

Study on Rice in Alpine Region under “Chinese Medicine Agriculture” Cultivation System

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Abstract: With the development of China's economy and the continuous improvement of people's dietary quality requirements, healthy and high-quality TCM agricultural products are increasingly favored by consumers. TCM agricultural rice is one of the products of TCM agricultural agriculture. Its quality and yield are closely related to cultivation techniques. This article mainly analyzes and discusses the related research of rice under TCM agricultural cultivation system from the aspects of TCM agricultural rice seedling raising technology, fertilization technology, irrigation technology, pest control technology and the impact of TCM agricultural cultivation system on rice quality and yield. In order to provide a theoretical basis for the research on rice cultivation in traditional Chinese medicine agriculture.

1. Introduction

In recent years, the development of traditional Chinese medicine agriculture has made great progress. Under the background of traditional Chinese medicine agriculture and people's pursuit of green and pollution-free healthy food, the area of rice cultivation of traditional Chinese medicine agriculture is radiating with the fire of stars. TCM agricultural rice cultivation is a combination of reducing the use of chemically synthesized fertilizers and pesticides throughout the entire growth and growth period of rice, combining the agricultural technology of the past with modern technology. Agricultural technology that follows the natural laws of rice growth and development and meets the requirements of sustainable development. In the main rice cultivation areas, with the continuous increase in rice production around the world, rice also has a backlog, and farmers must change their planting direction, so the cultivation range of TCM agricultural rice is expanding every year. The development and application of TCM agricultural cultivation technology promotes TCM agriculture. The yield and quality of rice have been continuously improved and improved. This paper summarizes and analyzes the previous researches on rice TCM agricultural cultivation techniques and the effects of TCM agricultural cultivation on rice quality and yield.

2. Cultivation Technology of Agricultural Rice in Traditional Chinese Medicine

2.1 Seedling Technology

At present, the most widely used in the practice of agricultural rice production in traditional Chinese medicine is the dry seedling raising technology, and the more advanced is the rice-less disk dry breeding seedling throwing cultivation technology seedling. This technology has the advantages of increasing yield and income, saving labor and water, having a high age flexibility and seedling throwing speed. Fast and other features. In addition, the wet seedling raising method can also be used for seedling raising, the age of the seedlings is 35-40 days, and the seedlings are transplanted in time when the seedlings have 5-7 leaves. When raising seedlings, it is required to use biological bacterial fertilizer in the soil of the seedlings, without using herbicides, using high temperature propane to kill grass, kill insects and sterilize.

2.2 Live Broadcast Technology

Direct seeding of rice is a cultivation mode in which the seeds are directly sown on the field, which saves the seedling raising and transplanting links and greatly saves labor costs. On this basis, people have further explored and summarized a set of more advanced and practical cultivation techniques for rice laser measurement, fine leveling, and aircraft sowing. Now the United States and Southeast Asia have adopted precise live broadcast technology.

2.3 Fertilization Technology

Although chemical synthetic fertilizers will promote the growth of rice, they will reduce its quality. In order to cultivate pollution-free agricultural rice in traditional Chinese medicine, in the long-term process, Chinese agricultural biological fertilizers must be applied all the time. TCM agricultural fertilizer is divided into natural TCM agricultural fertilizer and artificial TCM agricultural fertilizer, among which natural TCM agricultural fertilizer includes green fertilizer, cake fertilizer and biological fertilizer. Studies have shown that the plant height of TCM agricultural rice using cake fertilizer, compost and bio-fertilizer is higher than that of conventional fertilized rice, but the difference in effective tillers between the two is not significant. It is proposed to attach great importance to the topdressing of rice in traditional Chinese medicine and to ensure the quantity and quality of base fertilizer. On the issue of the amount of TCM agricultural fertilizer application, the study believes that the amount of fertilization should be controlled according to the growth period of TCM agricultural rice, and sufficient nutrient supply must be ensured in the early stage of rice growth; in the mid-growth period, water-saving can be used to control the amount of fertilizer and reduce rice The number of invalid tillers; In the late growth period, according to the growth of rice, the application of quick-acting fertilizer is the main, supplemented by top-dressing fertilizer. It is believed that TCM agricultural rice fertilization should be flexibly adjusted according to the requirements of “pre-control fertilization amount, medium-term stable fertilization amount, and late supplemental fertilization amount” according to the rice planting environment and seedling growth trend. The principle of clever application of tiller fertilizer and re-application of spike fertilizer.

2.4 Irrigation Technology

Excellent irrigation technology is a key part of TCM agricultural rice cultivation technology. At present, TCM agricultural rice irrigation mostly adopts single drainage and single irrigation technology. According to the different requirements for the water layer in different periods of TCM agricultural rice, the rice layer was transplanted to the early stage of green tillering, and the water layer was kept at 4-6 cm; the field was moderately basked in the late tillering period; the water layer was lowered after heading and the water was cut off 8-12 days before harvest. TCM agricultural rice irrigation must be clean water irrigation, do not use domestic sewage and industrial wastewater irrigation, irrigation technology generally follows the “shallow-based, water-driven control, water temperature, rooting, root protection “Leaf” principle.

2.5 Pest Control Technology

As a natural, pollution-free and healthy rice, TCM agricultural rice cannot use chemical pesticides in the process of planting and management, resulting in serious pests and weeds affecting the quality and yield of TCM agricultural rice. Therefore, appropriate prevention and control technology must be adopted to ensure TCM agriculture The production of rice is safe. It is believed that diseases, insect pests and grass diseases can be comprehensively controlled by means of agricultural control, biological control, chemical control and physical control. Studies have shown that the use of rice-duck farming technology combined with the installation of frequency-vibration insecticidal lamps can reduce the number of weeds and insects in rice fields.

To a certain extent, it played a good role in weeding and pest control. In addition to rice-duck farming, weeding with agricultural weeding equipment and spraying biological pesticides certified by TCM agriculture during the tillering period of rice can comprehensively prevent diseases, insects

and weeds of TCM agricultural rice. The study believes that the comprehensive use of agricultural, physical and biological control measures, based on the characteristics of the traditional Chinese medicine agricultural rice field ecosystem and the combination of rice-weed insects-environment, can give full play to the role of natural prevention and control of grass and insect pests.

3. Effect of Tcm Agricultural Cultivation on Rice Quality

3.1 Processing Quality

The roughness rate, polished rice rate and polished rice rate can reflect the processing quality of TCM agricultural rice. Research shows that rice-duck farming can effectively improve various indicators of processing quality such as roughness rate, polished rice rate and polished rice rate of traditional Chinese agricultural rice. Studies have shown that applying TCM agricultural fertilizer in the later period will help to increase the rate of polished rice and the rate of polished rice, reduce the rate of chalky grains, and thus improve the processing quality.

3.2 Appearance Quality

The appearance quality of rice is the main manifestation of the commercial value of rice. The study believes that the appearance quality of rice is not only affected by the genetic characteristics of rice, but also the planting method has a great influence on the appearance of rice. The study compared the chalky grain rate and chalkiness of rice under the four planting methods of pot seedling transplanting, blanket seedling transplanting, late planting and late planting, and TCM agricultural cultivation. The results show that TCM agricultural cultivation is beneficial to improve the appearance of rice quality. In addition, the way of fertilization can also affect the appearance quality. Studies have shown that long-term single application of TCM agricultural fertilizer can reduce the chalky grains of rice. The rate is conducive to the improvement of the appearance quality of rice.

3.3 Taste Quality

The taste quality is a quantitative trait, and there are many factors that affect the taste quality. The taste quality of TCM agricultural rice is mainly affected by the amylose in rice effects of content and protein content [It is also believed that the amylose and protein content in rice reflects the softness or hardness of rice and is an important factor affecting the cooking and eating quality of rice. On this basis, the results of the study indicate that the protein content of rice has an increasing tendency and the amylose content decreases slightly under the traditional Chinese medicine agricultural cultivation environment, and the taste value increases. In addition, research shows that TCM agricultural cultivation improves gel consistency and reduces protein content, thereby improving rice taste value.

4. Effect of Tcm Agricultural Cultivation on Rice Yield

The actual yield of cultivated rice in TCM agriculture is generally lower than that of conventional cultivated rice, mainly because of the low 1000-grain weight and seed setting rate, coupled with the impact of diseases, insects and weeds in the later period, resulting in a decrease in the yield of TCM agricultural rice. Studies have shown that the application of TCM agricultural fertilizer as top dressing in the middle and late stages of rice can not meet the nitrogen nutrient requirements of rice tillers due to the slow development of fertilizer efficiency, resulting in a decrease in the rate of tiller ears, the number of ears, the number of ears per plant, and the yield. , Which further explains the low yield of rice in TCM agriculture. The theoretical yield of TCM agricultural rice is mainly affected by factors such as effective panicle number, panicle grain number, seed setting rate and thousand kernel weight.

Under the two cultivation methods of traditional Chinese medicine agriculture and conventional rice, the effective ear number, ear grain number, seed setting rate and thousand-grain weight of early rice and late rice yield indicators showed that compared with conventional cultivation,

traditional Chinese medicine agricultural cultivation reduced the effective ears of early rice and late rice. The number of ears and grains has been increased. TCM agricultural cultivation makes the early rice seeding rate higher than conventional cultivation, while late rice is the opposite. In general, TCM agricultural cultivation makes the theoretical yield of early rice and late rice lower than conventional cultivation. Compared with conventional cultivated rice, although traditional Chinese medicine cultivated rice is not dominant in yield, it has certain ecological benefits to the environment. Studies have found that compared with conventional cultivation, although traditional Chinese medicine cultivated rice reduces rice yield, it can reduce Environmental impact, reduce energy consumption and greenhouse gas emissions. In addition, in terms of increasing the yield of TCM agricultural rice, the study believes that increasing the application of TCM agricultural fertilizer is conducive to increasing panicle formation rate, forming an appropriate leaf area index, improving plant type, and increasing photosynthetic productivity to obtain high-yield and high-quality TCM agricultural rice.

5. Research Prospects

So far, the research on the cultivation technology of traditional Chinese medicine agricultural rice has formed a system. From the cultivation of rice seedlings, fertilization, irrigation and the prevention of diseases, insects and weeds in Chinese medicine agricultural rice, the specific planting and management techniques are also different due to the different environmental and economic conditions and the level of science and technology in each planting area, but the overall technical principles are basically the same. For example, the amount of fertilizer applied to rice in TCM agriculture should be determined according to the different growth periods of rice, and the prevention and control of diseases, insect pests and weeds should be combined with physical control, chemical control and biological control. In terms of the impact of TCM agricultural cultivation on rice quality and yield, TCM agricultural cultivation can improve the processing, appearance, and taste quality of rice, but overall reduces yield, which is also a major technical problem in TCM agricultural rice cultivation systems.

6. Conclusion

Therefore, in the future, we will further improve and summarize the advanced Chinese agricultural rice after practical cultivation techniques, the research efforts to increase the yield of rice cultivation in TCM agriculture should be intensified, so that the entire TCM agriculture rice cultivation technology system tends to be improved.

References

- [1] Bin Zhao, Yimin Yang, Guanglan Yang. Construction and research of green rice cultivation in the Erhai Lake Basin. *Practical Technology in Rural Areas*, No. 04, PP. 13-15, 2017.
- [2] Fan Xiao. "Chinese medicine agriculture" unlocks new skills of agricultural science and technology, *China Rural Science and Technology*, No. 08, PP. 36-37, 2018.
- [3] Fan Xiao. TCM agriculture rapidly degrading pesticide residues, *Management Observation*, No. 33, PP.11-13, 2017.
- [4] Jian Huang. The introduction and promotion of the technology of mechanical seeding and direct seeding of rice planting, *Seed Science and Technology*, No. 05, PP. 65+68, 2019.
- [5] Jingwei Yu, Wei Huang, Yucheng Li, et al. The effect of paddy field ecological comprehensive cultivation model on soil physical and chemical properties and humus, *Journal of Biology*, No. 03, PP. 81-85, 2020.
- [6] Shengpei Zhou. Exploring regional agricultural development from the perspective of time and space-Taking "Agricultural Development Status Survey" as an example, *Geography Education*, No.

06, PP. 45-47, 2020.

[7] Nan Xiao. Research on the evolution of cultivated land use function based on the level of farmers-Taking rice planting area as an example, *Anhui Agricultural Science*, No. 11, PP. 230-233+242, 2020.

[8] Xingwang Yang. The problems and countermeasures of the popularization of rice machine insertion technology, *Jiangxi Agriculture*, No. 06, PP. 142, 2019.

[9] Jiao Yang, Yongbiao Yang, Yueyue Wang, et al. Current status, problems and countermeasures of rice production in Bijie City, *Agricultural Development and Equipment*, No. 08, PP. 43-44, 2019.