

## Present Situation and Countermeasures of Edible Fungus Industry in Jilin Province

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**Abstract.** Jilin Province is a major agricultural province and a major forestry province. The edible fungus industry is one of the pillar industries of the horticultural special industry in Jilin Province. This paper propose corresponding solutions by analyzing changes in edible fungus production and cultivation area in recent years according to the development status of edible fungus industry and Jilin Province Statistical Yearbook to provide reference for the development of the edible fungus industry in Jilin Province.

### Introduction

At present, wild edible fungus have extremely high economic benefits in China. The productions of wild edible fungus are affected because of pursuing immediate interests when excavating, and not rationally using and protecting Larvae and bacterium. With the continuous improvement of people's material living standards and the growing awareness of health care, Edible mushroom products are very popular by consumers. The edible fungus industry has become the first choice for sustainable development which can increase agricultural efficiency, increase farmers' income, transform rural areas and promote agriculture. There are rich in traditional Chinese medicine resources in Jilin Province and higher edible fungus production. But the development of the edible fungus industry is unbalanced. There are excellent location, abundant resources and suitable climate in Jilin Province which is in the Changbai Mountains. The eastern region is developing faster. But compared with the country, it is still at the middle and lower reaches. There are an important issue restricting the development of the edible fungus industry which include that single variety and low standardized and large-scale production.

### Problems in the Edible Fungus Industry in Jilin Province

The variety is messy and aging is serious. According to statistics, there are more than 2000 kinds of wild edible fungus in China. There are 755 species of large fungus in the Changbai Mountain area of Jilin Province. However, some planting users are driven by profits in the production process of edible fungus. In the process of purchasing, the original species that only are purchased once and continuous expanded which resulting in that Original aging, the quality of the provenance is deteriorating and the quality of the products is declining. At the same time, individual original manufacturers do not pay attention to variety protection and lack of protective measures for new varieties found. Variety validation is not timely and registration is inaccurate.

Resource advantages are not utilized well. Traditional eucalyptus cultivation methods are still used in some areas and deforestation which causing certain damage to the ecological environment and forest resources. In recent years under the guidance of the policy of returning farmland to forests, the country gradually increased the protection and use of forest resources and forest resource use will be further reduced. The problem of limited resource use will directly affect the full utilization of edible fungi resources which include that reducing costs and ensuring rapid increase in production efficiency.

Scientific management is not standardized. Most edible fungi production users are ordinary farmers with low cultural quality, lack of professional knowledge and skills training. The technical

problems of edible fungus appear in key links such as the production of bacteria and bacteria because of the cultivation of unscientific edible fungus and the management is not standardized. This problem that cannot be effectively solved by technology result in reduced production of edible fungi, increased disease, low economic returns, unrecoverable income of farmers, and affect the sustainable development of the edible fungus industry.

### Status of Edible Fungi Industry in Jilin Province

Changes in the area of edible fungi planted in Jilin Province from 2011 to 2016 is shown as Table 1.

Table 1 Changes in the area of edible fungi planted in Jilin Province from 2011 to 2016 (ha)

Year	Area planted (ha)
2011	1518
2012	7170
2013	1068
2014	1431
2015	931
2016	909

Source: Jilin Province Statistical Yearbook.

It can be seen from Table 1 that the average annual planting area of edible fungus is 1861 hm<sup>2</sup> in Jilin Province from 2011 to 2016. The largest planting area is 7170 hm<sup>2</sup> in 2012. The smallest edible fungus planting area is 909 hm<sup>2</sup> in 2016. Edible fungus planting area shows a decreasing trend. From the perspective of changes in the planting area of the whole edible fungus, there may be the following reasons. Firstly, in recent years, due to the impact of the policy of returning farmland to forests, the state has continuously increased the protection of forest resources and ecological environment. The logging has been restricted to a certain extent and the usable wood is gradually reduced. Secondly, due to the non-standard production technology, various problems in the cultivation process cause serious pollution of the bacteria, the disease increases, and the economic benefits of the farmers are damaged which contain that the mildew of the original auxiliary materials, the rancidity of the culture medium, the unsterilized sterilization and the aging of the bacteria. Individual users have withdrawn from the edible fungus industry.

Changes in the production of edible fungus in Jilin Province from 2011 to 2016 is shown as Table 2.

Table 2 Changes in edible fungus production in Jilin Province from 2011 to 2016 (ton)

Year	Production (ton)
2011	40701
2012	1234
2013	61896
2014	15591
2015	195927
2016	14700

Source: Jilin Province Statistical Yearbook.

It can be seen from Table 2 that the output of edible fungi in Jilin Province is growing steadily except for 2012. In 2015, it reached the highest level in history that is 195927 tons. In 2012, affected by climatic conditions and cultivation techniques, the rate of edible fungi is greatly reduced. The output of edible fungus in the province is 1234 tons. From the trend of the yield of edible fungi, the yield of edible fungus has a certain relationship with the cultivated area. However, it has higher requirements for cultivation techniques and climatic conditions. With the improvement of people's living standards and the adjustment of the national supply side structure, The Products will be very popular, and the demand for edible fungi will increase significantly. Secondly, many colleges have increased their research on the production technology of edible fungus. With some key technologies being solved, the rate of disease reduction of edible fungus will gradually increase, and the output of edible fungus will grow steadily.

## **Recommendations and Countermeasures**

Firstly, relying on national policies which are under the guidance of the rural revitalization strategy, increase the adjustment of the industrial supply side structure, establish a green health concept, and expand the proportion of the edible fungus industry in the entire horticultural special industry in Jilin Province. Secondly, it is increasing scientific research and improving production technology. Establish a professional research team, increase the promotion of edible fungus cultivation technology, develop new edible fungus products, and meet the needs of consumers' diversity. Thirdly, increase the integration of production and education. Adopt “the enterprise-college-farmer” model that is encouraging more enterprises and universities to participate in the production process of farmers, providing financial security and technical support for their production. Furthermore, it will improve the registration and protection system of strains and the economic benefits of edible fungus which establish a standardized cultivation technology system for edible fungus.

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