Project Timeline

In the first year of the trial, the project partners from the Leibniz-Institute of Plant Genetics and Crop Plant Research, as well as the Keyserlingk-Institute, will cultivate and characterize about 130 lentil accessions and own breeding lines. At the same time, the project partners from the University of Kassel will select individual plants, which have been found to be particularly suitable at different locations.

From the above mentioned diversity of lentil varieties, the 25% best performing varieties will be selected for replanting by the respective project partners and for cultivation at the Department of Agronomy of the University of Hohenheim. There, the lentils will be cultivated on trellises in order to observe and evaluate different characteristics of the plants. In the same way, varieties which are already being used in Central Europe will be tested in the first year, in order to determine the status quo. In the 2nd and 3rd years of the trial, the lentil accessions selected by the project partners will be cultivated in mixture with different companion crops in Hohenheim.

Accompanied by ingredient analyses at the University of Hohenheim, the project aims to identify lentil varieties with the best properties for both cultivation and marketing in Germany.

The project “LinSel” is coordinated by the Center for Organic Farming University of Hohenheim.

Information

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Project Partners

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  Prof. Dr. Christian Zörb | Department of Quality of Plant Products
- Leibniz Institute of Plant Genetics and Crop Plant Research, Department of Genebank, Research Group Resources Genetics and Reproduction, Gatersleben, Seeland | Dr. Ulrike Lohwasser
- Keyserlingk-Institute, Salem | Udo Hennenkämper
- University of Kassel, Section of Organic Plant Breeding and Agrobiodiversity | Dr. Bernd Horneburg
- Organic Producer Association „Alb-Leisa“
- Kulturpflanzen Alb e.V. - Sortenvielfalt erhalten und fördern, Münsingen
- Lauteracher Alb-Feld-Früchte, Lauterach

For more information about the project LinSel, visit:
https://oeko.uni-hohenheim.de/en

LinSel

Identification of lentil genotypes for sustainable cropping systems in temperate climate

With support from
Bundesministerium für Ernährung und Landwirtschaft
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Project Management
Bundesanstalt für Landwirtschaft und Ernährung

Project Partners
UNIKASSEL VERSITÄT ÖKOLOGISCHE AGRARWISSENSCHAFTEN
IPK LEIBNIZ-INSTITUT
Lauteracher Alb-Feld-Früchte
SaatGut Keyserlingk-Institut

www.uni-hohenheim.de/en

LinSel – Identification of lentil genotypes for sustainable cropping systems

LinSel – Identification of lentil genotypes for sustainable cropping systems

Why Lentils?

Lentils (*Lens culinaris* Medik.) have great importance as food worldwide. It is an excellent source of protein with an amino acid composition beneficial for human nutrition. Furthermore, lentils provide a range of minerals and vitamins. Increased nutritional awareness and an increasing demand for regional products are making lentil cultivation more attractive for farmers in Germany. Especially in areas with low-fertility soils, the lentil is a feasible option to enrich long-term crop rotation systems. Therefore, not only farmers and consumers benefit from the lentil cultivation in Germany, but also the environment. Due to the ability of lentils to fix nitrogen gas from the atmosphere through root nodule bacteria, it can usually be extensively cultivated without additional nitrogen fertilization.

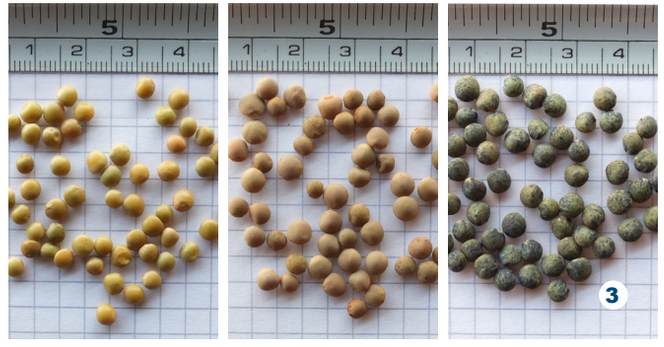
Composition of 100 g lentils, dried (average)	
Energy	278 kcal / 1162 kJ
Protein	24 g
Fat	2 g
Carbohydrates	41 g
Fiber	17 g
Water	11 g
Minerals	2,5 g

Lentil Cultivation in Germany

In Germany, though lentils are still consumed, its cultivation plays only a minor role in agriculture. Despite the lentil almost disappearing from Germany in the middle of the last century, there are still some farmers who have incorporated it into their crop rotation systems. Due to the lack of well-adapted varieties under German weather conditions, the yield level of lentils has been low compared to the main lentil producing countries, i.e. Canada, India and Turkey. Particularly heavy rainfall events in summer present challenges to lentil producers. Therefore, lentils usually grow together with a supporting crop such as barley or oats. With those partners, the lentils can hold on and stay up, so as not to be pressed to the soil during unfavorable weather conditions. Nevertheless, the separation of the together-harvested grains requires additional know-how and special technical equipment.

Why Lentils Need Support?

In the middle of the last century in Germany, the breeding of lentils was discontinued due to their low demand and poor profitability for the private sector. Considering the changing growing conditions and technical progress, breeding and research are imperative for successful and profitable lentil cultivation.



Aim of the project

Aim of the project “LinSel” is to find, select and evaluate lentil varieties suitable for cultivation in Germany

We are looking for:

- Competitive and stable growth types
- Growth types with homogeneous, uniform and fast maturation
- Lentil varieties with high protein content and few anti-nutritional factors
- Lentil varieties that are well-adapted to different locations (local varieties)

Lentils are to be produced more regionally as a valuable protein plant. Both consumers and farmers can benefit from lentils. The consumer benefits from the high nutritional properties, while farmers can integrate it into their crop rotation systems.

Photos by: University of Hohenheim (Cover photo, Photo 1, 3 and 4); Udo Hennenkämper, Keyserlingk-Institute (Photo 2)

Table by: Beate and Helmut Heseker (2013)