Newsletter 3

CROP PRODUCTION

SLOVENIAN CENTER OF EXCELLENCE FOR AGRICULTURAL SCIENCES (SLO-ACE)

The project proposal **Center of Excellence for Agricultural Sciences SLO-ACE** relates to the **H2020 Call Teaming**. The key objective of the activity is to develop a solid and comprehensive Business Plan for the establishment of the SLO-ACE, in line with a well validated long-term vision. This plan will describe in detail how the knowledge and experience of the advanced partners from **French National Institute for Agricultural Research (INRA)** and **Aarhus University (AU)** will be translated and further adopted by the established SLO-ACE in Slovenia, and how long-term sustainability of the Center will be secured after the end of the Teaming project.

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Established in 1928, Aarhus University has since developed into a major Danish university with a strong international reputation across the entire research spectrum. Aarhus University (AU) places a high value on close collaboration with business and industry, and takes pride in its deep involvement in the development of the society of which it is part. Among over 17,000 universities world-wide, Aarhus University (**http://www.au.dk/en/**) is ranked in the top 100 by several influential rankings. The scientific and technical areas (especially in agriculture and biosciences) at the university are among the best internationally in research, talent development, knowledge exchange and education. The university has a unique position as a supplier of research-based consultancy to government agencies and institutions within the fields of the environment and energy, agriculture and food, culture and learning, as well as forensic medicine.

RESEARCH

- Research at AU is partly organised in departments distributed among four main academic areas, and partly in centres of excellence.
- Aarhus University also comprises a number of interdisciplinary centres.
- Two researchers from the university have received the Nobel Prize, firstly in Chemistry (1997), and subsequently in economics (2010) respectively.
- There are more than 6,000 researchers (4,300 full-time equivalents) at the university, including approximately 2,000 PhD students.

EDUCATION

- AU has 44,500 students (2012) – of which 5,000 are foreign students.
- The university has an annual intake of just under 7,000 students, while 4,000 students graduate each year.
- AU was the first university in Denmark to recruit students to the PhD programme before they were awarded their Master's degree.

TALENT DEVELOPMENT

- AU has a long-standing tradition of working with talented students already from the Bachelor's degree level.
- The PhD degree programmes at Aarhus University are integrated in four graduate schools.
- There are 1,900 PhD students, of which 25 per cent are foreign students.
- Ecology of the agricultural space

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SOME BASIC FACTS ABOUT CROP PRODUCTION IN SLOVENIA

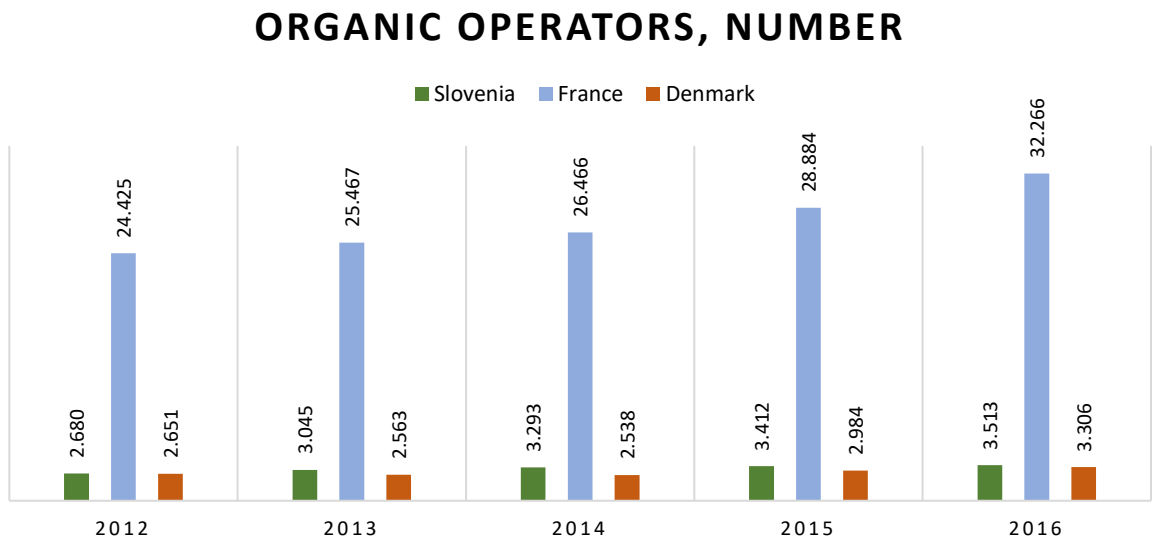
According to the last agricultural census in Slovenia (year 2017), there are 69,902 holdings with less than 480 thousand hectares of utilized agricultural area (UAA). Denmark has around 42,000 holdings, in France they are more than 500,000.

Average size of agricultural holdings in Slovenia is 6.9 ha. In comparison average area per holding in France is almost 8 times bigger than in Slovenia, in Denmark is almost 10 times more.

The largest share of the UAA is occupied by permanent meadows and pastures (58%), followed by fields (37%) and permanent crops (over 5%) of all UAA. 1/3 of the UAA in Slovenia is cultivated by holdings with over 20 ha of agricultural land. The vast majority of agricultural holdings (83%) cultivates up to 10 ha of UAA, which is around 44% of the total UAA in the country.

Crop production is highly dependent on natural conditions. Since year 2011 weather conditions have been very variable, this reflected in major changes in the production volume. More than half of the fields in 2016 in Slovenia were covered by cereals (55%), in particular maize for grain and wheat, and almost a third (31%) by green fodder, dominated by silage maize and fodder (grass, clover, alfalfa, grass, grass-clover and clover-grass mixtures).

In 2016 in Slovenia, there are 3,513 organic agricultural holdings with 43,579 ha of agricultural land in use, which is respectively 5% of the total number of agricultural holdings and 9% of UAA. The largest shares of agricultural land in use with organic production in 2016 are grasslands (83.7%), field crops (10.1%), orchards (3.7%) and vineyards (1.2%). In absolute term the number of organic operators in Denmark is similar to the one in Slovenia, whereas France has 8 times more agricultural holdings with organic production and it is steadily growing.



Source: Eurostat

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AARHUS UNIVERSITET

Kmetijski inštitut Slovenije
Agricultural Institute of Slovenia

INRA SCIENCE & IMPACT



Photos: Agricultural Institute of Slovenia

CROP PRODUCTION PILLAR IN SLO-ACE

The activities of SLO-ACE will focus on the integration of agroecosystems and biotech research enabling the creation and productive use of knowledge for improving food and feed production. It will engage partners from the Aarhus University, Denmark, INRA, France, and Agricultural Institute of Slovenia in order to deliver cutting edge research and improve innovation performance within three main pillars: Crop Production, Viticulture and Oenology and Meat Production.

In the field of Crop Production modern, long-term and nature-friendly sustainable technologies and ways of cultivating crops will be developed, producing high quality and healthy low-carbon foods, maintaining soil fertility and reducing negative impacts of agriculture on the environment. With the combination of molecular and field research the key components and network features in complex interactions between genotypes (G), pathogens (P), environment (E) and agricultural management systems (M) will be identified which will improve the understanding of agro-ecosystem functions.

Within the Crop Production pillar six research priority areas covering all four horizontal themes of SLO-ACE were identified:

- **Breeding and genetics of agricultural crops**
  - Genomic prediction, genome wide association studies and quantitative trait loci mapping of desired traits for sustainable agriculture
  - Functional biology and stress response in agricultural crops
- **Plant protection**
  - Diversity and ecology of plant pest, pathogen and beneficial organisms
- **Sustainable crop production and agro-ecology**
  - Sustainable crop production
  - Innovative pest & weed management
- **Food and feed quality**
  - Pre- and post-harvest plant foods quality from sustainable production systems

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