

Exploration and Practice of the Training Mode of "Pig Science and Technology Academy"

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Abstract: In order to promote the integration of science, industry, and education, innovate the training of master's degree talents in animal husbandry and veterinary medicine, and promote agricultural technology, a "Pig Science and Technology Academy" has been established in Foshan, Guangdong and Guigang, Guangxi, relying on Foshan University, supported by enterprises and bases, with master's degree students in animal husbandry and veterinary medicine as the main body in the industry and rural areas, integrating teaching, scientific research, demonstration and promotion. The construction and development status, practical operation status, practical effects, and existing problems of this model were explained.

Keywords: Pig Science and Technology Academy; Animal Husbandry and Veterinary Medicine; Professional Degree Graduate Students; Talent Cultivation

1. Introduction

China Agricultural University inherits the fine tradition of "solving the difficulties of people's livelihood and cultivating talents from all over the world", explores and innovates the "science and technology Academy" graduate training model in combination with the characteristics of the times, and has embarked on a correct path of deep integration of serving society and talent cultivation. This is also a new model of graduate training that integrates industry and education promoted by the China Rural Professional and Technical Association [1]. The "Science and Technology Academy" is a university that is based on scientific and technological capabilities and educational resources, relying on its base. Graduate training units appoint graduate supervisors to

lead agricultural professional degree graduate students to stay in agricultural enterprises and production lines for a long time. On the basis of completing theoretical knowledge learning, they focus on researching and solving practical problems in industry and agricultural and rural production practice, and strive to cultivate high-level applied talents in agriculture who know, love, and promote agriculture, achieving a win-win goal of enterprise scientific and technological progress and university talent cultivation [2,3].

At present, the graduate training model of "science and technology academy" is being studied and promoted nationwide like mushrooms after rain. More than 30 agricultural related universities in 29 provinces (regions, municipalities) have successively established more than 300 science and technology academy, covering more than 100 types of agricultural products such as grain crops, medicinal crops, animal husbandry, and integrated planting and breeding [4-10]. Drawing on the experience of China Agricultural University and relying on Foshan University, we have established "Pig science and technology academy" in industrial bases such as Nanhai in Foshan, Nansha in Guangzhou, and Guigang in Guangxi, in collaboration with domestic pig technology enterprises Guangxi Yangxiang Co., Ltd. and Guangdong Yangxiang Technology Co., Ltd. With students majoring in animal husbandry and veterinary medicine rooted in the industry and rural areas as the main body, supported by enterprises and bases, focusing on high-quality performance evaluation of breeding pigs, pig selection, pig production, pig breeding technology, pig health and nutrition feed management, disease prevention and control technology promotion, laboratory testing and diagnosis, and germplasm resource protection, following the development law of professional

master's degree education, innovating and constructing a new mode and mechanism for professional master's degree students to go deep into the front line of production, forming a cooperation platform between universitys, students, enterprises, and breeders, with multiple functions such as talent cultivation, scientific research promotion, and service to animal husbandry production, promoting the integration of cities, counties, universitys, enterprises, and agriculture, and making the "Pig Science and Technology Academy" a high-level application-oriented, composite, The cradle of innovative and entrepreneurial talents, Promote the development of graduate practical education bases in pig farming.

2. Development Status of the Construction of "Pig Science and Technology Academy"

In 2017, Foshan University and Guangxi Yangxiang Co., Ltd. established a university enterprise industry university research cooperation base, which has deepened scientific industry education cooperation in undergraduate teaching practice and graduate joint training. The base has established intelligent pig farms, more than 30 feed factories, and several cooperative farmers in Guangdong and Guangxi, equipped with professional guidance mentors and conducting systematic professional practical training, meeting the practical teaching and graduation conditions for undergraduate students, master's degree holders in animal husbandry and veterinary medicine, and basically forming the prototype of a "pig science and technology academy"; In 2020, an industry university research cooperation agreement will be signed, and the university and enterprise will jointly build the "Guangdong Pig Industry Internet Research Institute". The university and enterprise will clearly carry out scientific and technological cooperation and personnel training in the field of intelligent pig breeding, establish a teaching and research base from farm to table, and be recognized as a professional practice base for university level graduate students. In 2021, Guangdong Yangxiang Technology Co., Ltd. launched a three-dimensional full industry chain pig breeding project. At the same time, the university and enterprise deeply integrated the concept of a science and technology academy and upgraded the base to become a

demonstration base for joint training of graduate students in Guangdong Province. Thus, the "Pig science and technology academy" has gained wings, deepened cooperation between universitys, enterprises, industries, and farmers, expanded the scope of practical bases, further assisted in talent cultivation and service industries, and served the purpose of agriculture, rural areas, and farmers.

3. Operation and Practice of the "Pig Science and Technology Academy"

The management committee (referred to as the Management Committee) of the "Pig science and technology academy" is established, consisting of key technical and management personnel from both the supporting units and the university. The project funds are earmarked for professional purposes and strictly implemented in accordance with the university's "Measures for the Construction and Management of Professional Degree Graduate Practice Bases". Relying on the investment of research funds from the companies (Guangdong Yangxiang Technology Co., Ltd., Guangxi Yangxiang Co., Ltd., and their subsidiaries), corresponding special funds will also be invested by their respective disciplines and cooperative units for the construction of science and technology academy. The Pig science and technology academy can provide graduate students with numerous internship and job positions, including breeder, veterinarian, inspector, technical service, nutritionist and other internship positions. The internship content on the production line matches the major studied by graduate students, and can fully combine theoretical knowledge with practice. At present, the Pig science and technology academy provides free accommodation and simple sports facilities; Having relatively complete experimental conditions and scientific research instruments, equipped with a molecular biology laboratory, capable of operating general pathogenic microorganisms; Having strict labor protection and hygiene guarantee conditions, establishing safety management mechanisms, and purchasing personal accident insurance to ensure the personal safety of students in their professional practice.

3.1 Construction of Management System for Science and Technology Academy

According to the university's professional master's practical training plan, postgraduates will be dispatched to a science and technology academy after completing first year theoretical courses to participate in enterprise research projects and serve farmers. Postgraduates will implement a university enterprise dual mentor system, focusing on process management and training results.

The Pig science and technology academy arranges dedicated personnel to provide technical guidance, work implementation, and evaluation management for master's students majoring in animal husbandry or veterinary medicine in the practical process through the Belt and Road Initiative, enabling graduate students to quickly integrate into the practical production work environment. Secondly, establish a professional master's practice guidance group to divide the management, supervision, guidance, and assessment work related to graduate students' professional practice process, ensuring that students' professional practice activities of "stepping out of the classroom and moving towards production" are carried out normally and orderly.

3.2 Refine the Assessment Criteria for Practical Teaching Management

Starting from the aspects of internship management, practical teaching achievements, and mastery of knowledge and skills, we will unify and refine management standards, standardize practical teaching assessment standards, formulate practical internship goals for graduate students, establish corresponding rules and regulations, and evaluate the knowledge and practical skills learned by graduate students in the practical process through monthly summary reports in accordance with the percentage standard, jointly evaluated by the supervisors and relevant responsible persons of the Pig Science and Technology Academy.

3.3 Strengthen the Construction of Professional Master's Supervisor Teams and Implement a Dual Supervisor System

Firstly, we need to improve and perfect the selection mechanism for professional master's supervisors. We will select a group of

technical elites with excellent moral character, rich experience, and strong scientific research ability from the practical base to serve as professional master's practical training supervisors at the Pig Science and Technology Academy. We will also improve the external supervisor assessment system, regularly hold exchange activities with the graduate students we lead, timely identify problems that exist in the graduate students, and enhance the guidance level of external supervisors. Secondly, strengthen communication between on campus and off campus mentors, jointly develop graduate training programs, and strive to form a "dual teacher" team with complementary advantages, mutual assistance, and clear division of labor. Both mentors should cooperate and collaborate with each other, communicate once a month, exchange information on graduate training, scientific research activities, and other matters, and jointly improve the quality of graduate training. Supervisors at the Pig Science and Technology Academy should undertake certain scientific research work in technical positions, responsible for providing guidance to graduate students in practice, research, and thesis selection, educating them in academic ethics, ideological and political aspects, and maintaining close and effective contact with graduate university supervisors. university supervisors should cooperate with base supervisors to comprehensively manage graduate course learning, research methods, thesis, and employment guidance, and strive to cultivate innovative, compound, innovative, and entrepreneurial talents, providing important support for the reasonable connection between talent demand in the animal husbandry and veterinary industry and the scale of talent cultivation in the unit.

3.4 Characteristics and Advantages of the "Pig Science and Technology Academy" In Cultivating Innovative and Entrepreneurial Practical Abilities for Professional Degree Graduate Students

In line with the university's goal positioning, cultivate high-level talents with innovative abilities. Foshan University adheres to the educational positioning of "based in Foshan, serving Guangdong, facing the whole country, and going global", and insists on the characteristic development model of

"university+ high-end research institute+ leading enterprise", truly linking the talent chain to the industrial chain, deeply serving local industries, and cultivating high-quality applied talents. In the process of cultivating master's degree programs in animal husbandry and veterinary medicine, the innovative model of "Pig Science and Technology Academy" allows graduate students to fully participate in combining social needs and practical research problems, effectively improving their innovation quality, engineering practice ability, and problem-solving ability. It is an effective means of cultivating high-level applied innovative talents.

It can achieve resource sharing, technology sharing, and talent co training. In recent years, the increasing number of graduate admissions has objectively led to a shortage of educational resources such as laboratory equipment in universities. Through technology colleges, we can integrate laboratory resources from universities, enterprises, and farmers, promote the sharing of teaching resources, laboratory resources, and technology, and more importantly, professional degree graduate students focus on the cultivation of practical abilities. Therefore, it is necessary to provide graduate students with sufficient practical opportunities. However, some supervisors often do not have enough practical experience to guide graduate students, and there are a large number of talents with practical and innovative abilities within the enterprise. By fully mobilizing and utilizing these talents, we can effectively solve the problem of the lack of practical teaching ability of graduate supervisors in universities. Guided by demand and combined with the university's training goals, we can jointly cultivate and utilize talents.

Promote technological progress in enterprises and enhance the breeding technology of farmers. By establishing a pig technology institute and building a bridge for tripartite cooperation between universities, enterprises, and farmers, enterprises can attract high-level graduate students to participate in technological transformation and major project research and development. By utilizing the university's technological and intellectual advantages to participate in enterprise projects, help solve technical problems, accelerate innovation, and achieve leapfrog development,

graduate students serve as talent carriers, playing a great role in promoting and disseminating technology to end farmers.

4. The Practical Effect of "Science and Technology Academy"

4.1 Promote Mutual Selection Between Enterprises and Talents, And Shorten the Employment Period

The establishment of a pig technology institute is an effective guarantee for the integration of science, industry, and education. Based on the problems and needs faced in actual production, scientific research is conducted to make the research more in line with actual production. The research results can be more effectively and quickly applied to actual production, thereby improving production efficiency and accelerating industry progress. At the same time, the establishment of characteristic bases and technology institutes can stimulate the enthusiasm of enterprise employees, encouraging them to think, learn, and conduct research actively. Starting from production, they can approach research with problems in mind and continuously deepen their learning and research. This can effectively enhance employees' knowledge reserves and skill levels, expand their thinking patterns, and improve their subjective initiative. In addition, the establishment of characteristic bases and science and technology academy can accommodate more students and teachers, which is an effective means of promoting enterprises and improving their status in the minds of students. At the same time, the recruited students can quickly integrate into the enterprise, greatly shortening the adaptation period and training time for entry.

4.2 It Has Stimulated the Enthusiasm and Creativity of Master's Students in Animal Husbandry and Veterinary Medicine, And Improved Their Overall Quality

Based on the Science and Technology Academy, professional master's students serve as front-line technical personnel to provide technical services related to animal husbandry and veterinary medicine. They discover, research, and solve practical problems in pig farming technology demonstrations and production activities, and can achieve the transformation of scientific and technological

achievements in the first time, enhancing their sense of scientific research achievement. At the same time, graduate students participating in company project research and development at the Pig science and technology academy can enhance the innovation and practical abilities of the base's graduate students. Innovation and practical abilities are precisely important indicators that enterprises need to consider when introducing talents. Compared with other graduate students who have not entered the Pig science and technology academy, they are better able to meet the needs of enterprises and thus obtain more employment opportunities.

4.3 The 'Science and Technology Academy' Integrates Ideological and Political Education Throughout the Entire Process, Subtly Cultivating Feelings for Agriculture, Rural Areas, and Farmers

Through deep understanding and communication with farmers and related technical personnel in daily life, we have enhanced our emotions, strengthened our sense of mission and responsibility, and increased our love for agriculture and our dedication to agriculture, rural areas, and farmers.

In 2018, the acute, severe, and highly contagious disease African swine fever swept across the country. Faced with the ruthless invasion of the virus, students who practiced at the grassroots level deeply experienced the crisis and challenges in the industry. Together with company employees and farmers, they fought shoulder to shoulder to build an "iron bucket protection" to fight against non epidemic situations, minimizing the loss of live pigs in the company and making their own efforts for the stable production and supply system of live pigs in the industry and the country. Through deep understanding and communication with farmers and related technical personnel in daily life, we have enhanced our emotions, strengthened our sense of mission and responsibility, and increased our love for agriculture and our dedication to agriculture, rural areas, and farmers.

5. The Problems and Development Prospects of the "Pig Science and Technology Academy"

5.1 Institutional Construction Needs to Be Further Strengthened

In the process of constructing a science and technology academy, it is necessary to further attach importance to institutional construction and continuously strengthen institutionalized management, including diversified talent training mechanisms, graded and refined practical teaching management for talents at different levels, training objectives and plans for talents at different levels, practical course standards, dual supervisor management plans, process management and assessment plans, assessment standards, student practical teaching evaluation systems, intellectual property sharing plans, etc. And it needs to be adjusted appropriately according to the location and time, in order to truly adapt the "science and technology academy" model to the development needs of animal husbandry and veterinary medicine, and cultivate high-quality agricultural talents.

5.2 It Is Necessary to Establish a Full Process Management and Strengthen Professional Practice Training

The Pig science and technology academy arranges dedicated personnel to provide technical guidance, work implementation, and evaluation management for students in the practical process through the "Belt and Road" and "Belt and Road" models, enabling students to quickly integrate into the practical production work environment. We have established a practice guidance group to divide the management, supervision, guidance, and assessment work during the practice process, ensuring that students' professional practice activities of "stepping out of the classroom and moving towards production" are carried out normally and orderly.

5.3 Focus on Improving Quality and Adopt Diversified Evaluation Mechanisms

The Pig science and technology academy is constantly improving its existing evaluation system. Firstly, establish a sound mechanism for evaluating the teaching quality of practical teachers. Based on the training objectives of practical teaching, specific requirements are made for the quality of each aspect of practical teaching, and assessment indicators are quantified as much as possible. Secondly, strengthen the construction of the evaluation system for students' practical teaching performance. Starting from internship

management, practical teaching achievements, and mastery of knowledge and skills, we will unify and refine management standards. According to the percentage system, the mentors and relevant responsible persons of the practical base will jointly evaluate and test the knowledge and practical skills learned by students in the practical process.

6. Conclusion

The "Pig Science and Technology Academy" training model is a new postgraduate training model that adapts to the development needs of animal husbandry and veterinary medicine. It strengthens the combination of theory and practice, and can achieve the cultivation of high-level compound applied talents, promoting the construction of new agricultural science.

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