



# Farm Mechanization in India

## What we already experienced and the way forward

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The agricultural sector begins with land preparation and lasts upto processing and value addition. For every steps in crop production cycle use of implements from beginning i.e. land preparation to the end of the process Post Harvest Technology (PHT). Mechanization is not only reduces human/animal labour requirement and post-harvest loss but also cuts down cost of cultivation in long run. There are many options to access latest technologies in ground level. It is evident from the fact of replacement of indigenous varieties of

planting material by high yielding varieties and conventional equipments/practices by power tillers, tractors and other machineries.

Progress in agri-mechanization has a lot of social and economic benefits to the farming community. Increased crop yield with reduced production cost is the major positive output of mechanization. Looming water scarcity crisis along with the need to ensure food security of the nation, the benefits of farm mechanization makes it a crucial component of shaping the future of the Indian agriculture.

### Farm Mechanization

The farm sector in our country has witnessed a significant reduction in the use of animal and human workforce in farm related activities from last two decades. This trend smoothens the introduction of

modern agriculture in India. A large number of these implements are driven by fossil fuel operated vehicles such as tractors, diesel engines etc.

### Farm Power Available on Indian Farms; 2011-14:

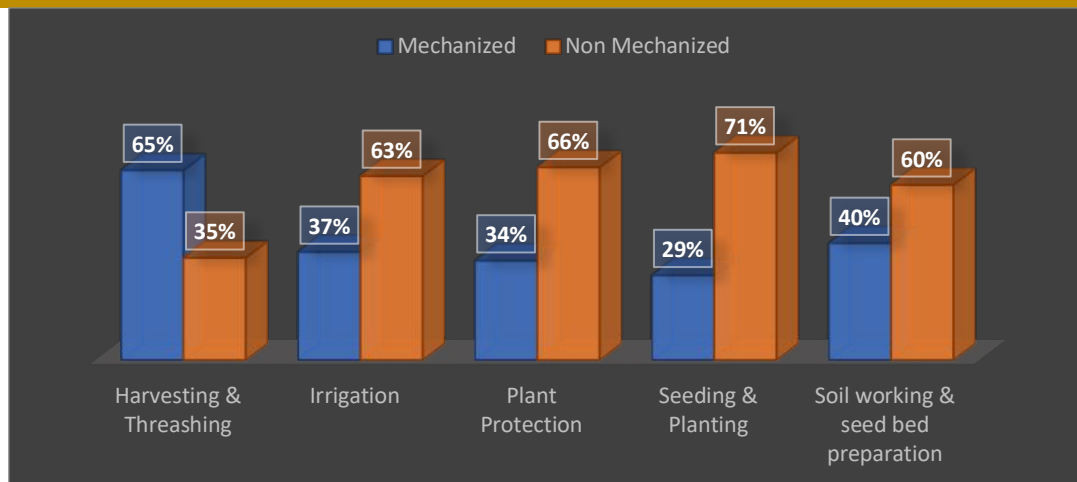


Source: Singh (2013); Singh et al. (2010); Singh & Sahani. (2019)

Presently, farm mechanization in India at about 40%-45%, which is on lower side when compared with countries such as the U.S. (95%), Brazil (75%) and China (57%). While the level of mechanization lags

behind other developed countries, it has seen strong growth through the last decade. The farm power availability on Indian farms has grown from 0.30 kW/ha in 1960-61 to about 2.02 kW/ha in 2013-14.

### Extent of Farm Mechanization at Different Levels of Value Chain Process:



Agricultural Research Data book, 2010

**Region wise farm mechanization:**

In India, there is wide variety of farm mechanization region wise. North Indian states like Uttar Pradesh, Punjab and Haryana are highly farm mechanized due to highly fertile soil and declining labour force. These states were also received enough timely support from state governments in terms of subsidies and infrastructure for promoting farm mechanization. The Eastern and Southern states of India have scattered and smaller land holdings, as a result low level of farm mechanization. But in many states like North-Eastern regions, very low level of

farm mechanization is there due to many factors like undulated landscape, high transportation cost, lack of state support and financial constraints.

As a result mechanization has been uneconomical leading to the lower development. In North-Eastern states; the level of mechanization is extremely low. There are a number of reasons behind this. Factors such as hilly topography, high transportation cost, lack of state financing and other financial constraints hindered the growth of farm equipment sector within these states.

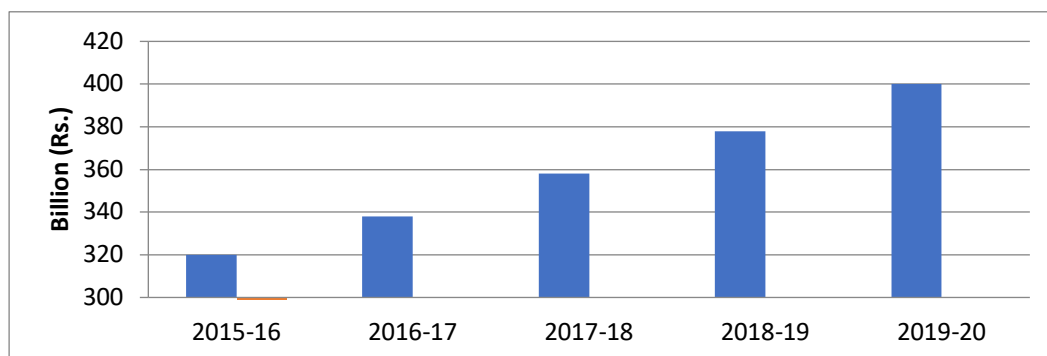
**Indian Farm Mechanization Market:**

The Indian farm implement market which was valued at approx. INR 320 billion in 2015-16, which is expected to enhance at CAGR of 5.74% to INR 400 billion by 2019-20 (Bhattarai *et al*, 2018). Farm labour scarcity and to enhance farm productivity are the main driving factors behind increasing farm mechanization. This will be key strategy towards doubling farmers’ income and rural prosperity. In past years, the availability of cheap and abundant farm labour largely confined to tractors and power tillers. While power tillers and tractors still outsell other farm

equipment like combine harvesters and paddy transplanters, so the gap has closed in recent years.

In past, the availability of abundant and cheap labor in India leads to largely confined farm mechanization to only tractors and power tillers. It is because of rural youth population is migrating to cities in search of better paying jobs in services and factories. This is creating a big market for specialized machineries, such as threshers, rotavator, transplanters, reapers, zero till seed drills, laser levelers and power weeder.

**Indian Farm Mechanization Market; 2015-20**



Directorate of Economics and Statistics, 2017

### Recommendation:

According to the Agriculture Census, the total number of operational holdings in India numbered 138.35 million with an average size of 1.15 hectares (Biggs S *et al.*, 2011). Of the total holdings, 85 per cent are in marginal and small farm categories of less than 2 hectares and these small farms, though operating only on 44 per cent of land under cultivation, are the main providers of food and nutritional security to the nation,

but have limited access to technology, inputs, credit, capital and market. In order to enhance level of mechanization in agricultural operations government needs to extend support to farmers. This support could be in form of custom hiring centers which would facilitate hiring of equipments by small and marginal farmers. It is further submitted that PPP model should be employed for the purpose.

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