

FARM MECHANIZATION THE SWADESHI SILENT REVOLUTION

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FARM MECHANIZATION

Farm Mechanization is the application of engineering and technology in agriculture to practice agricultural operations in a better way. Mechanization helps in efficient utilization of the inputs, safety & comfort of agricultural workers, improvement in the quality and value addition of the produce. Mechanical aids include hand tools, animal drawn equipment, tractors, power tillers, electric motors, engines, processing and hauling equipments etc.

ESSENCE OF FARM MECHANIZATION IN THE CONTEXT OF INDIAN AGRICULTURE

Agriculture provides approximately 52% of the total jobs available in India and contributes around 18.1% to the GDP. The agriculture sector of India has occupied almost 43% of India's geographical area. The population of India is projected close to 1.380 billion in 2020. In order to ensure food security to the nation, productivity per unit land holding has to be increased inevitably. This can't be achieved by solely sticking to the traditional farming methods and farm tools. Therefore it becomes essential in switching to farm mechanization to a large extent. Availability of farm power and production of food grains has increased from 0.25kW/ha and 0.5t/ha in 1951 to 1.68kW/ha and 1.921t/ha, respectively in 2011.

BENEFITS OF FARM MECHANIZATION

1. Leads to improvement in Agricultural Techniques
2. Modifies the social structure in rural areas
3. Introducing Commercial Agriculture
4. Mitigate Farm Labour Shortage
5. Results in proper land usage
6. Reduces Fodder Area and Enlarges Food Area
7. Best return of Farm Income

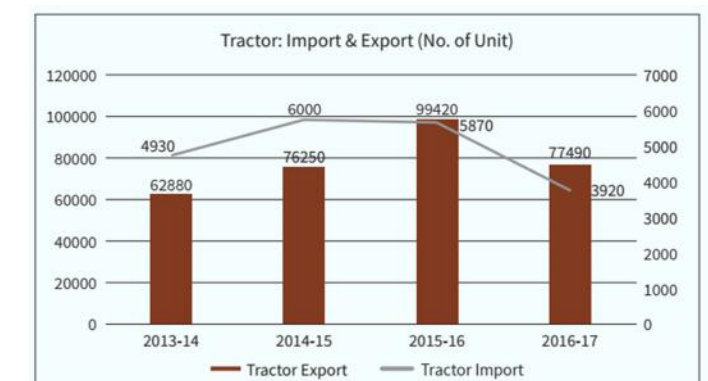
OBJECTIVES OF STRENGTHENING OF AGRICULTURAL MECHANIZATION (SMAM)

1. Promotion and Strengthening of Agricultural Mechanization through Training, Testing and Demonstration
2. Demonstration, Training and Distribution of Post Harvest Technology and Management (PHTM)
3. Financial Assistance for Procurement of Agriculture Machinery and Equipment
4. Establish Farm Machinery Banks for Custom Hiring
5. Establish Hi-Tech, High Productive Equipment Hub for Custom Hiring
6. Promotion of Farm Mechanization in Selected Villages
7. Financial Assistance for Promotion of Mechanized Operations/hectare Carried out Through Custom Hiring Centres
8. Promotion of Farm Machinery and Equipment in North-Eastern Region.

From the above mentioned objectives, 1st & 2nd comes under Central Sector (Central share 100%) and other 3rd to 8th under Central Sponsored Scheme (central share 50%: State Share 50%). Government is promoting Farm Mechanization by making agricultural equipment available among farmers at cheaper rates. 25-50% subsidy on procurement cost is available under RKVY, NFSM, NHM & TMOOP scheme for various equipments. Subsidy on tractors and power tillers is available on the models approved by the department of Agriculture. In addition to tractors and power tillers, combine harvesters are also available to the farmers on subsidy. As an individual farmer may not be able to purchase high cost equipment on his/her own, Self Help Group of farmers (SHGs), user groups, cooperative societies of farmers etc are also made eligible for assistance under the programme.

TRACTOR TRADE

- India is the largest tractor market in the world. India exports an average of 79,000 tractors annually. India's tractor export markets include African countries and ASEAN countries where soil and agro-climatic conditions are similar to India.
- In 2013-14, India exported 62,880 units of tractors which increased to 77,490 in 2016-17 growing at a CAGR of 5.36%. In 2016-17, India imported 3920 units of tractors while during 2013-14 it imported 4930 units of tractors, thus registering a negative growth at a CAGR of 5.57% over the period of four years



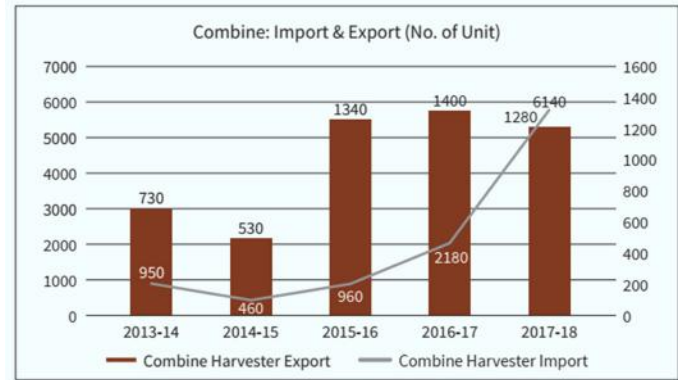
THE SWADESHI SILENT REVOLUTION

Farm Mechanization is an expanding SWADESHI SILENT REVOLUTION. Export and import of farm machineries have been increasing over the years in Indian Agriculture. According to the Department of Agriculture, use of workers and draught animals has decreased from 63.5% in 1971-72 to 13.67 while share of tractors, power tillers and motors has gone up from 36.5% to 86.33% during the same period.



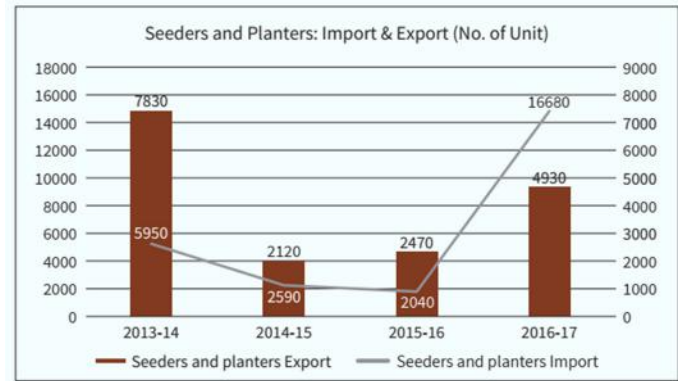
COMBINE HARVESTERS
TRADE

Domestic companies are covering major part of this market whereas foreign companies are also picking up. Import has increased with a CAGR of 91.14% between 2013-14 and 2017-18 while export has increased at a CAGR of 24.66% annually. Import has increased from 68.31 Crore during 2016-17 to 95.13 Crore during 2017-18 while export has also increased from 41.65 Crore to 54.59 Crore, thereby, India is net importer of Combine Harvesters. Iran, Sri Lanka and Nepal are among the countries that generally import combine harvesters from India



SEEDERS, PLANTERS
AND TRANSPLANTERS
TRADE

India majorly relies on imported machinery in this segment. Imports of the machinery grew at impressive CAGR 29.40% whereas the exports saw a negative growth of CAGR 10.92% over the period from 2013-14 to 2016-17. Imports of these machinery grew from 29.95 Crore in 2015-16 to 34.84 Crore in 2016-17 whereas, the export increased from 5.25 Crore to 7.08 Crore during the same period



It is concluded that Sustainable Farm Mechanization is capable to increase land productivity besides support opportunities that relieve the burden of labour shortages. It reduces poverty and achieves food security while improving people’s livelihoods. During last 53 years average farm power availability in India has increased from about 0.30 KW/ha in 1960-61 to about 2.02KW/ha in 2013-14. Over the years the shift has been towards the use of advanced mechanical and electrical sources of power thereby bringing forth an appreciable increase in Agricultural and allied production. It is thereforeundoubtedly concluded that Farm Mechanization is the SWADESHI SILENT REVOLUTION, strengthening the Nation.



COMMONLY USED FARM MACHINERIES AND IMPLEMENTS

Tractor			Power Tillers		
Manufacturers	Specifications (PTO HP)	Price Range	Manufacturers	Specifications (PTO HP)	Price Range
EICHER	20.5 – 38	₹ 575000 to ₹ 620000 (39 -42 PTO HP)	GREAVES	14.6 W.C. Engine	₹161000 (with Rotary) approx.
HMT	21.9 – 64		KAVI	11 KW 14.75 HP	
John Deere	32.5 – 63.35		KRANTI	11-2 KW 15 HP	
Mahindra	13 – 51		Manam	7.00 KW	
TAFE	27.5 – 75		RHINO	10.7 (KW) 14.5 HP	
Sonalika	24.67 – 40.63		SHRACHI	8.5 KW 11.4 HP -9.00 KW 12 HP	
Shaktiman	26.2 – 52		VIJAY	VR-15 L 14.3 HP	
Mitsubishi Shakti			VST	9 – 14.3 HP	

MANUFACTURERS, SPECIFICATIONS AND PRICE RANGE OF ROTAVATOR AND PADDY TRANSPLANTER

Rotavator			Paddy Transplanter		
Manufacturers	Specifications (PTO HP)	Price Range	Manufacturers	Specifications (PTO HP)	Price Range
Shaktiman	Should match with Tractor/ Power Tiller to be purchased	Approx. 105000	Mahindra & Mahindra	2.3 HP/ 170 Kg	₹182000 approx.
MALWA					
Sonalika			VST Tractors 7 Tillers	2.3 HP/ 130 Kg Self propelled	
Fieldkin					

MANUFACTURERS, SPECIFICATIONS AND PRICE RANGE OF MB PLOUGH, CAGE WHEEL, DISC HARROW, CULTIVATOR AND SEED CUM FERTILIZER DRILL

Items/ Features	MB Plough	Cage Wheel	Cultivator	Cultivator	Seed cum Fertilizer Drill
Manufacturers	Not Specific	Not Specific	Not Specific	Not Specific	Not Specific
Specifications	Should match with Tractor/ Power Tiller to be purchased	Should match with Tractor/ Power Tiller to be purchased	Should match with Tractor/ Power Tiller to be purchased	Should match with Tractor/ Power Tiller to be purchased	7,9 & 11 tynes, should be match- ing with Tractor
Price Range	Approx. 27000 and above	–	₹ 46000 approx. And above (depending upon no. Of discs)	₹ 20000 approx.	₹40000 approx. And above