Agro-MAC VET
Multi – Actor Cooperation for Vocational Education and Training in the Agro-food Sector
LLP LDV PARTNERSHIP No: 2008-1- GR1-LEO04-00281 1

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Belgium

Vocational Training in agriculture in Belgium for new farmers (Belgium)
By MAC-Team aisbl

Executive summary

Belgium is part of the European countries with long lasting background in terms of educational system related to agriculture and also in terms of agricultural vocational education. This case presents the practical questions a (new) farmer may have and the corresponding advantages brought in by a recognised qualification level which can be obtained thanks to vocational training.

Are there any qualifications required to settle in agriculture?

No certificate of establishment or access is required. To work as a farmer, vocational training is not a legal requirement and regulated, but:

- To benefit from financial support to investment, a certain conditions related to vocational training must be fulfilled.
- Under some regulation, especially in terms of building licenses or leases, titles or degrees/certificate must be submitted or should accompany the application.

What are the available training possibilities for a farmer?

To benefit of these supports (subvention, loans, building licenses...) the Belgian system has put in place certification recognition based on 3 levels/contents with a recognised curricula:

- General training level courses in agriculture (course A)
- Courses on taking over an agricultural exploitation/farm (course B)
- Specialisation courses, depending on the type of farming (course C).

Several training centres and agricultural unions have been accredited in Belgium to deliver these courses and corresponding certificates.

Cyprus

Technical and Agricultural School Avgorou (Cyprus)

The agricultural and food sector of Cyprus is in a state of transition due to the new socio-economic environment created by the accession of Cyprus to the EU. The agro-food sector aims at dealing successfully with the new situation through the modernization of the agricultural sector. High importance is given to the improvement of productivity and competitiveness by reducing production costs and by improving quality of products.

Technical and Agricultural School Avgorou was established in 2004 with the aim to offer technical training with contemporary program of study that fulfil the requirements of European Union and the needs of modern times. The *Department of Plant Production* provides the students the essential background needed in order to deal with the needs of agricultural enterprises of plant production packing, standardization and marketing of rural products, pesticides, fertilizers, and multiplicative material.
Currently the department is organized in:

- Day classes for high school students of age 15-18
- Afternoon classes for population over 18 years old.

Both programs last for 3 years and consist of theoretical education and 1 day/week of practical training during the 3rd year of study. Presently there are 35 students attending the high school and 10 students attending the afternoon classes.

Considering the problems, prospects and challenges resulting from Cyprus' accession to the EU and with the objective to contribute to the required modernization and technological transformation of the island's agro-food sector, the *Cyprus University of Technology* has established in 2007, for the first time in Cyprus, a department of Agricultural Sciences, Biotechnology and Food Science. The new department will offer a B.Sc. degree in Agricultural and Food Sciences with specialization in three basic areas: a) Crop Science and Technology, b) Animal Science and Technology (including fisheries and aquaculture) and c) Food Science and Technology.

Technical and Agricultural School Avgorou
5515 Avgorou – Famagusta - Cyprus

France

A pioneer training model (France)

The MFR propose an original model of education and training, to answer practical needs of farmers in the early 1900's. Children and youngsters could then remain on the farm when their manpower was needed and attend specific training over other periods. This enabled to keep young forces in rural areas and allow an adapted education to farmers' children. In short, they invented "sandwich courses".

They established the 3 principles of the « Maisons familiales », still valid nowadays:

- responsibility of parents in the education of their children.
- "sandwich" pedagogical system.
- development of local environment.

Nowadays all over the French territory we can find 430 training centres regrouped in 70 federations, they provide a range of training and qualifications on 200 subjects; of course, traditionally, from farming, catering and food transformation to, nowadays, mechanics or any modern craft. From the 50's they even opened MFR in Europe, Africa, Latin America and South East Asia.

They are all organized on the same model:

- Each MFR depends on an association of families, fully responsible.
- Training is alternated with periods in companies.
- Courses are delivered to small groups.

The concept MFR were implies crossing theory with practical knowledge from experience and enhances self-training and collective thinking.

Their legal status is non-profit organisation and they prepare the same diplomas, at all levels, as the state centres.

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Germany

Agro-Tourism in the Mosel Valley (Germany)
The example of the Loewen estate in Detzem

1. The Mosel (Moselle)

The wine region is Germany's third largest in terms of production with an annual production of about 1.100.000 hectolitres. It is the leading region of Germany in terms of prestige and export of wine. The average size of a winegrowing estate is only 1.7 ha. The area is known for the steep vineyards and mainly famous for its wines made from the Riesling grape, about 60% of the total.

Tourism: Importance of Tourism in the Mosel Valley

This region is a top tourist destination with many highlights. Of more than 6.7 million overnight stays of tourists about one third of these overnight stays take place in registered private lodgings mostly wineries.

2. Detzem (http://www.detzem.com/)

Detzem is a small village of 500 inhabitants. There are about 25 family-owned wineries, out of which at least 19 offer guest rooms for tourists as well as wine tastings.

The Estate Edmund Loewen in Detzem http://www.edmund-loewen.de/index.html

As common here, this winery is family-owned and -operated. About 3.25 ha of vineyards are cultivated; the annual production is between 30,000 and 40,000 litres of wine products. The whole production process takes place in the winery with completely up-to-date facilities.
The owner has received a professional training as oenologist ("Weinbautechniker") and has worked previously for a retail market chain. His wife has been trained as specialist for gastronomy and Hotel services. Both speak English well. The owner has taken part in several further training activities and has an innovative approach.

Agro-Tourism at the Loewen winery
(www.edmund-loewen.de/ferienwohnungen.html)

The owner decided to improve the economic situation of the business by offering apartments to tourists. They operate five flats on site, especially for families.
Besides bed and breakfast, they offer: wine tastings for 2 - 60 persons, visit of the wine cellar, snacks, guided tours, wine courses, cooperation at the vineyard.
The owners had to make large investments in property, time and technology. Working in the steep vineyards takes up most of the time of the whole family and is the foundation for their economic viability.
Direct sales to private customers improve profitability and minimize the dependency on the price fluctuations on the market for bulk wine .The sales to visitors and guests have greatly helped to improve their sales of wine to private customers. They make up for almost the complete sales.
In order to be able to match the demand of different wines the family had to diversify with regards to the variety of grapes cultivated.

Fachhochschule Trier, University of Applied Sciences, Intl. Office (C. Lex)

Greece

Elimination of allergenic proteins with electromagnetic irradiation (Greece-Germany)

1.Justification of the selected study

Allergenic food constituents comprise a major problem for human health. Hundreds of deaths are reported worldwide each year, caused by allergic shocks and relevant side effects. The food safety authorities continually propose and update guidelines for the elimination of various allergenic compounds from the dietary chain. Despite the EU directive for labelling the so contaminated products, allergenic proteins have been detected in various food items, without the corresponding notification. Easy and quick methods for the elimination and identification of allergenic substances are missing from food and agricultural SMEs and to this objective, the Laboratory of Food Chemistry, of the TEI of Athens, is presenting its contribution. Irradiation experiments were monitored by the FH Trier, in collaboration with the Federal Institute of Agricultural Research, in Karlsruhe, and the Hellenic National Research Foundation.

2. Development of the study

The qualitative and quantitative determination of the allergenicity was detected by the Sandwich-Enzyme Linked Immune Sensitive Assay. The products selected for further investigation and analyses were those that showed remarkable allergenicity and were not so-labeled. These were mainly snacks containing dry nuts and seeds (sesame). On the food items found to contain allergenic proteins, various kinds (i.e. frequencies) of electromagnetic irradiation were applied. The most efficient technique for the destruction of allergenic proteins seems to be associated with the use of a Co-60 source.

From the several dose rates tested (namely 3, 6 and 10 kGy/h) minor changes have been observed in the content of allergenic compounds. Therefore, doses higher than 10 kGy/h must be applied in order to achieve a more efficient destruction of allergens. These doses are mainly used also for disinfection of several spices. Major functional constituents of the tested products like antioxidants also remained “untouched” after irradiation with doses up to 10 kGy/h. Following the above treatments, the irradiated products were tested and proved to be non-radioactive. The predominating peak at 1461 keV is attributed to radioactive K-40, probably derived from background environmental radioactivity. The irradiated products proved to retain untouched their main sensory characteristics (colour and flavour).

3. Outcomes.

The above results indicate that the elimination of allergenicity from seeds with electromagnetic irradiation, if it will be proved useful for a relative application, requires doses higher than10 kGy/h and/or the synergetic use of other kind of irradiation like electron beams (beta-rays). A future related TOI (LdV) project is proposed to integrate the above results and – in collaboration with the appropriate Institutions and SMEs – transfer these innovative techniques at European level.

A case study elaborated by the TEI- Athens in collaboration with the FH-Trier.

Greece

The Thessalonica Agricultural and Industrial Institute (Greece)
(Best known as the American Farm School)

Field: Formal and non-formal education in agriculture, environment and food. Applied research in agriculture, food, and continuing education.

Target groups: Pre and Elementary school students, secondary education students, post secondary students and adult professionals

Mission: The American Farm School is an independent, non-profit educational institute. It endeavours to prepare its students for leadership roles in community life, and to do so in an environment that fosters individual initiative, a spirit of enterprise, an appreciation of excellence, a lasting attitude of inquiry, and the ability to work co-operatively. An American missionary, Dr John Henry House found the Institute, in 1904.

Core Programs: Secondary education; Post-secondary education, Adult Training; Summer courses; Division of applied research in agriculture, environment and foods.

Core Educational Services: Entrepreneurial size Demo Farms; Dimitris and Aliki Library/Information Centre

Main Activities:
AFS educational system addresses the **mind** (theory) the **hands** (practical work) and the **soul** (holistic education through the formation of the character and personality).

Education: students live and work on campus and, through the experience gained at the institute's Demonstration Farms; the Dimitris Perrotis College of Agricultural Studies provides tertiary level education to students; innovative post-secondary program offers accredited BSc (Hons) degrees in International Agribusiness and in Agro-Environmental Systems with specializations in 6 areas; In adult education, it offers a wide range of continuing vocational training and adult education programs, lectures, conferences, exchange programs and study visits.

Several program and internship period is validated by the University of Wales Institute, Cardiff. In addition, Perrotis College creates an internship program for foreign students and also a summer school in agribusiness and marketing during summer on campus.

Research and consultance: Applied research and technology transfer in agriculture (Pole of Innovation)

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Greece

Sustainable Agriculture in the Community of Anavra (Greece)

The presentation of this Community was chosen to be a Case Story of the Agro-MACVET Project, since it has gained many positive comments on both national (Greece) and European level.

It has been recognised as a model of sustainable development.

The Community of Anavra is located on the West side of mount Othrys, in the periphery of Thessaly and about 70 kilometres from its administrative centre of Volos. Its population is around 1000 inhabitants.

From ancient years it is known for its livestock activities. Nowadays, due to a well organised and supported by the Community Council, it is recognised as a model of sustainable agriculture development. Almost all the citizens are involved in biological farming and herding.

An increasing number of people willing to abolish the urban life and activities become local residents and participate in the spectrum of the sustainable agricultural activities of the community. Nevertheless they must fulfil certain criteria, mainly linked with activities to be developed there and also housing.

These special requirements are announced by the Community Council of Anavra, according to yearly priorities.

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Hungary

Raising the added value by developing farm-cheese production (Hungary)

A young couple (the man: agronomist with horsing knowledge, the woman with middle range economic practice – both around 30) bought some years before a little farm with stall, machine-barn and a little grass field.

They started with horse keeping and leasing, as well as with stalling. Later they purchased some goats for their personal need based on their grass field.

Economically the enterprise was no profitable, they could not live from the incomes.

The woman found some activity to try to increase their possibilities to make their life better. With help the Chamber of Agriculture, the Society of Food Producers and her old school they found a perspective solution: production and regional disposal some kind of goat-cheese.

Based on the results of market analysis of the raw-material, the qualitative and volumetric needs they developed a farm-cheese product line using a special process which provides a longer life shelf. This development was achieved with the support of a dairy-technologist.

The product: Fully goat cheese and cheese made from 50%-50% goat and cow milk, in vacuum-package (250 g/package). Later the product was able to obtain the qualification “organic” (in Hungarian: “bio”) product.

Row-material source: While the farm produces only a little amount of milk, it started to process the small milk producers organic production within a 40 km radius. (The terrain is by farm-size and geographically available for organic agro-production.)

Market: first the market consisted in a few little and middle size food-shops. After one year they could sell to two hypermarkets. Some regional hospitals (dietetics and rehabilitation) also bought the products.

Production-development: At the beginning the production started in hired premises. With loan and support the plant was created and equipped with small-size technology.

To the financial and commercial analysis of the development we used “direct-costing” method, to the liquidity and the ROI calculation the calculation method was provided by the National Developing Agency.

Based on the increasing demand an application for support was made to develop and update the plant on their own place. (PC-regulated process, environmental-friendly solutions, wastewater management, etc.)

Production is increasing by 500%; Employee by 100%; total revenue by 530%; Earnings by 2200%. (twenty two fold).

To the developing they used own fund 16%; bank-credit 34%; Subvention 50% (no refundable).

Credit reimbursement period 5 years ; total reimbursement period 6,5 years

The development is in under way. Orders cover 60% of the capacity.

Hungary

Consortium of Training Centres (Hungary) within the Framework of New Hungarian Rural Development Plan (Istvan Szechenyi Agricultural Vocational School)

In the New Hungary Rural Development Plan target groups are farmers, young farmers, agricultural entities and companies. This program provides farmers with training supports. They have the possibility to apply for EU subvention. The level of subvention is 100 percent up to HUF 275,000 (ca. €1000) per annum for each farmers or agricultural entities.

The New Hungary Rural Development Plan promotes following groups of interventions in general:

- **Improving employability** with planned tools:
  Services to promote entry to the labour market and employment; developing knowledge and skills necessary for employment; preventing long term unemployment; measures to promote migration within the labour market; subsidies to support the employment of disadvantaged individuals; social security discounts; improving employment rehabilitation;
- **Improving adaptability** with planned tools:
  Transforming the institutional structure of vocational training and establishing the regional system of vocational training and accredited adult training; developing the capacities of social partners; reducing the impacts of restructuring processes on the labour market; flexibility and security on the labour market.
- **High quality education and availability for all** with planned tools:
  Improving problems solving capacities; developing digital literacy, language, natural science and lifestyle skills; co-ordinating the needs of training with those of the society and the economy; developing business and entrepreneurial skills and developing the cultural capital; complex educational development programmes; creating of a measurement and evaluation system; modernisation of the training and further training of teachers; introducing cost efficient organisational forms; promoting regional partnerships and helping the integrated education of pupils in disadvantaged situation.

The types of trainings the consortium can offer within this program:

1. Binding trainings: Farmers and agricultural entities, granted applications, are obliged to participate at a 14 hour training especially connected to the modernization of agricultural plants and farms (11 types of courses)
2. Courses required by authorities (2 courses)
3. Facultative courses: 22 training hours to provide farmers with practical information (14)
4. Professional courses: (11 regular+ 150 special courses)

Why it is worth to attend these courses:

- Some of them are necessary for the entrepreneurship
- For granting agro-loans
- Some prescribed by applications
- Needed for some agricultural supports
- Hobby

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Spain

A training model based on ITG Agricola centre (Spain)

The institute carries out experimental activities with a practical approach aimed at solving specific problems faced by farmers. It also collaborates in several research projects in collaboration with Universities and Research Centres, from Spain and abroad.

ITGA is an efficient centre to allow farmers to get a complete knowledge about the cultivation they are currently running, and what is more important, to change their mind into a complete and diversified business.

The common experimental lines are:

- Tests of new crop protection products and new crop protection techniques that are more respectful with the environment.
- Tests of fertilizers, irrigation systems, tillage and cultivation in general.
- Programming of growing seasons. Advice to farmers.
- Tests diversification, crop rotations or new crops.
- Evaluation of production systems.
- Training of farmers, as a pillar for greater professionalism, constant updating of their skills and knowledge, and in the end, increased profitability of their farms.

To achieve these goals, the ITGA develop several activities such as permanent Training; the daily contact of the technicians associated with farmers on the farm, as one of the most powerful educational tools, informative talks and posters, Bimonthly magazine “Navarra Agraria”, training courses, etc.

The innovation in this case is the continuous contact with farmers, by organizing special seminars, informing about allowances. Farmers are also involved, as they cannot enrol courses without being members of any farming association within the region, so they are obliged and concerned to be united, as a group, to share common problems or difficulties.

Their legal status is Anonymous society, but with some public funding (human resources and equipment).

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Turkey

Seedless Lemon Cultivars Developed (Turkey)
by ALATA Horticultural Research Institute

Activity**:** agricultural research and application, farming, on-the-job training

As a result of research and improvement studies in Citrus Fruits Improvement Programme carried out by ALATA Institute for about 7 years, the following three cultivars (namely Alata, Gülşen, Uzun), originated from Kütdiken (stubby thorn) type lemon, have been developed. These cultivars are patented and registered and their "Production Rights" are to be sold.

National experts reported that, the quality of these cultivars are unique in the World scale, and with the growing up production, these seedless type lemons will be an important chance for Turkey to compete with lemon exporting countries and therefore to increase Turkeys' export share.

ALATA Management expressed that there are no changes in the natural structure of the fruits and these seedless types are the results of mutation improvement studies and natural variation process carried out in ALATA.

There are demands from foreign companies for production rights of these cultivars, especially from USA, South Africa and China. Now, ALATA started to work on mass production of seedless lemons with the objective of being an international trademark in this sector.

In the full case study the cultivar specifications are presented.

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Contact for the full case studies

Case studies are available on the Agro-MAC VET website: www.agro-mac.eu in the "case and practices"[1] menu.
Names and contact details of the national contact points of Agro-MAC VET are available on-line[2]

Agro-MAC VET is a partnership European project supported by the Leonardo da Vinci programme.

Education and Culture DG
Lifelong Learning Programme

This project has been funded with support from the European Commission under the framework of the Leonardo da Vinci Lifelong Learning Programme.

This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

[1] Cases: agro-net.eu/index.php?option=com_content&view=category&layout=blog&id=97&Itemid=58
[2] Partners: www.agro-net.eu/index.php?option=com_content&view=category&id=46&Itemid=62