

Research on the Training Mode of Full-Time Professional Degree Master in Food Processing and Safety under the Background of Rapid Development of Food Industry

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Abstract

Under the background of rapid development of food industry, the main problems in the cultivation of full-time professional degree master in food processing and safety in China are analyzed, and compares the professional degree graduate education models of the United States, Britain and China, and proposes to foster innovation and practical ability as the center, optimizing the curriculum and reforming the teaching mode, strengthening vocational training, taking the project as the carrier, the tutors inside and outside the school are jointly trained to build a full-time food processing and safety master's training model with the trinity of "university practice platform-school-enterprise cooperation research institute/base-enterprise practice", providing reference for professional master's training model for relevant universities at home and abroad.

Keywords: *Food industry, Food processing and safety, professional master, training model*

I. Introduction

Professional degree is a form of postgraduate education in China, which is a degree type relative to academic degree. From 1990 to 2017, China has set up 40 professional degree categories, including Master of Business Administration (1990), Master of Architecture (1992), Master of Law (1995), Master of Education (PhD) (1996), Master of Engineering (1997), Master of Clinical Medicine (PhD) (1998), Master of Agricultural Extension (1999) and Master of Traditional Chinese Medicine (2015). In 2015, according to the notice of the Academic Degrees Committee of China State Council "Notice on Issues Concerning the Designation of Master of Agricultural Extension as Master of Agriculture" (Degree Office 2015 (5)), the "Master of Agricultural Extension" was renamed "Master of Agriculture". In October 2016, in accordance with the National Agricultural Professional Degree Postgraduate Education Guidance Committee "Notice on Adjustments to the Setting of Agricultural Master Degree Fields" (Agricultural Education Guidance Committee [2016] No. 3), according to the category of plant production, nature protection and environmental ecology, animal production, animal medicine, forestry, aquaculture, grass learn subject characteristics and attributes of a class, the training fields of the master's degree in agriculture are adjusted from the original 15 to 8[1], among which, food processing and safety (095113) is one of the fields of the master's degree in agriculture.

1.1 Analysis of research status at home and abroad

Professional degree graduate education was first produced in the United States, which was the most mature and had the greatest influence. After more than 100 years of development, the professional degree education in the United States has gradually formed a relatively mature training system in the aspects of training objectives, course structure, quality assurance, etc. Professional degree postgraduate training has become the main body of postgraduate education in the United States. The United States proposed and practiced a "Cooperative Education" training mode, which first appeared in 1906[2]. At present, Japan, Germany, Britain and other countries more or less learn from the professional degree education model of the United States, and have formed the professional degree education system with its own characteristics. Japan's "industry-university cooperation" program is based on this training model and extends it to secondary education. Germany proposed and practiced a "Dual System"

training model (Dual System)[3], under this model, there are two training subjects, the enterprise and the school, and the training objects are also set to have the dual identity of corporate employees and school students. This model focuses on the cultivation of practical ability. Students only spend about one-third of their time in school, and the rest of the time must be trained in the enterprise. Even at school, the curriculum is based on practice and supplemented by theory. Russia's "Teaching and Production Consortium" training model adopts a similar training idea[4], emphasizing relying on the power of enterprises and making full use of the resources of enterprises to improve students' practical ability. At the same time, it solves the problems of insufficient national education funds and high employment pressure of students by means of agreement.

The United Kingdom has put forward and practiced a "Sandwich Program"[5], which is a "learning-practice-learning" work-study alternate mode of combining production and education. The essence lies in the integration of teaching, learning, and doing that is the teaching principle of integrating theory with practice, in order to avoid that the separate knowledge and theoretical education can't effectively train students' practical ability and gain practical working experience. "Sandwich Program" is a teaching mode recognized throughout the UK, which has formed a trinity operation mechanism of government, enterprises and schools, and has a complete set of evaluation system. With its close relationship with industry, Aston University in the UK allows all students to choose the "Sandwich Program". Its graduates are very popular with companies in the UK, Europe, and even the world. At present, some colleges and universities in China are already trying this mode.

In China, since the main source of full-time professional degree masters is full-time undergraduate fresh graduates, they have been taught by "teacher lecture-student learning" classroom education for a long time, without practical experience and background in production. In addition, the homogenization tendency with academic graduate students is serious in the training process, which fundamentally affects the reform and development of full-time professional degree master graduate education in China. Although the universities and enterprises in China have been practicing for many years, due to the short time, especially at home, there is no formed training mode of full-time master's degree in Food Processing and Safety. The domestic research on full-time professional master's training mode has the following representative achievements: Wang Jingyuan et al. proposed an innovative training model of full-time professional masters from three aspects: setting up the curriculum system reasonably, improving the construction level of practice base, and constructing the training quality evaluation system[6]; Zhang Xin et al. studied the double tutor training mode of full-time professional master's degree[7]; Yang Yongju et al. constructed a new talent training model of "phased, hierarchical and multi-agent compound" for postgraduate school-enterprise cooperation training[8]; Tan Minsheng put forward a flexible training mode for professional master's degree students in local universities under the background of new engineering, so as to ensure the "zero distance" between the application ability of talents and the market demand[9]. Zhou Quansuo et al. constructed a "five-in-one" postgraduate training model integrating "curriculum setting, practical environment, project carrier, tutor team and PDCA quality evaluation improvement system"[10]. Despite this, the cultivation of professional degree postgraduate in colleges and universities still has an obvious academic tendency, and most of them have not established an effective full-time professional degree postgraduate cultivation system. Therefore, under the background of the new era, it is of great significance to how to innovate the training of full-time master's degree in food processing and safety, explore a set of innovative training mode for full-time professional degree graduates, and cultivate high-level innovative applied talents suitable for local economic and social development.

II. The Main Problem in the Cultivation of Full-Time Food Processing and Safety Professional Degree Postgraduates

Compared to the academic master, the professional master training started relatively late in China, and the talent training mode is not perfect. The training objectives, especially the training links, have been in the dynamic process of continuous adjustment and optimization. In the actual training process, professional degree masters are still continuing and imitating the training mode of academic degree masters to some extent, in particular, the curriculum can't fully meet the needs of economic and social development, the construction of the tutor team lags

behind the pace of the times, and the academic tendency of dissertations is serious, which can't better meet the needs of the industry.

Compared to economic developed provinces, the economic and social development of Heilongjiang Province is in urgent need of a group of high-level professionals. In particular, under the background of optimizing the industrial structure, taking "grain as the head, food as the tail", "agriculture as the head, industry as the tail" and upgrading "old brands", deeply developing "old brands", cultivating and expanding "new brands", and strengthening the green food processing industry, it puts forward higher requirements to improve the quality of training full-time professional degree postgraduates in the field of food in order to meet the needs of economic and social development. This requires that training units should adjust and optimize training programs, innovate training modes in time, in order to meet the needs of the new talent market.

III. Discussion on Training Mode for Full-Time Food Processing and Safety Professional Degree Postgraduates

3.1 Optimizing the curriculum setting that combines basic theory and applied knowledge and reforming teaching mode

The professional degree graduate education is mainly to cultivate high-level applied talents with the ability of good innovation and practice. Therefore, through the adjustment and optimization of curriculums for full-time professional degree master's graduates in the field of food processing and safety, taking practical applications as the guidance, taking professional needs as the goal, and taking the improvement of comprehensive quality, applied knowledge and ability as the core, the curriculum of masters of this type of major is adjusted and optimized, and the problems of the original curriculum contents such as many, complex and miscellaneous contents are rectified.

Meanwhile, the classroom teaching content emphasizes the organic combination of theoretical and applied courses, and the teaching mode pays more attention to the use of case analysis, field research, practical explanation, simulation training and other methods.

3.2 Exploring the new mode of cultivating full-time food processing and safety degree graduate by tutors inside and outside the university

The professional degree postgraduate cultivation and the actual needs of employing unit is closely linked, some experts with high professional level and a strong sense of responsibility are selected and appointed as off-campus tutor for postgraduate, which implement the whole process of management, service and quality evaluation for full-time professional postgraduate practice in the field of food processing and safety, improve the quality of practical teaching. Meanwhile, a new mode of joint cultivation based on project is established, aiming at the status of industry development and some common key technical problems, to ensure that the topic selection is closely combined with food production and safety, and has regional agricultural characteristics, so as to guarantee the talents training is aimed at meeting the new needs of agricultural and rural development.

3.3 Innovating the trinity professional practice teaching mode by using the platform inside and outside the school

According to the needs of the profession to strengthen vocational training, the trinity professional practice teaching mode of " College/university practice platform-university/enterprise cooperation base -enterprise practice base" is established, the main practice content includes industry cognition, food processing engineering and food safety and testing practice verification, and so on. The professional quality and innovation ability are cultivated. Food college of Heilongjiang Bayi Agricultural University has a Provincial Food Science Comprehensive Experimental Teaching Demonstration Center, National Coarse Cereals Engineering Research Center, Ministry of Education Grain By-products Processing and Utilization Engineering Research Center, China-Canadian Cooperation Heilongjiang Food Processing Research and Development Center, Key Laboratory of Agricultural Products

Processing and Quality Safety of Heilongjiang Province, Key Laboratory of Food Quality and Safety of China-UK Cooperation, Key Laboratory of Comprehensive Utilization of Grain by-products of Education Department of Heilongjiang Province, Heilongjiang Agricultural Product Processing Engineering Research Center and Heilongjiang Potato Engineering and Technology Research Center, and so on. There are 9 scientific research platforms in total. In addition, a number of cooperation platforms have been established, such as the Beidahuang Agricultural Products Processing Modern Industry College, Mudanjiang Food and Biotechnology Innovation Institute, Jiansanjiang Rice Industry Innovation Research Institute, Jiusan Soybean Industry Innovation Research Institute. Adhere to educating people first, industry-oriented, industry-education integration, innovative development, exploring various modes of school-enterprise cooperation from internship training and talent training model reforms by focusing on the new engineering construction and the relevant industry chain.

IV. Conclusion

By studying the training model and existing problems of professional degree postgraduate education at home and abroad, proposing the reform of the curriculum and teaching mode for full-time graduates in food processing and safety with the cultivation of innovative practical ability as the center, strengthening vocational training, establishing a new model of joint training of tutors inside and outside the school with the project as the carrier, constructing a trinity professional practice teaching model of "university practice platform-school-enterprise cooperation research institute/base-enterprise practice base", gradually changing the status that the professional degree master continues and imitates the academic degree master training model to a certain extent, continuously improving China professional degree master training mechanism, in order to better adapt to the development of economy and society, providing theoretical and practical support for enriching the training model of professional degree graduates.

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