Case study
South Moravia, Czechia

What ? Proper carbon and nutrient management

How ? Long-term experiments on genotypic differences in nitrogen supply and on food waste valorisation in agriculture

Circular Agronomics

Genotypic differences in mechanisms contributing to nitrogen efficiency of plants (Dyjákovice)

The potential of contrasting genotypes of winter wheat to improve nitrogen use efficiency are tested. A randomised three-year field experiment in the region is used to determine yield of straw and grains, and the nitrogen content, as affected by different rates of nitrogen supply.

Seeding



Harvesting

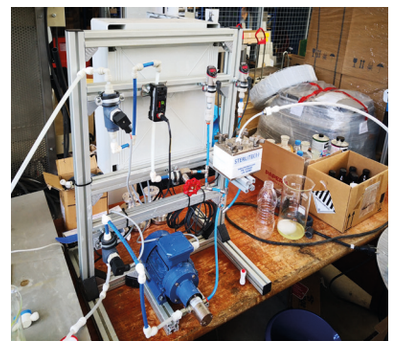


Organic carbon recovery from the dairy industry to produce carbon-rich soil fertiliser and animal fodder additive (Dyjákovice)

An analysis of the dairy industry allows for the identification of potential streams for the recovery of carbon-based nutritional/soil amendments and elaborates integration strategies for implementation into food industry waste (acid whey processing). Separated acid whey is applied to the soil to improve soil carbon storage management. It can also be processed for fodder additive applications.



Whey application on field



Laboratory experiments with whey

Whey pre-treatment and following thickening by means of Electrospun Nanofibrous Membrane module and nanofiltration technology at the pilot-scale level (Brno)

Electrospun Nanofibrous Membranes (ENM) can be used as a pre-treatment to a nanofiltration process for fats and casein removal. The average pore size of ENMs is of microfiltration, thus the technology could be considered equivalent to centrifugation, which is currently widely used as a pre-treatment unit in the acid whey-processing industry.

The ENMs and nanofiltration unit were properly tested at the pilot-scale level.

