

Co-funded by the
Erasmus+ Programme
of the European Union

Transnational Learning Activities

**The agricultural students are preparing for Industry 4.0
2019 – 2022**

Partner countries:

Czechs Republic, Sweden, United Kingdom and Denmark

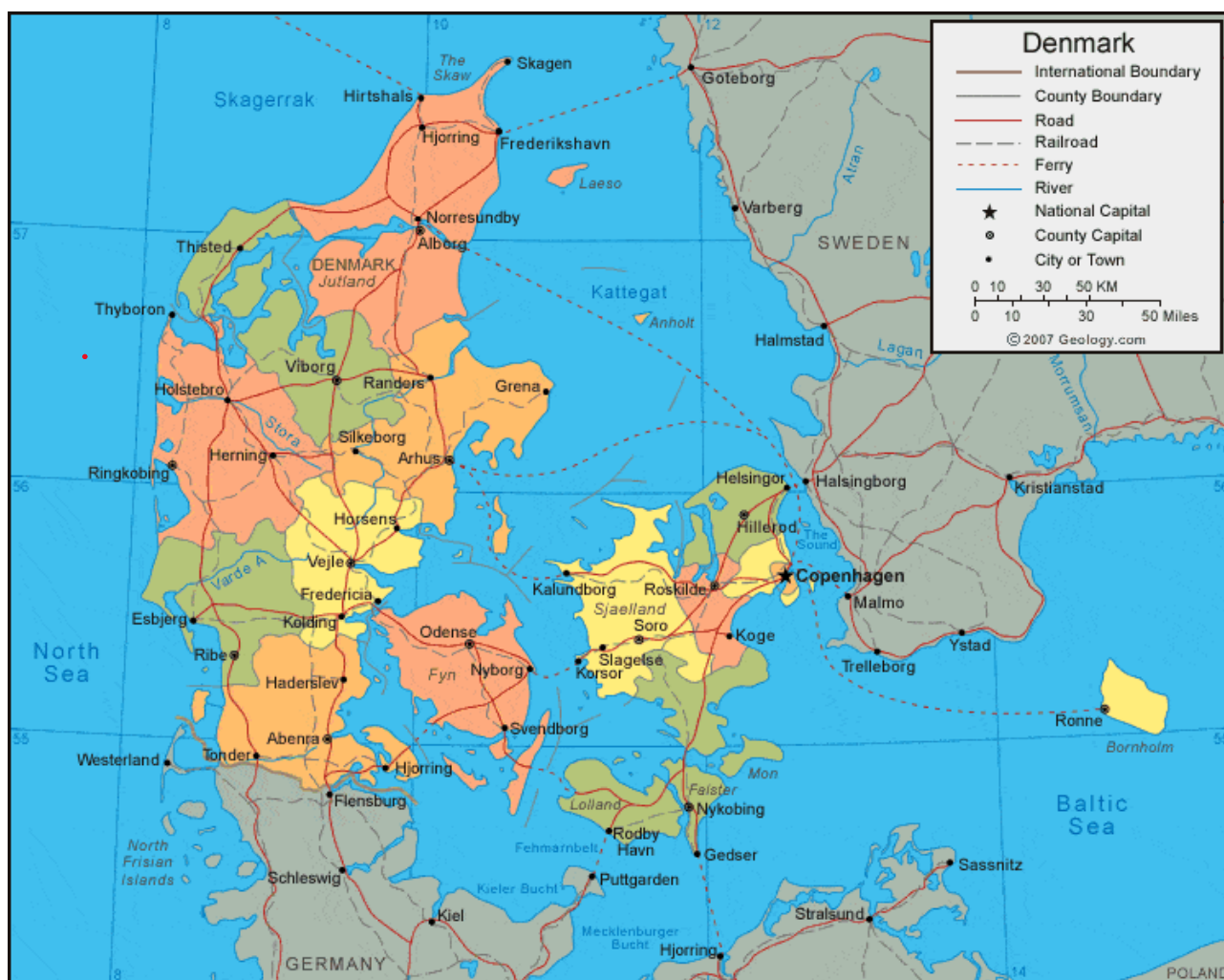
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Demographic description of the partner countries

Denmark



Facts about Denmark

Population	5.873.419
Area	43.098 km ² (excl. Greenland and the Faroe Islands)
Population density	136,3 km ²
Geographic region	Scandinavia
GDP – Gross domestic product	Euro 336 billion (2020)
GDP per capita	Euro 53.470 (2020)
Capital	Copenhagen 1.345.562 inhabitants (2022)
Other major cities	Aarhus 355138, Odense 180.863, Aalborg 119.862 (2022)
Form of state	Constitutional Monarchy
Parliament seats	179
Head of state	Queen Margrethe II (since 14 January 1972)
Head of government	2019: Prime Minister Mrs. Mette Frederiksen – The Social Democracy Party of Denmark
Ethnic distribution	5.026.378 Danes. Immigrants and their descendants constitute 847.041 -14,4% (2022)
Life expectancy	Women 83,2 years; men 79,3 years (2019)
Language	Danish
Religion	90% Protestant (74,3% member of the folk church), 5% Moslem, 1% Roman-Catholic, <1% Hebrew, Hindu etc.
Currency	Danish Kroner (DKK) 1 Krone = 100 Øre 1 DKK = 0,14 € 1 € = 7,46 DKK
Climate	Temperate and coastal = mild winters and cold summers

The Czechs Republic



Facts about Czechs Republic

Population	10,5 mio. (2021)
Area	78.868 km ²
Population density	133,1 per km ²
Geographic region	Middle Central Europe
GDP – Gross domestic product	Euro 285 billion (2021)
GDP per capita	Euro 23315 (2020)
Capital	Prag 1.274.562 inhabitants (2021)
Other major cities	Brno 379.466, Ostrava 279.791, Plzeň 168.733
Form of state	Republic
Parliament seats	Poslanecká sněmovna 200 The senate 81
Head of state	President Miloš Zeman, Zemanovci
Head of government	Petr Fiala (ODS) Civil democratic party
Ethnic distribution	95% Czechs, 3% Slovaks , 0,6% Poles, 0,4% Germans, 1% Others
Life expectancy	Women 81 years; men 77 years (2019)
Language	Czechs
Religion	39.8% Atheists, 39.2% Catholics, 4.6% Protestants, 3% Orthodox, 13.4% Others
Currency	Czechs Koruna (CZK) 1 CZK = 0,041 € 1 € = 24,50 CZK
Climate	temperate continental climate = cold winters and hot summers

United Kingdom



Facts about United Kingdom

Population	65,1 mio. (2021)
Area	243610 km ²
Population density	269 per km ²
Geographic region	Middle Western Europe
GDP – Gross domestic product	Euro 2742 billion (2021)
GDP per capita	Euro 47787 (2020)
Capital	London 9 million inhabitants (2021)
Other major cities	Birmingham 1.150.000, Liverpool 579,000, Manchester 554.000
Form of state	Constitutional Monarchy
Parliament seats	House of Lords 700 House of Commons 646
Head of state	King Charles III
Head of government	Liz Truss, Conservative
Ethnic distribution	92,1% White, 4,0% South Asian, 2,0% Black, 1,2% Mixed, 0,4% Chinese, 0,4% Others
Life expectancy	81 years (2019)
Language	English
Religion	59,4% Christian, 5% Islam, 1,5% Hinduism, 0,8% Shikism, 0,5% Judaism 31% unknown/others
Currency	Pound Sterling (GBP) 1 GBP = 1,15 € 1 € = 0,87
Climate	Temperate and coastal = mild winters and cold summers

Sweden



Facts about Sweden

Population	10,4 mio. (2021)
Area	450295 km ²
Population density	23 per km ²
Geographic region	Scandinavia
GDP – Gross domestic product	Euro 543 billion (2020)
GDP per capita	Euro 52573 (2020)
Capital	Stockholm 975551 inhabitants (2021)
Other major cities	Gothenborg 607.882, Malmö 325.000, Uppsala 167.000
Form of state	Constitutional Monarchy
Parliament seats	349
Head of state	Carl XVI of Sweden
Head of government	Magdalena Andersson (until a new prime minister is installed)
Ethnic distribution	92,1% White, 4,0% South Asian, 2,0% Black, 1,2% Mixed, 0,4% Chinese, 0,4% Others
Life expectancy	81 years (2019)
Language	Swedish
Religion	60% Christian, 2,3% Islam, 0,3 other religions, 18% unknown, 18% atheists
Currency	Svenska Krone (SEK) 1 SEK = 0,092 € 1 € = 10,87 SEK
Climate	Temperate and coastal = mild winters and mild summers Sub-Artic = very very cold winters and very cold summers

The partner schools and their school farms

Bredballegård -a part of green Akademy Aarhus

Stable and field

At Green Akademy Aarhus, Bredballegård, we have livestock and plant production in a small scale. We have 55 hectares of land where we grow different crops such as barley, wheat, maize and clover.



We have a herd of around 30-40 dairy cows of the Jersey breed that supply milk to Arla and are they graze all summer. And we have piglet production where we fatten pigs from 30 kg to 100 kg. There are around 25 pigs in the barn at a time. The fattened pigs are delivered to the Danish Crown slaughterhouse. On the farm we also have a stable, with four horses and a riding track.

Size matters and it very important for us, to have these great facilities for teaching the students. It is crucial that the student have the time and space to try, search and understand all the working procedure on a modern farm.

MANGLER BILLED KOSTALD BBG

Feeding the animals and working in the field are part of the practical teaching at Bredballegård. Sometimes new calves and pigs are born. Every day there are repairs to be carried out on the farm equipment. In addition, all the farm's other small animals must also be looked after; e.g. sheep, goats and chickens.

Munkagårdsgymnasiet



Munkagårdsgymnasiet's agriculture is run on approximately 200 hectares of arable land. They grow cereals, oilseeds, legumes and fodder. During the training, we have a close collaboration with agricultural companies and others in the industry. And you will also make study visits to agricultural companies.



At Munkagårdsgymnasiet's animal orientation, you will learn a lot about different pets, zoo animals, farm animals and different professions related to animals. The school has more than 100 different animal species and you will, among other things, work with dogs, fish, reptiles, snakes, birds, rabbits, horses, pigs and cows. It is the students together with our operating staff who take care of the animals.



Benesov

The school farmery

The agricultural school, the most distinguished school in The Czechs Republic, has a lot of different educations related to farming, animals, biology, technology, horticulture and veterinarians. A normally farmer education take about 3 year at the school.



In Benesov in 2007, a purpose-built facility was built at the agricultural school to meet the students need for classroom teaching and individual holiday practices. Currently, 375 hectares of arable land are cultivated, and students look after 70 dairy cattle, including young cattle, and 62 pigs as part of their internship. For students with a focus on horse breeding and riding, there is an outdoor and indoor riding hall. We currently have 17 horses and 3 foals.



The different places we were visiting

Dairy farm outside Benesov



Monday 4/4-2022

We were visiting the family dairy farm which had 45 cows, and app. 200 hectares. The family were very polite, and we had a nice time with the family. We tasted a lots of their local produced cheeses and other specialties.

Benesov Agricultural School



Tuesday 5/4-2022

Visit at the agricultural school in Benesov. The students from DK, UK, and CZ made some presentation about their schools. Later the students of Benesov showed us all the school locations. We saw the new horse stable and riding arena. We saw the modernized cow stable. In the afternoon, some Czech drone-engineers, made a presentation and drone flying over a field from the school.

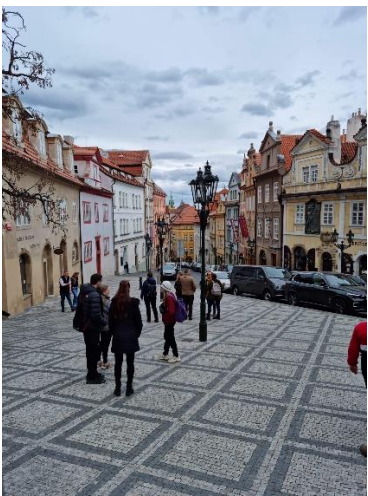
Visit at Pöttinger factory



6/4- 2022

To be focused on modern agrotechnology, we visited the large factory Pöttinger in Vodnany -they produce field machines. The company started by giving us a presentation of their business and all their different products and they told us about the technology behind the development of their products. After the presentation we went around a guided tour around in the factory, and was huge.

The Miller farm and Prague sightseeing



7/4-2022

The Miller farm was a very automated farm, especially the dairy section. They had Crop production, dairy production juice production, local liquor production.

In the afternoon we had a guided tour in Prague



8/4-2022

The agricultural company was focused on plant production, animal production and energy production in a biogas plant. The company grows wheat, barley, rape, poppy, corn and fodder plants. It is specialized on cattle breeding – 745 dairy cows with market milk production.

Vessige Biogas

16/5-2022

We visited the dairy farmer, that started Vessige Biogas. They are already producing biogas to the national gasline.

<https://www.vessigebiogas.se/>



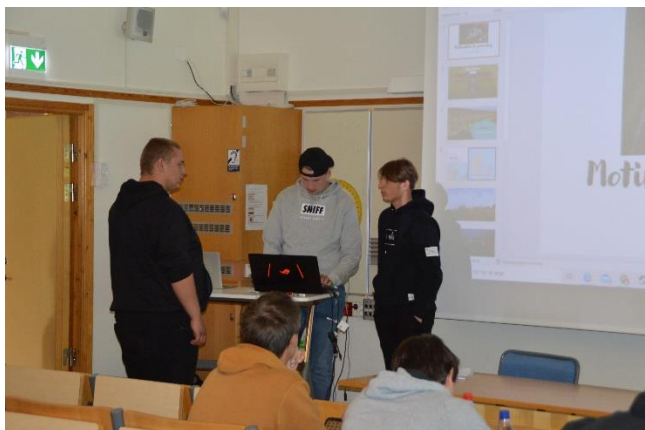
Visit at Väderstad factories



17/5-2022

We spent the whole morning experiencing Väderstads machines and watching them working in the soil. It was very interesting. We heard about the company history. We saw how they worked with the challenges with future problems related to food supply, and climate changes. Later we drove out to some of their test fields and we were introduced to how the different machines were working in the soil. Finally we saw the big Väderstad exhibition and finished in the souvenir shop.

Munkagård Gymnasiet



18/5-2022

The students from DK,GB, CZ and SE made presentations from their different agriculture perspectives. Our students gave presentations over the theme: "My motivation for working and education in agriculture", "The Danish education system". The other countries made similar presentations.

Anders Axelsson Conservation Agriculture



18/5-2022

The pictures (afternoon) are from this visit, the farmer made a long presentation about conservation farming. We went out to a field and saw the result after several years with conservation farming. This water test shows how quickly the water penetrated the soil, which documents that the conservation farming works but still has some challenges with especially with weeds.

Workshops a Mungagård Gymnasiet



19/5-2022

Round trip at Munkagards Gymnasium. Their students made different workshops in all their different sections, and we learned how the agricultural education works in Sweden and Munkagards Gymnasium.

20/5-2022

Time for discussions and conclusion of this Transnational Learning Activity and for visit Goteborg.

Goodbye Barbeque



Goodbye Sweden Barbeque



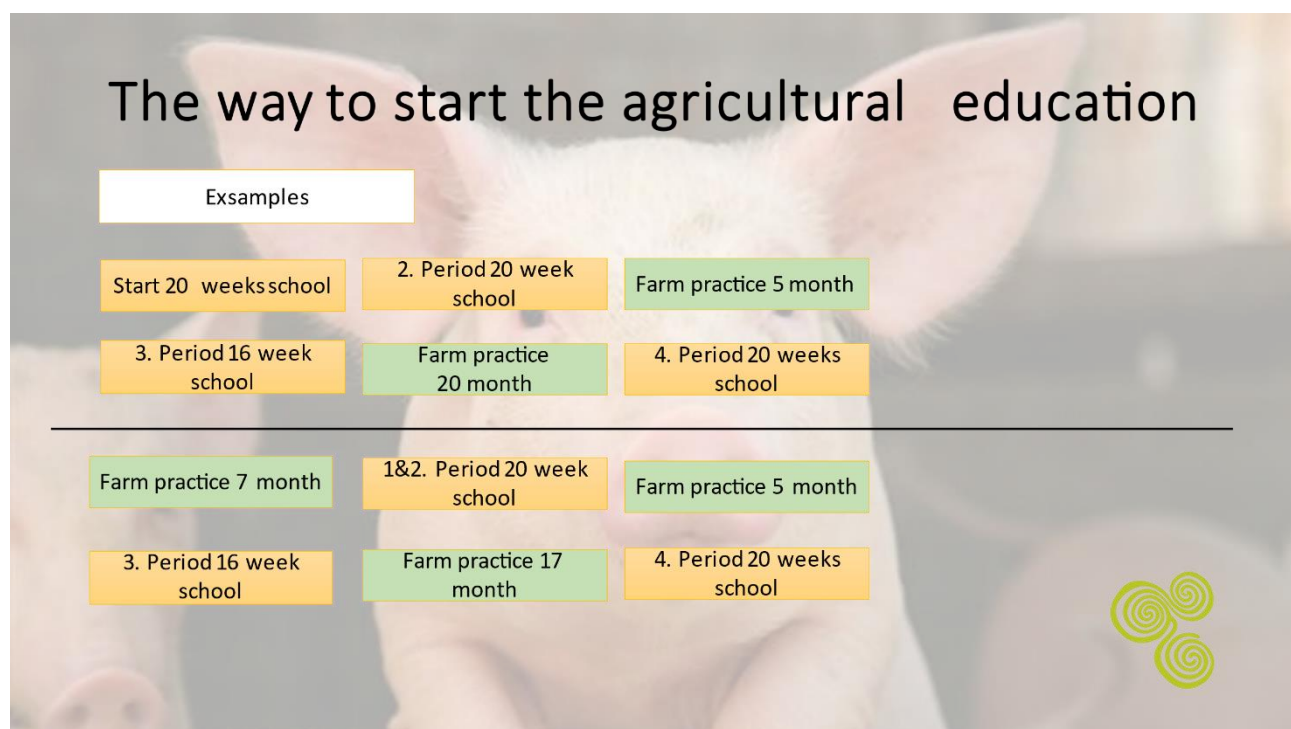
The Danish agricultural education

Conditions for practical training

The Danish agricultural education involves several internships a farmer. The student get an education contract with the farmer. The students have 3-4 periods in school with theoretical and practical learning. This form of education ensures two things: 1) The famer gives the student relevant practical learning. 2) the student earns an appropriate salary during the internship.

It is the school's responsibility that the student gets a good internship an acquires relevant practical skills and knowledge about agriculture. The student experience the internship as a real job and usually works on the same terms as other employees on the farm.

The switch between theory and practice



The purpose of this educational structure, with practical training is to satisfy two needs, 1) The farmers can provide extra labor in periods when it is needed. 2) Many students on practical programs, are only poorly motivated school work in the classrooms Due to this alternation between schooling and internships with the farmers we actually only have few students who stop "midway" in their education.

Compared to 10 years ago, changes have been made to the education. For example, the first school period is now longer. The reason for this change, is that the proportion of the students who come with an agricultural background (i.e. grew up on a farm) is decreasing – many students simply lack of knowledge and basic agricultural skills. The changes have been positive. The students love working in the school practical workshops -here they get basic skills and they clearly see the connection with the theory that is reviewed in the classroom. They gain a much deeper understanding and an enormous self-confident, with high level of practical and theoretic skills.

The Green Academy Aarhus cooperation with social partners

At Green Academy Aarhus we are working closely together with a lot of different associations, companies and governmental authorities. For the school and the students, these networks provide a lot of value. For example, we have very close relationships such as Claas, Makita and JCB. They make modern equipment, of and knowledge they facilitate. With these cooperates, the teaching and equipment are more up to date and thus more relevant.



We are educating lot of students in to the agro-contractors and farmers. Our networks in this area have a huge value, helping the students to get an education agreement with the contractors and farmers.

This SWOT analyse the education vs agricultural sector with emphasis on Industry 4.0 and new trends and technologies

We have made a short SWOT analyseis, to give our point of view - and the reader an overview to the agriculture in Denmark and the education in the nearby future:

<p>Strengths (internal):</p> <ul style="list-style-type: none"> • Well known school in the agro/farming sector • High professional level among the teachers, they have, among other things, a good technological overview of the sector • Good learning activities and modern materials • They are ready to implement drone and robot technology in the teaching 	<p>Weakness (internal):</p> <ul style="list-style-type: none"> • The students do not apply to the school because they feel that technology is taking away their jobs and they see no future in agriculture • New tech are expensive to invest for our school
<p>Opportunities (external):</p> <ul style="list-style-type: none"> • Better working condition for students and the farmers • Competitive advantage compared to other countries • Easier to adapt to sustainability and climate requirements though Industry 4.0 	<p>Threats (external):</p> <ul style="list-style-type: none"> • Harsh legislation makes agricultural production more difficult, and make the students lose their motivation for taking an education • Loss of jobs (farms and contractors) due to green transition

Appendix

Student presentation from Sweden, Separate PDF-file