

Based on the Cultivation of Fruit Trees to Carry Out the Research and Creation of Basic Education for Rural Teachers

Rong Xia*

Chongqing Normal University, Chongqing, China
csdrongxia@163.com
*corresponding author

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Abstract: It is very important for farmers to master the cultivation technology of fruit trees, which to a large extent determines the management income of farmers. China is an agricultural power, but not an agricultural power. Since the implementation of household contract responsibility system, the production of farmers has been actively improved, but with the development of science and technology, especially the implementation of agricultural modernization, the original and traditional farmers began to disconnect with the times. In the fierce market competition, if you want to grow fruit trees to become rich, it is obviously impossible without corresponding fruit tree planting skills. Therefore, based on the current situation of fruit tree planting industry in rural areas of China, a new method of basic education for rural teachers based on fruit tree cultivation is put forward. This paper thinks that we can make full use of the existing resources of rural teachers, expand their knowledge, and establish a team suitable for local promotion of basic fruit technology. Rural teachers take root in rural areas for a long time, are familiar with the rural agricultural environment, and master agricultural technology faster. Through this article, it expounds the combination of scientific research and teaching, theory and practice, scientific setting of professional courses, customized courses based on different fruit species reproduction, truly and effectively solving practical problems encountered, farmers, using project teaching methods to stimulate students' enthusiasm, so that they can master more knowledge in practice. After two years of follow-up observation, we went deep into the front line for investigation. After the students' positive feedback, we think that the teaching method discussed in this paper is very suitable for the grass-roots rural areas in China, and is a good way to promote the grass-roots fruit tree technology.

1. Introduction

Since the implementation of household contract responsibility system, farmers' enthusiasm for

production has improved. At the same time, due to the development of science and technology and the application of science and technology in crop production, the production of rural crops has achieved good yield and efficiency. However, with the rapid development of social economy, the acceleration of urbanization process, the continuous emergence of new agricultural technology, a large number of rural labor force to the secondary and tertiary industries, China's rural planting industry is undergoing profound changes.

At present, except for the early start and good development of the reform, the production level of planting industry in most rural areas is relatively low. The production status of most of the rural planting industry in China is as follows: first, most of the farmers still master the traditional planting technology, and the production level is relatively low. With the rapid development of science and technology, new technologies of planting management have significantly improved the yield and efficiency of crops. However, farmers are busy with their lives. Some farmers are willing to take the initiative to plant new technologies for professional training. Occasionally, there is a saying that the system is not detailed and can not fully understand the application program. Lack of understanding of new technology often leads to high input, low output, yield advantage and benefit advantage can not play out, and causes serious damage to the soil, resulting in pollution. Second, the rural planting production infrastructure is not perfect, the original facilities are backward or damaged, lack of maintenance. Poor infrastructure often leads to "weather dependent" agriculture. Third, the value of the labor force has increased, and the earning work of the rural middle-aged and young labor force has been transferred to the secondary and tertiary industries, leaving behind the agricultural land for women and the elderly. Their physical strength is weak, leading to extensive management. Therefore, the new technological advantages and benefits of productivity cannot be shown. Fourth, with the popularization of agricultural mechanization, the land with family as the unit has small plot area, scattered, inconvenient mechanization, large energy consumption, and can not realize the mechanization of the whole process. There is a huge contradiction between the current situation of production and the development of production in China's rural planting industry. With the development of urbanization in China, this contradiction will be deepened. Therefore, it is necessary to summarize the development and reform of rural planting industry from two aspects of production and practice.

However, to solve these problems, we must establish the strategy of agricultural talents. Only talents can fully guarantee the development needs, so it is particularly important to do a good job of fruit tree cultivation skills training for rural farmers. At present, there are many researches in this field in China, but most of them focus on the deep cultivation of planting technology. Although the cultivation of related products has made a breakthrough, it often ignores the reality of how to spread. In fact, China's grass-roots agriculture is not lack of high-tech, what is lacking is how to use it, how to use it. In the face of this national problem, it is still urgent to improve the rural agricultural education system, although to some extent, it is restricted by the region and farming habits [1-2].

The task of rural agricultural technology training is to train innovative talents to adapt to the development of agricultural science and technology through teaching. Teachers should integrate teaching and scientific research, cultivate innovative talents is their duty, and actively participate in scientific research activities is a solid foundation for improving teachers' comprehensive quality and implementing high-quality teaching of this subject. The establishment of innovative fruit breeding institutions and the cultivation of high-quality talents must pay attention to and guide scientific research. Based on my own teaching and research experience, this paper puts forward the exploration of carrying out the basic education research of rural teacher training based on fruit tree cultivation. This paper holds that the use of existing resources by rural teachers and the promotion of main fruit tree technology can play an important role in promoting the development of agricultural economy, improving the income level of farmers, and the quality of technology

promotion determines the level of rural economic benefits. Therefore, it is necessary to attach importance to the popularization of fruit tree technology at the grass-roots level, which is conducive to improving the economic interests and living standards of farmers in China. Farmers are not only the users of agricultural technology, but also the propagandists of agricultural technology. Without the promotion of agricultural technology, they can not obtain the corresponding technical means, and it is difficult to transform technology into productivity. The problems existing in the process of grass-roots agricultural technology extension service will also seriously affect the sustainable development of agriculture. Therefore, combined with the above practical conditions, this paper developed a program, which can adapt to the most basic level of fruit tree technology promotion, combine scientific research and teaching, arrange courses scientifically, pay more attention to practice than before, and adopt project teaching method to teach students. Through many experiments and investigations, we find that the teaching method created in this paper can stimulate the enthusiasm of farmers to plant fruit trees and really help them, which is a method worth popularizing.

2. Theory and Concept

2.1. A General Analysis of Fruit Breeding Industry

Compared with other industries, fruit tree technology requires higher professional skills and technology. On the one hand, we should translate all kinds of new projects and research results into actual production and practice to solve the problems farmers encounter in their business, so that they can deepen their understanding of new technology, fruit trees, and apply new technology, so as to improve their enthusiasm and promote new technology. The first is to be good at discovering the problems existing in the actual production, and to solve them through further research, so as to generate new economic benefits, and to complete the circulation of fruit tree technology promotion and industrial development as a whole. At present, there are still some deficiencies in the popularization of primary fruit tree technology in China. The current situation of fruit industry is: first, the planting area of fruit trees is increasing year by year. Fruit tree planting plays a more and more important role in agricultural economic activities in China, and gradually becomes an important source of economic income for farmers. The second is the change of personnel structure. In recent years, the process of urbanization in China is speeding up day by day. Many young people leave their hometown to work in cities. The elderly and women have become the main forces of rural economic development. In the long run, workers' physical strength and energy are difficult to keep up with the development of fruit industry, which easily leads to the contradiction between the two, making it difficult for fruit industry to be promoted [3].

2.2. Current Situation of Fruit Culture Technology Promotion

1. Insufficient technology promotion activities

Researchers are researchers and developers of fruit technology. The research and development of fruit technology needs repeated experiments and verification by researchers. Fruit tree technology needs a lot of sweat and efforts of researchers. The researchers explained and implemented the most important aspects of fruit tree technology, participated in fruit tree technology promotion, and agricultural workers provided professional technical training, and achieved good results in the grass-roots level of fruit tree technology promotion. However, in the face of various project subjects and experimental exploration, most of the work of researchers is seriously consumed, it is difficult to find time to carry out other activities. Therefore, the work of scientific researchers only stays in the research and development of technology, it is difficult to participate in the promotion.

2. Lack of guidance from the middle sector

It is analyzed that the current fruit and vegetable industry in China is mainly planting and forestry, so a scientific and perfect promotion and management mechanism is needed to coordinate the relationship between various departments and the government, and effectively avoid the waste of human and financial resources. However, in the process of dissemination, the main fruit technology is difficult to carry out effective operation due to the lack of scientific and perfect system, and information error or delay is inevitable in the process of transfer of scientific research and technological achievements, resulting in dissatisfaction of the labor force.

3. No professional technical promotion personnel

From the analysis of the professional level and comprehensive quality of agricultural technology extension personnel, it is generally low. According to the relevant survey, the bachelor degree of agricultural technology extension personnel shall not exceed 12%. In addition, various technical training mechanisms and assessment systems are difficult to reform in time, which seriously restricts the effective promotion of primary fruit tree technology.

2.3. New Development of Fruit Tree Planting in Rural Areas

1. The development of fruit planting industry has entered the "new normal"

The "new normal" of economy is mainly manifested in the following aspects: economic growth is slowing down, that is, from high growth to medium high growth; economic structure optimization is upgrading from low-end industrial structure to high-end industrial structure. The driving force of economic development has shifted from relying on land and labor resources to relying on scientific and technological innovation. The price of agricultural products is facing the "ceiling" cap in China, and the cost of squeezing production between "floors" is rising. The price of major agricultural products sold at home and abroad has also led to the decline of international competitiveness of agricultural products. In the future, our country will further implement import tariff quotas and import agricultural products in accordance with its commitments, Agriculture will face greater pressure, especially on imports of basic agricultural products. Under the "new normal", the economic growth slows down and the growth of fiscal revenue slows down. China's agricultural market is facing a more complex and changeable environment, and the government's financial support for agriculture is also facing challenges. However, the "new normal" of economy not only brings challenges to agricultural development, but also contains opportunities. The atmosphere of optimizing the new normal economic and social structure is very suitable for the adjustment of planting structure. China should take advantage of this opportunity to upgrade the industrial structure of industrial transformation, rely on scientific and technological innovation to promote the development of agriculture, realize the optimization of planting structure, improve agricultural efficiency, and improve the international competitiveness of agricultural products [5].

2. Diversified development objectives

With the change of the economic situation and the change of the internal and external environment of agriculture, China's planting industry has entered a new era with multiple objectives of product supply and demand, resource environment and production efficiency. First of all, performance is the requirement of the variety structure and quality safety of agricultural products. And the living standards of urban and rural residents are steadily on the top. The Engel coefficient of urban and rural residents, by 1978 and 2013, will be 57.5%, 67.7%, 35% and 37.7%, respectively, because the demand elasticity of agricultural products will also decline, the consumption level and consumption structure of urban and rural residents will be upgraded, and the demand for safe agricultural products will be increased. Second, the requirements of planting production and resource and environment protection. The increasing pressure of planting production in resource

consumption and ecological environment is manifested in the thinning of black soil layer in Northeast China, the decrease of soil organic matter content, and the excessive heavy metal content in some paddy fields in South China and North China Plain, which directly affects the yield and quality safety of crops. The third is the transformation of production mode of planting industry. With the increase of agricultural production cost, the traditional operation mode is difficult to achieve the goal of increasing farmers' income. The rapid development of new operators means that improving the efficiency of agricultural production through mechanization and scale management will be the future development trend. China should realize the transformation of modern production mode of large-scale planting, marketization and specialization through structural adjustment [6].

3. Farmers' income increase faces new challenges

The stable growth of agricultural income plays a very important role in the sustainable growth of farmers' income. The first is the change of total output value of agricultural planting industry. The proportion of planting industry in total output value of agriculture, forestry, animal husbandry and fishery decreased from 80% in 1978 to 53.58% in 2014, and the contribution rate of planting industry to agricultural income decreased. The second is the change of agricultural production cost and profit margin. With the rising of agricultural material price and labor cost, the cost of agricultural production increases and the marginal cost decreases. Taking the average cost of the three major grains as an example, compared with 2008, the cost of materials and services, land and labor per 667 square meters in 2013 increased by 44%, 82% and 146%, respectively, while the cost margin decreased from 33.14% to 7.11%. Third, the changes and challenges of the income structure of farmers' families. In 2014, the per capita net income of farmers reached 9892 yuan, an increase of 9.2% over the previous year. However, the agricultural income only accounts for one quarter, showing a downward trend. The per capita net income wage in rural areas began to increase rapidly in the income of a multi family enterprise, the property income and transfer income of agricultural farmers, increasing the income of farmers, and relying more and more on non-agricultural industries, Agriculture, especially in farming, faces the challenge of stimulating farmers' income. Therefore, the task of increasing agricultural income in the new era is extremely arduous. On the premise of respecting farmers' wishes, we should pay attention to agricultural efficiency from the perspective of market demand, actively explore the institutional environment and endogenous mechanism conducive to farmers' income increase, and promote farmers' income increase [7].

3. Teaching Reform and Methods

3.1. Teaching Reform of Fruit Cultivation

The mission of agricultural school is to train innovative talents to adapt to the development of agricultural science and technology through teaching. It is the duty of teachers to combine teaching with scientific research and cultivate innovative talents. Active participation in scientific research activities is a solid foundation for improving teachers' comprehensive quality and implementing high-quality undergraduate teaching. In order to build an innovative university and train high-quality talents, we must attach importance to and guide scientific research. Based on my teaching and research experience, this paper puts forward the exploration of cultivating innovative talents for fruit tree teachers in agricultural colleges.

1. Actively participate in innovative scientific research activities

Scientific research can help teachers broaden their thinking, fully grasp the academic dynamics of the subject, accurately understand the current situation of the courses they teach and the logical relationship between the courses, so as to improve the academic level and teaching level of teachers. At the same time, the research spirit of teachers will also affect students. The teaching content of professional courses should be constantly updated, keep up with the development trend of the

society and the times, and transform the latest scientific research results into teaching content. Therefore, teachers should attach great importance to scientific research and enhance the sense of innovation. Teachers can improve the level of scientific research through the following ways: (1) host and participate in scientific research projects, carry out specific scientific research activities; (2) participate in academic exchanges, accurately grasp the development and current situation of the frontier trends in this field; (3) study abroad, understand and learn the research platform of foreign scientific research forces; (4) In depth production practice, understand the existing problems in the current production, take this opportunity to carry out scientific research activities, and truly realize the close integration of production, learning and research. Scientific research practice can enable us to accumulate rich scientific research experience, broaden the scope of knowledge, deepen the understanding of objective laws, and inject new vitality into teaching. Therefore, rural teachers must actively carry out innovative research activities to improve their academic level [8-9].

2. Integrated teaching to strengthen students' interest in scientific research

Timely introduce new findings and achievements in scientific research into classroom teaching, explain with scientific research examples, transform and improve through teaching, stimulate students' interest in learning, and stimulate students' independent and professional thinking. At the same time, the problems existing in scientific research are introduced into teaching, so that students can participate in Teachers' scientific research projects, strive to form teacher-student interaction, stimulate students' innovation inspiration, and gradually cultivate students' scientific research ability. Finally, by guiding students to write course papers, summarizing the experimental results, pointing out the existing problems in scientific research activities, training students' writing ability, enhancing students' understanding of the experimental results, laying the foundation for future work.

3. Introduce the latest scientific research results and quickly grasp the latest knowledge

The teaching process of fruit trees is not only to impart knowledge, but also to take the responsibility of discovering the unknown and to cultivate students' ability to explore new knowledge. The best way to promote teaching is to introduce scientific research results into undergraduate teaching, enrich teaching content with the latest scientific research results, and improve the theoretical system of teaching materials. For example, in teaching "flowering mechanism of fruit trees", teachers can timely introduce the genes of flowering plants currently studied, popularize some common sense, and help students understand the role of flowering genes in this process. They also introduce transgenic technology and control theory of childhood plants, so as to broaden students' knowledge [10-11].

4. Continuous optimization and renewal of teaching methods and means

There are many kinds of teaching methods, such as teaching method, conversation method, discussion method, demonstration method, visit method, experiment method, heuristic method, injection method and so on, in order to arouse and develop the enthusiasm of students. The teaching of technical knowledge mainly adopts demonstration method, visiting method and experiment method. At the same time, interactive teaching is used to encourage students to ask questions. In teaching, teachers are dominant, but the relationship with students is equal and can be debated in class. This teaching method can activate the classroom atmosphere, promote the emotional communication between teachers and students, and improve the teaching quality. Make full use of the organic combination of modern education technology, traditional teaching methods and modern teaching methods. For example, in the teaching of "fruit tree breeding method in vitro culture", teachers can use multimedia to organize some photos of students to observe, tell them what is callus and embryoid, protoplast, increase the sense of reality, and make students easy to understand, accept and master; By playing the video materials such as "grafting of fruit trees", it shows the process from cutting scion and stock to grafting and binding, which makes the classroom teaching concrete,

makes the students like the feeling of being in the scene, and improves the learning efficiency. Manual drawing, woody plant epidermis, cambium, phloem, xylem and pictures are on the blackboard, and the prominent part in other fields is cambium. Explain the plant regeneration and transplantation survival of the part, such as the role and status of the process, so that students have a deep understanding of the key technology of grafting stock and the consistency principle of scion cambium; At the same time, lead the students to visit the laboratory, operate and deepen their impression. The combination of blackboard writing, slide show and video can stimulate students' interest in learning and improve teaching effect. At the same time, we will introduce students into scientific research activities imperceptibly, and gradually cultivate students' scientific research awareness and innovative thinking [12-13].

3.2. Course Setting of Fruit Cultivation

Fruit production technology is the core course of horticultural technology. Through the study of this course, students can master the basic theoretical knowledge and comprehensive business ability necessary for the production, management and service of fruit trees, and become high skilled talents for fruit production and management. However, in the traditional "tree like production technology" course teaching process, the basic order of teaching organized by teachers is based on the content of teaching materials. Although it has certain systematicness and integrity, it is the phase mismatch between the teaching content and the fruit production season, and it is difficult to improve the theoretical teaching content and the actual operation ability of students. Therefore, in recent years, In the teaching process, content and practice of the project teaching method of fruit tree production technology, the author tries to take "project" and "ability" as the center, highlight the characteristics of higher vocational education, strengthen the cultivation of students' practical ability, and comprehensively improve the teaching quality.

1. Setting, implementation and role orientation of project-based teaching content

In the process of PBT implementation, the teaching work mainly revolves around a "project", requiring students to complete the form of group cooperation under the guidance of teachers, from the preparation of theoretical knowledge, the design of action plan to the implementation of the project. In skill education, "project" can be a task of producing a specific product or an operational course. Therefore, the setting of "project-based" teaching content is the key to the implementation of project-based teaching method [14].

2. Course content

The teaching content of "project" must meet the requirements of course characteristics, teaching plan and post ability, and it is feasible. During the implementation of the project, it is necessary to consider some natural laws of the growth and development of annual fruit trees. There are different practical teaching contents in different seasons. Each practical teaching content has clear teaching objectives and tasks. Therefore, the author sets the practical teaching content of fruit production technology as several "projects" which can be completed independently, and each "project" can be taught by using the project teaching method. At present, there are 21 "project" teaching contents that can be set up in this course (Table 1).

3. Teaching implementation process

The core goal of project teaching is to move the classroom to the off campus teaching site, according to different "project" teaching content, to carry out vivid teaching and practical skill teaching on site, to realize the integration of teaching, learning, doing theory and practice, classroom and practice, and to strengthen the cultivation of students' practical ability. The complete PBL implementation steps should include information, planning, decision-making, implementation, self-evaluation and summary (Figure 1).

Semester	Month	Configurable "project teaching content"				
The first semester	9	Pruning after harvest of longan; grafting practice of fruit				
		trees; a method and effect of pruning force of fruit trees				
	10	Top dressing of fruit tree rhizosphere; top dressing of				
		fruit leaf; pear control; jujube stem, bagging				
	11	Litchi controls winter shoots; fruit tree rings, pericarp,				
		rings, cutting soil, promoting flowers; orchard is deeply				
		ploughed				
	12	Bananas keep out the cold				
	1	Pruning of grapes or citrus plants in winter; grape				
		cuttings				
	3	Longan shooting and processing; pear artificial				
Second		pollination; the main stem of jujube has been renewed				
semester	4	Tangerine fruit; pears and pouches; spring pruning Pitaya				
	5	Bagged grape fruit				

Table 1. "project" teaching content of "fruit tree breeding technology" course

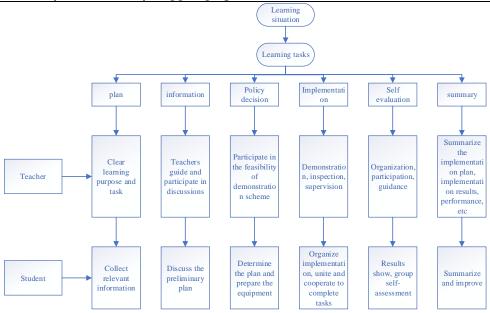


Figure 1. Complete implementation steps of project teaching method

4. Role change of Teachers

The most obvious characteristic of the project teaching method is that it takes the project as the main line, teachers as the leading role and students as the main body. In the process of PBL implementation, the role of students has changed from "audience" to "actor" and become the leading role. By completing the project independently, students can combine theory and practice organically, which not only improves students' theoretical level and practical skills, but also cultivates students' comprehensive cooperation ability and problem-solving ability. The teacher, on the other hand, changed from "actor" to "audience" and was a supporting role. The function of teachers has changed from "giving" to "guiding", including guiding, guiding, guiding and guiding. Therefore, the main task of teachers is to prepare for "project-based" teaching, organize students to discuss projects, participate in students' learning, control the whole teaching process, and constantly stimulate students' enthusiasm for learning.

3.3. Improve the Way of Teaching Assessment and Inspection

Through scientific and reasonable teaching methods, regular assessment is an important means to improve the quality of teaching. Evaluation is a test of teaching and a response to the degree of knowledge. Many students are afraid of the exam, which is not right. First of all, the exam can let each student know their own shortcomings, and then find the next stage of learning focus. Therefore, it is very helpful for students to establish scientific and reasonable assessment methods in the teaching of fruit tree technology in rural areas. Among them, daily assessment is the most common form and the most direct assessment method. The second is the comprehensive evaluation mechanism, mainly the evaluation of students' comprehensive ability. This evaluation mode is often the test of practice, and should be the focus of teaching reform. The purpose of fruit tree technology teaching in rural areas is to cultivate applied talents. Schools should appropriately reduce the proportion of written assessment so that it is more allocated to practical operation. Or translate the usual written assessment results into daily actual operation assessment. Through these comprehensive evaluation data, as the final comprehensive evaluation index, students are encouraged to actively carry out practical research and exploration [15].

4. Effect of Teaching Reform

4.1. The Effect of the Reform of Fruit Cultivation Teaching

After the reorientation of the teaching and training objectives of "fruit production technology", the characteristics of "power center" vocational education are highlighted in terms of teaching methods and means. It is a "combined teaching, learning and doing". It strengthens the training of students' professional ability, integrated theoretical and practical teaching, and enables students to "do" the knowledge and skills learned by white people, Improve students' practical ability, employment ability and entrepreneurship [16-17].

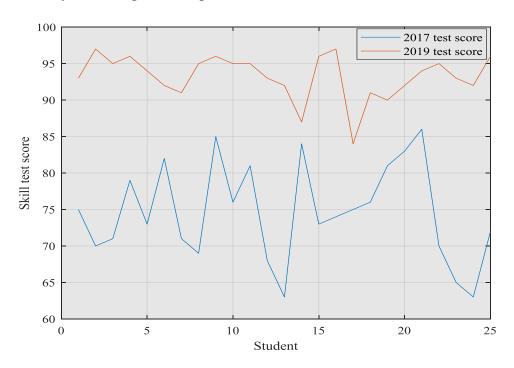


Figure 2. 2017 and 2019 student skill assessment scores

After the reform of learning and teaching level, we have organized an expert group to randomly select 25 students of 125 students in some counties for grafting, and the practical test of professional skills of fruit tree pruning and fruit production[18]. The average score of the test students is 95.2 points, including the test scores of 23 students of more than 90 points, From 2018 to 2019, the passing rate of the vocational qualification examination related to fruit tree gardening has reached over 97%. Compared with the previous years, there has been a big increase of 47%. Through the comparison of the data in Figure 2, the new teaching plan has a solid grasp of students' basic knowledge.

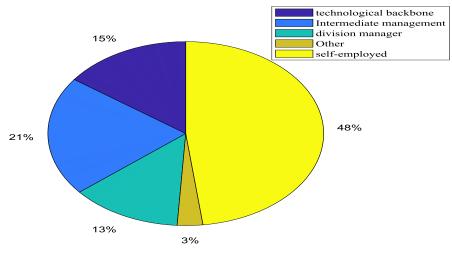


Figure 3. Statistics of graduates' Employment

Statistics of graduates' Employment

According to the statistical analysis, in Figure 3, through the training of students, I have worked in the fruit production enterprises in the past two years. Because of the higher vocational skills of fruit production, the initiative, the strong work discipline, the praise and welcome in the internship units, many graduates have worked in the employment and fruit production enterprises in agricultural production technical services, working ability and good professional ethics, through the reuse unit, Many graduates, such as department managers, technical directors, business units and technical backbones, colleagues and leaders, highly praised, and families support ethnic minority graduates, white's main business, missiles in fruit production and investment construction in orchard should independently manage the knowledge and skills of production and fruit production in school.

4.2. The Effect of Teaching Content and Teaching Method Reform

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Table 2. Statistical table of e	vaiuaiion oj jruii	i iree breeu	ing techno	nogy course	activities

Name of investigation project	Respondents	very good	Better	commonly	difference
Teaching content of the	Grade 2018	51.8	43.7	4.5	0
course	Grade 2019	32.7	56.6	10.7	0
Teaching methods and means	Grade 2018	62.3	33.4	4.3	0
of Teachers	Grade 2019	47.2	50.1	2.7	0
Please mark the teaching	Grade 2018	92.8			
effect of this course	Grade 2019	91.4			

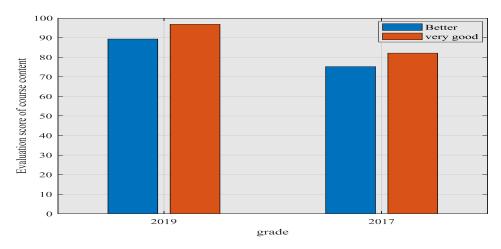


Figure 4. Evaluation score of course content

In order to test the effect of the teaching content, we have carried out blank sampling survey on three categories of 2018 and 2019 in the professional training of fruit breeding (see Table 2). Each survey item has selected "very good", "better", "general" and "bad". "Students' evaluation of project teaching content" is "very good" and "better", in 2018 (94.0%), 2019 (89.3%). According to the survey, 94.1% of 2018 students were rated as "very good" and "relatively good", while 96.8% of 2019 students were rated as "very good" and "relatively good". According to the comparison with the data of previous years (Figure 4), we believe that this teaching reform has been supported by the majority of students.

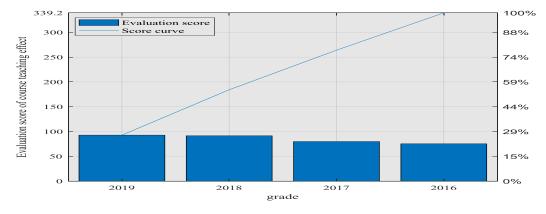


Figure 5. Course effect evaluation score statistics

According to the survey "please mark the teaching effect of this course", according to statistics in Table 2 and figure 5, the average scores of students in 2018 and 2019 are 92.8 and 91.4 respectively, and the grades in 2016 and 2017 are 75.2 and 79.8 respectively. The results of investigation and statistics show that the teaching effect of fruit production technology course in our school is good.

5. Conclusion

At present, there are various problems in the process of popularizing fruit technology in China. The main reason is that there are many restrictions on human resources and environmental resources. Therefore, researchers and workers in the fruit and vegetable industry must attach great importance to it. Problems and difficulties are emerging, but in order to realize agricultural modernization, we must solve the current difficult problem. In order to do this well, we should not

only keep up with the relevant supporting policies and do a good job in top-level design, but also fully mobilize the existing resources of rural agriculture to create better conditions for grass-roots agriculture. For example, this paper combined with rural teacher resources, the establishment of grass-roots fruit technology promotion team can solve this problem. According to the actual situation of rural agricultural production, this paper makes the corresponding teaching reform. The purpose of the reform is to distinguish university teaching and basic farmers' agricultural production technology teaching. Farmers do not study technology to obtain diploma, they do not need to spend a lot of energy to study how to write papers, Objective theoretical knowledge is still secondary to farmers. Farmers' friends pay more attention to practical ability and practical production technology which is helpful to practice. In order to better adapt to the knowledge of farmers' friends, we have established a project-based teaching method, focusing on practice, putting teaching on the production line as far as possible, combining with the seasonal production situation, and taking problem-solving as the main purpose of the teaching method. Through the follow-up investigation, this method has achieved good results, and also won unanimous praise.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

References

- [1] Zhao L, Meng H, Shen Y, et al. Investigation and development analysis of planting-breeding circulating agriculture ecosystem system in northern plains in China. Nongye Gongcheng Xuebao/transactions of the Chinese Society of Agricultural Engineering, 2017, 33(18):1-10. DOI:10.11975/j.issn.1002-6819.2017.18.001
- [2] Chen Y, Zhao S, Zhou Y. Research on Intelligent Agricultural Planting System Based on Internet of Things Technology. Journal of Computer and Communications, 2018, 06(6):54-60. https://doi.org/10.4236/jcc.2018.66005
- [3] Evangelia S. Papadopoulou, Bella Tsachidou, Sławomir Sułowicz, et al. Land Spreading of Wastewaters from the Fruit-Packaging Industry and Potential Effects on Soil Microbes: Effects of the Antioxidant Ethoxyquin and Its Metabolites on Ammonia Oxidizers. applied & environmental microbiology, 2015, 82(2):747. https://doi.org/10.1128/AEM.03437-15
- [4] Bingzhi Li, Junfeng Wang, Xuefei Ren, et al. Root growth, yield and fruit quality of 'Red Fuji' apple trees in relation to planting depth of dwarfing interstock on the Loess Plateau. european journal of horticultural science, 2015, 80(3):109-116. https://doi.org/10.17660/eJHS.2015/80.3.3
- [5] Akio KOYAMA, Hiroaki YAMANOUCHI, Hiroaki MACHII. Screening of Mulberry Genotypes Suitable for Fruit Production and Development of High-Yielding Strains with Large Fruits. jarq, 2015, 35(1):59-66. https://doi.org/10.6090/jarq.35.59
- [6] Zhao L, Meng H, Shen Y, et al. Investigation and development analysis of planting-breeding

- circulating agriculture ecosystem system in northern plains in China. Nongye Gongcheng Xuebao/transactions of the Chinese Society of Agricultural Engineering, 2017, 33(18):1-10. DOI:10.11975/j.issn.1002-6819.2017.18.001
- [7] Sumarni Sumarni, Mariam Mariam, Hadija Hadija. The Analysis of the Pattern of Aquaculture Business Management Application to Increase the Farmers' Income in Pangkep Regency. Journal of Agricultural Studies, 2017, 5(2):190. https://doi.org/10.5296/jas.v5i2.11472
- [8] Xie Bixiu, He Qiang, Liu Teng, et al. Teaching Reform and Practice of the Course "Fruit and Vegetable Storage and Processing Technology" in Higher Vocational College. Journal of Liaoning Vocational College of Agriculture, 2016, 18 (3): 36-38. http://en.cnki.com.cn/Article_en/CJFDTotal-LNNJ201603014.htm
- [9] Wang Lixia, Tang Juhong. Exploration on the Teaching Reform of "Production; Technology of Potted and Cut Flowers"% "Potted Flowers and Cut Flowers Production Technology" course teaching reform. Science and Education Wenhui (Mid-Term), 2015 (5): 72 -73. doi:10.3969/j.issn.1672-7894.2015.14.033
- [10] Zhu Xufang, Kang Hongjing, Ma Zhiyuan. The Practice of Teaching Reform of Project Teaching Method in the Comprehensive Design of Electronic Technology Course. Education Teaching Forum, 2017(13):97-98. http://en.cnki.com.cn/Article_en/CJFDTotal-JYJU201713040.htm
- [11] Joshi S R, Das A R, Borthakur M, et al. Growth of mycelial biomass and fruit body cultivation of Lentinus squarrosulus collected from home garden of Tripura in Northeast India. akhuwat.org.pk, 2015, 3(4):17-19. doi: 10.7324/JABB.2015.3404
- [12] Kates F R, Byrd M D, Haider M R. Every Picture Tells a Story: The Power of 3 Teaching Method. Journal of Educators Online, 2015, 12(1):189-211. https://doi.org/10.9743/JEO.2015.1.1
- [13] Firat Durdukoca, Şule. Examination of Preschool Teacher Candidates' Views on Drama as a Course and a Teaching Method. proceedings of the nutrition society, 2015, 63(4):621-629.
- [14] Mark Ginsburg, Nagwa Megahed. Globalization and the Reform of Faculties of Education in Egypt: The Roles of Individual and Organizational, National and International Actors. Biochimica Et Biophysica Acta Biomembranes, 2015, 1066(1066):111-114.
- [15] Gao Zhongbao, Wang Wei, Zhao Xingli, et al. The Comparison of Case Teaching Method and Situational Teaching Method in the Teaching of Neuropsychological Assessment% Comparison of the Effect of Case Teaching Method and Situational Teaching Method in Neuropsychological Assessment Teaching. Continuing Medical Education, 2019 (6): 4-7.
- [16] Nivetha Martin, Priya.R, Florentin Smarandache, Decision Making on Teachers' adaptation to Cybergogy in Saturated Interval-valued Refined Neutrosophic overset /underset /offset Environment, International Journal of Neutrosophic Science, 2020, Vol. 12, No. 2, pp: 58-70 https://doi.org/10.54216/IJNS.120202
- [17] Chau, K. Y., Law, K. M., & Tang, Y. M. (2021). Impact of Self-Directed Learning and Educational Technology Readiness on Synchronous E-Learning. Journal of Organizational and End User Computing (JOEUC), 33(6), 1-20. http://doi.org/10.4018/JOEUC.20211101.oa26
- [18] Akshita Waldia, Pragati Garg, Priyanka Garg, Rachna Tewani, Arun Kumar Dubey, Anurag Agrawal, Crop Recommendation Using Machine Learning, Fusion: Practice and Applications, 2021, Vol. 6, No. 2, pp: 57-63. https://doi.org/10.54216/FPA.060203