

The Research and Practice of Application-oriented Talent Cultivation Adapted For Construction of Modern Agriculture Industrial System in Newly-built Agriculture Undergraduate Colleges

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Abstract—In order to meet the needs of the construction of modern agricultural industry system, production system and management system in China, the new agricultural undergraduate colleges and universities should make corresponding adjustments in the aspects of school orientation, professional structure adjustment, innovation of talent cultivation mode, teaching staff construction and social service mode. Taking Jilin Agricultural Science and Technology University as an example, this paper makes a systematic study and practice on the above problems which effectively promotes the speciality-industry cohesion, the teaching process docking production process, the teaching content docking production content. The school has won one second prize for national teaching achievements and three first prizes for provincial teaching achievements.

Keywords—modern agricultural industrial system, newly-built agricultural undergraduate colleges, application-oriented talent cultivation

I. INTRODUCTION

At present, China is in a critical period of accelerating the transformation of agricultural production methods, promoting the adjustment and upgrading of agricultural industrial structure, developing modern agriculture, promoting agricultural modernization and implementing rural revitalization strategy. The 19th National Congress Report of the Communist Party of China pointed out that issues relating to agriculture, rural areas, and rural people are fundamental to China as they directly concern our country's stability and our people's well-being. Addressing these issues should have a central place on the work agenda of the Party. We will construct modern agricultural industry system, production system and management system which will promote the integration and development of rural primary industry, secondary industry, tertiary industry. [1]We will train professional rural service personnel who have a good knowledge of agriculture, love our rural areas, and care about rural people.

A. First, Three System Construction of Modern Agriculture Industrial System needs to Re-Examine the Orientation Of The Running of Newly-built Agriculture Undergraduate Colleges.

Agricultural colleges and universities are generally located in areas where agricultural development advantages are more obvious. The purpose of personnel training and scientific research is mainly to serve the local economy of social development and the Three Agriculture, which determines that agricultural colleges and universities should have distinct local features. Since the 12th Five-Year Development Plan, with the continuous introduction of rich peasants' policies in the CPC Central Committee and the State Council, China's agricultural modernization has made great achievements. But our country also faced unprecedented opportunities and challenges. This requires the higher agricultural colleges and universities to re-examine the school positioning, adjust the mode of running schools, timely introduce new technologies and achievements into teaching, lead and promote agricultural scientific and technological progress, improving agricultural economic benefits. Only by breaking the traditional concept of "elite training school", "research-oriented" mode of running a school and "academic" talent cultivation mode, and closely integrating with the industry (enterprises) and local governments, rooted in agriculture, rural areas, farmers, [2]the implementation of open running schools, therefore they can form their own characteristics of running schools and cultivate the application-oriented talents that enterprises and industries really need. When newly-built agriculture undergraduate colleges determine the orientation of running a school, they should not only take into account the needs of the country's economic and social development, but also examine the internal and external environment of the schools adhering to the development strategy of seeking truth from facts and doing something. Finding the combination point of their own development and market demand according to their own advantages of running schools, the orientation of running a school is based on serving the local economic construction and social development, serving the Three Agriculture. They should take the training of high quality application-oriented undergraduate talents cultivation to meet the needs of agricultural modernization construction as its mission and actively participate in the construction of the local economy which will make the orientation of running schools both forward-looking and feasible. [3]

The school led the establishment of Jilin Province Agricultural Vocational Education Group in 2010, exploring school-enterprise cooperation, production and education integration of the school mode. In 2012, the School Party Congress clearly set the goal of establishing applied universities, and carried out the research and practice of applied undergraduate

running. In 2014, he undertook the key topic of provincial teaching research, [4] “research and practice on the transformation and development of newly-built agricultural undergraduate colleges”, clarified the goal, path and key tasks of school transformation and development and organized to implement them. And establishing it as the first batch of overall transformation pilot schools in Jilin Province in 2015. Over the years, schools give full play to the advantages of talent and science and technology, perseverance for the “Three Agriculture” services and regional economic development services which formed a clear characteristics of running schools. Generally speaking, the type of school is positioned: locality, industry, openness, application. Service Orientation: based on Jilin, facing the whole country, serving the regional economic construction and social development, and serving the “Three Agriculture” . The characteristics of running a school: the combination of inheritance and development and adhering to the agricultural science and technology education is not shaken. Cultivate practical ability, innovative spirit and entrepreneurial ability of strong application-oriented personnel for the development of modern agriculture, perseverance for the “Three Agriculture” services and regional economic development services, provide the local economic development with powerful talent and technological support.

B. Second, the Three Major Systems Construction of Modern Agriculture needs to Readjust the Professional Structure of the Subject

Modern agricultural management system is an organic combination of agricultural management subject, management mode and socialized service system, including family management, cooperative management, collective management, enterprise management and other forms of operation, which is an important symbol to measure the degree of organization, scale, socialization, marketization and professionalism of modern agriculture. The key point is to solve the problems: effective collocation of productive forces and production relations and enhance market competitiveness. To construct a modern agricultural management system is to develop various forms of moderate scale management, deepen the reform of rural land system, promote the professional development of peasants, and improve the level of intensification, organization, scale and socialization of agricultural management.

The three major systems of modern agriculture complement each other. Taking agricultural industrial system as the main body, agricultural production system and agricultural management system as the wings which plays an important role in supporting and safeguarding in the agricultural industrial system. The construction of the three major systems of modern agriculture urgently needs higher agricultural education to train a group of high-quality application-oriented and compound talents who understand technology, manage and operate well, and have the ability of innovation and entrepreneurship. [5] Therefore, the adjustment of the discipline specialty structure of the school should not only meet the needs of the construction of the three systems, but also combine the needs of the local economic leading industries to highlight the relevance and practicality of personnel training. Jilin Province is a large agricultural province that agriculture, rural areas, farmers in the economic and social development occupies a very important position. Training high-quality application-oriented talents to adapt to the modern agricultural industrial system, production system, management system construction and related industrial transformation and upgrading has a very important significance. In the process of transformation and development of Jilin Agriculture Science and Technology University, the concept of cultivating talents for traditional agriculture is transformed into the idea of cultivating talents for modern agriculture. According to the three systems of agriculture, it is necessary to consider the relationship among various disciplines, and to dock the three systems of modern agriculture and the pillar of economy, characteristic industries and strategic emerging industries in Jilin Province. The professional structure has been adjusted to construct eight professional groups, such as planting, breeding, agricultural products processing, traditional Chinese medicine pharmacy, agricultural engineering, biotechnology, information technology and economics management. Among them, planting, breeding, and agricultural product processing correspond to the agricultural industrial system, which is the specialty of the school. Agricultural Engineering category, biotechnology category, information technology category correspond to agricultural production system. Economics management category, information technology category correspond to agricultural management system. Traditional Chinese medicine pharmacy, biotechnology and correspond to characteristic industries and strategic emerging industries of Jilin province. The latter three types of professional groups are the school's emerging interdisciplinary majors. The school is in the spirit of doing strong breeding and other advantages of special disciplines (groups) which will do excellent agricultural engineering, economic management and information technology disciplines (groups) with special Chinese medicine pharmacy, biotechnology emerging disciplines (groups) principles, strengthen the discipline of Professional (group) construction efforts. Through biotechnology, information technology and intelligent manufacturing technology to transform the traditional agricultural profession condensing professional characteristics which will greatly enhance the training of compound technical skills personnel. To introduce knowledge and skills of biotechnology, information technology and economic management into traditional agricultural professional groups such as planting, aquaculture, agricultural products processing industry, to introduce knowledge and technology in the field of agricultural engineering and economic management which will cultivate compound talents for the integration and development of primary industry, secondary industry and tertiary industry. Professional construction level has also been greatly improved. It has built a national characteristics of professional, national professional comprehensive reform pilot program, and national excellent personnel training pilot program. It has built 3 provincial-level brand majors, 5 provincial-level specialty programs, and 2 provincial-level excellent engineer training programs. This develops and creates a “Three Agriculture” work team who have a good knowledge of agriculture, [6] love our rural areas, and care about rural people which has laid a solid foundation of improving the school personnel training targeted, practical and social service capacity.

C. Third, the Construction of Three Systems of Modern Agriculture needs Innovative Application-oriented talent Cultivation mode

With the increase of the integration degree of agricultural products at home and abroad, agricultural production is more and more dependent on the contribution rate of scientific and technological progress. Therefore, the application-oriented talent cultivation must take the cooperation of school enterprises and the way of the integration and development of production and education, so that students can master advanced science and technology in production practice, and be able to guide agricultural production and solve the practical problems encountered in production. Since its promotion, Jilin Agriculture Science and Technology University has always been committed to exploring the research and practice of application-oriented talent training model and led the establishment of Jilin Province Agricultural Vocational Education Group in 2010 which attracted industry enterprise experts into the teaching committee of school and college. And there are 3 colleges have also set up a school-enterprise Cooperation Council. Both schools and enterprises jointly formulate personnel training programs, jointly develop courses, jointly undertake teaching tasks, jointly assess and evaluate students, and jointly carry out scientific and technological innovation. In the following aspects of exploration: first, according to the law of application-oriented personnel training, agricultural science and technology development and production line of technical requirements, with practical ability and innovative spirit to train the main line to optimize the talent training program and the construction of curriculum system, optimizes the curriculum structure. Construct the theory teaching system of “platform and module”, the practical teaching system of “three practice and one research” and the quality teaching system of “humanities and science”, highlight the close combination of professional education and general and innovative entrepreneurship education, highlight the cultivation of students' practical ability and innovative spirit, and highlight the quality education and individualized training of students. Second, relying on the five platforms of school: practice teaching, collaborative education, collaborative innovation, entrepreneurial employment and social services and the first classroom and the second classroom of two carriers.

The experiment, practice, social practice, participation in teacher scientific research and college students innovative entrepreneurial projects organically combined to promote the close integration of theory and practice. [7]The tight integration of class and after-class and campus is closely integrated with the outside school which form the talent training mode of the integration of production and teaching and the combination of engineering and learning. Third, deepen the reform of teaching contents, methods, means and break through the original discipline and reconstruct the curriculum system. To reform the traditional teaching mode centered on teachers, classrooms and teaching materials, and implement the reform of teaching methods such as field teaching, project teaching and case teaching based on practical application, the coverage of professional courses using real tasks and real case teaching has reached 100%. Fourth, to build an online teaching curriculum platform with enterprises which promotes the wide application of information teaching, virtual reality technology, online teaching and other educational technologies. This will promote the reform of online and offline mixed teaching. Fifth, to reform the assessment method, increase the on-site assessment, project assessment, skills assessment and evidence-based examination and other ways. Sixth, the establishment of the “Innovation College”, the establishment of departmental inter-modal transport mechanism which actively carries out the research and practice of innovative entrepreneurship education for college students.

D. Fourth, Construction of Three Systems of Modern Agriculture needs to Strengthen the Construction of Double-division and Dual-Energy Teaching Team

Teachers' teaching and practical ability are the key factors that affect the realization of talent training goals. With the expansion of enrollment scale, the introduction of a large number of teachers in the short term, and most new teachers are from the graduates to be teachers who lack teaching experience and practical experience. Teaching ability, scientific research ability and practical ability are obviously inadequate. Therefore, in order to make personnel training to meet the needs of the construction of the three major systems of modern agriculture, the school need to improve teachers' teaching ability and practical ability in a short period of time, and provide talent guarantee for the training of application-oriented talent cultivation. Jilin Agriculture Science and Technology University implemented the “Three-double Four-lift” program. That is, the use of five years and the introduction or flexibility (double exchange). The introduction of 10 high-end talent and 10 high-quality technical talents, the 100 PhD introduced and training of 100 PhD. The school establish a system that once in five years of full training and five years of “Double training” for teachers in the practice of enterprise job and cooperation mechanism between teachers and enterprises which makes the enterprise practice of teachers and enterprise talents to part-time teaching in schools normalized. This promotes teachers' teaching ability, professional ability, scientific research ability and “Four Promotion” of academic level which improves the overall quality of teachers and teaching staff construction level of “Double Teachers Dual-energy”. This provide talent guarantee for the transformation and development of schools and the creation of high-level application-oriented universities. Since 2014, the training and introduction of 96 PhD, the enterprise practice exercise of more than 200 teachers, domestic and foreign training more than 200. At present, the full-time teachers, with Master's degree accounted for 91.12% of the total number of teachers, senior titles of teachers accounted for 45.56% of the total number of teachers, from enterprises or with the practice of enterprises in the “Double Teachers Dual-energy” teachers accounted for 56.69% of the full-time teachers. The structure of the teaching staff is obviously optimized, and a reasonable structure is forming, which is suitable for the characteristics of the training of application-oriented talent cultivation.

E. Fifth, the Construction of “Three System” of Modern Agriculture needs Innovative Social Service Model

In addition to personnel training, colleges and universities also take the heavy responsibility of scientific research, social services and document inheritance. The emphasis of applied undergraduate scientific research should be oriented to the production line to carry out application research. With the continuous improvements of the “Three System” of modern agriculture, the demand for new knowledge, new technology, new products, new equipment, new varieties and new standards

are increasing, and the quality requirements of new farmers are also increasing, so the social service mode and service of newly-built Agriculture Undergraduate Colleges should also be adjusted accordingly. How to promote farmers through the radiation of new agricultural economic organizations, technology extension departments, leading enterprises and large breeders, expand the effect of training and technology popularization, and improve the contribution rate of science and technology is a problem that we think deeply in recent years. Over the past few years, Jilin Agriculture Science and Technology University and more than 10 cities and counties in the province and large agricultural production enterprises have been built a wide range of social service platform for teachers and students.

II. CONCLUSION

Through the implementation of “Four One” project which supports professional and technical personnel rely on a discipline and forms a team, chooses a project, serve a township, forms a “talent development and training, science and technology innovation and promotion, information and technology services, information and technology service, trinity of the social service model. The school set up the Hing Nong Network, some experts participate in 12582 Farmers Expert hotline and most teachers often go into the production line to carry out technology promotion and social services. Technology promotion and social services focus on new knowledge, new technologies, new equipment, new varieties, new standards, new models, the popularization and application of new products, focusing on the promotion of agricultural mechanization, seed breeding, informationization, standardization process.

ACKNOWLEDGEMENTS

In this paper, the research is the key research base of humanities and social sciences in Jilin Province-Jilin Province Characteristic Agricultural Industry Economic Research Center (JI jiao Ke Zi[2015]No. 36th) Stage research results

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