

Analysis on Restricting Factors and Developing Ways of Agricultural Machinery Application in China

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Keywords: Agricultural Machinery, Restrictive Factors, Development Way

Abstract: as We All Know, Our Country is Agricultural Country, Agriculture is the First Industry Development in Our Country, with the Development of the Country, in Order to Guarantee the Healthy Sustainable Development of Agricultural Development Mode, the Villages and Towns Across the Country Have Been Carried out Gradually to Carry on the Work of Agro-Technical Popularization, through Promotion of New Technology, New Method Innovation, Constantly Improving the Quality of Farm Produce, Led Farmers to Get Rich Together, Become an Important Development Way to Build a New Socialist Countryside. However, At the Present Stage of Development, in the Process of the Application of Agricultural Machinery, Because of the Extension of Funds, Technical Methods and Forms of Extension Are Still Some Limitations, Restricting the Smooth Development of Mechanization Work. Based on This, the Author Will Be in the Following Text for the Application of Agricultural Machinery Constraints Analysis, and Put Forward a Series of Solutions to Promote the Smooth Development of Agricultural Machinery Mechanization.

1. Introduction

China's Consumption Upgrading of Agricultural Products is a Global Agricultural Phenomenon. We Have 400 Million Migrant Workers and 400 Million Farmers. Although China's Agricultural Production Capacity is Also Very Large, There is Little Room for Improvement in the Efficiency of Industrial Agriculture. in Order to Improve the Efficiency of Agricultural Production and Ensure the People's Livelihood, It is Necessary to Carry out Mechanization Operation and Promote the Scientific and Technological Development and Modernization of China's Agriculture.

2. Difference Analysis of Agricultural Machinery Application At Home and Abroad

2.1 Differences in the Use of Agricultural Machinery

The difference between the application of agricultural machinery at home and abroad in the form of use is shown as follows: Chinese farmers usually operate a small land area, therefore, limited by the management mode, at the present stage, Chinese agricultural machinery mostly USES small and medium-sized agricultural machinery, using wheeled agricultural machinery can relatively flexible operation, make full use of small arable land resources; Developed countries mostly choose large agricultural machinery and tractors with tracked chassis. Compared with China's wheeled agricultural machinery, such large agricultural machinery with large width and high efficiency can significantly reduce the compaction of soil by mechanical operation, and it is suitable for large areas of concentrated land management.

2.2 Differences in the Functions of Agricultural Machinery

Because the demand of agricultural production is different, the function of agricultural machinery also can differ somewhat. In agricultural production in our country, in order to meet the

production requirements, tend to choose a single function of agricultural machinery, for farming soil preparation work, small plot must through mechanical stubble, site preparation, deep loosening or rotary tillage work to crops, such as the process is not completed by an agricultural machinery is, therefore, must choose a variety of functions of agricultural machinery to the operation step of many order, this will inevitably cause the problem under the working efficiency. In agricultural production, multi-functional integrated agricultural machinery and multi-compound deep pine machinery can complete the whole process of agricultural machinery operations on small plots in one operation [1].

3. Constraints on the Application of Agricultural Machinery in China

3.1 Slow r&d and Lack of Innovation

Compared with the developed countries, the application of agricultural machinery in China and the current stage of technology research are significantly backward, mainly because there are many constraints on the application of agricultural machinery in China, among which the agricultural machinery technology research and development is slow and lack of innovation is the most obvious. The reason mainly has the following: first, agricultural machinery technology research itself starts late in our country, and have the strength of large enterprises in order to meet the present situation of the demand for agricultural machinery in the agricultural production is too large, usually choose to focus on the use of current requirements, greatly neglected in the process of product upgrading for the standard of technical strength, thanks in large part to the technical strength level is far behind the international advanced level in our country. Second, agricultural production in China has its own uniqueness, it puts forward higher demand for agricultural machinery, if copy foreign technology to agricultural machinery production and lack of independent innovation, easy to appear insufficient applicability, low efficiency of work, which fully shows the simple copy is not reasonable. Third, currently strong scientific research institutions and institutions of higher learning are often able to study forward-looking and scientific and technological subjects, but these scientific researches are often unable to quantify production and form influential products and results due to the lack of industrialization approaches [2].

3.2 Concept Constraints and Influence Promotion

The popularization and popularization of advanced agricultural machinery in our country are restricted by traditional ideas, which affects the application of advanced agricultural machinery in agricultural production. Farmers in our country, universal thought more conservative, this also makes the no-till planting, deep loosening soil preparation such as the acceptance of the new technology is low, and farmers are more likely to traditional cultivation, harvesting, such as habits of agricultural machinery, as a result, most farmers would not be willing to spend more money to buy the feature-rich, advanced technology of tractors and harvesters and other agricultural machinery, which to a certain extent affect the economic benefits of agricultural production. Farmers will often go with less money to purchase the traditional agricultural machinery, mainly is that they think the traditional agricultural machinery can meet the needs of agricultural production, but it tends to ignore the quality and crop quality and yield of farm machinery, also ignore the advanced agricultural machinery of high efficiency and low failure rate, to some extent, these advantages can save the farm machinery repair costs, while increasing the quality of the crops [3].

3.3 Lack of System and Management

At present, the related management department in the specification the use of agricultural machinery with innovation often lack the necessary management system, including agriculture related personnel professional ability insufficiency, the relevant management system is not sound, loss of farm machinery promotion system, personnel lack of status quo of agricultural machinery supervision is the insufficient influence the overall level of agricultural mechanization in our country at present stage of multiple influence factors, and hindered the rapid popularization of

agricultural machinery and reasonable use. In recent years, various disadvantages in the use of agricultural machinery are often caused by the lack of management mode, lack of system and poor sense of service, etc. These conditions will also cause the agricultural machinery cannot be closely combined with local production characteristics, which is not conducive to the improvement of agricultural mechanization. Rapid development, of course, the present stage of agricultural machinery cooperatives organization, agricultural machinery use direction gradually toward the intensive management, can to a certain extent, the process of agricultural mechanization, but by agricultural machinery management and promotion system is not sound, the influence of agricultural machinery use also easy to cause all sorts of malpractices, hinder the process of agricultural mechanization development [4].

4. Ways to Improve the Technology and Application of Agricultural Machinery

4.1 Optimize the Land Management Model

In recent years, under national policy support and encourage, develop many new operators, such as agricultural machinery, large grain, family farms, cooperatives which reflects China's rural land management mode was optimized, under the proper guidance and specification, to ensure the benign development, while encouraging agricultural production to cooperative and intensive management, this is beneficial for the whole agricultural level of ascension. Intensive management needs to be realized with the help of new operators. It must give full play to the advantages of new subjects, actively and rationally use new subjects, and promote the rational purchase of new agricultural machinery and equipment. Many advanced agricultural machinery usually only large area of cultivated land operation, it also shows that the advanced large agricultural machinery popularization and use is based on intensive management, therefore the proper development of land consolidation and new operators is necessary, establish new operators demonstration zone, and the related management experience, the end of the accumulation and sharing, promote the improvement of agricultural mechanization and the development of intensive management [5].

4.2 Diversify and Popularize Agricultural Machinery and Equipment

In actual agricultural production, a large number of agricultural equipment is often needed, and the current types of agricultural equipment in China are far from meeting the needs of agricultural machinery application and agricultural production. Therefore, targeted strategies must be adopted to solve this problem, so that agricultural machinery types can be constantly enriched and popularized. First of all, farmers should choose more abundant agricultural machinery, while learning supporting agricultural machinery operation technology, to ensure the normal operation of agricultural machinery, promote the promotion of agricultural machinery level. Second, from the perspective of government, local government must be attach importance to the important strategy of popularizing agricultural machinery at present stage, in combination with the actual situation of local agricultural production, fully understand the situation of regional agriculture and agricultural development situation, carries on the reasonable analysis and choose the suitable agricultural machinery, only in this way can promote the stable development of local agriculture.

4.3 Cultivate Agricultural Machinery Application Talents

The important support that agricultural machinery applies is talent. To implement the strategy of agricultural machinery application, the development and utilization of human capital should be put in the first place, and various talents should be fully explored and utilized to serve the application of agricultural machinery. First, we need to create conditions for rural industries to retain people and for the rural environment to retain people. Second, we should stick to the employment orientation of talents flowing to rural grassroots and front-line jobs, attach importance to the role of rural front-line jobs, train cadres, and actively encourage migrant workers, college graduates and all kinds of talents to create more value by returning home to start businesses and work in the countryside. 3 it is through the national planning and policy intervention, part of the incentive is to high-quality labor

or personnel home business, in the process of revitalization of the rural agricultural development, there will always be willing to contribute to the hometown of many, promote various talents for the country towards a better future, and the social people from all walks of life, then, shall provide for these people in the underdeveloped rural areas, chiefly opportunities and channels, to achieve its objective their money to rural revitalization effort. Is four countries can also through policy guidance and support to develop high-quality new type of agricultural management subject leader and technical backbone, using the platform for agricultural colleges to cultivate willing to take root in the rural and the ability of the agricultural professional talent, so as to foster a “moral, understand technology, good management, will manage the rural work team at the same time promote understand rural agriculture, love, love, the spirit of the farmers[6].

4.4 Increase Capital Input

At present, China is in the era of cities feeding rural areas and industry feeding agriculture. Under this new situation, government departments pay more attention to strengthening the support for agricultural development. Therefore, under the premise of implementing the central documents, the agricultural department greatly strengthened the financial subsidies for farmers to buy machinery and equipment in order to reduce their economic pressure, which was conducive to the realization of the goal of “bringing in the rich first and bringing in the rich later”.

4.5 Improve the Automation Level of the Whole Agricultural Machinery

Enhance the level of agricultural machinery automation for the contribution of the present stage of agricultural development is self-evident, it is usually possible to take the following measures: first, in agricultural production and development, the farmers should always maintain a positive learning how agricultural machinery application point of view, and must be combined with the actual situation of local agricultural development, continue to promote agricultural machinery technology with agricultural development effective fusion. Second, in the process of agricultural extension and agricultural system progress, the introduction of advanced new technology is indispensable. Through information technology, remote sensing technology and other new technologies, the automation level of the whole agricultural machinery can be improved scientifically and efficiently [7].

4.6 Strengthen Innovation

Only by constantly strengthening the innovation of agricultural machinery, can we further optimize the present agricultural production structure, so as to produce agricultural machinery products with higher technical content. Because of agricultural machinery in the agricultural modernization in a important position, the government departments at all levels must attach great importance to agricultural machinery, step by step to enhance the publicity on mechanization, at the same time, combined with market demand and advanced technology to develop to meet the higher demand of new products, encourage new products into the research and development of science and technology innovation, to promote the new development of agricultural machinery.

4.7 Improve Relevant Policies on the Purchase and Operation of Agricultural Machinery

In the present stage of agricultural development, constantly improve agricultural machinery purchase and operation of relevant policy can provide possible for raising the level of agricultural mechanization, in perfecting the present policy, usually includes the following three aspects: first, should encourage and support the establishment of the agricultural mechanization social service organization, effective use of agricultural resources, and promote agricultural machinery leasing and operation service quantity of growing. Secondly, in order to promote the use of agricultural machinery and the formation of a virtuous circle of technology research and development, it is necessary to constantly optimize the purchase of agricultural machinery subsidies policy, so as to encourage agricultural machinery enterprises to continue to research and develop new technology to overcome technical problems. Finally, relevant departments should promote the improvement of the system in various links such as research and development, production, sales, use and service, so as

to ensure the full coverage and high applicability of relevant policies and systems if there is no obvious conflict between relevant policies and other laws and regulations. [8]

5. Conclusion

In short, at present, our country agricultural machinery application and development still exist many problems and deficiencies, coupled with this is congenitally deficient, is bound to affect the development of agricultural machinery, which requires agricultural machinery practitioners to continuously combined with the characteristics of agricultural to summarize the experience of mechanization, break through the restriction of the agricultural production conditions, prompted China's agricultural mechanization and stable development. Although the current development of agricultural machinery in many years of research and development has achieved remarkable results, but in the future agricultural mechanization still has a long way to go.

References

- [1] Xie Qiuyun, Yan Sicheng (2016), Hong Kaixin. Development status and constraints of agricultural machinery automation in China [J]. Southern agricultural machinery, 47,10,30.
- [2] Li Weishan (2017), Striving to overcome constraints and accelerating the development of agricultural mechanization in China [J]. China science and technology investment, 33,4.
- [3] Geng Zhaokui (2016), analysis on influencing factors of popularization and application of agricultural mechanization production technology [J]. South China agricultural machinery,47, 19.
- [4] Li hui (2015), Brief analysis of the current situation and development direction of agricultural machinery automation [J]. Technology outlook, 17,35-39.
- [5] Wang hui, Zhang Junliang, Sun Rujun (2016), current situation and development direction of agricultural machinery in China [J]. Agricultural mechanization research, 9, 21-22.
- [6] Wang peijin (2013), Analysis of main factors affecting agricultural mechanization [J]. Agricultural mechanization research, 1, 22-23.
- [7] Yang yisheng, Liu Peijun, Li ning (2010). Identification and systematic analysis of factors influencing the development of agricultural mechanization in northeast China [J]. Agricultural technology economics, 5, 28-33.
- [8] Yang minli, Bai bai, pu, Liu min (2016), Research on the development of modern agriculture and agricultural mechanization [J]. Journal of agricultural machinery, 36, 68-72.
- [9] Zhu jun (2011), On the role of agricultural mechanization in agricultural production and development countermeasures [J]. Agricultural equipment technology,37, 40-42.