Achievements and Measures of Transforming One Million Mu of Indica to Japonica in Chuzhou

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Abstract This paper studies the work of "transforming one million mu of indica to japonic" in Chuzhou, analyzes the effects and summarizes the related measures.

Key words Transforming indica to japonica, Effects, Inspiration

Chuzhou city, located in eastern Anhui province and between the Yangtze River and the Huai River, is one of the large - scale commodity grain production bases in China with the annual grain yield reaching over 4 million tonnes and annual commodity grain output surpassing 2.5 million tonnes, being the first city where commodity grain contributed per person amounts to 500 kilograms in Anhui province. Rice takes up the major position in agricultural production in Chuzhou, accounting for 60% of total annual grain output. The planting area of rice reaches more than 350 000 hm^2 and total output achieves nearly 2.5 million tonnes, which ranks first in Anhui province. In order to gradually transform indica to japonica in suitable cultivation areas of japonica like Jianghuai area, meet market demand, guarantee grain security and increase farmers' incomes, the municipal government of Chuzhou issued *Suggestions for Improving Quality and Efficiency of Transforming One Million Mu of Indica to Japonica* in 2012 with the goal of enlarging the planting area of japonica to a million mu and raising yield per unit to 600 kilograms within three years. At present, this work has achieved impressive progress after two-year effort.

1 Main achievements

1.1 Steadily enlarged planting area Since the implementation of transforming indica to japonica, the planting area of japonica in Chuzhou has increased from 554 000 mu in 2011 to 850 000 mu in 2013, jumping by 53.4% and production of quality japonica rice has developed dramatically. The Agricultural Technology Extension Center in Chuzhou introduced 35 species of quality japonica rice. After three years of comparison and experiment, those species with better extension prospect, mainly including Nanjing, Wuyunjing and Ningjing, have been screened preliminarily. Processing enterprises purchase quality rice of national secondary standard like Nanjing 5055, Zhendao 11 and Wuxiangnuo 2402 at increased prices since the demand exceeds supply. It is predicted that the producing area of japonica in Chuzhou will reach one million mu.

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1.2 Dramatically increased yield per unit The Agricultural Technology Extension Center established 7 testing sites of high-yield japonica rice per one hundred mu, 5 demonstration pieces of a thousand mu and 3 integrated demonstration areas of ten thousand mu in Quanjiao, Nanqiao and Tianchang. The average yield per mu in the testing fields in Wugang town in Quanjiao county, Wuyi town in Nanqiao district and Daying town in Lai'an county surpassed 740 kg. Average yield per mu in demonstration pieces of a thousand mu surpassed 700 kg. And the average yield per mu of Wuyunjing 23 with mechanized transplanting in 12 000 mu of demonstration pieces in Huangcaowei of Quanjiao amounted to 702.9 kg. Construction of demonstration areas of transforming indica to japonica has been implemented with active participation and strengthened service, which has driven the dramatic improvement in japonica yield per unit throughout Chuzhou city. Average japonica yield per mu in Chuzhou reached 587.5 kg, which was 94.9kg higher than that of indica, jumping by 19.3%.

1.3 Markedly improved economic benefits In 2013, autumn grain production in Chuzhou suffered from the sustained high temperature and drought. However, due to the late sowing time of japonica rice, the heading time was generally in later August, thus the impact of high-temperature climate was effectively avoided and yield per unit increased. Average yield per mu of all the 850 000 mu of japonica rice in Chuzhou increased by nearly 100 kg. The purchasing price of japonica was 0.3 yuan per kilogram higher than that of indica, so average income per mu of japonica was 450 yuan higher than that of indica and the total income increase reached 380 million yuan. Transforming indica to japonica has obviously increased yield and farmers were satisfied, especially those scaled rice farmers who showed high enthusiasm, which is significant in strengthening and developing grain production.

1.4 Excellent social benefits Chuzhou city organized more than 800 agricultural technicians, widely carried out instruction service and made it clear for professionals to help scaled japonica rice farmers as well as cooperative organizations. Various kinds of trainings and on-site meetings have been held, reaching 320. Mobile short messages reached 131 000 and distributed technology explaining paper amounted to 1 157 000. Scientific field planting

like adopting excellent varieties, scientific fertilization and reasonably using pesticide has been propagated widely. Key technologies including mechanized planting and transplanting, formulated fertilization with soil testing as well as systematic control on diseases and pests have been widely applied. The work of transforming indica to japonica has increased the scientific and technological content of japonica production, improved the service of agricultural technicians, strengthened the relation between cadres and the masses, established excellent image and achieved obvious social benefits.

2 Specific measures

2.1 Strengthening organizational guidance The municipal government has established leading group of japonica demonstration and extension with the deputy mayor as group leader and persons in charge of departments like agricultural committee, finance, water conservancy, agricultural machinery, grain, meteorology as well as science and technology as the members to organize and coordinate japonica demonstration and extension throughout Chuzhou city. Apart from the leading group, there is office which is in the agricultural committee and technical guidance group which consists of those backbone technicians from agricultural technology extension center, seed management station, agricultural science research institute, Dakuangwei ranch and rice association. Chief expert responsibility system is carried out and the experts are responsible for formulating the plans as well as operations of japonica demonstration and extension technology. The related departments undertake their responsibilities and cooperate with each other, which provides solid organizational guarantee for the smooth implementation of transforming indica to japonica.

2.2 Enhancing service guidance Firstly, technology introduction should be strengthened. Tests and demonstrations are carried out and quality varieties of japonica rice are selected. Variety exhibition fields are established and propagation of high-yield cultivation technology of quality japonica should be strengthened with the adoption of fine seed and fine method. Scaled rice farmers, village cadres and representatives are organized to visit the exhibition fields in order to quicken the extension of production technology. Secondly, technicians should provide assistance and guidance to farmers. Thirdly, rice associations and specialized cooperatives are to be established to build the integration of farmers, cooperative organizations and processing enterprises. Lastly, production and marketing should be connected with the form of reservation to build production base of quality japonica rice and develop the industrialized production.

2.3 Stressing resource integration Agriculture-related departments should actively cooperate with each other to jointly promote the demonstration and extension of transforming indica to japonica, integrate the current agricultural projects like construction of high – standard farmland, increasing hundreds of billions of grain, introducing technology to farmers, agricultural comprehensive development, standardized planting factories with the construction of japonica production demonstration as well as fully play the overall benefits of project funds. Each department should closely connect the project of transforming indica to japonica with the construction of high-yield rice by the Ministry of Agriculture and the promotion of rice industry in the province. Professional technicians of agricultural scientific research and extension should be actively encouraged and introduced to participate in the demonstration and technical research to increase the support from science and technology.

2.4 Carrying out the competition of high-yield production In order to fully play the leading role of scaled rice farmers, the municipal agricultural committee organized scaled rice farmers who possess more than 500 mu of rice production for the competition of high-yield production which mainly focused on the yield per unit, technology application, demonstration effect and economic benefits. With wide propagation, centralized training, supporting and assistance, inspect and evaluation as well as visiting, production and management of scaled rice farmers have been markedly improved, which has effectively driven the scientific field management of the surrounding farmers. According to the evaluation, average yield per mu of the 123 000 mu of rice from the 71 contestants reached 665.6 kg. The average yield per mu of the 200 mu of Wuyunjing 23 from Zhang Shiyu in Quanjiao achieved 795.4 kg. Average yield per mu of 560 mu of Wuxiangnuo 2402 from Chen Yetao in Tianchang reached 749.2 kg. Average yield per mu of 1 200 mu of Ningjing 7 from Mei Hongbo in Nanqiao reached 725.3 kg and average yield per mu of 1 360 mu of Zhendao 11 from Liu Yongbin in Lai'an reached 722.7 kg. High yield competition has greatly promoted the work of transforming indica to japonica.

2.5 Establishing operation mechanism The role of market mechanism should be exerted together with administrative promotion in order to gradually select one leader, cultivate a group of demonstrative households, summarize a mode of high-yield cultivation technology, build a peasant specialized cooperative, cultivate a professional serving team and introduce a leading enterprise. Excellent varieties, regional distribution, scaled cultivation, standardized production, make-to-order production and marketing as well as socialized service should be achieved to guarantee quality safety of green grain as well as create famous japonica brands. 41 brands of pollution-free products and green rice have been established throughout Chuzhou city, including "Wanwanyuan", "Kanghai", "Huayuanhu" and "Jintong". 8 green rice brands like "Luoluo", "Kangying", "Lvyi" and "Qinggu" have won famous product brand in Anhui province.

3 Experience and implication

The two-year implementation of transforming indica to japonica has achieved dramatic economic and social benefits, which is principally due to the active participation from all sides. The financial bureau in Chuzhou city provided special support for improving quality and benefits of transforming one million mu of indica to

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japonica. Bureau of science and technology in Chuzhou city placed the introduction, experiment and demonstration of new varieties of japonica and new technology as well as the research of matching technologies on the list of key research projects. Agricultural committee took the work of transforming indica to japonica as the priority, strengthened service and supervision as well as widely carried out the construction of demonstration areas. Agricultural machinery bureau enhanced the technical integration of mechanized transplanting and matching service as well as quickened the promotion of mechanization of japonica rice production. Other agriculture-related departments like water conservancy and land resources enhanced the construction of agricultural infrastructure, strengthened propagation service and promptly sent key information like agricultural technology, weather as well as supply and demand to major households through agricultural information platform. Furthermore, cooperatives and specialized serving teams have developed quickly and provided matching service, such as seedling cultivation, mechanized farming, mechanized transplanting, mechanized preservation and reaping for those scaled rice farmers, which has promoted the dramatic development of japonica rice production.

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