

# Research on the Cultivation Strategy of Applied Talents in Local Agricultural Colleges and Universities Against the Background of New Agricultural Disciplines\*

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**Abstract**—The new era comes up with new challenges to higher agricultural education. Against the background of the construction of “new agricultural disciplines”, it is worthy of in-depth consideration that how higher agricultural education serves the “poverty alleviation, rural revitalization, ecological civilization and the construction of beautiful and happy China”, how to cope with the fourth industrial revolution, and how to cultivate new talents to adapt to and guide the future development of agriculture and forestry. The purpose of this paper is to dissect the existing problems in the talent cultivation in agricultural colleges and universities against the background of new agricultural disciplines, so as to preliminarily explore the countermeasures for the applied talent cultivation in agricultural colleges and universities against the background of new agricultural disciplines.

**Keywords**—*new agricultural disciplines; agricultural colleges and universities; applied talents; talent cultivation; strategy*

## I. INTRODUCTION

The construction of “new agricultural disciplines” remains a supply-side structural reform of agricultural and forestry talents, a baptism of traditional disciplines, and puts forward the new requirements for the cultivation of higher agricultural and forestry talents in the new era and the requirements of higher agricultural education should constantly adapt to industrial development. The Anji Consensus — Declaration on the Construction of New Agricultural Disciplines in China defines the target tasks of the construction of new agricultural disciplines and the “North Warehouse action” puts forward eight specific action plans to deepen the reform of higher agricultural and forestry education, which points out the direction for the further implementation of the basic task of strengthening moral education and cultivating people, the

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accelerated construction of new agricultural disciplines and the building of high-level talent cultivation system.

## II. NEW CHALLENGES OF THE CONSTRUCTION OF NEW AGRICULTURAL DISCIPLINES TO THE TALENT CULTIVATION IN AGRICULTURAL COLLEGES AND UNIVERSITIES

Against the background of “new agriculture, new villages, new farmers and new ecology”, the construction of “new agricultural disciplines” calls for the new talent cultivation concepts. For whom does the construction of “new agricultural disciplines” cultivate people? How to cultivate people?

The previous agricultural majors have a small caliber and a single pattern, and separated development have emerged between them. The construction of “new agricultural disciplines” emphasizes the integration of primary, secondary and tertiary industries and the integration of agricultural discipline and other disciplines, and carries out the thorough transformation on traditional agricultural disciplines characterized by the division of production. Meanwhile, higher agricultural education should focus on certain link of production technology to the whole production chain, and the single talent cultivation pattern has been far from met.

The development of agriculture has experienced from 1.0 to 4.0. The one thing in the agriculture 4.0 is very clear, that is, intelligent agriculture. In order to realize the high integration of industry, agriculture and service industry, intelligent agriculture puts forward new requirements and challenges for talent cultivation.

The construction of “new agricultural disciplines” should cultivate “new farmers”. The “new farmers” should have the “feelings of three rural issues”, Chinese sentiment and world vision. The discipline of agronomy has its particularity, which is related to the immediate security of the common people, such as ecological environment, food security and so on. In addition to cultivating comprehensive talents against the background of multi-discipline, the “new agricultural disciplines” should also join in the emotional education of agriculture, ecology and human development [1].

### III. PROBLEMS EXISTING IN TALENT CULTIVATION IN AGRICULTURAL COLLEGES AND UNIVERSITIES AGAINST THE BACKGROUND OF NEW AGRICULTURAL DISCIPLINES

#### A. *The Reform of College Entrance Examination Brings Severe Challenges to Talent Cultivation*

The enrollment quality in agricultural colleges and universities is relatively poor, and the emerging disciplines have posed a great impact on the disciplines of agronomy. Outstanding students tend to set their sights on the emerging disciplines, and very few will accept agricultural and forestry education. With the reform of college entrance examination system, China will enter the era of "major is king" [2]. Candidates no longer simply persist in the school priority strategy, but they choose school according to the principle of using achievements to match school on the premise of their favorite major catalog. In this way, the channel of some of the undergraduate majors corresponding to traditional predominant disciplines in agricultural and forestry colleges and universities to originally obtain high enrollment quality by adjustment will be basically interdicted, many majors are difficult to recruit high enrollment quality, and some majors even face the life and death dilemma of no one registering for examination.

#### B. *The Educational Function of Various Courses Is Not Fully Played*

In the aspect of ideological and political compulsory course and ideological and political elective course: the main channel function of them in ideological and political education of college students is not fully played, and the classroom teaching effect of ideological and political courses needs to be further improved;

In the aspect of professional course: the connotation and elements of moral education in the "ideological and political education in courses" of professional courses are not deep enough. The young teachers of professional courses focus on the teaching of theoretical knowledge in books in classroom teaching, the theories taught are detached with practice and are separated from students' lives, with less attraction; some teachers need to improve their understanding of ideological and political education in courses, excavate ideological and political elements, and integrate knowledge teaching with value guidance, meanwhile, there are not a large number of ways to link professional knowledge with ideological and political contents, and some teachers lack of ability and the value guidance and personality shaping that should be made to students are not enough; the school has only made specific regulations on the professional knowledge and skill training in the personnel cultivating program, and the requirements for "ideological and political education in courses" are not standardized and specific, and have weak operability, and the teachers is short of initiative in "ideological and political education in courses", they think that the requirements of the school are not strict, and they can do it or not.

#### C. *The Major Division Is Extremely Detailed, and the Matching Degree of Major Setting and Industrial Development Needs to Be Improved*

The major division is extremely detailed, the single discipline is separated and developed independently, the major structure is out of keeping with the requirements of serving agricultural and rural development and modern urban agricultural innovative development; the agricultural industry chain does not match the chain of talented persons, the major education is too narrow, the talent knowledge system is relatively single, the integration degree of agricultural discipline and agricultural major, agricultural major and engineering and economic management disciplines is low, and the knowledge level of artificial intelligence cannot meet the requirements of the development of modern urban agriculture;

The traditional agricultural discipline has ushered in unprecedented new challenges. With the rapid development of biotechnology, engineering technology, information technology and artificial intelligence, the traditional agricultural science should be constantly transformed, and the whole work chain of production process should be paid attention to instead of a single production technology. For a long time, China's higher agricultural education has set up its major with the division of production, and this kind of single setting pattern has been seriously detached with the modern industry.

#### D. *The Teaching Contents of Professional Courses Lag Behind, Which Cannot Reflect the Cutting-edge Trend of Industrial Technology*

Teaching materials are the main teaching basis for teachers and the main reference books for students. Although we have all long paid attention to the advanced nature and scientific nature of teaching materials, with the rapid development of industry with each passing day, the cutting-edge technology and the latest achievements of disciplines have not been fully reflected in teaching materials, and new knowledge, new technologies and new applications have not been reflected in teaching materials in a timely manner. The contents of classroom teaching are still at the level of a few years ago, or even earlier. Modern society has entered a period of high-speed development and knowledge explosion, and its important symbol is the rapid growth of knowledge quantity, the speed of knowledge updating quickens, and for even the original leading scientific and technological knowledge, it has become obsolete or even useless knowledge in three or five years [3]. In real teaching, some teachers have the latest and more modern and intelligent technology or methods, while some teachers are still repeating the old methods and cannot keep pace with the times.

#### E. *The System and Mechanism Is Short of Vitality, Which Is Not Conducive to Sufficiently Stimulating the Enthusiasm, Initiative and Creativity of Teachers*

On the one hand, in the construction of new agricultural disciplines, the majors in agricultural disciplines should be crosswise integrated, and the agricultural disciplines should be crosswise integrated with non-agricultural disciplines. This

means that teachers themselves should also improve their personal knowledge reserve and ability, therefore, the teachers need further study and training. In this respect, the school is still short of corresponding measures; on the other hand, the work that teachers pay for the construction of new agricultural disciplines is not sure and quantitative, and is not well reflected in the evaluation and employment of professional titles, which restricts the enthusiasm, initiative and creativity of teachers.

#### IV. COUNTERMEASURES FOR THE CULTIVATION OF APPLIED TALENTS IN AGRICULTURAL COLLEGES AND UNIVERSITIES AGAINST THE BACKGROUND OF NEW AGRICULTURAL DISCIPLINES

##### A. *Taking the Strengthening of Moral Education and Cultivation of People as the Foundation of Talent Cultivation of New Agricultural Disciplines*

The fundamental task of colleges and universities is to cultivate socialist builders and successors with all-round development of moral, intellectual, physical, aesthetics and labor education. Against the background of the construction of “new agricultural disciplines”, the foundation of talent cultivation in agricultural colleges and universities is to strengthen moral education and cultivate people. It is necessary to make the strengthening of moral education and cultivation of people run through every field, every aspect and every link of the work in colleges and universities, and build consensus; it is also necessary to closely integrate the strengthening of moral education and cultivation of people with the cultivation of students’ spirit of responsibility, and it should focus on cultivating students’ sense of responsibility and mission to learn and love agriculture, and serve agriculture and rural development; it is very beneficial to establish a correct world outlook, outlook on life and values by taking the strengthening of moral education and cultivation of people to firmly root in traditional Chinese culture.[4]

##### B. *Deepening the Ideological and Political Courses and the Reform of Ideological and Political Education in Courses*

In order to comprehensively deepen the contents and teaching reform of ideological and political courses, it should integrate the construction of ideological and political courses according to the characteristics of students’ majors and students’ groups, and strengthen the collective lesson preparation system according to the situation. Such as “learning and thinking” and “integration of knowledge and practice”, it can provide ideological and political courses with different themes and in different semesters, so as to effectively improve the continuity, effectiveness and pertinence of ideological and political courses.

It should adhere to the basic requirements of strengthening moral education and cultivating people, establish and adhere to the work concept of “great ideological instruction”, change the phenomenon of paying more attention to the teaching of professional knowledge and ignoring moral education. Schools should establish corresponding systems to restrain teachers from course setting, course standards, teaching supervision and listening, so as to internalize the method of ideological and

political education in courses, and improve teachers’ initiative; secondly, school should organize various teaching competitions to encourage teachers to learn and compare from each other, update teaching contents and teaching methods, and optimize classroom teaching effects. In the evaluation of teachers, “whether to actively carry out ideological and political education in courses” should serve as an important evaluation standard. It is necessary to set up the construction and special research projects of “new agricultural disciplines” to solve the problem of lagging teaching contents.

In view of the key points, difficulties and key points of the education and teaching reform of the “new agricultural disciplines”, by following the law of education and teaching, the school should set up a special teaching reform project for the construction and practice of the “new agricultural disciplines”, carry out in-depth research and practice on the education and teaching reform of the “new agricultural disciplines”, probe into the characteristics, laws and development trends of the “new agricultural disciplines”, and explore the methods and measures to optimize course system and update teaching contents under the guidance of the construction concept of the “new agricultural disciplines” in local colleges and universities. Meanwhile, the school also should formulate the professional training program guided by the industrial development trend and characterized by the interdisciplinary cross under the guidance of the construction concept of “new agricultural disciplines”, and form the curriculum system of “new agricultural disciplines” covering the core knowledge, ability and quality of relevant disciplines. The school should set up a special project of teaching material construction, and increase efforts to support teachers in compiling teaching materials that reflect the characteristics of modern urban agriculture within the framework of the Beijing Tianjin Hebei agricultural and Forestry University Alliance.

##### C. *Integrated Development of Multi-disciplines from Independent Development of Single Discipline*

From the separated and independent development of single discipline to the crossed and integrated development of multi disciplines is to face the new agriculture, new village, new farmer and new ecology, actively adapts to the development of new technology, new industry and new economy. By taking the opportunity of the construction and practice of “new agricultural disciplines”, it should carry out the research and practice projects of “new agricultural disciplines”, deepen the reform of education and teaching, probe into the path of the construction and development of “new agricultural disciplines” in local agricultural colleges and universities, support the cross integration of majors within the disciplines of agronomy and the cross integration between the disciplines of agronomy and non-agricultural disciplines. It also should innovate talent cultivation mechanism, get through basic courses of first-class disciplines or similar disciplines of major, offer the cross-courses of interdisciplinary majors, explore and establish the new mechanism of inter-department, interdisciplinary and trans-disciplinary to crosswise cultivate innovative and entrepreneurial talents, and promote the cultivation of talents from a single discipline and major to change to multi-disciplinary integration, and create a new paradigm of “new

agricultural disciplines” construction in local colleges and universities [5].

#### *D. Improving the Institutional Mechanism to Stimulate the Vitality of Teachers’ Education*

It should be done to carry out reform on the management system, move the focus of management down, and endow more autonomous right to the secondary colleges. The current “the affairs of college are handled by school” has changed into “the affairs of school are handled by college”, and the current situation of school checks teachers has changed into the situation of school checks colleges and school checks teachers. It should eliminate the educational concepts that do not meet the requirements of the times and institutional mechanism shortcomings, and take shape a truly meaningful institutional mechanism of two-level management of schools and colleges that is full of vitality, efficiency, more openness and conducive to the scientific development of schools [6].

The specific indicators, including teachers are sent for exchange learning, further education and training, young teachers participate in practical exercises in enterprises, teachers carry out the “ideological and political education in courses” and teachers actively carry out educational and teaching reform and teaching effects, are included in the documents of the performance assessment and professional title evaluation of teachers.

#### V. CONCLUSION

In face of the new requirements for comprehensive upgrading of agriculture, comprehensive progressing of rural areas, and the all-round development of farmers, as well as the new trend of the global technological industry revolution, it is urgently needed to make innovation and development in higher agricultural and forestry education. The construction of new agricultural sciences is an inevitable need for higher agricultural and forestry education reform in the new era. Higher agricultural and forestry colleges need to adjust the agricultural professional structure, curriculum system and personnel training goals, and cultivate new talents that are suitable for and can lead the future development of agriculture and forestry.

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