

On Current Situation and Problems of Cultivating Innovative Undergraduates Majoring in Agriculture and Forestry

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Abstract: With the deepening of agricultural modernization reform, China's agriculture is stepping gradually into a “scientific, intensive, ecological” new stage. However, the problems of “aging, part-time and small-scale farming” facing traditionally by agricultural producers in China have become increasingly prominent. This study discussed the current situation of undergraduates training in the major of agriculture and forestry in China and abroad, and analyzed its existing problems. It aimed at providing a theoretical basis for cultivating innovative talents with professional knowledge and practical ability.

1. Introduction

With the deepening of agricultural modernization reform, China's agriculture is stepping gradually into a “scientific, intensive, ecological” new stage. However, the problems of “aging, part-time and small-scale farming” facing traditionally by agricultural producers in China have become increasingly prominent. Therefore, it is an urgent need to promote the development of China's agricultural modernization to explore the new model of “innovative” talent cultivation in agricultural colleges that is oriented to meet the current situation of modern agricultural development. This study summarizes the current situation and analyzes the necessity of the cultivation of innovative talents majoring in agriculture and forestry in universities and colleges in China and abroad, aiming at cultivating new talents with agricultural production technology and management concepts.

2. Status of Cultivating Agricultural and Forestry Undergraduates in Universities of China and abroad

2.1 The Interaction between the Construction of the Major of Agricultural Economics and Local Economies

The development course of developed countries shows that the only way to promote the common development of higher education and regional society is to establish a benign interactive development relationship. The Land-grant College, established in 1862 under the support of the Morrel Act of the United States, pioneered the idea of university serving the community. Some famous universities, such as the University of Wisconsin and Cornell University, inherited this idea and received social recognition [1]. The University of Wisconsin Promotion Center has opened its university resources and provided research services to people throughout the state. The Center currently serves the state in four areas: continuing education, cooperative promotion, corporate and economic development, and broadcast and media innovation [2].

Luo Luanwen (2009) pointed out that the orientation of agricultural and forestry related specialty training should be adjusted in accordance with the orientation of schools, and the orientation should be based on the characteristics of local agricultural industry, rural economic development and demand of talents. In the new era, taking agricultural industry and rural development as the main line, the cultivation of agricultural and forestry professionals should pay attention to broadening the professional connotation and cultivate agricultural industry (chain) multi-functional technical

talents, rural grassroots management talents and even high-level agricultural research reserve talents, relying on modern rural economy, agricultural industry chain and food industry [3]. Therefore, the cultivation of agricultural and forestry personnel should cultivate comprehensive talents that serve agricultural modernization and agriculture, focusing on the interaction between the construction of relevant majors and local agricultural economy.

At present, CIP-2000 in the United States is dividing disciplines into three levels: discipline group (38 in total), discipline (equivalent to the first-class discipline in China) and specialty (subordinate discipline) [4]. According to incomplete statistics of the American Agricultural Economics Association, there are 35 departments with doctoral degrees in agriculture and related disciplines in the United States and Canada, accounting for nearly 1/5 of the total [4]. In China, with the increasing demand for agricultural modernization, programs for bachelor's, master's and doctoral degrees on the major of agriculture and forestry have been successively established in many key institutions of higher learning in China.

2.2 Training Mechanism of Innovative Talents of Agriculture and Forestry

In his book *Transforming Traditional Agriculture*, Schultz once pointed out: “A man, who farms like his ancestors, can not produce a lot of food no matter how fertile the land is or how hard he works. A farmer, who has acquired and mastered the scientific knowledge of soil, plants, animals and machinery, can produce abundant food even on barren land” [5]. His words emphasized the importance of practice in personnel training and put forward the viewpoint of combining theory with practice. American scholars Arthur and Frank studied the economic development of the United States in the past 30 years from 1948 to 1997 and got the following results: the scientific and technological progress of the United States comes from two aspects: the spillover effect of original knowledge and the input on the cultivation of R&D personnel. Thus, the input of scientific and technological talents will bring about technological progress, thus promoting the rapid development of the economy [6]. Ji Jie, Gao Zhijie and Liu Shuqi (2010) put forward the model of “basic education + multi-approach education + Creative Education + practical education” in “Research on the Cultivation Mode and Mechanism of Undergraduate Talents Majoring in Agricultural and Forestry Economic Management” in order to adapt to the needs of the development of the times and cultivate advanced and compound agricultural and forestry professionals with multi-approaches [7]. Zhang Mei and Guo Xiangyu (2014) believed that the major of agriculture and forestry is a traditional specialty with deep historical roots. “Research Talent Training Mode” is an effective method to achieve the interaction between professional construction and local economies, as well as cultivates talents with high quality and innovative ability to meet the demands of the market, the construction of new countryside and the new era by scientifically positioning the direction of professional development. The need for construction is also in line with the needs of innovative talents in the new era. Liu Tiansen et al. (2012) considered that the talent training mode of the major of agriculture and forestry, one of the most important majors in the country, is the research focus of various agricultural and forestry colleges, and the cultivation of innovative talents is an important means to realize the modernization of education and to promote agricultural modernization and social progress. To cultivate innovative talents majoring in agriculture and forestry will be of help to promote the rapid development of China’s agriculture and forestry industry and reverse the current status of low social recognition of relevant majors of agriculture and forestry [8].

3. Problems in Cultivating Innovative Talents of Agriculture and Forestry

3.1 The existence of the teaching philosophy of “emphasizing theory and neglecting practice”

Cui Ningbo (2010) put forward in his article, “On Practice Teaching of Undergraduates Majoring in Agricultural and Forestry Economic Management in Agricultural Universities [9], that, for a long time, there is a general tendency of “emphasizing theory and neglecting practice” in the teaching of undergraduates majoring in agriculture and forestry in agricultural universities influenced by the traditional educational thought. There are three specific points: First, the practice teaching process

is not well designed, and the students' practical ability needs to be strengthened urgently. Second, the construction of laboratories and off-campus practice bases lags behind. Third, there is a divorce between the practice teaching and the second classroom activities. Therefore, there are many problems in practice teaching, which will seriously restrict the healthy development of the major of agriculture and forestry in Chinese universities. Therefore, we must transform old ideas as well as accept and absorb new scientific teaching concepts to establish a professional talent training model that matches China's modern agriculture. He Puming (2011) also believed that the basic idea of the reform of the personnel training system for agricultural and forestry courses, in the context of contemporary new rural construction, is to "emphasize the characteristics and focus on practice", and we must "simplify the teaching content and strengthen the practice teaching" to promote the reform on teaching undergraduates majoring in agriculture and forestry [10].

3.2 The discrepancy of the cultivation of innovative talents and the needs of society and agricultural industries

At present, the predicament of cultivating innovative talents of agriculture and forestry in colleges and universities lies mainly in the following three aspects: The first is the predicament of "study-style" cultivation in classroom. This model emphasizes too much on academic research results and professional knowledge, and students' single mastery of theoretical knowledge prohibit them to conduct agricultural production and operation effectively. The second is the predicament of cultivating "presupposed" social practice in the laboratory. They are mostly idealized structural experiments with researches done under ideal state, lacking deep researches of "adapting measures to local conditions" in rural areas and grassroots. The third is the predicament of the "school-based" talent training professional mechanism in the discipline construction. Currently, there are many problems about the major of agricultural economics in agricultural colleges, such as the backward concept of subject setting up, the unreasonable curriculum structure, the serious school-based and the teaching-oriented thoughts and the discipline construction concerned only with the ranking of the school. Regardless of the students' demands and the needs of agricultural development, the students trained cannot adapt to modern agriculture and the reality. In "Investigation on and Analysis of the Training of Agricultural and Forestry Economic Management Professionals", Gu Lili took Jilin Agricultural University as an example to investigate and analyze the cultivation of innovative talents in agriculture and forestry. Results show that, in the process of talent cultivation, the cultivation of agricultural and forestry innovative talents has problems such as the incompatibility of talent cultivation with the needs of the social market, the imperfect curriculum system and the lack of practice base.

4. Conclusion

In short, facing the development needs of modern agricultural industry in the new era, colleges and universities should examine themselves fairly and comprehensively and break the inherent development model. They should build a new model for cultivating agricultural and forestry talents and make unremitting efforts to cultivate agricultural and forestry talents needed for agriculture, focusing on training innovative agricultural and forestry talents with creative innovation and upgrading educational concepts.

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