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INNOVATIVE SYSTEM OF POSTGRADUATE EDUCATION IN THE FIELD OF FOOD QUALITY MANAGEMENT

INNOWACYJNY SYSTEM KSZTAŁCENIA PODYPLOMOWEGO
W OBSZARZE ZARZĄDZANIA JAKOŚCIĄ ŻYWNOŚCI

Summary. The innovative programme of Postgraduate Studies focused on the development, implementation and maintenance of control procedures based on the Codex Alimentarius HACCP principles was characterised. Since 2003 the Postgraduate Studies “Quality Management in Food Processing” held at the University of Life Sciences in Lublin (Faculty of Food Sciences and Biotechnology) have been actively providing education and training to food industry based on the HACCP principles. Postgraduate Studies have provided students with the knowledge and skills needed to assure food safety. By attending workshops and preparing a coursework participants gain a very good understanding of HACCP principles and how they can be applied by the food processing plants. The study was aimed at presenting the results of educational activity of Postgraduate Studies Centre “Quality Management in Food Processing” of the University of Life Sciences in Lublin in training undergraduates in the field of quality management in food production. The obtained results pointed out that Postgraduate Studies “Food Quality Management in Food Processing” serve as an Educational Centre in the field of food quality management mainly for central-east region of Poland. It was proved that by taking up Postgraduate Studies students gain qualifications and learn skills which are in demand in the Polish labour market.

Key words: postgraduate studies, food quality management, HACCP

Introduction

The Postgraduate Studies “Quality Management in Food Processing” at the University of Life Sciences in Lublin (Faculty of Food Sciences and Biotechnology) were formed to foster a tailor made and current education, training and technical assistance for everyone concerned with food safety. The studies have provided industry personnel with the knowledge and skills necessary to apply the HACCP principles and control

food hazards that may be present, thus assuring safety of foods that they manufacture, and increasing consumer food safety.

The innovative programme of Postgraduate Studies is focused on the development, implementation and maintenance of control procedures based on the Codex Alimentarius HACCP principles. It is recognised as providing students with the essential techniques and skills needed to effectively implement HACCP systems in the food industry. It is designed to give participants a thorough understanding of the HACCP principles and how they can be applied by the specific food industry. Graduation from Postgraduate Studies "Quality Management in Food Processing" enables participants to confidently understand and control the challenges posed by difficult food safety issues. Participants are people involved in production, transportation and logistics of food willing to better understand their role in food safety and to accept their responsibilities.

Apart from obligatory lectures, workshops are a very important part of the Postgraduate Studies programme. Each student is supposed to prepare a course work putting HACCP theory into practice, which is composed of the following parts: prerequisite programme which should have been implemented prior to application of HACCP; HACCP plan; procedures and instructions. Subject of the course work is suggested by the student and after gaining acceptance is being completed during two terms of studies under the tutelage of lecturers. The subject of the course work must be an existing food facility. These workshops have enabled participants to work in pairs or small groups and apply the HACCP principles in developing a HACCP plan. Out of necessity, this has to be a cooperative effort that depends heavily on partnerships among student, lecturer and food facility. These workshops provide useful experiences and strategies as the participants move on to develop plans for their own food facility. Many other HACCP training programmes existing in Poland are based on lectures followed by a preparation of a HACCP plan for a virtual food facility. We recognise that each food facility in the farm-to-table continuum is at a different level when it comes to applying a HACCP system, and students are considering this as they develop their plans. We are working closely with students to demonstrate how these plans can meet the HACCP requirements. The ultimate goal, and challenge, is to successfully implement farm-to-table food safety strategy, and that is where Postgraduate Studies help. By attending workshops and preparing a course work participants gain a very good understanding of the HACCP principles and how they can be applied by the food industries.

Postgraduate Studies Centre "Quality Management in Food Processing" was established in February 2003 with the aim of helping to enforce regulations imposed on food industry as a result of changes in legislation.

In the year 2003 the basic GMP/GHP rules were included in Council Directive 93/43/EEC on the hygiene of foodstuffs (COUNCIL DIRECTIVE... 1993). This directive obliged food business operators to identify any step in their activities which is critical to ensuring food safety and ensure that adequate safety procedures are identified, implemented, maintained and reviewed on the basis of the HACCP system.

A series of crises concerning human food and animal feed has exposed weaknesses of the current food legislation. As a result of the new policy on food safety the new regulations of the European Parliament and of the Council have been published (GAJDA-WYREBEK 2009). From 1 January 2006 new EU food hygiene legislation has been applied throughout Poland. The regulations are:

- Regulation (EC) No 852/2004 on the hygiene of foodstuffs (REGULATION (EC)... 2004 a),
- Regulation (EC) No 853/2004 laying down specific hygiene rules for food of animal origin (REGULATION (EC)... 2004 b),
- Regulation (EC) No 854/2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption (REGULATION (EC)... 2004 c).

As EU regulations, the legislation is directly applicable law. The legislation introduces a “farm to fork” approach to food safety, by including primary production (that is, farmers and growers) in food hygiene legislation. The key is to strengthen each and every link in the complex process of food reaching the consumer – from the way it is grown or raised, to how it is collected, processed, packaged, sold and consumed.

Article 5 of Regulation (EC) No 852/2004 of the European Parliament and of the Council on the hygiene of foodstuffs (REGULATION (EC)... 2004 a) requires food business operators to put in place, implement and maintain a permanent procedure based on Hazard Analysis and Critical Control Point (HACCP) principles. In response, Polish Act on food and nutrition safety was passed on the 25th of August 2006 (USTAWA... 2006). HACCP is now applied throughout the production, post-production, transportation and logistics processes of food.

Food quality management has become a major and interesting topic of research and education. Each sector in the food system is responsible for doing whatever it can to improve food safety practices based on current knowledge. Stricter demands in the field of food safety assurance as well as growing competence on the labour market are the main causes of the lasting popularity of the Postgraduate Studies “Quality Management in Food Processing” among food service workers and unemployed. As a consequence, a limit has been established on the number of students taking part in each edition.

Dynamic development and constant transformations are the main features of European economy, especially as a result of the accession of new members to the European Union. Competition at the labour market urges people to raise professional qualifications (ZADERNOWSKI et AL. 2008). The situation is mainly the result of raising expectations towards quality of goods and services, as well as the unification of national legislation with the EU requirements. Enforcement of EU law regulations towards agriculture, food processing and trade resulted in a high interest in a wide variety of supplementary education opportunities. According to Central Statistical Office of Poland during the 2009/10 academic year in Poland 194.2 thousands of people were taking part in postgraduate studies held by higher schools, Polish Academy of Sciences institutes and other institutions. More than 64% of these people took part in postgraduate studies held by higher schools. In comparison with years 1995/96 it is an increase by 42.9%. Women are more interested in postgraduate education than men and constitute about 68.1% of students (HIGHER EDUCATION... 2010).

Food quality management is a scientific field in which integration of the essential knowledge disciplines domains is a key issue. As to assure the highest standards in education, an academic staff has been chosen very carefully among lecturers of the University of Life Sciences in Lublin (Faculty of Food Sciences and Biotechnology,

Faculty of Veterinary Medicine), Warsaw University of Life Sciences (SGWW), UMCS in Lublin and National Veterinary Research Institute in Puławy.

The study was aimed at presenting the results of educational activity of Postgraduate Studies Centre “Quality Management in Food Processing” of the University of Life Sciences in Lublin in training undergraduates in the field of quality management in food production.

Materials and methods

The research was concentrated on characteristics of 337 graduates of seven editions of Postgraduate Studies over the years 2005-2009. The information about students was completed from entry questionnaires, as well as surveys held during studies. For data analysis graduates were divided into groups according to the following criteria: gender, place of living, age, education, employment status and length of time since graduation. Subjects of course works prepared by students were analysed as well.

Results and discussion

From 389 people who enrolled for the seven editions of Postgraduate Studies “Quality Management in Food Processing”, 337 students obtained a diploma, which constitutes 86.6%. Some people resigned before the beginning of the first term.

Most of the students (76.3%) were women (Fig. 1). It is 8.2 percentage points higher than the average proportion of women attending postgraduate studies in Poland. The highest attendance of women was recorded during the sixth edition. An average number of students per one edition was 48.

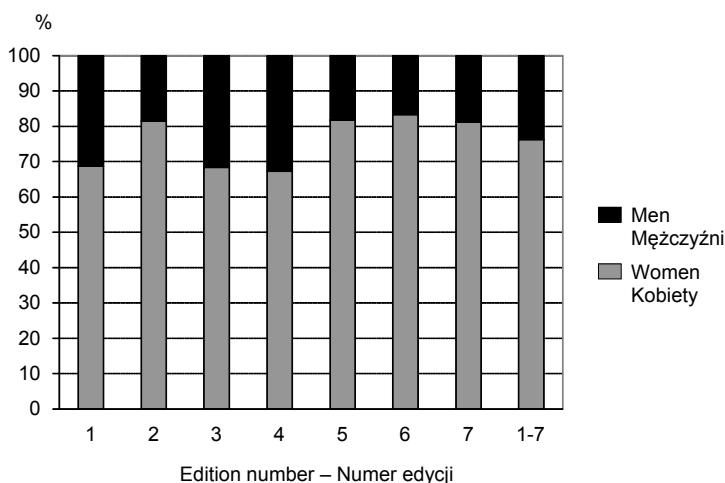


Fig. 1. Distribution of postgraduate students by gender
Rys. 1. Studenci Studium Podyplomowego według płci

As far as the place of living is concerned, the biggest group (75%) constituted students from the lubelskie province (Fig. 2).

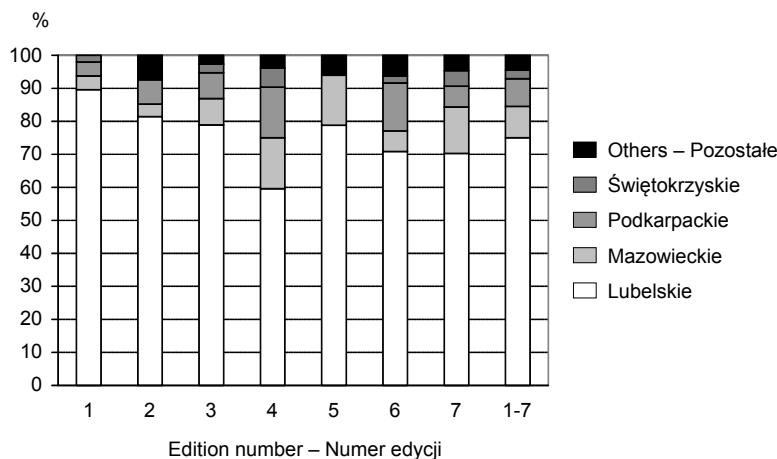


Fig. 2. Distribution of postgraduate students by place of living
Rys. 2. Studenci Studium Podyplomowego według miejsca zamieszkania

The share of students from the neighbouring provinces was as follows: mazowieckie – 9.5%, podkarpackie – 8.3%, świętokrzyskie – 2.7%. Proportion of students from other provinces was as follows: podlaskie – 1.5%, łódzkie – 1.2%, śląskie – 0.6%, warmińsko-mazurskie – 0.6% and małopolskie – 0.6%. What is interesting, the number of students from the lubelskie province was systematically decreasing (Fig. 2).

The mean age of students was 27.8. However, the mean age range was 30 years (Fig. 3). The relatively young age of students suggests that they are well aware of the labour market requirements and are trying to meet the standards by postgraduate education.

Statistical analysis revealed that students were taking postgraduate studies 2.9 years after graduation. It has to be stressed that the majority (84%) of students took postgraduate studies up to five years after graduation. Only 8.9% of students took Postgraduate Studies 6 to 10 years after graduation. Students who started supplementary education 11 or more years after education constituted 7.1%.

The examined students graduated from 30 different higher schools and 34 faculties. Graduates from the University of Life Sciences in Lublin constituted 66.2% of students of Postgraduate Studies, UMCS – 11.3%, SGGW – 3.6%, University of Podlasie – 3%, other – 15.9%. The majority of students graduated from agricultural universities – 73%, far less from universities (15.4%) and technical universities (3.9%) (Fig. 4). Increase in the number of students graduated from non agricultural faculties was observed.

Among graduates the biggest group constituted those qualified in food processing (Fig. 5), i.e. food technology (39.8%) and agricultural and forest engineering (11.6%). Faculties such as: science of commodities, chemistry, biochemistry, biotechnology, animal science, agriculture, biology, horticulture, environmental protection were represented by 39.1% of students.

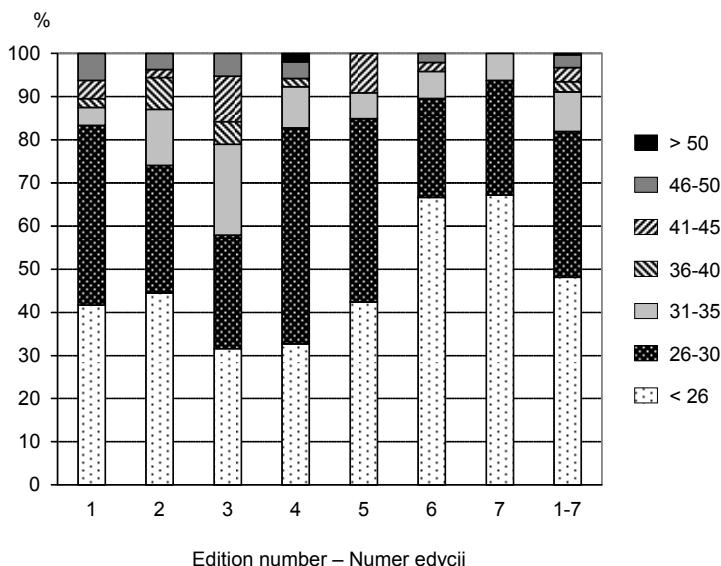


Fig. 3. Distribution of postgraduate students by age
Rys. 3. Studenci Studium Podyplomowego według wieku

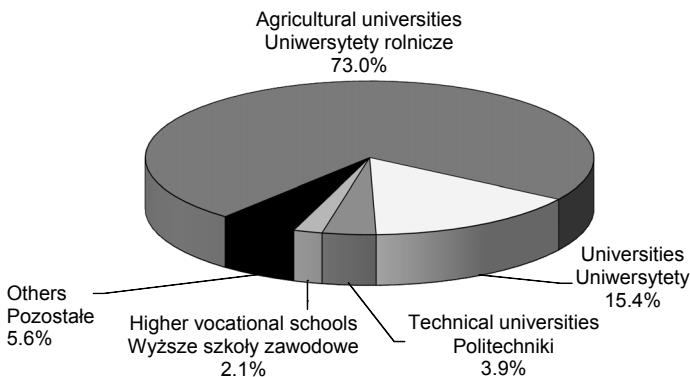


Fig. 4. Distribution of postgraduate students by type of higher school
Rys. 4. Studenci Studium Podyplomowego według rodzaju ukończonej szkoły wyższej

Other faculties (sociology, psychology, pedagogic, history) were represented by 9.5% of students (Fig. 5).

The biggest group showing interest in Postgraduate Studies constituted workers – 49.3% willing to raise their qualifications. Postgraduate Studies were also popular with students of the last term – 27.6% (Fig. 6).

Stadnik J., Dolatowski Z.J., 2012. Innovative system of postgraduate education in the field of food quality management. Nauka Przyr. Technol. 6, 1, #2.

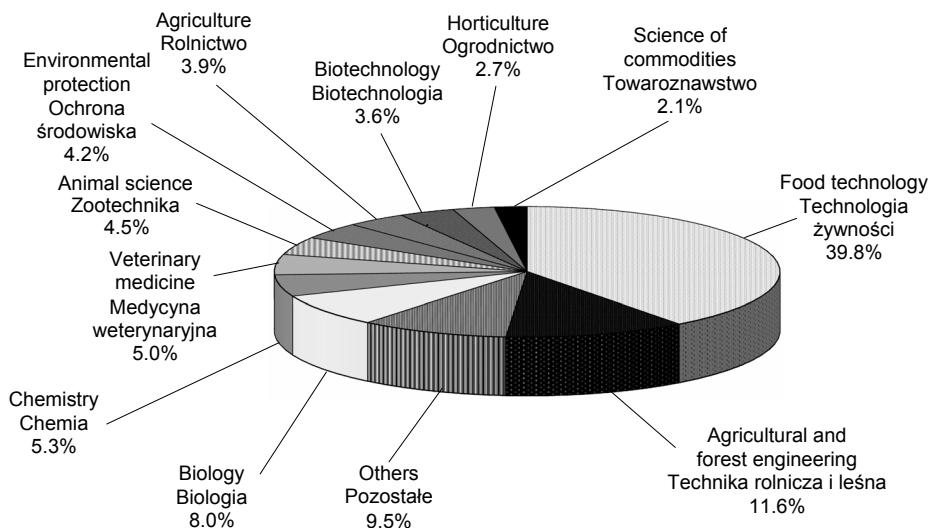


Fig. 5. Distribution of postgraduate students by faculty

Rys. 5. Studenci Studium Podyplomowego według kierunku ukończonych studiów wyższych

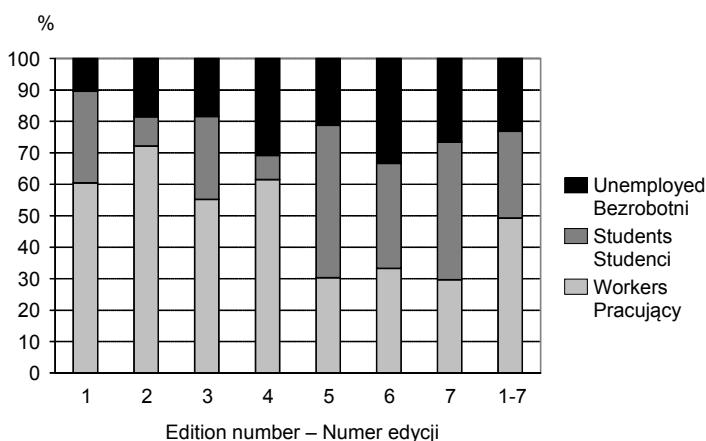


Fig. 6. Distribution of postgraduate students by employment status

Rys. 6. Studenci Studium Podyplomowego według aktywności zawodowej

It is interesting, that postgraduate studies in the field of food quality management are becoming less popular among workers and more popular among students and unemployed. It proves that students are well aware of the fact that additional qualifications may boost their job prospects. A falling number of workers interested in supplementary education suggests that people working in food industry either have sufficient qualifications or choose alternative forms of supplementary education (Fig. 6).

Most of professionally active students were working in food industry – 42.8% (Fig. 7). About 13% of students were working at official food control services. Other groups were as follows: teachers (9.0%), catering staff (4.8%), as well as traders (4.8%).

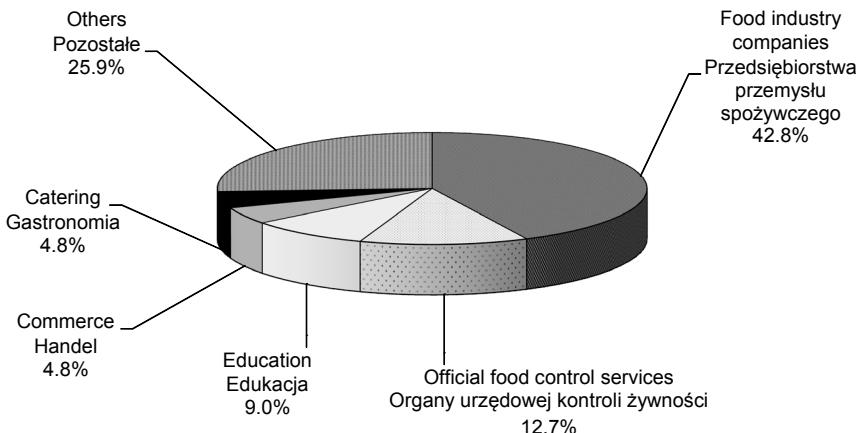


Fig. 7. Distribution of postgraduate students by place of work
Rys. 7. Studenci Studium Podyplomowego według miejsca pracy

Students' course works (Fig. 8) were analysed by dividing them according to their subjects into the following groups: meat processing, milk processing, cereal processing, bakery and confectionery, fruit and vegetable processing, feeding stuff production, catering, others (spices production, sweets etc.). Processing of raw materials of animal

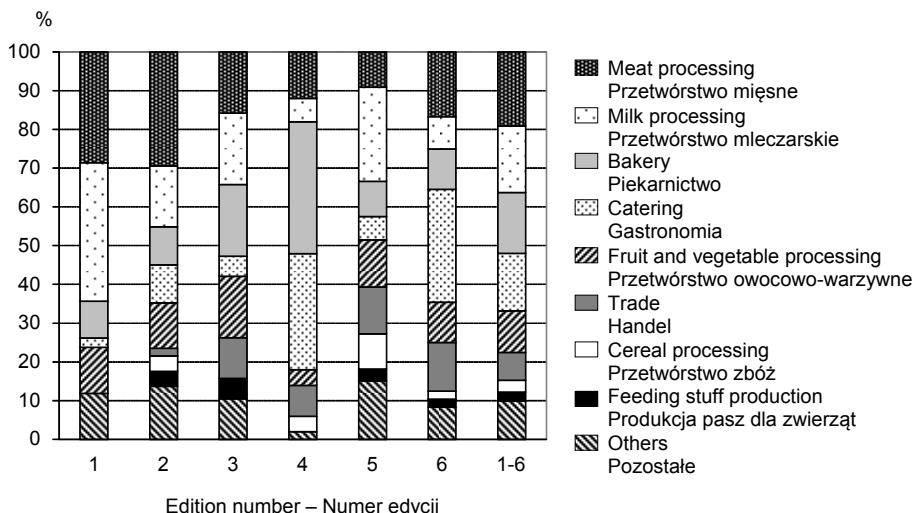


Fig. 8. Distribution of course works' subjects
Rys. 8. Tematyka prac dyplomowych

origin was the most frequently chosen subject. It may be connected with the fact that in Poland the HACCP system was firstly implemented in meat and milk processing plants. Stricter requirements of EU law regulations resulted in growing request for workers accustomed to the HACCP rules in other branches of food industry. It was reflected in the subjects of students' course works.

On the basis of the subjects put forward by students it can be pointed out that students have clearly defined expectations towards the programme of Postgraduate Studies. Some of them want to raise their qualifications, hoping that it will help them to handle their professional duties, others want to prepare well for competing on the labour market.

Conclusions

Since 2003 the Postgraduate Studies "Quality Management in Food Processing" held at the University of Life Sciences in Lublin (Faculty of Food Sciences and Biotechnology) have been actively providing education and training to the food industry based on the HACCP principles. Postgraduate Studies have provided students with the knowledge and skills needed to assure the food safety. By attending workshops and preparing a coursework participants gain a very good understanding of the HACCP principles and how they can be applied by the food processing plants. The obtained results pointed out that Postgraduate Studies "Food Quality Management in Food Processing" serve as an Educational Centre in the field of food quality management mainly for central-east region of Poland. It was proved that by taking up Postgraduate Studies students gain qualifications and learn skills which are in demand in the labour market. An average age of students was 27.8 years. Women constituted 76.3% of the total number of students. Most students (73%) graduated from agricultural universities. An average length of time period which passed from graduation to taking postgraduate studies was five years.

The innovative programme of Postgraduate Studies proved to be very popular not only between workers but also among students willing to prepare for their professional life. Nearly half of the students (49.3%) were working, whereas students of the fifth year constituted 27.6%. The formula of workshops enables them to put their knowledge into practice and gain professional experience in implementing the HACCP principles.

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Slowa kluczowe: studia podyplomowe, zarządzanie jakością żywności, HACCP

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