



# MARUMEGH

## Kisaan E- Patrika

Available online at [www.marumegh.com](http://www.marumegh.com)



ISSN : 2456-2904  
© marumegh 2022

Received: 25-04-2022

Accepted: 27-04-2022

### AGRICULTURAL MECHANIZATION – WAY FOR HIGHER PRODUCTIVITY AND PROFITABILITY

Pushkar Dev<sup>1\*</sup> and Dr. Hansram Mali<sup>2</sup>

<sup>1\*</sup>Senior Research Fellow & <sup>2</sup>Subject Matter Specialist, Agronomy,  
Krishi Vigyan Kendra, Navgaon, Alwar-1

\* Author's E-mail: [pushkardevgurjar@gmail.com](mailto:pushkardevgurjar@gmail.com)

Agricultural mechanization helps in increasing production, productivity and profitability in agriculture by achieving timeliness in farm operations, bringing precision in metering and placement of inputs, reducing available input losses, increasing utilization efficiency of costly inputs (seed, chemical, fertilizer, irrigation, water etc.), reducing unit cost of produce, enhancing profitability and competitiveness in the cost of operation. The effective mechanization contributes to increase production in two major ways: firstly the timeliness of operation and secondly the good quality of work. The combiner could harvest 2.4 to 3.0 acres in one hour. Cutting height during combiner harvesting is often higher than with other harvesting methods. The time interval for harvest by combine harvester is often narrow, too early harvesting will result in a high percentage of chaffy kernels, and too late harvesting will result in high shattering losses. Fine tuning forward speed and header height is especially important to minimize field loss. This indicated that combiner is an economical and less labour and time consuming machine, in addition 2 to 3 weeks of saving in harvesting time.

Mechanization has been identified as the major factor for increasing agricultural productivity worldwide. As Indian market is considerably reliant on increasing agricultural produces, promotion of farm mechanization is essential. Indian agriculture is diverse and capable of producing most of the food and horticultural crops of the world. In spite of its top ranking in production of a number of crops including rice, wheat, sugarcane, fruits and vegetables, the stagnancy in productivity and shortage of agricultural produce are two major bottlenecks of Indian agriculture. Several studies suggest a direct correlation between farm mechanization and crop productivity. It saves inputs like seeds and fertilizers by 15–20%, labour requirement and operational time by 20–30%, increases cropping intensity by 5–20% and crop productivity by 10–15%. At present, Indian farmers are adopting farm mechanization at a faster rate in comparison to recent past. Farm power availability from tractors has grown from 0.007 kW/ha in 1960–61 to 1.03 kW/ha in 2013–14 and it is further estimated to reach 3.74 kW/ha by 2032–33. According to the World Bank estimates, half of the total Indian population would be in urban areas by 2050. It is further estimated that the percentage of farm workers of total work force would reduce to 49.9% in 2033 and 25.7% in 2050 from 54.6% in 2011. The share of agricultural workers in total power availability in 1960-61 was about 16.3%, which is going to reduce to 2.3% in 2032–33. The overall level of

farm mechanization in the country is only 40–45% and 90% of the total farm power is contributed by mechanical and electrical power sources. To assure timeliness and quality in various field operations, the average farm power availability needs to be increased to a minimum of 2.5 kW/ha by 2020 (Tiwari *et al.* 2019).

Mechanization of agriculture is an essential input in modern agriculture. It enhances productivity, besides reducing human drudgery and cost of cultivation. Mechanization also helps in improving utilization efficiency of other inputs, safety and comfort of the agricultural worker, improvements in the quality and value addition of the produce. Efficient machinery helps in increasing production and productivity, besides enabling the farmers to raise a second crop or multi crop making the Indian agriculture attractive and a way of life by becoming commercial instead of subsistence. Increased production will require more use of agricultural inputs and protection of crops from various stresses.

This will call for greater engineering inputs which will require developments and introduction of high capacity, precision, reliable and energy efficient equipment. Looking at the pattern of land holding in India, it may be noted that about 84 % of the holdings are below 1 ha. There is a need for special efforts in farm mechanization for these categories of farmers to enhance production and productivity of agriculture. In the existing scenario of land fragmentation and resulting continued shrinkage of average size of operational holdings, percentage of marginal, small and semi-medium operational holdings is likely to increase. Such small holding makes individual ownership of agricultural machinery uneconomic and operationally unviable. ‘Custom Hiring Centers of Agricultural Machineries’ operated by Cooperative Societies, Self Help Groups and private/rural entrepreneur are the best alternative in enabling easy availability of farm machineries to the farmers and bringing about improvement of farm productivity for the benefits of Small & Marginal farmers.

Department of Agriculture & Cooperation has integrated the components of agricultural mechanization under various schemes and programmes aiming at catalyzing an accelerated but inclusive growth of agricultural mechanization in India. The following specific interventions with a special emphasis on ‘reaching the unreached’ will bring small and marginal farmers’ at the core. With this aim Sub Mission on Agricultural Mechanization (SMAM) has been introduced during 12th plan *w.e.f* April 2014. Division introduced Sub Mission on Agricultural Mechanization with following components;

Department of Agriculture & Cooperation has integrated the components of agricultural mechanization under various schemes and programmes aiming at catalyzing an accelerated but inclusive growth of agricultural mechanization in India. The following specific interventions with a special emphasis on ‘reaching the unreached’ will bring small and marginal farmers’ at the core. With this aim Sub Mission on Agricultural Mechanization (SMAM) has been introduced during 12th plan *w.e.f* April 2014. Division introduced Sub Mission on Agricultural Mechanization with following components;

**Promotion and Strengthening of Agricultural Mechanization through Training, Testing and Demonstration:** Aims to ensure performance testing of agricultural machinery and equipment, capacity building of farmers and end users and promoting farm mechanization through demonstrations.

**Demonstration, Training and Distribution of Post-Harvest Technology and Management (PHTM):** Aims at popularizing technology for primary processing, value addition, low cost scientific storage/transport and the crop by-product management through demonstrations, capacity building of farmers and end users. Provides financial assistance for establish the PHT units.

Financial Assistance for Procurement of Agriculture Machinery and Equipment: Promotes ownership of various agricultural machinery & equipments as per norms of assistance.

**Establish Farm Machinery Banks for Custom Hiring:** Provides suitable financial assistance to establish Farm Machinery Banks for Custom Hiring for appropriate locations and crops.

**Establish Hi-Tech, High Productive Equipment Hub for Custom Hiring:** Provides financial assistance to set up hi-tech machinery hubs for high value crops like sugarcane, cotton etc.

**Promotion of Farm Mechanization in Selected Villages:**

**Financial Assistance for Promotion of Mechanized Operations/hectare Carried out Through Custom Hiring Centers:** Provides financial assistance on per hectare basis to the beneficiaries hiring machinery/equipments from custom hiring centers in low mechanized areas.

**Promotion of Farm Machinery and Equipment in North-Eastern Region:** Extends financial assistance to beneficiaries in high-potential but low mechanized states of north-east. Out of the above mentioned components, 1& 2nd comes under Central Sector (Central share 100%) and remaining (3to 8) under Central Sponsored Scheme (central share 50%: State Share 50 %) Beside above interventions, the Department is promoting Farm Mechanization by making agricultural equipment available among farmers at cheaper rates. A level of 25-50% subsidy on procurement cost is made available under RKVY, NFSM, and NHM & TMOOP scheme for different categories of equipment. The subsidy on tractors and power tillers is available on the models approved by the department under institutional financing. Besides tractors and power tillers, combine harvesters are also available to the farmers as per approved pattern of subsidy. As an individual farmer may not be in a position to purchase high cost equipment on his own, Self Help Group of farmers (SHGs), user groups, cooperative societies of farmers etc. are also made eligible for assistance under the programme.

#### **References:**

- GOI, (2022). Department of agriculture and farmer welfare  
<https://agricoop.nic.in/en/divisiontype/mechanization-and-technology>
- Tiwari, P.S., Singh, K.K., Sahni, R.K. and Kumar, V. (2019). Farm mechanization – trends and policy for its promotion in India. *Indian Journal of Agricultural Sciences*. 89 (10): 1555–62

\*\*\*\*