Current higher agricultural education in Poland – threats and challenges (Case studies: Europe 2)

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Current higher agricultural education in Poland – threats and challenges (Case studies: Europe 2)

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Abstract. The future role of agriculture in Europe will be not less important than it is at present and additionally we should be ready for uncertainty and threats (droughts, floods, social or political conflicts, crop failure but also crop surplus) regarding agro-food systems. Therefore farmers and advisers must be very well educated and prepared to the act in modern agricultural and food processing systems. The number of agriculture students and graduates has decreased recently, one of the reasons being the problem with jobs in agriculture sector and traditional programmes offered by Universities which do not fulfil the market demands and employers expectations. The modern agricultural universities and colleges should teach the biological bases of production and pay more attention to society needs and demands instead of typical technological knowledge which is very often offered by international firms and companies. Reform of higher agricultural education is absolutely necessary but it is clear that it will be successful only if it is supported by students and university staffs.

Keywords. Higher agricultural education – Internationalization – Number of students – Labour market demands.

État des lieux des études secondaires en agronomie en Pologne – Menaces et défis

Résumé. *Il apparaît que le rôle futur de l'agriculture en Europe ne sera pas moins important qu'il ne l'est aujourd'hui. En plus, nous devrions être préparés à faire face à certaines menaces (sécheresses, inondations, conflits politiques et sociaux, mauvaises récoltes et surplus de production) sur les systèmes agro-alimentaires. Ainsi les futurs agriculteurs et conseillers devront être bien préparés et formés aux techniques agricoles et alimentaires modernes. Le nombre d'étudiants et de diplômés en agriculture a récemment diminué, l'une des explications de cette baisse est un problème d'emploi dans le secteur agricole mais aussi l'inadéquation des programmes traditionnels proposés par les universités aux besoins du marché et attentes des employeurs. Les lycées et universités agricoles modernes devraient enseigner les bases de la biologie en production et davantage porter attention aux besoins de la société au lieu d'insister sur les compétences technologiques qui sont déjà souvent enseignées dans les entreprises internationales. La réforme des études secondaires dans le secteur agricole est indispensable mais il est évident qu'elle ne sera un succès que si elle s'accompagne du soutien des étudiants et de l'équipes pédagogiques des universités.*

Mots-clés. *Études secondaires agronomiques – Internationalisation – Nombre d'étudiants – Attentes du marché du travail.*

I – Introduction

According to the FAO statistics, the number of people around the world suffering from malnutrition and hunger in 2012 amounted to 870 million, which means 13 of total human population on the world. In the EU, almost 43 million people are threatened by malnutrition and 17% of Europeans are not able to fulfill the basic life requirements (http://epp.eurostat.ec).The population in EU at the beginning 2013 was about 505.7 million and it is predicted that until 2035 it will increase to 525 million. Together with the increase of population there will be increase of food demand, par-

ticularly for meat and some animal products. The expertise have prepared by World Bank suggested that global demand for food will increase by 50% and for meat and meat preparations by 85% (Evans, 2009). Increasing demand for meat could be risky because it is necessary to use 20 tones of feeds and fodder per each tone of meat. The feeds are mostly based on cereals and we have to remember that agricultural soils resources in Europe are rather limited (25 years of Polish Agriculture, 2014).

The global increase for food is a great challenge for the EU, where there is a large surplus of food production but on the other hand it is necessary to take into consideration the global situation and food security in the worldwide scale and react consequently. So the protection of food production in Europe is as important as the improvement of ability of agricultural productivity and competitiveness. European agriculture not only supplies the demand for food but also meet consumer's expectations for food quality, and guarantees an environmentally friendly way of producing food and the level of security which would be prone to global climatic and social changes which are predicted to occur in Europe in the nearest future. We should be also ready for some threats (droughts, floods, social or political conflicts, crop failure but also crop surplus), so it seems the future role of agriculture in Europe will be not less important than at present and farmers and advisers must be very well educated and prepared to the activity in modern agricultural production and processing of agricultural goods. From the theoretical point of view it is an excellent chance for higher agricultural education in Europe (Maquire and Atchoarena, 2003), but agricultural science and education are in deep crisis now and agriculture (in classic meaning as farming or agronomy) it is not attractive for students, is not fashionable enough (Podlaski, 2009) and does not always offer good jobs and satisfactory salaries for graduates. It should be also underlined that after the rapid increase of student population in European Union (in the years 1998-2000 the number of students increased by 25% and achieved 18.7 million) we observe now a decrease in the number of students caused by demographic crisis which hit many European countries. It is predicted that by 2030 in Poland the total number of students will decrease by 30% (Podlaski, 2011).

II – Changes in the higher agricultural education in the world

According to the report of The World Bank (World Bank, 2002) and Podlaski (2009) "the golden age" of higher agricultural education and investment into agribusiness was the time of Green Revolution and just afterwards. In the USA it happened in the seventies of last century. In that time popularity of agriculture was extremely high, also the total financial inputs for agricultural research were very good and what is important, public sector was interested in investment in agricultural production and education. Those large investments led to the increase of intensification and efficiency of agricultural research; an increase of agricultural production was observed and very soon surplus of food production appeared in developing countries. It was also the time of illusion that the growth of the role and importance of agriculture will a long life phenomena.

In the seventies in American universities teaching programs concentrated mainly on technological processes connected with the crop production and animal husbandry. Higher agricultural education succeed and as a result many very good agricultural specialists were educated, but they prepared mainly for applying the modern technology in agricultural production (Podlaski, 2009). The agricultural intensification caused the increase of problems with environmental protection, the over-utilization of nature resources and energy, etc. Questions about the limit of food production, food security, traceability or sustainable rural development became to be the main problem of modern civilization. As a result the best American Universities started to drift from traditional agricultural education into education based on life sciences (Podlaski 2009; Maquire and Atchoarena, 2003; Kukiel *et al.*, 1996). At that time European Common Agricultural Policy was changed, and development of rural areas started to be more important than agricultural production (Koucky *et al.*, 2005; Podlaski, 2009).

The Universities tried to adapt to the new situation but often instead introducing new teaching programs they started their activity from changing the name of universities and faculties as it happened for example in Wageningen (The Netherlands),Copenhagen (Denmark) and in some German Universities where the name “agricultural” removed. That fact appeared also in Poland when from 9 former agricultural universities only one still has the name “agricultural” (in Krakow), the rest of them has changed the official name from ”agricultural university”' to ”university of life sciences”. The lack of popularity of agricultural studies is a result of a notion that at present moment it is very difficult to find a good job having agricultural education. According to OECD (Education at Glance, 2007) and Podlaski (2009) employment in EU agriculture decreased by 2 million (from about 10 million employed in 2007). Reduction of employment in service and food processing sectors has been also noticed (Podlaski, 2011). Despite the global increase of students, the number of students in agricultural or similar fields of education in the EU decreases rapidly. The number of all students in EU increased in years 1998-2006 to 19 million (about 25% of all human population in EU), but among all graduates the ones who studied economics, sociology or law dominated (38%). Also medicine, engineering and humanistic studies were very popular (14-12%). Agricultural and life sciences universities were chosen only by few percent of students. This is confirmed in the last statistical studies (Education at a Glance, 2014, OECD Indicators) (Table 1).

Table 1. Distribution of tertiary new entrants by field of education (%)

Field of education	OECD average	EU average	Poland
Humanities, arts and education	20	20	19
Health and welfare	13	14	9
Social sciences, business and law	31	32	32
Services	5	5	10
Engineering and construction	15	15	18
Science	10	11	10
Agriculture	2	2	2
Not known	4	1	–

Source: Education at a Glance 2014, OECD indicators.

Policy of EU promotes and fosters the education in science (engineering, math and physics) because of the role of those field of studies in innovative economy. From OECD data (Education at a Glance, 2014) it is not clear however if this activity brings the expected results, as in OECD countries as well as in Poland, humanities and social studies are very popular whereas only 1-2% of young people are interested in agriculture. This is probably connected with the common opinion in Europe that it is not easy to find a good job after accomplishing agricultural education.

Universities try to react to that situation and in many countries, the names of present field of studies are being changed, and new specializations are established. They are given new names which are supposed to be attractive for young generation and should encourage them to decide to study although quite often, what the students are really offered, are the same programs and traditional teaching methods which were the core of the given university syllabus as many professors and lecturers are not interested in radical changes. Polish Evaluation Commission tries to evaluate the new fields of studies and often does not approve setting them up usually because of lack of good scientific staff or research and teaching equipment and facilities but on the other hand some large universities have the freedom and autonomy and many new, strange fields of studies have been established recently (e.g. plant medicine, hippology and horse riding, zoological parks and pet animals, applied animal psychology, space security etc.). In Poland during the last 5 years 47 new directions of field studies have been opened by the old agricultural universi-

ties and total number of those directions extended to 400. Similar situation is observed in many former higher agricultural schools in Europe, particularly in Central East part of Europe. Certainly the reform of higher agricultural education is absolutely necessary but on the base of Americans experiences it is clear that the reform will be successful only if it is supported by students and university staff (European Commission, 2008; Maquire and Atchoarena, 2003; Podlaski, 2011).

III – Higher agricultural education in Poland

In Poland the number of students increased from 403 thousands in 1990 to 1,954 thousands in 2005. Since 2006 we have been witnessing slow decrease in these numbers. At present 438 higher schools, universities and colleges educate 1.5 million students but it is reported by GUS (Central Statistical Office of Poland) (2014) and by the World Bank (2004) the demographic trend is not optimistic and probably the number of candidates for studies will decrease in 2020 by 40% in relation to 2002. The largest group of students are university students (455 thousand – decrease by 7.8% in relation to 2012), students of polytechnics (331 thousand – decrease by 3.5%) (see Table 2). In 2013 the number of new entrants decreased by about 11% in comparison to the previous year (GUS, 2014). The good indicator of education is the enrolment ratio. It started from 12.9% in 1990 to 53.8% in 2010, and currently it is 49.2%.

Table 2. The number of students at different type of higher schools in Poland on the years 2000-2014 (in thousands of students)

Type of school	2000/01	2005/06	2010/11	2013/14	%
University	443	563	527	455	29.3
Polytechnics	318	320	318	331	21.2
Agricultural	86	108	80,5	76	4.9
Economy	370	408	278	200	12.0
Education	148	112	102	55	3.5
Medical	29,5	49	62	60	3.8
Sport	22	28	28	25	1.6
Arts	13	15	10	17	1.1
Military and marine	22	25	26	27	2.0
Others	124	304	387	322	20.6
Total	1.585	1.954	1.841	1.550	100

In Poland, as well as in the world, students of agricultural specialisations are not the ones most satisfied with their choice of study (Podlaski, 2011), the majority of graduates would have chosen a different education path mostly institutes of technology or university education (Podlaski, 2009). The rapid decrease of the number of students in the last few years constitutes a characteristic feature of Polish agricultural education. The higher agricultural education in Poland is carried out on 9 universities of life sciences and in some State Professional Higher Schools, a total of 75,000 students study at these schools, which means about 5% of total population of Polish students (Statistical Yearbook of the Republic of Poland, 2014). As it has been mentioned earlier, in 2013 the number of first year students decreased rapidly at all universities, being especially noticeable at the field of agricultural studies. Only 637 students were accepted at the faculty of Agriculture in 10 Polish agricultural universities which was a massive drop (by 83%) compared to 2003. Typical agricultural fields of study (agriculture, horticulture, fishery, animal science, forestry) are nowadays chosen only by 1.5% of candidates. The number of graduates of those fields compared to the total number of all graduates who have finished their studies in the years 2011 and 2012 is also very

low (GUS, 2014). A slightly more interest is paid for veterinary, food processing and food security and first of all architecture of landscape and tourism and recreation. The crisis in the higher agricultural education is observed also in the post graduate and doctoral studies: those studies-have been chosen by only about 1% of all members of those studies. Among the many reasons of that situation, one of great importance is the program of studies which is very often very similar to teaching programs which were presented to Polish students many years ago (Podlaski, 2011; Jakość kształcenia [Quality of Education], 2007). The modern agricultural universities and colleges should teach the biological bases of production and pay more attention to society needs and demands instead of typical technological knowledge which is very often offered by international firms and companies. This is also connected with situation in research studies in agriculture. The strong development of private sector in agricultural research means that a lot of results useful for farmers which can be applied directly in practice came from non-public institutions like from international breeding, seed or fertilizers companies and progress and effectiveness of those research is much higher than in universities (Podlaski, 2011). Traditional agronomy has lost its importance in the world scale, but to produce food in sustainably way calls for the new generation of agronomists able to comply with new civilization demands (Magor, 2013). Polish higher education is in the phase of changing but progress depends not only on investment in agricultural research and education but first of all on changing the mentality of staff, students and farmers as well.

IV – Internationalization of agricultural higher education

One of the most important activities within the frame of international policy of higher education is the consolidation and unification of university functioning and free students movement. Although in the world scale the substantial increase of students studying outside their own country is observed (from 0.8 million in 1975 to more than 4.5 million in 2012 (Education at a Glance 2014), Polish students rather rarely use the possibility to study abroad. In 2012 only 2.4% of them went to study at foreign universities (the most often chosen countries included the UK (37.3%), Germany (21.5%), France (5.5%) and the USA (3.7%). Poland has been the member of the Socrates-Erasmus program since 1999 and of the program “The lifelong learning program” since 2007, but only 50,000 Polish students decided for to study abroad (Jankowska and Jankowski, 2008). The most popular field of studies is business and management (20%), social science (15.1%), engineering (13%) and foreign languages (12%) (Statistical Yearbook of the Republic of Poland, 2014). The agricultural and life sciences are not popular, only 2% of students who decide to go abroad are interested in those studies but on the other hand it should be underlined that 60% of all Polish students plan to go abroad after studies in Poland and look for new job perspectives there.

Those students who took part in Erasmus program confirm the advantages of foreign studies (more practical and theoretical knowledge, improvement of important skills, better access to international labs and libraries, much better perspective for attractive employment).The number of foreign students in Polish higher schools has also been increasing. In the 2013/2014 academic year their number amounted to 36,000 (2.3% of all students). Much worse situation is in the field of agricultural sciences: only 0.5% of all foreign students in Poland selected agricultural or life sciences studies. Half of them chose studying at SGGW –the oldest and the biggest agricultural university in Poland. Internalization of education in Poland is one of the weaknesses of Polish education and one of the main reasons of the bad evaluation of teaching quality in many Polish universities which is reported by Polish Accreditation Commission. There is no doubt that it is possible to increase the number of foreign students at Polish universities (also in agricultural and life science universities) but it can only be achieved if there are more lectures and classes run in English and at least some of the teaching programs are changed (Podlaski, 2009).

V – The expectations of labor market and society for agricultural and life sciences students and graduates

In the year 1989 political and economic system in Poland changed and later similar changes have been noticed in many Central and East European countries but the evolution of the system of higher agricultural education stopped at the level of the seventies (Podlaski, 2009). The aim of each step of education should be the maximization of employment chances for graduates. European labor market does not need many graduates educated in narrow specializations in crop science or animal science even if they are prepared very well in those fields. There is an increasing demand for people prepared to solve the global problems connected with the proper use of global nature resources, global climate warming, biodiversity, landscape planning and management, food security or environmental protection. Multifunctional development of rural areas demands for graduates who are able to help at the local scales, and we need the people who are very well prepared not only in agricultural technology but in law, economy, services, and health issues (Kukiel, 1996; Podlaski, 2008).

Surveys carried out in 2011 by the Institute of Development of Economy (2012) in Poland among more than 600 employers in Warsaw and Mazovia Province indicate that fields of education and teaching programs at our universities are completely unmatched to labor market needs and demands. Competences of graduates expected by employers are far from real qualification of Polish students. The majority of graduates are not able to solve the problems, work in teams, students have problems with analytic thinking and self-education and with interpersonal communication. In employers' opinion universities should change not only teaching programs but first of all methods of teaching and pay more attention to practical knowledge and skills The universities are very often driven by their own, with narrow aims as the level and qualifications of academic staff, the present infrastructure, the tradition, and do not focus on real labor market and its needs. The employers should also have more impact on higher agricultural education and work together with academic staff to improve the present model of education (Jakość kształcenia, 2007).

The food security and rural development and management are noticed as very important fields of education and start to play very special role on the labor market. Food security is one of the most compelling global challenges. The rapid growth of the world's population puts great pressure on critical resources such as water, energy and food. Food security will become an ever greater priority for the EU and the world as the global demand for food increases and the challenges of sustainable production and equitable distribution become increasingly acute. The system of food production and distribution must meet the challenge of ensuring food security while at the same time dealing with the current impact of climate change on agriculture and adapting agriculture to lessen its future environmental impact. Half the EU's land is farmed, so initiatives to decrease emissions, maintain biodiversity, preserve natural resources and conserve areas of ecological and scenic value are of significant and increasing importance (Special Eurobarometer, 2012).

VI – Conclusions and final remarks

The crisis in Higher Agricultural Education has been identified and debated in national and international settings but despite a plethora of exhortations and suggested solutions change has been slow. While Higher Agricultural Education has succeeded with education for production, agriculture, it has generally failed to make the curriculum and management adjustments needed to provide the education and services required by a changing agricultural sector and the transformation of the rural space. Higher agricultural education has a key role to play in ensuring that critical knowledge and skills are imparted to teachers and students; that other rural development actors appreciate the role of agriculture and sustainable natural resources management and the synergies involved in working together to build human resource capacity. Higher Agricultural

Education institutions have to act quickly to clarify their roles or missions, establish their legitimate place in the higher education system and make the organizational and administrative changes necessary to provide a meaningful contribution to both the professional and general audiences concerned with rural development (Maquire and Atchoarena, 2003).

Higher Agricultural Education In in Europe is undergoing a deep crisis, agriculture seems to be not very attractive and not fashionable enough for young generation. The number of students and graduates has decreased during last decade. One of the reasons is the common opinion that it is not easy to find a good job and attractive salary after agricultural or similar field of study. Universities tried to improve the situation, they open new study areas and they changed the names of faculties and fields of education but very often those ideas and efforts are not compatible with market demands and employer expectations. The internationalization of agricultural studies is not on the expected level neither, only a small percentage of the student population in Poland decides to go abroad but many young people are going to look for jobs and some experience in foreign countries. On the other hand various universities, also in Poland have developed many interesting programs and activities in the sphere of sustainable development. Universities through their research work can contribute to securing a safer and more sustainable future against recognized threats such as climate change and environmental threats. Graduates with background in renewable energy sources, food security, sustainable development or rural and landscape planning are able to find their way to agricultural enterprises of different sizes. However further collaboration between the various universities should be the next step of higher agricultural education development. The future guarantee of better, more effective education lies in multilateral cooperation between educational institutions and business so there is a constant flow of information and support between academia and industry.

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