainy "Hans"



Photo: Janne Kjønaas, NIBIO



Photo: Jan Svetlik NIBIO



Photo: Janne Kjønaas, NIBIO



This year

- Winter: Deforestation
- Summer: measurements
- Autumn: Scarification and planting

2025

- Measurements
- Analyse
- Report



Photo: Bernt Bjørnstad, Skogkurs