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Study on the Protection System and Capacity Building of Crop Germplasm Resources

Xiaoxia Shu
Chengdu Agricultural College
Chengdu, Sichuan, China, 611130

Abstract: Although remarkable achievements have been made in the protection and utilization of agricultural germplasm resources over the years, there are still problems. This paper summarizes the current situation of the protection and utilization of crop germplasm resources in Yunnan Province and puts forward development ideas and suggestions for the protection and utilization of resources in the future. It is pointed out that the protection and utilization of germplasm resources are not systematic, the utilization rate of germplasm resources is low, breeding innovation is difficult, there is a lack of large-scale "breeding and promotion integration" enterprises, the infrastructure is not perfect, and the use of land for supporting facilities is difficult, and relevant suggestions are put forward in order to provide reference for the protection and utilization of germplasm resources, the selection and promotion of excellent varieties and the development of seed industry in China.

Keywords: Protection system; capacity building; crop germplasm resources

1. INTRODUCTION

Seed industry is a strategic and high-tech core industry in China, and the level of cultivation of improved seeds reflects the core competitiveness of China's agriculture. At present, there are still some problems and deficiencies in the protection and utilization of germplasm resources and the selection and promotion of excellent varieties, which hinder the key technology of "bottleneck" of provenance and restrict the overall development of China's seed industry. Therefore, strengthening the protection and utilization of germplasm resources and the selection and promotion of excellent varieties is conducive to the development of the core technology of "stuck neck" of provenance, and the selection of a number of world-leading independent varieties, which is very important for ensuring China's food security and fighting a good turn for the seed industry.

First, the operation funds of germplasm resource nursery (bank) are difficult, and there is no special fund, which can only be supported by various projects and topics. It is easy to be restricted, safe preservation is difficult to guarantee, and loss risk coefficient is high; The second is that the protection and utilization sharing mechanism has not yet been established. The germplasm resources collected by some scientific research institutions have become private resources. The systematic overall collection work is insufficient. The collected germplasm resources are not complete and have been repeatedly saved, resulting in resource waste. China is still facing a very serious situation in the protection and utilization of crop germplasm resources.

On the one hand, although China's crop germplasm resources are very rich, there is a problem of insufficient protection in the protection and utilization of some specific crop germplasm resources, which makes some crop germplasm resources face the risk of disappearance or even some have disappeared. The scientific research institutions and breeding enterprises in the city have not many preserved characteristic germplasm resources. The utilization of germplasm resources is backward, and it is difficult to carry out germplasm innovation, resulting in serious homogenization of breeding materials, lack of core germplasm resources for excellent traits, low breeding efficiency, and lack of outstanding large varieties.

2. THE PROPOSED METHODOLOGY

2.1 The Development and Utilization of Germplasm Resources Have Achieved Remarkable Results

Wild resources in situ protection sites are occasionally destroyed or encroached, and the indiscriminate mining of wild rare plants is serious. Fourth, there is a lack of effective supervision after the introduction of foreign germplasm resources, and there is a risk of alien species invasion; Germplasm resources in the province were randomly harvested and exported abroad, and some important species and genetic resources were illegally acquired by foreign countries, causing great losses. The protection of crop germplasm resources is a foundation, but it is very important for the national and social economy and ecological environment. Although the country has a medium and long-term plan for agricultural species, the survey and collection of crop germplasm resources itself cannot produce direct economic benefits, and the grass-roots agricultural technology extension institutions do not fully understand the importance of national protection of crop germplasm resources

Concentrate efforts to promote breeding projects and enterprises with core competitiveness, focus on supporting and cultivating 1 to 2 large and medium-sized "breeding and promotion integration" local enterprises, and avoid the "pepper noodles" support mode. Encourage and help key scientific research institutions and "breeding and promotion integration" enterprises to use germplasm resources for development, research, and breeding innovation.

Make full use of the achievements of agricultural scientific and technological innovation projects, social capital, and scientific research platform. Gather the personnel and equipment of various scientific research institutions and universities in Yunnan Province, and form a joint research

group of new varieties of characteristic and advantageous crops such as grain and oil crops, tea, vegetables, fruits, flowers, Chinese medicinal materials, coffee, nuts, etc., to give priority to the collection, identification and evaluation of germplasm resources of these crops, Through the combination of traditional and modern breeding technology, a batch of new germplasm with stable heredity, outstanding target traits and excellent comprehensive traits will be created. More perfect laws and regulations can better protect China's crop germplasm resources, and corresponding measures need to be taken to address the problems existing in current laws and regulations. On the one hand, some existing regulations and systems need to be upgraded to the legal level; On the other hand, it is necessary to integrate and continuously improve the corresponding contents of existing laws and regulations and introduce a highly targeted and applicable regulation on the protection of crop germplasm resources.

2.2 Thoughts On the Development of Crop Germplasm Resources

Focusing on the utilization of germplasm resources, breeding of new varieties, technology promotion, and transformation and application of achievements, we will increase the promotion and application of new varieties, new technologies, new equipment, and new models to provide key technical support for agricultural business entities. The key to developing modern breeding technology is to rely on high-end technical talents, improve the scientific research assessment and evaluation mechanism, and improve the treatment of talents, so as to attract and retain talents. On the one hand, scientific research institutions provide loose talent introduction and incentive policies, attract a group of high-end talents who understand molecular breeding, transgenic, gene editing and other technologies, and improve the development level of modern biological breeding technology in Yunnan Province

Because the protection of crop germplasm resources cannot bring direct benefits and has the characteristics of public welfare, it is certain that a large amount of funds will be needed in the process of carrying out the work. Without sufficient financial support, the protection of crop germplasm resources will be difficult to continue. Therefore, relevant departments need to take positive and effective measures to ensure that the protection and utilization of crop germplasm resources at the grass-roots level can proceed smoothly. Utilize the modern agricultural industrial technology system, integrate agricultural scientific and technological resources, innovate the system and mechanism, and select agricultural technologies that are highly relevant and driving to agricultural development for joint research, so as to realize the linkage innovation and supporting application of agricultural technologies.

We will form a strong joint force to promote agricultural science and technology, give full play to the important role of major agricultural scientific research projects, key disciplines, and key scientific research bases in gathering, discovering, and cultivating talents, and strive to build a batch of agricultural science and technology leading talents and innovation teams in various disciplines. Cultivate practical talents urgently needed for the development of agricultural and rural economy and provide strong technical support for the development of modern agricultural science and technology.

3. CONCLUSION

The protection of crop germplasm resources and the development and utilization of crop germplasm resources play a very important role in promoting the economic development of rural areas and the improvement of rural productivity in China. However, there are some problems in the protection and utilization of crop germplasm resources. This paper analyzes and summarizes the problems and puts forward corresponding practical and feasible suggestions for the problems, such as the need for close cooperation between various government departments, improving the mechanism of talent introduction and cultivation, performance assessment and evaluation, promotion mechanism, and adjusting and increasing the proportion of middle and senior professional titles in agricultural professional technology, Improve the welfare and professional identity, ensure that talents are "attracted, retained and used well", give full play to the subjective initiative of talents, and forge a modern talent team capable of winning the battle in seed industry, agricultural scientific and technological innovation, technology promotion and popularization.

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