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# Research on the Cultivation of Innovative Talents in Agricultural Majors in Higher Vocational Colleges

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**Abstract:** With the further implementation of the rural revitalization strategy and the accelerated development of agricultural modernization, China's agricultural sector has an increasingly urgent demand for technical and skilled talents with practical ability, innovative thinking, and professional literacy. As the main base for cultivating technical and skilled talents, agricultural majors in higher vocational colleges undertake the mission of delivering front-line high-quality talents for agricultural production. However, at present, the cultivation of talents in agricultural majors in higher vocational colleges still faces problems such as vague training objectives and outdated curriculum systems, which fail to match the demand for innovative talents in modern agriculture. Based on this, combined with the school-running characteristics of higher vocational colleges and the characteristics of agricultural majors, this paper analyzes the necessity and dilemmas of current talent training, explores the paths for innovative talent training, and supports the construction of rural revitalization.

**Keywords:** Higher vocational colleges; Agricultural majors; Talent cultivation

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## 1. Introduction

The implementation of the rural revitalization strategy can promote the transformation of China's agriculture from extensive production to modern and refined development. The agricultural production mode, industrial structure, and technical demand have also changed successively, putting forward higher requirements for the innovation ability, practical ability, and comprehensive quality of agricultural talents. As the core major of higher vocational colleges serving agriculture, rural areas, and farmers, the quality of talent training in agricultural majors is directly related to the process of agricultural modernization and the realization of rural revitalization goals. The cultivation of innovative talents is the core task of the transformation and upgrading of agricultural majors in higher vocational colleges, and also a requirement to support the development of agricultural modernization.

## 2. Necessity of cultivating innovative talents in agricultural majors in higher vocational colleges

### 2.1. Meeting the needs of agricultural modernization

At present, China's agriculture is transforming into precision agriculture, smart agriculture, and ecological agriculture. Technologies such as the Internet of Things, big data, and artificial intelligence are widely used in agricultural production, processing, and sales, and the traditional production mode has been broken. From seed breeding and field management to agricultural product processing and brand building, talents with innovative thinking and professional skills are needed. These talents can make full use of new technologies and methods to solve practical problems and promote industrial optimization and upgrading [1].

### 2.2. Supporting the implementation of the rural revitalization strategy

The core of rural revitalization lies in industrial revitalization, and the key to industrial revitalization is talent revitalization. Talent revitalization requires a large number of talents who understand technology, can innovate, and start businesses to come to the front line of rural production, construction, and management, so as to drive the development of the agricultural industry. Innovative talents cultivated by agricultural majors in higher vocational colleges need to master solid agricultural knowledge and have practical and innovative abilities to take root in rural areas [2]. On the one hand, innovative agricultural talents can use professional skills to promote the development and construction of rural characteristic industries and ecological agriculture, and break the restrictions on rural industrial development; on the other hand, drive rural areas to learn new technologies and methods, ensure the improvement of farmers' production skills and innovation quality, and stimulate the internal vitality of rural industries.

### 2.3. Meeting the requirements for promoting the transformation and upgrading of agricultural majors in higher vocational colleges

Against the background of agricultural industrial transformation and upgrading, agricultural majors in higher vocational colleges are facing a series of development opportunities. The traditional talent training mode pays more attention to the imparting of theoretical knowledge and ignores the cultivation of practical ability, which also leads to insufficient professional attractiveness. Therefore, higher vocational colleges need to accelerate transformation and upgrading, and take the cultivation of innovative talents as the core task. By optimizing the talent training mode, improving the curriculum system, and strengthening practical teaching, the innovation ability of the teaching staff can be improved, and the professional competitiveness can be enhanced [3].

## 3. Dilemmas in cultivating innovative talents in agricultural majors in higher vocational colleges

### 3.1. Vague training objectives, deviating from industrial practical needs

Training objectives are the guide for talent training. At present, the training objectives of agricultural majors in some higher vocational colleges are relatively vague, with the problem of emphasizing theory over practice, deviating from the needs of front-line agricultural production. At present, the training objectives of some colleges are relatively general, failing to target regional agricultural industrial characteristics and enterprise post needs, resulting in inconsistency between trained students and actual post needs of enterprises.

In addition, the positioning of innovation ability in training objectives is not clear, failing to integrate the cultivation of innovative thinking and skills into core objectives, still focusing on traditional skill training, and ignoring the cultivation of students' innovative awareness and ability.

### 3.2. Outdated curriculum system, not integrated with industrial development

The curriculum system is the carrier of talent training. At present, the curriculum system of agricultural majors in higher vocational colleges is lagging behind, inconsistent with agricultural industrial development and post needs, and cannot support the cultivation of innovative talents. First, the curriculum setting is imperfect, still taking traditional agricultural courses as the core, lacking courses related to smart agriculture, smart ecology, and agricultural product processing. Second, the curriculum content is relatively outdated, and teaching materials are not updated in time. Many curriculum contents are still based on traditional agricultural production modes, failing to integrate new technologies and core methods, which cannot meet the talent knowledge needs of industrial development [4]. Third, the curriculum structure is unreasonable, with an excessively high proportion of theoretical courses and a relatively low proportion of practical courses. Moreover, practical courses are mainly basic skill training, lacking innovative and comprehensive projects, leading to insufficient innovative thinking and practical innovation ability of students.

### 3.3. Weak practical teaching links, insufficient innovative practice

Practical teaching is an important channel for cultivating students' innovative and practical application abilities, and also a characteristic of agricultural majors in higher vocational colleges. However, there are still many problems in the practical teaching of agricultural majors in some higher vocational colleges at present, which cannot cultivate students' innovative abilities. First, the practical conditions are weak, lacking perfect on-campus training bases, and off-campus training base cooperation is merely a formality, making it difficult for students to obtain real experience. Second, the practical content is single, mainly focusing on verification experiments and basic skill training, lacking comprehensive and innovative practical projects. Students can only complete operations according to procedures, and it is difficult to exert subjective initiative. Third, practical methods are backward, mainly through teacher demonstration and student imitation, lacking heuristic, inquiry-based, and project-based teaching, which is not conducive to mobilizing students' innovative awareness [5–7].

## 4. Practical paths for cultivating innovative talents in agricultural majors in higher vocational colleges

### 4.1. Clarifying training objectives to fit industrial post needs

Clear training objectives are the basis for cultivating innovative talents. Agricultural majors in higher vocational colleges should combine the characteristics of the agricultural industry and enterprise post needs to clarify talent training objectives, guided by practical ability, innovation ability, and comprehensive literacy. First, conduct in-depth research on the current situation and needs of regional agricultural industrial development, and clarify the pertinence of objectives combined with the rural revitalization strategy. Second, incorporate innovation ability training into core training objectives, clearly proposing to cultivate students' innovative thinking, innovative skills, entrepreneurial ability, and ability to solve complex problems, forming a three-dimensional training objective. Third, connect vocational post standards, integrate post-course-

competition-certificate into training objectives to ensure that trained students meet enterprise post needs and have innovative ability and potential for career development [8].

## 4.2. Optimizing curriculum structure and building a post-course-competition-certificate mechanism

As the carrier of innovative talent training, the curriculum system should fully combine industrial development and post reality, optimize the curriculum teaching system, build an integrated curriculum system of post-course-competition-certificate-innovation, and realize the integration of curriculum content with industrial needs, post standards, and competition requirements. First, optimize the structure of curriculum content, delete outdated and disconnected content, and add courses related to smart agriculture and ecological agriculture, including agricultural Internet of Things application, drone plant protection technology, agricultural product quality and safety testing, etc., to fill the gap in new industrial formats [9]. Second, update curriculum content, constantly update teaching material content combined with agricultural industrial technologies, methods, and specifications, integrate enterprise actual projects, vocational skill competition projects, and other certificate assessment content into curriculum teaching, and make curriculum content fit post actual needs. Third, optimize the curriculum teaching structure, constantly adjust the proportion between theoretical and practical courses, increase comprehensive and innovative practical courses, set up innovative practice modules, and cultivate students' innovative thinking and practical ability. Fourth, promote the integrated development of courses, break disciplinary boundaries, combine agricultural professional knowledge with information technology, offer interdisciplinary courses, and cultivate students' thinking ability [10].

## 4.3. Strengthening practical teaching and building an innovative practical platform

Practical teaching is an important link in cultivating students' innovative ability. Practical teaching should be strengthened and a three-in-one innovative practical platform should be built to promote the development of students' innovative and practical abilities. First, improve practical teaching conditions, build on-campus training bases equipped with drones, agricultural Internet of Things, agricultural product detectors, and other equipment to simulate real agricultural production scenarios and provide support for students' innovative practice. Strengthen the construction of off-campus training bases, establish in-depth cooperative relations with agricultural enterprises and family farms, and let students go deep into the production front line and accumulate more experience. Second, innovate practical teaching projects, adopt project-based teaching, inquiry-based teaching, and other methods, take enterprise actual projects as the core, guide students to take the initiative to explore and innovate, and cultivate students' problem-solving ability [11]. Third, enrich practical teaching content, increase comprehensive and innovative projects, including competitions and activities for crop planting improvement and innovation, to stimulate students' innovative motivation and practical ability. Fourth, build an innovation incubation platform, set up an agricultural innovation incubation center, provide financial help and guidance for students' innovative projects, and promote students to transform innovative ideas into practical results.

## 4.4. Focusing on teacher training and strengthening teaching staff construction

As an important support for innovative talent training, the teaching staff should be strengthened to build a team with noble ethics, exquisite professional skills, and strong practical ability. First, optimize the structure

of the teaching staff, increase the introduction of part-time teachers, and introduce technical backbones with rich experience and innovative ability from agricultural enterprises and industry associations. Strengthen the training of full-time teachers, encourage full-time teachers to go deep into front-line agricultural enterprises for practice, participate in enterprise project research and development, accumulate more experience, and improve innovation ability [12]. Second, improve teachers' teaching ability, carry out corresponding training, organize teachers to actively participate in teaching seminars, new agricultural technology training, vocational skill training, etc., learn innovative teaching concepts and methods, and improve teachers' innovative teaching ability and technical level. Third, establish a school-enterprise collaborative education teacher training system, build a teacher training base with agricultural enterprises, organize teachers to take temporary posts in enterprises, improve teachers' innovative and practical ability, and carry out innovative teaching together with teachers to truly achieve "teaching benefits teachers as well as students" [13].

### 4.5. Improving the evaluation mechanism and adjusting to innovation as the orientation

A scientific evaluation mechanism is the key to talent training, which requires improving the evaluation system, strengthening innovation orientation, and mobilizing students' innovative quality. First, optimize the student evaluation mechanism, build a diversified evaluation system of process evaluation, summative evaluation, and innovative evaluation, include students' innovative practice projects and vocational skill competition results in the evaluation scope, promote the development of students' innovative quality, and ensure the objectivity and comprehensiveness of evaluation. Second, improve the teacher evaluation mechanism, adjust evaluation indicators, take innovative teaching ability and practical innovation ability as the focus of evaluation, weaken teaching workload, and stimulate teachers to carry out innovative teaching. Third, introduce third-party evaluation subjects, actively invite enterprises and industry associations to participate in talent training evaluation, evaluate talent training quality combined with enterprise post needs and industrial development requirements, and ensure that evaluation results reflect industrial talent needs [14,15].

## 5. Conclusion

In summary, the development of agricultural modernization and the implementation of the rural revitalization strategy put forward higher requirements for the cultivation of innovative talents in agricultural majors in higher vocational colleges. At present, there are still a series of problems in the cultivation of innovative talents in agricultural majors in higher vocational colleges. Therefore, agricultural majors in higher vocational colleges need to base on their own school-running characteristics, clarify talent training objectives, optimize the curriculum system, and cultivate innovative talents in the new era. In the future, it is still necessary to continuously explore and practice to cultivate more technical and skilled talents with innovative thinking, practical ability, and professional literacy, provide talent support for rural modernization development, and inject internal vitality into the high-quality development of agriculture.

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## Disclosure statement

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