



**Northern
Cereals**



**Northern Periphery and
Arctic Programme**
2014-2020



EUROPEAN UNION
Investing in your future
European Regional Development Fund

Northern Periphery and Arctic Programme
Northern Cereals – New Markets for a Changing Environment

Grund farm – Sustainability observations

A case study

Deliverable T2.3.2

Birgir Örn Smáráson

Matis

May 2017



Northern Periphery and Arctic Programme
Northern Cereals – New Markets for a Changing Environment
NPA CAV Diary Number 304-8673-2014

Title: Grund farm – Sustainability observation – A case study

Author: Birgir Örn Smáráson

With contributions from:

Halldór Örn Árnason, farmer, Grund farm, Iceland

Northern Cereals Partners:

Matis – Icelandic Food and Biotech R&D

Agricultural University of Iceland

Norwegian Institute of Bioeconomy Research

Agronomy Institute, Orkney College UHI

Agricultural Centre, Faroe Islands

Forestry and Agrifoods Agency; Newfoundland and Labrador, Canada

Grund is a dairy and barley production farm situated in the middle of Eyjafjörður valley in Northern Iceland. The northern regions of Iceland have never been famous for cereal production as the cold climate has historically restricted the growing of cereals. Farmers have tested different barley varieties for and growing of some of the varieties has been successful. Climate changes along with increased interest in the subject from both farmers and consumers have enabled increased barley growing. Higher temperatures mean that the winters are shorter and snow and ice melt quicker from the farmlands. Barley in Iceland is usually harvested at high moisture levels, around 30-40%. This means that considerable energy, and therefore cost, is expected for the drying of barley.

Grund is one of the farms in the northern regions of Iceland to start barley production to provide feed for the dairy cows. The farmer, Halldór, who participated in this project by giving Matís access to his drying facility and provided necessary information, reports that the production is still in its early stages, they are learning from each year and striving to do better. This project, as it is stated in its description, aims to increase cereal cultivation and the use of local cereals for making higher value products in the partner regions. The emphasis will be on feed production to reduce current dependence on feed imports. Grund farm benefited from this short case study by learning more about the potential of its drying equipment and from the barley drying measurements to see how the correct humidity level is reached.



Figure 1. Grund farm

Different drying methods and equipment can be used for drying grain. The selection of equipment and energy sources will have great impact on the production cost of cereals and the profit of the farms.

Presently, diesel is the most used fuel for drying of grain. Grund utilizes mostly geothermal water for drying, making it a rather sustainable option in terms of energy. A local electricity company developed their electrical steering for the drier, the goal was to develop a module for the drying of barley and rapeseed so the product would be ready for grinding, getting the moisture level down to about 15%. The module registers the whole drying process, registering information in real time and secures a stable product. This information ensures traceability throughout the process.

As stated before, Grund is mainly a dairy farm, hosting more than 100 milking cows and producing around 700.000 litres of milk every year. The farm has 200 ha of cultivated land where the biggest part is cultivated as hay fields for animal feed. Around 30 ha is used for barley where the largest part of dried barley is sold to the local feed producer. About 40 tonnes of the barley production is used as feed for the animals, reducing the need to import and buy dry-feed. A considerable part of the fertilizer needed comes from animal manure and co- and by-products from the barley production, further reducing the import and price of the farm's operations.

As we have learned from the above, Grund manages to produce considerable amount of barley, both selling to the local feed producer, and utilizing a big part of it for animal feed. The farmer is striving to increase his volume and the quality of his product, which will come through trial and error, growing barley in cold climates. This certainly increases the farms overall sustainability and environmental impacts which is very important to the farmer. The goal is to apply even more local sustainability, produce and utilize more locally on the farm, and both sell and use his barley products.