

## Czech Republic

### Agri-food chain integration & quality

## CAP funds support improved nutrition of Czech cereal and legume crops

### Summary

The 'Semix Pluso' company processes and treats all kinds of cereals, pulses, and oilseeds. In cooperation with the Research Institute of Brewing and Malting (VÚPS), and with CAP co-finance, it implemented a project to create a series of new health food products from sprouted cereals and legumes (buckwheat, quinoa, lentils, beans, chickpeas, gluten-free oats, etc.). The new projects are sold direct-to-customer and are of particular value to people suffering from celiac disease.



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### Project Results

The project resulted in the construction of a new production hall for the germination of cereals, and a new line of dried cereal, pseudo-cereal, and legumes-based products.

Outcomes allow the company to produce an array of semi-finished and finished products from germinated seeds and grains in a way that preserves their health benefits and which guarantees a long shelf-life.

The project findings have been shared via scientific studies and papers, in connection with the University of Ostrava and a nutritional expert.

### Lessons & Recommendations

- The project's multidisciplinary team combined academic and industry expertise to transform ideas and theory into working technological lines, unique production processes, and original healthy products.

#### Location

Otice

#### Programming period

2014 – 2020

#### Priority

P3 – Food chain & risk management

#### Measure

M16 - Cooperation

#### Funding

Total budget 2 751 918.58 (EUR)

EAFRD 603 611.12 (EUR)

National/Regional 615 805.28 (EUR)

(EUR)

Private 1 532 502.18 (EUR)

#### Project duration

2017 – 2019

#### Project promoter

Semix Pluso spol. s.r.o.

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#### Website

[www.semix.cz/o-nas](http://www.semix.cz/o-nas)

## Context

The 'SEMIX PLUSO' food company was founded in 1995 as a manufacturer of mixes, fillings and raw material for bakers and confectioners. In 1997, the company also began direct-to-customer sales of wholegrain cereal products. Nowadays they process and treat all kinds of cereals, pulses, and oilseeds into higher added value products such as baking mixes, crisps, flakes, muesli, moulded muesli, and ground stabilised poppy. In striving to achieve the highest possible quality, the company have developed technological processes that maintain 100% of, or which increase, the nutritional quality of these functional foods.

The company has been able to respond to emerging food trends and consumer demands by developing an in-house food specialist department to proactively create and test new recipes and production processes.

## Objectives

The aim of this project was to develop new functional food products based on sprouted cereals and legumes. These would be available to the public and would be of particular interest to people with complex dietary needs, for example those suffering from celiac disease.

## Activities

The development project was implemented by a multidisciplinary project team, with expert advisory, testing, and analysis provided by the Research Institute of Brewing and Malting (VÚPS), which has expertise in the germination and post-processing of grains. Professional and technological support was provided by SEMIX PLUSO's in-house food specialists department.

**Phase 1:** project preparation and cooperation with VÚPS. Designing a methodology for optimal seed germination, including hazard analysis and control processes. Collaborative development of new technology and the preparation of controlled-environment germination facilities. Some analyses were also carried out on the technology development and on some samples of the new products.

**Phase 2:** technology preparation. Determining the parameters and necessary equipment for the production lines, as well as finding the best way of processing the sprouted grains (drying, cooking, steaming, grinding, crushing, baking). Developing the technology for producing the new packaging and for analysing its effects on product quality. During this phase, the project activities also involved the preparation of health benefit studies that would later support the marketing of the new products.

**Phase 3:** tenders for contractors, construction of the production hall and installation of production technologies. Preparation of the technical and tender documentation concerning the architectural design of the production hall, the production line, and the germination plant. This phase resulted in the construction of a modern production hall with controlled germination facilities and new production lines.

## Main Results

Outcomes allow the company to produce an array of semi-finished and finished products from germinated seeds and grains in a way that preserves their health benefits and which guarantees a long shelf-life.

The company can now germinate and then dry cereals, pseudo-cereals, and legumes, which they then sell as separate products or incorporate into other products. A separate production line handles products based on vegetable protein, and even in this the use of germinated legumes is of great benefit. Thanks to the processes that take place during germination, the nutritional value of the grains is improved and they can be more easily digested.

These new products and semi-finished products are in demand, both in Europe and on the global market. This project makes it possible to process traditional domestic cereals such as oats, buckwheat, barley, which could have an impact on sustainable development in that the process can rely on local cereal production rather than exports.

The project has resulted in several scientific studies and papers, including three bachelor theses by students at the University of Ostrava (Medical Faculty, Institute of Physiology and Pathophysiology), and a nutritional therapist (a study of the properties of specific sprouted and pseudo-cereal products and their positive effects on the human body).

## Key lessons

The main reason for the success of this complex development project was the multidisciplinary team that combined academic and industry expertise. The project team was able to transform ideas and theory into working technological lines, unique production processes and original, healthy products.

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Additional sources of information

[www.semix.cz/ekoaktivita](http://www.semix.cz/ekoaktivita)

[www.zdravyzivot.com/klicene-produkty?sort=8](http://www.zdravyzivot.com/klicene-produkty?sort=8)



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