

FOREST MANAGEMENT

Presenter

Jesse Mårtenson – young farmer

Description

In Finland, forestry farmers have already witnessed effects of climate change:

- Change in the distribution of certain tree species (eg. Spruce);
- More frequent mass occurrence of certain pest insects (eg. Spruce bark beetles);
- Patterns in precipitation have changed and Winters have got milder. It is a challenge for the forestry sector since felling and collection of trunks from the forests are mostly performed with heavy machinery. This technique is based on the presumption that the ground is frozen and can therefore carry a heavy load without damaging the soil structure;
- Frequency of occurrence of heavy wet snow accumulated on trees has increased, which in turn creates suitable circumstances for pathogens when heavy snow brakes branches and tops of trees;
- Hard winds and storm damages are more common. In the future, it is predicted that tree growth will slightly increase because of temperature increase that is connected to the climate change. Higher pressure from pests and pathogens is expected in this case as well.

Jesse Mårtenson utilises a forest management plan that the local forestry advisory service has provided.

The plan ensures the continuous growth of trees in the forests. That means that the forest management practices are divided into smaller stands of trees of similar age. This creates a mosaic of trees in different growth stages and ensures that there are always trees growing and sequestering carbon from the atmosphere.

Trees grow faster in a managed forest where growth is enhanced by providing optimal light conditions through thinning. After the final felling is performed, trees are planted to regain the growth of the forest as soon as possible.

Planting the trees also gives the farmer the opportunity to optimize species of trees for different growth environments. Fast renewal reduces leakage of CO₂ as a result from degradation of organic material after the logging and conserves the carbon that has been stored in the soil.

Moreover, to prevent pathogens and pests from spreading, farmers are always removing trees that have fallen or have been injured by abiotic or biotic factors.

Thinning and utilization of residues from management practices also prevents uncontrolled forest fires.

On the farm, Jesse Mårtenson has invested in a bio burner with a heat exchanger, that allows him to burn the residues from the forest practices and using renewable energy on the farm for heating in wintertime. On the farm, they are also using the same system for generating heat for drying cereals. Usually the heat that is required for drying the cereal is ge-

Results

On Jesse Mårtenson's farm, forest management has provided job opportunities both on farm and within the local rural community.

These practices are also fundamental for providing the forest industry in Finland with raw material. Because of management practices the farm was able to collect approximately 1 250 tonnes of CO₂ stored in wood from the forest. Each cubic meter of stem wood sequesters approximately 750 kg of carbon dioxide, according to "Climate benefit of the Nordic Forests", Nordic Forest Research (SNS) and the Nordic Council of Ministers, 2017.

The forest's management plan also takes into account other environmental factors such as water management and biological diversity. In the management plan, valuable key biotopes have been identified on forests, preserving these biotopes. Financial outcome from the forest has enabled many on-farm investments, mainly to develop and modernize farming practices.

Climate smartness

The practice promoted in this project is focused mainly on forest management to address deforestation; therefore, it is both contributing to adaptation and mitigation. Income generation is also an important component of this practice considering the farmers can use wood as a source of income and due to better management practices, pests and diseases are better controlled. Finally, all the activities described also contribute to the optimal use of crop residues and by-products, mainly as fuels. Thus the project is contributing to climate smart agriculture since its implementation is enhancing all three CSA pillars (adaptation, mitigation, and productivity).

Additionally, practices that allow the improvement of the soil condition that have been already impacted by the use of heavy machinery could be included in the project, as an additional conservation strategy of increasing productivity and reduce emissions.

