

## RESTRICTIVE FACTORS AND GUIDING PRINCIPLES FOR AGRICULTURAL MECHANIZATION IN CHINA

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### ABSTRACT

In this papers analysis is made on the restrictive factors for agricultural mechanization. Experiences and lessons is summed up. Meanwhile, guiding principles is proposed for pushing forward the mechanization of agriculture.

### 1. INTRODUCTION

Farm work mechanization is an important part of modern agriculture. Agriculture could not be modernized without mechanizing farm work. Practices and experiences in China have shown that mechanizing agriculture restricted by a lot of objective factors. Only by addicting these factors, and thinking of ways to solve them can mechanization of agriculture progress smoothly. If we evade them, solely depending on administrative measures to push on the mechanization of farm work, the success is impossible.

### 2. RESTRICTIVE FACTORS

#### 2.1. Urgent requirement for agricultural mechanization

Requirement for agriculture mechanization is the basic internal power to push on mechanizing farm work. The motive power generally comes from the following aspects: (1) A vast land and a sparse population, perhaps most of agricultural manpower has been transferred to the non-agricultural industries, leading to the lack of agricultural manpower and employment cost is higher than operation by machines. (2) Extension of production and management scale requires intensive management to increase agricultural labour profits, and to

achieve scale profits. (3) Agricultural standard of science and technology has developed to such that operation by hand does not suit this situation. It asks for the advanced technology and equipments to replace handwork. (4) Market, especially international market, has a higher and more strict requirement for agro-products quality. Every link in agricultural production, processing, packing, storing, transportation and marketing needs the advanced technology and equipment to mechanize agriculture. (5) Agricultural self-accumulation ability is stronger so that farmers are able to buy machines and equipments to improve their working conditions. The process of mechnization, growth and large, the process of origin, growth and maturity of agriculture for mechanization. In practice, we should never decide on whether agriculture needs mechanization regardless of conditions. Also we should not divorce from reality to over stress mechanization of agriculture. We must closely watch out for the development of agricultures and accelerate agriculture in mechanization, in the process of which ,thus our action must suit the circumstances, gradually pushing mechanization of farm work forward.

## 2.2 Industrialization and economic strengths in the country

The mechanization of farm work, requires not only certain conditions in agriculture but also some extend economic conditions, such as industrial production, science and technology as well as economic strength. Specifically they are referred to as follows: (1) The country enjoys a higher standard of science and technology so that the departments of farm machinery are able to do research and develop various kinds of advanced machines and equipments to replace operations by hand according to the characteristics of agricultural production and to the requirements of different production operation. (2) There is greater capacity in industrial production. So low price and good quality farm machinery can be manufactured with a highly developed industry, which can probably provide adequate electricity, mineral oils for the operation of farm machinery. (3) With higher standard of culture and education, the country is able to train a lot of technicians and managers to serve an all-round mechanization of farm work.

## 3.EXPERIENCES AND LESSONS

To create the internal and external conditions for mechanization of farm work is a long-term process of social and economic development. According to

china's situation, agriculture mechanization is also a long-term and arduous process, which is impossible to complete in a short time. This is the objective principle in mechanizing farm work ,that we must adhere to. Only in doing can achievements be made. But before economic reforms and opening to the outside world, China had administrative measures, trying to realize mechanization, neglecting the subjective and objective conditions, As a result, great loses and heavy burdens had fallen upon agriculture, which were reflected in the following aspects: (1) In the situation that surplus manpowers can't be transferred to non-agricultural industries, the mechanization of farm work can't raise agricultural economic profits, on the contrary, it increases production costs and decreases incomes of the collective economy. (2) Due to the restrictive in technology and raw materials, farm machinery quality is poor. Farm machines can't be used comprehensively leading to great loses. (3) Lacking of energy resource.

#### **4. GUIDING PRINCIPLES**

##### **4.1 The mechanization of agriculture must take economic profits as it's task**

Mechanization of farm work aims at improving agricultural economic labours productivity and economic effects and labours productivity, the implementation of farm machinery in agriculture should consider whether surplus manpowers can be transferred to non-agricultural labours, can raise outputs in the fields, and whether the adoption of advanced and modern farm equipment can improve the quality of product to increase additional values in agriculture. In a word, it should eventually achieve economic profits of agriculture mechanization, mechanization of farm work is not our final aim. Running demonstration pilots of mechanization must follow the guiding ideology and adhere to the basic principle. Hence, the test pilots can be vigorous and attractive to the formers.

##### **4.2 Work out measures to suit the local conditions and production project**

Mechanization of agriculture is a general objective. Because of difference in productivity standards, natural conditions, and management items in various regions, each production link differ from others in mechanization requirement. Therefore, we should seek truth from facts to adopt multi-types of models according to different situation in the process of pushing on agricultural mechanization. Mechanization of farm work should include the mechanization of processing, storing, preserving, packing and transportation, in addition, to

production. The overall process of agricultural production should be equipped with modern materials and equipments. Regarding some link, we may define it through consideration the principle of economic profits, requirements of production and development, possibility of subjective and objective conditions. According to China's situation, we should focus on products processing, comprehensive use of machinery, storing, packing and transportation and etc..

#### 4.3 Investigation and production of farm machinery should be closely linked with production requirements

In China, small management scale and scatted production will continue to exist for a long time. Regional and specialized production is impossible to be conducted extensively. So, small-sized machines with multi-functions should be studied and made. They can be used comprehensively and bought by individual farmer. Meanwhile, study and production farm machinery should be determined according to the urgent need of production links. Small-sized farm machinery and equipments can be bought and conveniently managed by farmer households. Farms with scale management can buy and use medium and small-sized farm machinery and equipments. Large and medium-sized machinery and equipments may be owned by farm machinery stations so as to serve farmers and production units with serial services, such as ploughing, harvesting and threshing. Some stations can run enterprises involved in processing, storing, packing and threshing. Stations using and managing farm machinery, must set up economic account systems in keeping separate accounts and assuming sole responsibility for their profits and loses. And their should also set up systems in repairing, using. We should break through monopolized management by the state, allowing and encouraging the collectives, units and individuals to manage farm machinery and services with farm competition. Administration should strengthen the management of farm machinery with economic measures and laws to push mechanization of farm work forward.

## 5. CONCLUSION

To summarize, the mechanization of agriculture in China should be gradually pushed ahead according to the natural, social and economic conditions in various regions. Meanwhile, we must emphasize economic profits and associate mechanization with production with requirement of agriculture.