



Career path of food science and technology professionals: Entry to the world of work

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The entrance in the job market of Food Science and Technology (FST) professionals was examined by a web-based survey conducted in Europe. The results highlight aspects that involve both the higher education and extracurricular qualifications and underline the different needs that education and training must fulfil. The field of higher education degree and gender affected the level of responsibility and the type of activity. FST professionals cover a wide range of tasks which require expertise that cannot be covered entirely by a single degree but these professionals show that are eager to expand their knowledge and skills.

Introduction

The European food and drink (F&D) industry is the largest manufacturing sector in the EU, with a share in turnover of 14.9%. Food and drink enterprises in the EU amount to 287 thousand; they employ 4.25 million people, making the F&D industry the leading employer in the EU manufacturing sector with a share of 15%. The sector is dominated by small- and medium-size companies: their share is 63.4% in F&D industrial employment and 49.3% in turnover of the F&D industry ([FoodDrinkEurope, 2012](#)). Considerable differences in the size of food sector between countries can be evidenced. The countries with the largest employment are Germany, France, Spain, Italy, and Poland with 60% of the EU share ([FoodDrinkEurope, 2012](#)). It should be pinpointed that F&D enterprises have suffered relatively less than enterprises of other economic sectors and contributed to the economy's employment under the present adverse economic conditions. This can be mainly attributed to the fact that a large part of the family budget (~13% in average between EU countries) is consumed in food products and, since they cover basic human needs, that proportion cannot be compressed further significantly ([Mattas & Tsakiridou, 2010](#)).

Although, the European F&D industry is a competitive industry compared to other developed countries, it is losing competitiveness against emerging economies ([Jassi et al. 2013](#)). It is in the lower part of the innovation performance ranking, and is losing relative importance in the global food market. On the other hand, in the next few years it is expected that global food production will have to double due to increase of population ([Feigl, 2011](#)). Along with the growing demand, there is also an increasing requirement for safe, easy to prepare and higher nutritional value products

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(Azabagaoglu & Oraman, 2011). Therefore, there is a challenge for the European F&D industry to re-establish its importance in the world market and invest in innovation in order to produce high quality processed foods, which of course requires more skilled and better trained personnel.

Qualified, knowledge/science-based and appropriately motivated employees may play an important role in improving the status of the European F&D industry. The complexity of food processing is continuously increasing, and the knowledge of many scientific disciplines (e.g. nutrition, safety, environmental studies) is required by the future food scientists and engineers (Dumoulin, 2012). Academic degrees related to food science and technology/engineering present a high diversity in different countries, and also in different universities within the same country, considering sector-specific disciplines and learning outcomes (www.iseki-food.net/curricula/info) due to the different origin and aims of the higher education degrees of this scientific area in Europe. This diversified acquisition of knowledge and competencies reflects the different needs of the national and regional job markets, which are affecting the performances of the graduated as a professional in the F&D industry and in the food sector more in general.

Skills of food professionals must be adequate to support the response of F&D industry to the current challenges. The soft skills (such as personal management skills or team-working and communication skills) and food sector specific skills required by the FST employers were gathered and analysed (Flynn, Wahnström, Popa, Ruiz-Bejarano, & Quintas, 2013). Although the top food sector specific skills were similar, interesting differences were observed among different food employment areas, level of responsibility and geographical region. To identify the improvements in education and training of graduates and professionals that can and must be done to meet the job market expectations, it is useful to map the current state of the employees entering to work market in the food sector, by characterizing their qualifications and job functions, tracing their changes in their career paths, and evidencing the actual differences among European countries.

The objective of the present study was, thus, to depict the state of the initial placement in work of the FSTs of different European countries, by considering more specifically the area of employment, the sector and the type of activity. Furthermore, focus was placed on the identification of the qualifications of the FSTs related to food sector specific skills, and how they affect their placement in work. All the information was achieved by a questionnaire-based survey undertaken in 14 EU Member States and Turkey.

To our knowledge, no similar study, at European level, has been previously performed or published.

Methodology

A web-based questionnaire was prepared and disseminated within 15 EU countries in collaboration with the partners of the TRACK-FAST project (www.track-fast.eu

partners). The survey was carried out partly in 2011 and partly in 2012. The questionnaire was addressed to any professional in the food sector.

Questionnaire structure

The questionnaire was of a 'check-box' design to enable respondents to answer questions by simply checking against statements with which they agreed with. It was composed of four main parts, each comprising a series of questions to achieve the following information:

- 1st: motivation system and self-image of respondents.
- 2nd: actual career paths of respondents, including the characteristic features of their different (consecutive) workplaces (if the respondent worked in more than one), the most important features of their job, qualifications at the entering in the labour market, and qualifications obtained during the different steps of the professional career at different workplaces. In this way it was possible to follow up the career, and the changes of workplaces of respondents, as well as the motivations of change of different workplaces.
- 3rd: working conditions by the food professionals.
- 4th: basic sociological characteristics of respondents.

This paper discusses the results of the second part of the survey and in particular those concerning the entrance to the labour market of the FST professionals, i.e. the first workplace.

Survey procedure

The questionnaire was initially written in English and then translated into different languages, i.e.: French, German, Greek, Hungarian, Italian, Lithuanian, Portuguese, Romanian, Slovenian, Spanish, Swedish and Turkish. It was distributed by using the SurveyMonkey[®] web-based survey tool. The invitation to fill in the web-based questionnaire was distributed through the TRACK_FAST partners to individuals, professional associations and food industry by email or using innovative web based tools including social and professional networks (Facebook, LinkedIn) in the period of February–April 2011. The questionnaire was disseminated in particular in the following countries; Austria, Belgium, England, France, Germany, Greece, Hungary, Italy, Lithuania, Portugal, Romania, Slovenia, Spain, Sweden and Turkey. A second call of the survey was open in April–May 2012.

Statistical analysis of results

Results of the survey were analysed by different subroutines of SPSS software. To obtain a general overview the standard descriptive statistics (e.g. frequency tables, average), analysis of variance (one way analysis with Bonferroni test, SD = 5%) and multivariable methods have been used. Duncan's multiple range test was used to define statistically significant differences at $p < 0.05$.

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