



Promoting Local Sustainability

-for farmers

Food production, including agriculture, utilizes the limited resources of the earth and delivers significant amounts of greenhouse gases into the atmosphere and is generally considered one of the major driving forces of environmental impact. While the basic need for nutrition must be fulfilled, we are at the same time creating threats to the environment. Natural resources are increasingly used due to population growth, changes in lifestyle and growing consumption. Food waste is also a problem which further increases the burden on the environment and resources. When food is wasted, land, water, energy and other resources that were used to manufacture the food are also wasted.

Food Security Together, these pressures on the environment have brought the concept of food security to the forefront of international food system discourse. How to provide food security in light of increasing populations and shifting dietary patterns in face of climate change and competition for limited land, water, and other resources figures among the central governance challenges of the modern era. Food production sectors like agriculture are often dependent on the import of fossil fuels, synthetic fertilizers and feed ingredients from all over the world. Minimizing import by utilizing local resources strengthens food security.

Local sustainability means that an area is designed, built and operated in a way that uses energy and natural resources efficiently and equitably, for both present and future generations of humans and other species. There are many opportunities for farms to reduce negative ecosystem impact by incorporating sustainable standards to its operations and save money and reduce negative environmental impacts in the process.

Life cycle thinking refers to a sustainability management approach that takes into consideration all relevant interactions associated with goods and services from a supply chain perspective for the purpose of improved decision making. In the context of environmental management, the life cycle approach requires attention to material and energy inputs and emissions that occur along the entire life cycle of the activities of concern. Social acceptance and market access for agricultural producers are increasingly becoming about the willingness and ability of producers to measure and communicate their environmental performance, as well as demonstrate a commitment to continuous improvement. Life cycle thinking and related tools like Life Cycle Assessment have become a critical component of effective environmental management. There is a need for extensive research on the agricultural food production topic, both applied- and basic research, where local production and production processes are compared to the production and importation of various foods.

By adopting sustainable thinking and practices much can be gained, both financially and environmentally for single farms and agriculture in general:

- **Take steps to utilize all available local resources and by-products**
- **Minimize the use of fossil fuels**
- **Minimize the use of synthetic fertilizers**
- **Reduce the import of fossil fuels, fertilizers and feed material**
- **Reduce waste generated**



Porvaldseyri is located at the south coast of Iceland and rests right under the vigorous Eyjafjallajökull volcano, most famous for its 2010 eruption that made the headlines worldwide after grounding tens of thousands of flights across Europe. Although Porvaldseyri and surrounding lands were completely covered in dark ash, resulting in failed crops and even dead livestock, the residents decided to utilize this event to further strengthen their farm operations and nearest community. Porvaldseyri has very specific conditions; the farm can produce a large share of its own electricity from a small power plant on the premises and has wells for hot water, feed for animals and fertilizer is mostly produced locally from by-products. Rapeseed oil is sold to consumers but can also be used as fuel (biodiesel) on the farm's machinery. The household is sustainable for the most part; farm products serve as food and vegetables and fruit are grown for personal consumption. The NPA funded project Northern Cereal described this local sustainability and its implications in environmental and social terms. The LCA methodology was used for calculations based on data from the farm. According to the calculations, the farm could save about 146.800 EUR and 18 tons of greenhouse gas emissions per year by adopting sustainable thinking.