News Release

Temasek Life Sciences Laboratory, Singapore and Anhui Rice Research Institute, China Collaborate on Rice Research and Manpower Training

6 March 2015, China and Singapore - Temasek Life Sciences Laboratory (TLL) and Anhui Rice Research Institute (ARRI) of Anhui Academy of Agricultural Sciences are pleased to announce the successful joint development of an improved rice variety, TS4, which has desirable traits such as shorter plant height and growth duration, low amylase content as well as increased resistance to rice bacterial blight diseases. TS4 combines desirable traits from two distinct Asian rice lines such as better grain quality, higher yield and could be the first of many rice lines developed by both TLL and ARRI to boost rice production to help address future food security issues in Asia. This development was reported in the journal *Rice*.

The two Asia-based institutions, ARRI and TLL, established a research collaboration in 2011 to pull together their respective joint expertise to identify and develop new rice varieties that are suitable for cultivation in China and other countries that are predominantly in the Asian rice growing regions. Over the last 3-years, both institutions have been actively involved in the sourcing for unique parental lines of rice varieties as starting lines for the development of TS4. As part of the research collaboration, the institutions also provided manpower training programs for researchers in the region as part of their goals to build sustainable capability for improving rice varieties. The training programs were conducted both in China and Singapore.

ARRI and TLL have also set up a joint Research and Development (R&D) laboratory with activities in Hefei, Hainan and Singapore to develop new commercial rice varieties with desirable agronomic traits through marker-assisted breeding. The main focus of this joint laboratory will be to share infrastructure and facilities, as well as to provide support for rice field trials so as to accelerate the development and subsequent commercialization of these new rice varieties. Part of the joint R&D laboratory program also involves organizing joint symposiums for scientific exchange and networking opportunities for both the academia and industry.

To most Asians, rice is considered as one of the most important staple food crops. In many rice producing countries in Southeast Asia, the traditional local rice varieties with tall plant type are being grown due to their good grain quality and adaptability to the local environment and climate. Such rice varieties are commonly found in Southeast Asia which are good in quality but low in yield with long growth duration and is highly susceptible to pest. Science and technology plays an important role in introducing good agronomic traits and preserving the quality of rice.

The development of the improved rice variety (TS4) is one such example of how R&D can contribute to the creation of scientific knowledge leading to potentially impactful social outcome. Through the use of marker-assisted selection, rice from a Southeast Asia background was successfully crossed with an elite parental line of hybrid rice that contains important agronomic traits to produce TS4, giving TS4 unique characteristics – good grain texture in combination with good agronomic traits.

In the findings reported by Dr Yin Zhong Chao and Dr Luo Yan Chang from TLL as well as Dr Yang Jianbo and Dr Li Zefu from ARRI, a semi-dwarf phenotype was successfully introduced to a Southeast Asia rice cultivar known as Siputeh. This resulted in a significant reduction in plant height which improves lodging resistance in the field and thus, increases rice yield.

“TLL is proud to be part of this collaboration with ARRI in China who is one of the pioneers in rice breeding technologies. As part of TLL’s mission to harness the power of life sciences to improve lives, we hope that this research will benefit the rice producers and consumers with better quality rice, as well as boost rice production for the region.” said Peter Chia, Chief Operating Officer, Temasek Life Sciences Laboratory. “We look forward to building on this relationship with ARRI to conduct further research and joint development in the agricultural space.”

“TLL has prominent advantages on basic researches of molecular biology, ARRI is an important institute which has advantages in applied fields of rice researches, especially in hybrid rice breeding. The collaboration between TLL and ARRI is making our respective advantages complementary to each other”, said Dr. Yang Jianbo, President of Anhui Academy of Agricultural Sciences. “The Joint Laboratory is to integrate the resource of intelligence and technology for co-development, we are sure that our collaboration will make more fruitful achievements in rice sciences”.

About Temasek Life Sciences Laboratory (TLL)

TLL, established in 2002, is a beneficiary of Temasek Trust and its vision is to build a preeminent organization of global talent to undertake bio-molecular science research and applications to benefit people in Asia and beyond. The research institute focuses primarily on understanding the cellular mechanisms that underlie the development and physiology of plants, fungi and animals. Such research provides new understanding of how organisms function, and also provides foundation for biotechnology innovation.

For more information, please visit www.tll.org.sg

About Rice Research Institute of Anhui Academy of Agricultural Sciences (ARRI)

ARRI, established in 1987, is affiliated to Anhui Provincial Government, and has been one of "Top One-hundred Agricultural Institution" in China since 1996. Our main tasks are to develop elite rice cultivars by integrating advanced biotechnology into traditional breeding methods, to create rice cultivation technologies of mechanization, and to popularize new rice varieties and production techniques.

For more information, please visit ahrri.ahaas.cn

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