



Sectoral Paper



Farm Mechanization

NABARD's Vision

Development Bank of the Nation for
fostering rural prosperity

NABARD's Mission

Promote sustainable and equitable
agriculture and rural development
through participative financial
and non-financial interventions,
innovations, technology and
institutional development for
securing prosperity

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Foreword

The Government has introduced several schemes and policies that support greater mechanization of Indian Agriculture, in the light of its commitment to transform the agriculture sector and double farmers' income by 2022-23. The Sub Mission on Agricultural Mechanization (SMAM) is an important initiative of the Government, in this direction. The focus on farm mechanization is driven by the need for enhancing agriculture productivity and availability of food grains; increasing agriculture exports; mitigating labour shortage; and facilitating judicious use of scarce natural resources and farm inputs. Keeping this in view, an ambitious target of increasing the availability of farm power from 2.02 kW per ha (2016-17) to 4.0 kW per ha by the end of 2030 has been set.

The growth of farm mechanization sector is impeded by some of the characteristics of Indian agriculture such as fragmentation of land holdings, a large presence of small and marginal farmers, unaffordability of farm technology and the practising of subsistence agriculture. Agriculture Mechanization is crucial for modernization and commercialization of agriculture as it improves productivity and timeliness of agriculture operations, aids in value addition, brings down the cost of cultivation and enables climate change adaptation.

By 2022, the size of the farm equipment market is expected to reach ₹9 Lakh Crore. This affords us an opportunity to establish business models that can drive technological advances and catalyse entrepreneurial innovation in the farm machinery sector in India. There is a need for greater focus on developing need-based and regionally differentiated machinery; and for responding to the specific requirements of Indian agriculture. The promotion and modernization of custom hiring models and Agriculture Machinery Banks are steps in the right direction.

The National Sectoral paper on Farm Mechanization is a comprehensive document on the sector. I hope that the information in the publication will help all stakeholders, especially financial institutions, in making strategic plans and implementing them with greater precision.

I am sure that the cumulative efforts of all the stakeholders will help to realise the potential of the sector and contribute to the goal of doubling farmers' income by 2022-23. I firmly believe that the next phase of agricultural growth will be achieved through innovations in and automation of farm operations.

Dr. Harsh Kumar Bhanwala

Chairman

National bank for Agriculture and Rural Development

Mumbai

November 2018



Message

Technological improvements in Indian agriculture since the mid-sixties have enabled a substantial increase in food grains production. Yet, farm mechanization is at various stages of adoption in India. The use of improved farm implements has the potential to increase productivity by up to 30 per cent and reduce the cost of cultivation by up to 20 per cent.

About 85 % of the total land holdings are small and marginal in size, and hence require appropriately designed machinery, tools and implements. Recognizing the special needs of mechanizing marginal and small land holdings, and with a view to making farm mechanization affordable by small and marginal farmers, a Sub Mission on Agricultural Mechanization (SMAM) has been launched by Government of India in the year 2014-15. Major components of SMAM are promotion of agriculture mechanization through training, testing and demonstration; dissemination of Post-Harvest Technology and Management (PHTM); establishment of Farm Machinery and Equipment banks for custom hiring; and financial assistance for promotion of mechanized operations.

The credit requirement for the farm mechanization sector has been estimated at ₹ 76991.78 Crore for FY 2018-19, which is 2.68% of the total priority sectors lending projection of ₹ 2868753.65 Crore. NABARD also provides refinance assistance to banks and other eligible entities for financing the farm mechanization activities.

This National Sectoral Paper on Farm Mechanization is prepared to help stakeholders in strategizing and evolving feasible models for mechanization of farm operations in respective areas/states and enhancing productivity and income of the farmers. I hope that all banks will find the document useful in deciding their lending strategies.

I congratulate the Technical Advisory Group of NABARD for their excellent work in preparing this Sectoral Paper on Farm Mechanization.

NABARD would be glad to receive valuable feedback and suggestions for the furtherance of this endeavor.

H. R. Dave

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Mumbai

November 2018



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Sectoral Paper on Farm Mechanization



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1. Introduction

1.1 Mechanization in allied sectors

The agriculture and allied sector continues to be significant for the inclusive and sustainable growth of the Indian economy. Indian Agriculture Sector not only ensures food security but also provides employment for substantial volume of population, directly & indirectly. Though agriculture contributed only 17.4% to the country's Gross Value Added for the year 2016-17 (at current prices), still it is a driver for demand creation.

Farmers' income has not been able to keep pace, such as to cater to increasing costs of production including that of rising labour wages. Hence, there is a strong case for labour-substituting farm/agriculture machinery. Parallely, it is also important to note, that several activities are highly time-bound and unless executed as per schedule, the farmer is likely to suffer loss. Agriculture mechanization is an appropriate answer to such challenges.

Farm mechanization, more appropriately agriculture mechanization will also let off the wage labour as also the farmer of the drudgery involved in manual operations, besides enhancing manpower productivity since skills are integral to machine based operations.

Lack of access to farm power is one of the primary reasons for slow uptake of farm mechanization and hence non-intensification of farm productivity, particularly among small and marginal farmers. There is a direct correlation between having access to farm implements and impact on efficiency, timeliness of the farm operations. It proves to be completely unviable for a small or marginal farmer to purchase farm equipment and without its usage the farmer can never sustain positive returns from agricultural output.

Effective use of agriculture machinery helps to increase productivity & production of output, undertake timely farm operations and enable the farmers to quickly rotate crops on the same land. By raising a second crop or multi-crops from the same land, there is improvement in the cropping intensity and making agricultural land commercially more viable. Mechanization also helps in animal husbandry, dairying and fisheries.

Farm mechanization not only provides optimal utilization of resources e.g., land, labour,

water but helps farmers to save valuable time and also reduces drudgery. This judicious use of time, labour and resources facilitates sustainable intensification (multicropping) and timely planting of crops, leading to an increase in productivity.

Though, the level of farm mechanization in India stands at about 40-45% with states such as UP, Haryana and Punjab having very high mechanization levels, but north-eastern states having negligible mechanization. This level of farm mechanization is still low as compared to the 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 an average agriculture growth rate of 3.56 % through the last decade.

According to Economic Survey, Farm mechanization and crop productivity has a direct correlation as farm mechanization saves time and labor, reduces drudgery, cut down production cost in the long run, reduces post-harvest losses and boosts crop output and farm income. Use of improved implements has potential to increase productivity up to 30 per cent and reduce the cost of cultivation up to 20 per cent. At present, Indian farmers are adopting farm mechanization at a faster rate in comparison to recent past. Although, the sale of tractors in India cannot be taken as the only measure of farm mechanization but to a great extent it reflects the level of mechanization. Indian tractor industries have emerged as the largest in the world and account for about one-third of total global tractor production.

According to the World Bank estimates, half of the Indian population would be urban by the year 2050. It is estimated that percentage of agricultural workers in total work force would drop to 25.7% by 2050 from 58.2% in 2001. Thus, there is a need to enhance the level of farm mechanization in the country. Due to intensive involvement of labour in different farm operations, the cost of production of many crops is quite high. Human power availability in agriculture also increased from about 0.043KW/ha in 1960-61 to about 0.077 KW/ha in 2014-15. However, as compared to tractor growth, increase in human power in agriculture is quite slow. Over the year, the shift has been towards the use of mechanical and electrical



sources of power. In 1960-61, about 93% farm power was coming from animate sources, which has reduced to about 10% in 2014-15. On the other hand, mechanical and electrical sources of power have increased from 7% to about 90% during the same period. As there is predominance of small operational holding in Indian Agriculture, it is, therefore, necessary to consolidate the land holdings to reap the benefits of agricultural mechanization. There is a need to innovate custom hiring service or a rental model by institutionalization for high cost farm machinery such as combine harvester, Sugarcane harvester, potato combine, paddy transplanter, laser guided land leveler, rotavator etc. to reduce the cost of operation and it can be adopted by private players or State or Central Organization in major production hubs.

1.1 Mechanization in allied sectors

In the dairy and livestock sector, which is largely integrated with an associated industry, the adoption of mechanization has been more common. Milking machines, fodder handling and feeding machines, harvesting systems in

abattoirs, etc. are examples. In the fisheries sector the adoption of mechanization has been even more, and it has reaped major benefits. Examples here, range from mechanised fishing boats which deploy propulsion and motorised net handling equipment, fish pond management equipment, etc. Factory ships in the fisheries sub-sector are probably the largest format of machines and mechanization deployed in the agricultural sector. On farm fields, mechanised tilling and harvesting are now most commonly used and India is the largest market for tractors and a variety of harvester machines. Irrigation pumps, fertigation systems and pesticide applicators are other mechanised forms of farm inputs. However, given the scale of India's agricultural sub-sectors, mechanization is yet to penetrate all across regions and farm types. One of the main limitations to deploying farming machines, is the capacity of a farm to efficiently own such equipment. Small farmers will continue to be the mainstay of Indian agriculture and the concept of custom hiring centres and mechanised services is therefore most apt in this situation.

A photograph of two white oxen standing in a grassy field, harnessed together with a wooden yoke. They are facing left, and their heads are slightly lowered. The background shows a clear blue sky and some green foliage. A large, semi-transparent brown circle is overlaid on the bottom left of the image, containing the text for the section header and table of contents.

2. Status of Farm Mechanization

2.1 Availability of Farm Power

2.2 Sale of tractor & power tillers

2.3 Share of farm mechanization in farming operations

2.4 Status of availability of Agricultural Equipment in India.



2.1 Availability of Farm Power

Average farm power availability for the cultivated areas of the country has been increased from 0.295 kW/ha in 1971-72 to 2.02 kW/ha in 2016-17. The share of various power sources in agriculture sector and total farm power availability is indicated in the Table 1 as follows:

Table 1: Share of Total Power %

Year	Agricultural Worker	Draught Animal	Tractor	Power Tiller	Diesel Engine	Electric Motor	Total Power, kW/Ha
1971-72	15.11	45.26	7.49	0.26	18.11	13.77	0.295
1981-82	10.92	27.23	19.95	0.33	23.79	17.78	0.471
1991-92	8.62	16.55	30.21	0.4	23.32	20.9	0.759
2001-02	6.49	9.89	41.96	0.54	19.86	21.26	1.231
2005-06	5.77	8.02	46.7	0.6	18.17	20.73	1.502
2012-13	5	5.1	45.8	0.8	16.3	26.8	1.94

Source: IndiaAgristat

Fig. 1

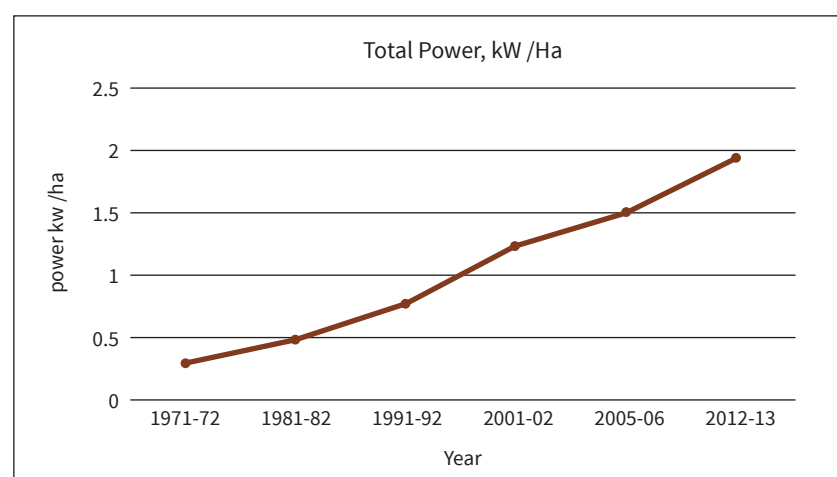
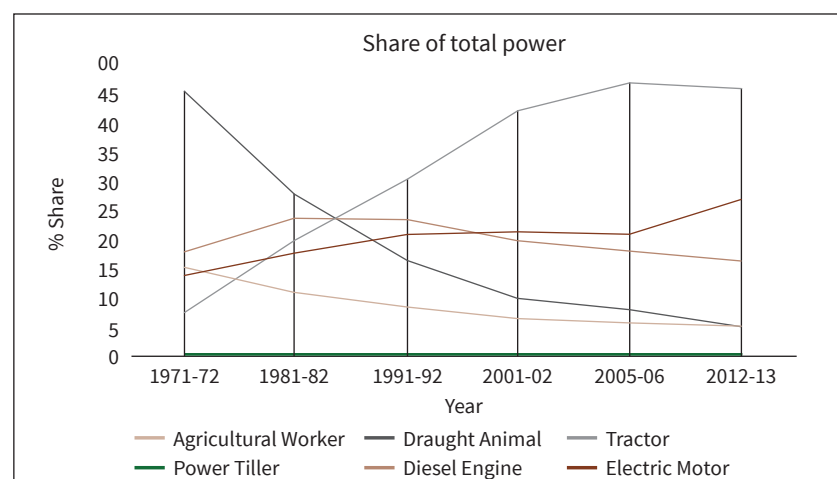


Fig. 2



The share of power from tractor in the total farm power is increasing substantially. Further, share of electric motor is also increasing. But, share of animate power and draught animal power is decreasing in the total farm power. There is a linear relationship between availability of farm power and farm yield. Therefore, there is a need to increase the availability of farm power from 2.02 kW per ha (2016-17) to 4.0 kW per ha by the end of 2030 to cope up with increasing demand of food grains (Fig. 1 & Fig. 2).



2.2 Sale of tractor & power tillers

Table 2

(No. in Thousands)

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Tractors	296	353	347	343	394	545	535	591	697	551	627	580
Power tillers	22	25	26	35	39	55	60	47	56	46	49	45

Source: IndiaAgristat & State of Indian Agriculture 2017-18

The sale volume of tractors and power tillers over the period of ten years (2005-06 to 2016-17) indicated in Table 2, No. of tractors have increased at CAGR at 6% over the period of 12 years from 2005-06 to 2016-17 while power tillers also increased with 6% CAGR during the same period. Though the per capita land holding size is decreasing, demand for tractors is still more than power tillers.

2.3 Share of farm mechanization in farming operations

The penetration of powered machines in various farm activities is assessed in the range of 40 to 45 per cent. Share of mechanization of field activities in 2016-17 is represented in the following Table 3.

Table 3

Type of Operation	Percentage of operations mechanised
Soil working & seed bed preparation	40
Seeding and planting	29
Plant protection	34
Irrigation	37
Harvesting and Threshing	60-70 % for wheat and rice and <5 % for others

Source : India Agristat

2.4 Status of availability of Agricultural Equipment in India.

Table 4: The number of equipment available per 1000 ha. net sown area (May 2007)

Type of Equipment	No.	Type of Equipment	No.
Tractors	16.7	Manual Seed Drill/Seed Cum Fertilizer Drill	153.2
Power Tillers	2	Animal Drawn Seed Cum Fertilizer Drill	36.1
Tractor Operated Diesel Harrow	6.6	Tractor Drawn Seed Cum Fertilizer Drill	7.2
Tractor Operated Cultivator	12.5	Animal Drawn Leveller	84.8
Tractor Operated Rotavator	0.9	Tractor Operated Levellers	6.2
Potato Digger	2.1	Manually Operated Plant Protection Equipment	28.5
Straw Reaper	18.8	Power Operated Plant Protection Equipment	4.3
Forage Harvester	18.2	Drip & Sprinkler Equipment	8.3
Horticultural Tools (Power Operated)	8.9		

Source : India Agristat

3. Status of Institutional Credit

3.1 Ground level Credit Flow

3.2 NABARD Refinance Performance for Investment Credit

3.3 Potential Linked Credit Plan Assessment – 2018-19



Credit is critical requirement for the any economic activity creating returns over the period of the years. Farm mechanization being financed by formal or informal sources. Institutional finance plays important role for promotion of farm mechanization in agriculture.

3.1 Ground level Credit Flow

Total Ground Level Credit (GLC) flow for agriculture stood at ₹ 4.68 Lakh Crore as on 2010-11 with CAGR 27% over the 8 years starting from ₹ 0.86 Lakh Crore as on 2003-04. During the same period GLC for farm mechanization grew from ₹ 0.04 Lakh Crore to ₹ 0.128 Lakh Crore with CAGR 18% only. The share of GLC for farm mechanization was only 2.73% of total GLC for agriculture (Table 5) & (Fig. 3).

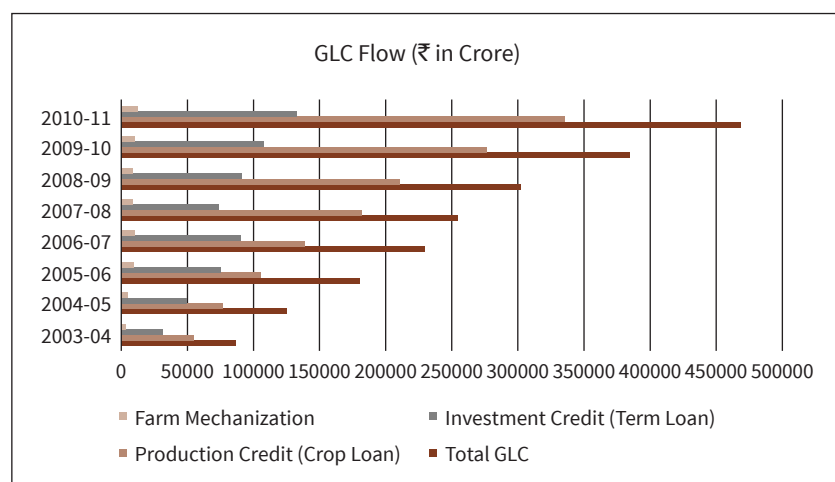


Table 5

	Amt. ₹ Crore							
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
Total GLC	86981	125309	180486	229400	254658	301908	384514	468291
Production Credit (Crop Loan)	54977	76062	105350	138455	181394	210461	276656	335550
Investment Credit (Term Loan)	32004	49247	75136	90945	73264	91447	107858	132741
Farm Mechanization	3986	4555	9695	10113	8303	8334	10211	12799
Share of Farm mechanization (%)	4.58	3.64	5.37	4.41	3.26	2.76	2.66	2.73

Source : DEAR & CPD, NABARD

Fig. 3





It may also be observed from the above data that share of GLC for farm mechanization in total GLC of Agriculture has decreased by 40.39 % over the period (Table 5).

3.2 NABARD Refinance Performance for Investment Credit

The Table 6 shows performance of NABARD Long Term refinance facility for last ten years.

The total refinance quantum has increased with 18% CAGR while refinance for farm mechanization has grown with 12% CAGR only. It resulted in to decrease of refinance share for farm mechanization. The refinance share for farm mechanization was 21% as on March 2007, which decreased to 12% as on March 2016. The share of refinance grew with negative CAGR of 6% (Fig. 4 & Fig. 5).

Fig. 4

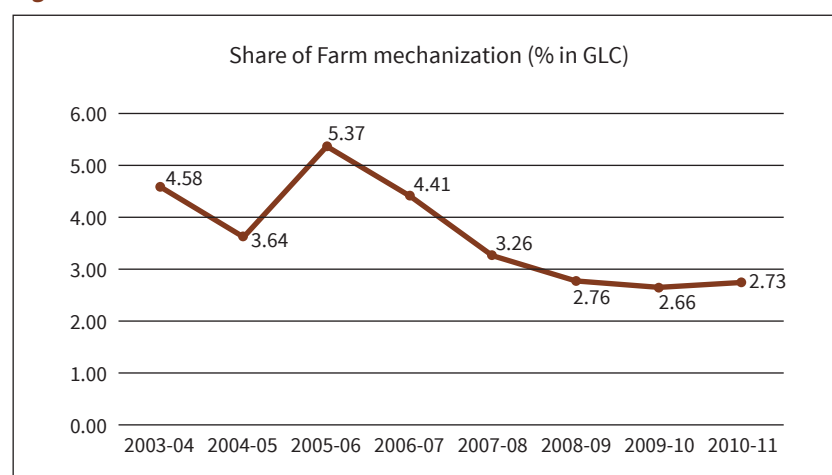


Fig. 5

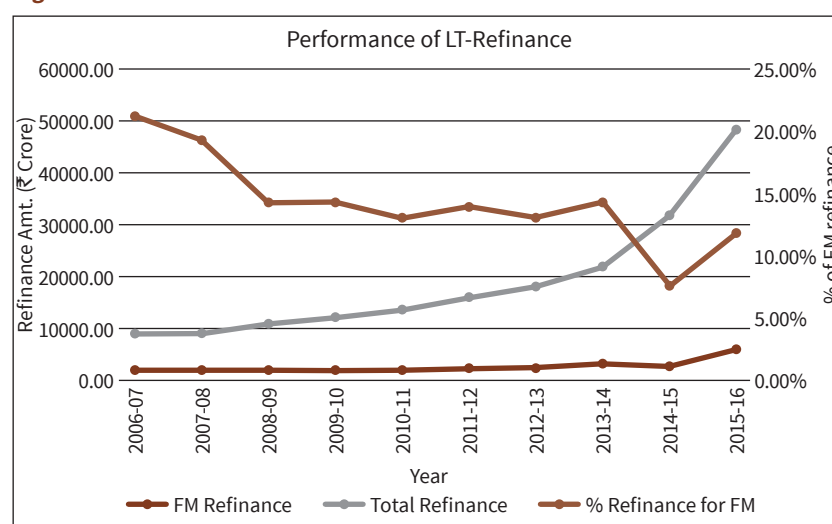


Table 6

Year	FM Refinance	Total Refinance	% Refinance for FM
2006-07	1857.51	8795.02	21%
2007-08	1747.65	9046.27	19%
2008-09	1514.03	10535.29	14%
2009-10	1714.66	12009.08	14%
2010-11	1762.98	13485.87	13%
2011-12	2134.51	15421.70	14%
2012-13	2282.79	17674.29	13%
2013-14	3062.40	21486.17	14%
2014-15	2383.60	31427.30	8%
2015-16	5672.29	48063.72	12%
2016-17	11076.36	53505.51	21%
2017-18	6862.42	65240.45	11%
CAGR	12%	18%	-6%

Source: DoR, NABARD LT-Refinance

3.3 Potential Linked Credit Plan Assessment – 2018-19

NABARD assesses annual credit flow requirement of each subsector of priority sector lending. As per the assessment for FY 2018-19, ₹ 76991.78 Crore (2.68%) credit requirement has been assessed out of ₹ 2868753.65 Crore of total projected priority sector lending at national level (Table 7). The state wise credit requirement projected for farm mechanization as well as priority sector lending projection of respective States are as follows;

Table 7: PLP Projections 2018-19

₹ in Crore

State	Farm Mechanisation Credit Projection	Priority Sector Lending Projection	Share of farm mechanization (%)
Andhra Pradesh	2913.13	165042.77	1.77
Arunachal Pradesh	15.96	617.49	2.59
Assam	778.27	21612.29	3.60
Bihar	4079.13	122382.51	3.33
Chhattisgarh	1074.32	29245.84	3.67
Gujarat	5756.97	128307.44	4.49
Haryana	2453.64	120986.31	2.03
Himachal Pradesh	252.36	22389.31	1.13
Jammu & Kashmir	506.54	24000.75	2.11
Jharkhand	569.28	22714.17	2.51
Karnataka	6582.62	202461.54	3.25
Kerala	848.46	137257.76	0.62
Madhya Pradesh	8844.88	153106.18	5.78
Maharashtra	3356.43	370180.84	0.91
Manipur	2680.93	207663.31	1.29
Meghalaya	20.05	1810.83	1.11
Mizoram	10.94	1333.84	0.82
Nagaland	27.09	1414.81	1.91
Odisha	3125.41	71419.85	4.38
Punjab	4050.92	218000.67	1.86
Rajasthan	7141.32	183516.60	3.89
Sikkim	1.28	545.31	0.23
Tamil Nadu	8273.79	206683.90	4.00
Telangana	2667.24	83388.86	3.20
Tripura	33.62	4429.79	0.76
Uttarakhand	493.36	20301.78	2.43
Uttarpradesh	7884.74	237801.70	3.32
West Bengal	2549.13	110137.19	2.31
Total	76991.78	2868753.65	2.68



4. Farm Machineries Trade of India

4.1 Tractor trade

4.2 Combine Harvesters Trade

4.3 Seeders, Planters and Transplanters trade

Globally BRICS nations (Brazil, Russia, India, China and South Africa) with Japan and Turkey are joining the ranks of heavy weight agricultural machinery markets. India is too involved in the international trade of a number of different farm equipment.

4.1 Tractor trade:

India is considered to be the largest tractor market in the world. While the country produces a large volume of tractors, it also exports tractor units to other countries across the world. On an average, the country exports an average of 79,000 tractors annually. India's tractor export markets primarily include African countries and ASEAN countries where soil and agro-climatic conditions are similar to India.

In FY' 2013-14, India exported 62,880 units of tractors which increased to 77,490 in FY' 2016-17 growing at a CAGR of 5.36 percent. In FY' 2016-17, India imported 3,920 units of tractors while during 2013-14, it imported 4,930 units of tractors, thus registering a negative growth @ CAGR -5.57% over the period of four years. In FY' 2016-17, India exported tractors worth ₹ 6,143.07 Crore while during 2017-18, it exported tractors worth ₹ 5,926.54 Crore, thus registering a negative growth of -3.52% over previous year while the import has increased from ₹ 197.76 Crore to ₹ 271.48 Crore during corresponding period (Fig. 6).

4.2 Combine Harvesters Trade

While domestic companies cover major part of the market, foreign players are gradually picking up. Import has increased with a CAGR of 91.14 percent between FY 2013-14 and FY 2017-18 while export has increased @ CAGR 24.66 percent annually. Iran, Sri Lanka and Nepal are among the countries that generally import combine harvesters from India.

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 in India (Fig. 7).

4.3 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 (Fig. 8).

¹Ministry of Commerce and Industry, Govt. of India

Imports of these machinery grew from ₹ 29.95 Crore in 2015-16 to ₹ 34.84 Crore in 2016-17 whereas the exports increased from ₹ 5.25 Crore to ₹ 7.08 Crore during the same period

Fig. 6

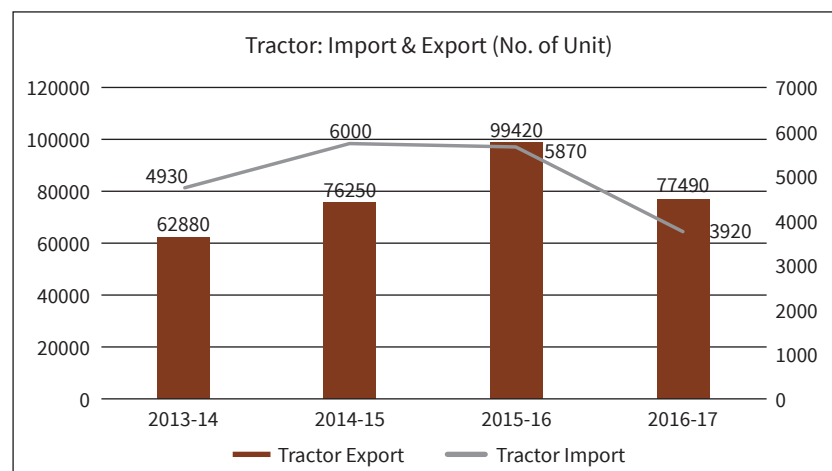


Fig. 7

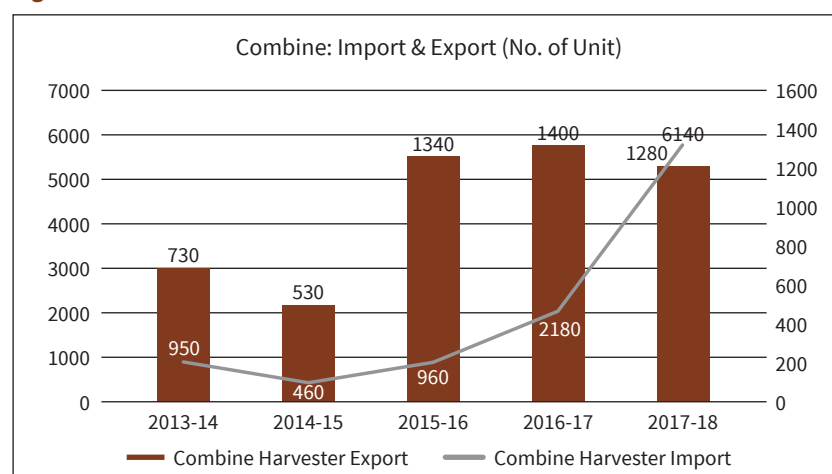
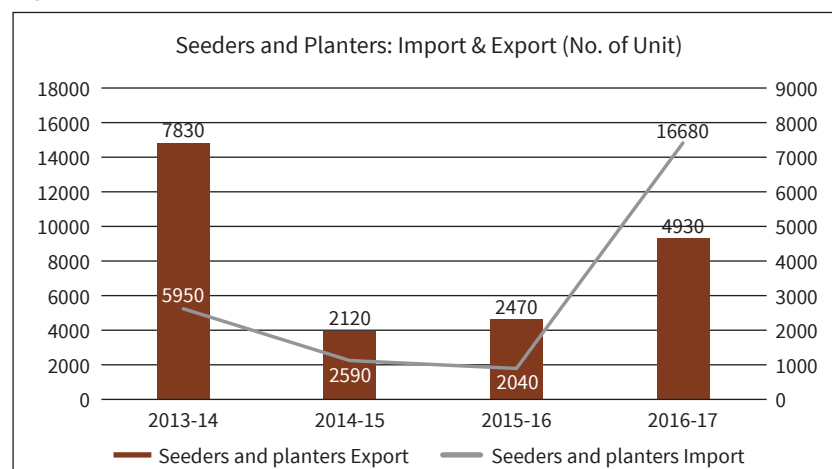


Fig. 8



5. Schemes of Central Govt. to support Farm Mechanization

5.1 Sub Mission on Agricultural Mechanization (SMAM)



5.1 Sub Mission on Agricultural Mechanization (SMAM)

The Sub Mission on Agricultural Mechanization (SMAM) is providing a suitable platform for converging all activities related to agricultural mechanization by providing a 'single window' approach for implementation with accelerated and inclusive growth of agricultural mechanization in India. The scheme is implementing in all the states, to promote the usage of farm mechanization and increase the ratio of farm power to cultivable unit area up to 2 kW/ha by the end of 12th plan.

The main objectives of SMAM are:

- To increase the reach of farm mechanization to small and marginal farmers and to the regions where availability of farm power is low;
- Promoting custom hiring centres to offset the adverse economies of scale arising due to small landholding and high cost of individual ownership;
- Creating hubs for hi-tech & high value farm equipment's;
- Creating awareness among stakeholders through demonstration and capacity building activities; and,
- Ensuring performance testing and certification at designated testing centres located all over the country.

Component wise pattern of assistance under Sub Mission on Agricultural Mechanization is as follows (detailed annexures enclosed)

- A. Component No. 1:** Promotion and Strengthening of Agricultural Mechanization through Training, Testing and Demonstration

Table 8

Particular	Quantum
Demonstration	100% assistance @ ₹ 4000 per hectare upto 100 ha per season
Training	₹ 25.0 Lakh per State per year.
Testing	₹ 1.5 Crore per centre.

- B. Component No. 2:** Demonstration, Training and Distribution of Post Harvest Technology and Management (PHTM)

Table 9

Particular	Quantum
Financial Assistance for Post Harvest Equipment.	Up to 60% (Maximum ₹ 1.5 Lakh per unit)
Demonstration	100% assistance @ ₹ 4000 per technology upto 100 demo per season
Training	₹ 25.0 Lakh per State.

- C. Component No. 3:** Financial Assistance for Procurement of Agriculture Machinery and Equipment - up to 40%.

- D. Component No. 4:** Establishment of Farm Machinery Banks for Custom Hiring - Custom Hiring Centres (CHCs)

Table 10

Sr. no.	Particulars	% of assistance
1	CHCs up to ₹ 10 Lakh	Up to 40%
2	CHCs up to ₹ 25 Lakh	
3	CHCs up to ₹ 40 Lakh	
4	CHCs up to ₹ 60 Lakh	

- E. Component No. 5:** Establishment of Hi-Tech, High Productive Equipment Hub for Custom Hiring - CHCs

Table 11

Sr. no.	Particulars	% of assistance
1	CHCs up to ₹ 100 Lakh	Up to 40%
2	CHCs up to ₹ 150 Lakh	
3	CHCs up to ₹ 200 Lakh	
4	CHCs up to ₹ 250 Lakh	

F. Component No. 6: Promotion of Farm Mechanization in Selected Villages

Table 12

Particulars	Maximum limit	% of assistance
Financial assistance for Farm Machinery Banks with minimum 8 Farmers per Bank	Upto ₹ 10 Lakhs per Farm Machinery Bank	80% of the cost of Farm Machinery Bank

G. Component No. 7: Financial Assistance for Promotion of Mechanized Operations/ hectare Carried out Through Custom Hiring Centres

Table 13

Item	Maximum limit	Details	Pattern of assistance
Hiring Charges to farmer members of Farm Machinery Banks set up under component (6)	Upto a maximum of 1 ha area per farmer per year	Tractor/power operated operation – ₹ 2000 Animal drawn mechanized operations – ₹ 1000 For manual operations – ₹ 750	50% of the cost of operations/ha
Field Demo by CHCs	Minimum 120 ha/ season per Custom Hiring Centre	₹ 4000/ha limited to 120 ha/village	Demonstration charges fir CHCs set up under Component 4



6. Farm Mechanization - Issues, Benefits and Suggestions

6.1 Issues

6.2 Benefits of farm mechanization

6.3 Suggestions



6.1 Issues

i. Economies of operation

To ensure return on investment and make investment profitable in farm mechanization, area under operation should be grown, which has limitation. Though the gross cropped area can be increased by cultivating same land for more no. of seasons, which also has limitation due to unavailability of assured irrigation facility and favorable climatic conditions.

ii. Credit procedure

The procedure to avail agriculture term loan is more cumbersome than production credit. Availability of suitable officer with required technical appraisal skill is also key issue for the banks, which is also creating hindrance for smooth disbursement of term loan for various activities helping farm mechanization.

iii. Rate of interest

Under interest subvention scheme for crop loan (production credit), farmer receives short term credit at 7% p.a. rate of interest, with an upper limit of ₹ 3.00 Lakh on the principal amount. Additional interest subvention of 3% is being provided to farmers who will repay their loans on or before the due date or the date fixed by the bank, subject to a maximum period of one year. Also, many of the State Govt. are providing interest subvention for farmers availing crop loan through cooperative banks, which further lowers the effective rate of interest for crop loan.

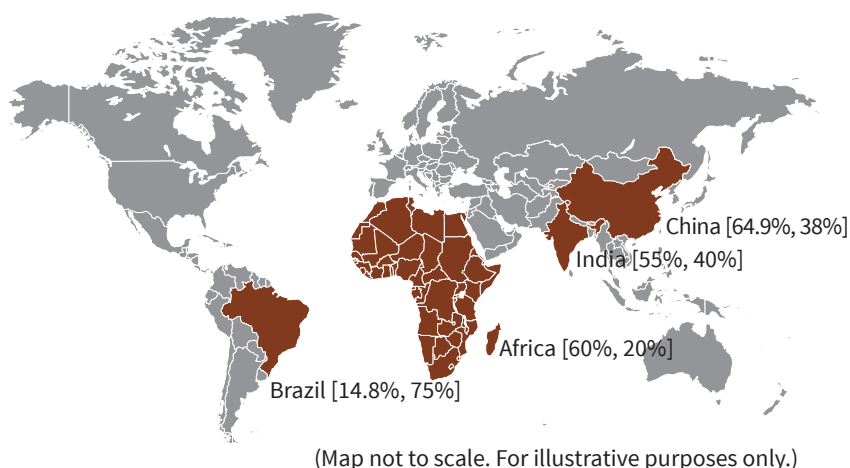
For farm mechanization activities, rate of interest is higher.

iv. Subsidy is based on the budget allocation, not requirement basis.

Farm mechanization requires substantial investment. To assist farmers, to withstand the burden of principal and interest, Central Govt. and various State Govts. have been providing subsidy for Individual/ Group of farmers/ Cooperative to invest. These subsidies are available based on the budget allocation made by Central/ State Govt. there is need to change the approach from allocation based to requirement based.

v. Dependent population.

Fig. 9



As indicated in the Figure 9, the level of farm mechanization behaves inversely with population engaged in the agriculture. This population also includes family labour. Unless and until, there is lucrative alternate option for livelihood, promotion of farm mechanization will not be successful.

vi. Uninsured market hence hesitation to invest.

In the country like India, where population dependent on agriculture is more than non-dependent population, market for agriculture produce will remain as supply driven rather than demand driven. It leads to fluctuation of prices and low income. Farmers will not have confidence for earning income from agriculture activities. On other side, investment in farm mechanization takes longer period to repay.

vii. Low awareness

When we talk about farm mechanization, we view it as only using of tractors, power tillers, combine harvesters and threshers. There are many other self-propelled machineries and equipment, which are suitable for small land holdings and can be used by even individual farmers. Farmers are not aware about these kind of machineries and implements and methods of using them.

6.2 Benefits of farm mechanization

i. Input savings

Studies have shown a direct relationship between farm mechanization (farm power availability) and farm yield. Farm mechanization is said to provide a number of input savings:

- Seeds (approximately 15-20 percent)
- Fertilizers (approximately 15-20 percent)
- Increased cropping intensity (approximately 5-20 percent).

ii. Increase in efficiency

Aside from the above stated inputs, farm machinery also helps in increasing the efficiency of farm labour and reducing drudgery and workloads. It is estimated that farm mechanization can help reduce time by approximately 15-20 percent. Additionally, it helps in improving the harvest and reducing the post-harvest losses and improving the quality of cultivation. These benefits and the savings in inputs help in the reduction of production costs and allow farmers to earn more income.

iii. Social benefits

There are various social benefits of farm mechanization as well:

- Helps in conversion of uncultivable land to agricultural land through advanced tilling techniques and also in shifting land used for feed and fodder cultivation by draught animals towards food production.
- Decrease in workload on women as a direct consequence of the improved efficiency of labour.
- Improvement in the safety of farm practices.
- Helps in encouraging the youth to join farming and attract more people to work and live in rural areas.

iv. Only alternative to deal with Increasing cost of labour

The cost of deploying labour for agriculture operation is increasing substantially. Farm mechanization is the only way to reduce labour cost, and thus cost of cultivation. The Table 14 & Fig. 10 shows the trend in increasing labour cost.

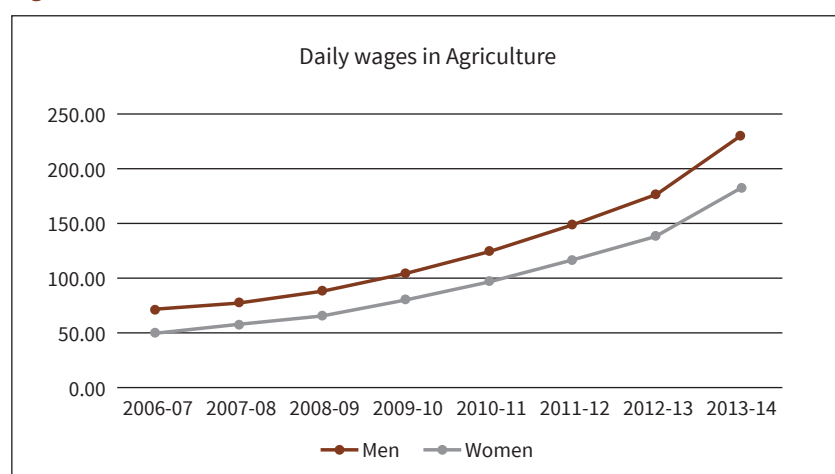
Table 14

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Men	71.53	77.95	88.68	103.85	125.04	149.04	176.34	232.17
Women	49.75	57.93	66.29	80.10	97.54	117.00	138.68	182.47

Amt. in ₹

Source: IndiaAgristat

Fig. 10



6.3 Suggestions

i. Individual farm equipment for Small & Marginal farmers

Tractor penetration has increased from one per 150 hectares to one per 30 hectares. However, such an increase in penetration has not been seen in other segments of farm equipment. As per-capita land holding of Indian Farmers is decreasing, small farm machineries / implements (individually operated) need to be promoted keeping in view the versatility of various crops, cropping pattern and agriculture operations. Further advanced machineries and implements developed outside of India may be promoted. The 'Make in India' initiative launched by the Government can be used to support the manufacture of inputs and farm implements currently being imported. This would help in reducing the overall capital cost.

ii. Ease of financing

Like KCC, procedures to avail term loan may be simplified with minimum documentation. Capacity building of bank staff dealing with agriculture term loan products may be ensured.

To motivate banks for financing farm mechanization, it is pertinent to devise framework that would strengthen the credit policy for farm machinery in India. Credit guarantee fund currently facilitates loans for micro, small and medium enterprises (MSMEs) and producers organization. Similar models should be devised for farm machinery sector as well.

iii. Low/minimum rate of interest

The subsidy support is based on the budget allocation instead of requirement. The subsidy amount could be re-routed to ensure that the interest rate on financing farm mechanization purposes is brought to a much lower rate and that farmers can get longer payback periods as well as longer moratoriums (few years without interest).

iv. Compulsory demonstration by Farm machinery manufacturers

To create awareness about type and use of new farm machineries and implements, organizing demonstration at

field level for farmers should be the part of marketing policy of manufacturers. The demonstrations may be arranged in collaborations with Agriculture Universities, Krishi Vigyan Kendras, Agriculture Institutes etc. at regular intervals.

v. Value addition & Marketing

Keeping long term perspective to make agriculture sustainable and a lucrative activity, value addition and marketing should be strengthened at farmers' level with assured forward linkages. It will boost confidence of farmers to invest in farm mechanization.

vi. Farm Mechanization and Recommendations of Committee on Doubling Farmers' Income (Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture & Farmers' Welfare)

- The consumption of farm power in India stands at an average of 2.02 kW/ha in 2017-18 and compares very poorly even with Asia-Pacific countries. A target of at least 4 kw/ha should be the aim by 2022. And it is achievable.
- Considering the preponderance of small & marginal holdings in the country, R and D should aim at developing and designing scale-neutral machinery. Further, machinery that can suit different terrain of the geography deserves priority attention.
- Agriculture Machineries can become part of 'Farming as a Service' (FaaS), which means, that farmers should have easy access to mechanization and related services on rent in preference to owning the same. This can be facilitated by promoting:
 - a. 'Custom Hiring Centres' (CHCs) at the rate of a minimum of 1 (one) per village (when large) and 1 (one) per Gram Panchayat comprising in cluster of small

villages. These should be able to meet the demand for all basic services, and would therefore be expected to possess low duty machinery.

- b. 'Agriculture Machinery Banks' (AMBs) at the district/sub-district level, possessing heavy duty machinery like combine harvester, laser land leveller etc.
- 'State/Regional Services' possessing more sophisticated and heavier machineries, that can service larger areas to meet certain specific demands; and also possess ICT/GIS/Space technology based services.
- These centres at different levels, should be supported to broaden their technologies to include modern systems like drones, sensor based applications, etc. and also those needed in the sub-sectors of animal husbandry, fisheries, etc.
- **Promotion modes:**
The above types of services can be promoted by adopting one or more of the approaches below:
 - a Enterprise mode – the youth can be specifically trained and financially supported (credit linked back-end subsidy) to set up CHCs. In order to make such enterprises viable, other agricultural services can also be integrated to offer 'One Stop Shop'. Some of the services deliverable are pesticide, fertilizer & seed retailship, I.T. based extension services etc.
 - b SHG/FPO/Trust/PACS based CHCs.
 - c NGO/CSR (Corporate Social Responsibility) based CHCs and AMBs.
- **Shared utility or Uberization:**
It is possible that some of the machineries are owned by individual

farmers. Tractors are a common example. Aggregation platforms have proved highly successful in city transport services. On similar lines, uberization is feasible in agricultural mechanization. Hence networking of individual owners, CHCs, AMBs and Regional/State Service Centres can happen by onboarding a common platform and meet the demand in real time and cost effectively. Professional Service Providers with large investments and capable of establishing a brand name can opt to promote franchise model for quick scale up across the region/state. The youth can grow up professionally as franchise based entrepreneurs. Since agricultural operations are seasonal and time bound, the farmer in need of a service cannot afford to wait and would benefit only if response to his call is positive with nil/least time lag.

Further, transaction cost will need to be rational, and therefore, the machinery will need to be sent to the farmer's work site from the nearest location. Uberization is the most optimal solution to such demands. This brings an advantage of enhancing the use-time of the machinery purchased, and therefore, the realization of a positive RoI (Return on Investment).

- **Service facilities**

It is important to ensure availability of repair and service facilities in close proximity, so that operation & maintenance issues are addressed. Mobile service centres can also be promoted to cater to minor repair demands. This requirement also generates scope for enterprise creation.

The concept of FaaS goes beyond providing machinery on hire. It encompasses a number of services including offering labour, managing actual field operations in respect of not only agricultural machinery, but also other agricultural operations. For example, harvesting of coconut,

arecanut and the like is a specialized function, and the traditional tree climber may not always be available these days. A 'FaaS' entrepreneur can meet such a service demand.

In sugarcane belts, it is common to see labour contractors undertaking harvesting, and labour groups travelling long distances, even across the states. Mechanised services through FaaS can become effective at lesser social cost, that migration bring in movement/migration of labour.

- **Machinery for waste management**
In the Indo-Gangetic Plains (IGP), where rice-wheat is the dominant

cropping system, burning of rice straw to meet the deadline of wheat sowing time is a common practice. This is not only unsound ecologically but also causes a loss of opportunity to capture the value that lies in the paddy straw. This wasteful practice describes most agricultural activities. In the strategy for doubling farmers' income, gainful use of all biological products, and not just the grain or fruit, is necessary to generate additional farm incomes. Hence, agricultural mechanization plans must include farm waste management machines and devices, and make residue management a productive activity.





7. Mechanization for Small & Marginal farmers : Setting up of Custom Hiring Centres (CHCs)

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7.1 Key drivers for promoting CHCs
.....

7.2 Challenges
.....

7.3 Important Suggestions for CHCs
.....

7.4 State wise No. of Custom Hiring Centers
.....

7.5 Strategies and Recommendations to suit Indian Agriculture
.....

Promoting establishment of more CHCs is essential for future of the farm mechanization. But these centres could play more than the traditional role. These centres can be used as central hub for a number of activities:

- Ensuring availability of crop and local-condition specific equipment for use.
- Promoting the idea of cooperative farming among small and marginal farmers so that these 'cooperatives' can fund farm equipment and use concurrently.
- Act as a point-of-sale for second-hand equipment as well as hubs for after-sale service. CHCs could establish linkages with OEMs and dealers to make themselves the centre of all these different activities.
- These centres could be established on a 'hub-and-spoke' model wherein last-mile outreach is established by having smaller outlets at the village level, which can also provide support for farming practices

Department of Economic Analysis and Research (DEAR), NABARD conducted study on "Effectiveness of Custom Hiring Centre in Advance Farm Mechanization" through Confederation of Indian Industry (CII) and Food & Agriculture Centre of Excellence (FACE). Some of the major findings of report are as follows;

7.1 Key drivers for promoting CHCs

i. Opportunity to move into off farm remunerative ventures

The entrepreneur led CHCs are aimed at young people who largely belong to farming families and would like to venture into the business of buying machines and implements and making these available to the farmers on rent.

ii. Cope up with increasing scarcity of labour for farming activities

Farmers are observed to be moving towards machine led farming methods to cope up with labour shortage and increasing wages.

iii. Access for Small and Marginal Farmers

Indian agriculture is characterized by smallholders with more than 85 per cent

of them having less than 2 hectares of land. Hence their ability to purchase machines and equipment is poor, limiting use of mechanization. CHCs then provide an option to these marginal and small farmers to rent in machines and equipment basis their needs and viability on small holdings.

iv. Enhancing use of modern technology and machines

The CHC model brings together different machines and implements which a farmer may not purchase for his own use. This enhances use of modern machines and technology thereby addressing the issue of efficient farming techniques and boosting productivity.

7.2 Challenges

i. Availability of Machineries and Implements

There will be case with many of the machineries and farm implements entailing high demand during peak periods and underutilization in lean period.

ii. Documentation

Most of the CHCs are being supported by Govt. Subsidy, which requires proper documentation of transactions. Entrepreneurs often did not maintain documentation on the machines rented out, their rental income, number of hours for which the machines are being used by farmers.

iii. Training for the entrepreneurs

Training programmes comprising of knowledge on machines and their application, new emerging agriculture technology, business planning including cash flow forecasting etc. need to held at a regular interval. Presently, there is no focus on the training needs of an entrepreneur running these CHCs centres.

iv. Availability of trained machine operator and absence of support services at CHC are also key challenges for operating CHCs.

7.3 Important Suggestions for CHCs

Table 15

CHC setup	It should be kept flexible to include registered cooperative, Self Help Groups, Producers Organization or individual entrepreneur fulfilling bank loan requirements. CHC should be modelled as an agri hub providing access to machines on rental as well as package of practices, quality inputs, and extension services.
Selection of entrepreneur	The aspiring entrepreneur should have a business plan ready while applying for setting up a center. There should be clear plan on utilization of machines, estimated break-even period and returns expected. He/She should have preferably a farming/agriculture background so that he/she is able to understand the linkage between farm mechanization and productivity. Cooperatives/SHGs who have access to finance and have the experience of working with farmer groups should be encouraged to set up CHCs. Individual who has a good reputation in the village and can act as a lead to encourage farmers to understand the benefits of farm mechanization and hence avail these services.
Access to finance	CHCs should be linked to banks through a fair and transparent screening process. Subsidy disbursement should be done in installments where each installment should be performance linked. There should be a set performance or impact criteria, on the basis of which, each installment should be disbursed. Regular monitoring of the performance of the centres and impact should be performed to ascertain if the entrepreneur is eligible for the next tranche of subsidy payment. There should be relaxed guidelines on the duration of the lock-in period for loan repayment but lock-in period for an entrepreneur to keep the centre running should be strictly fixed and monitored.
Maintenance of machinery and financial records	CHCs should maintain proper audited records of machines purchased, rental income, expenses incurred, subsidies and bank loans availed. CHCs should maintain e-records and a central database should be created at the state level to track the performance of the CHCs, their effectiveness and how these should be scaled up both in operations and number of centres.
Monitoring and utilization evaluation system	CHCs should mandatorily submit their asset and financial accounts to the district agricultural department. There should be a mechanism to gather feedback from entrepreneurs and farmers availing services by Gram Sevaks or state department officers to improve the functioning of the centres.

Central Govt. through “Sub Mission on Agricultural Mechanization (SMAM)” and various State Govts. through State specific schemes are providing grant assistance up to 50% for setting up CHCs. These CHCs can be established by Farmers group, Individual Farmers and Cooperatives (Table 15).

7.4 State wise No. of Custom Hiring Centers

Table 16

Andhra Pradesh	37
Chhattisgarh	782
Haryana	16
Himachal Pradesh	4
Jammu and Kashmir	17
Karnataka	6
Madhya Pradesh	1922
Odisha	2960
Punjab	13
Rajasthan	18
Tamil Nadu	420
Tripura	3

Source <https://farmech.dac.gov.in> (information available as on 31st August 2018)

7.5 Strategies and Recommendations to suit Indian Agriculture

Further while elaborating strategies and recommendations to suit Indian Agriculture Recommendations by Committee on Doubling Farmers’ Income (DFI), Department of Agriculture, Cooperation and Farmers’ Welfare, Ministry of Agriculture & Farmers’ Welfare also impressed upon establishment of Agriculture Machine Banks and Custom Hiring Centres. Some of the major recommendations of the Committee are as follows;

- The DFI Committee recommended a target of at least one custom hiring centre (CHC) in every large village or Gram Panchayat (GP) in case of small villages. The custom hiring centre should typically house the low order machines needed to suit the crops and production systems in that village. The recommendation does not restrict more than one such centre in a village and multiple such centres can be welcomed,

depending upon crop area, cropping intensity and other likewise needs for mechanised support for agricultural works.

- ii. An Agricultural Machinery Bank (AMB) should be established at District level. The Bank is expected to house cost intensive machines like combine harvesters etc as well as high level maintenance and repair facilities. The order of investment in these centres would be about ₹ 75 Lakh to ₹ 100 Lakh.
- iii. As a third tier in the hierarchy of mechanization, Regional/State level Service Centres may be promoted in the private sector. These can service large geographies and cater to specialised and a package of services. They may imply an investment of about ₹ 150 to ₹ 200 Lakh.
- iv. Besides hiring of machines, a natural corollary is that farmers hire mechanised services as per their needs. This will alleviate the need for each farmer to own machinery and learn skills to operate the individual machines. Each Centre that rents machines can also rent out the associated package of service of that machine (the equipment and skilled manpower to deploy the machine efficiently and effectively). Such mechanised service enterprises for farmers, will also create jobs for skilled youth in that region.
- v. The Committee also suggested that the Central government, in formulating a contract farming legal piece, include

contracted services as part of the provision. As such, the formulation of a Model Contract Farming and Services Act that caters to various agricultural services including farm machinery is recommended.

- vi. The States must undertake district and block level crop/agriculture planning so that most appropriate type of development is carried out. This will ensure better capital use efficiency in farm mechanization.
- vii. To promote and make mechanised tools available to farmers, it is necessary for the government to provide suitable and targeted support to farmers. The establishment of enterprises (CHC) that provide farming tools and machines is presently being supported through provision of subsidy. However, the farmers may also be provided support for the hire of such machines. The subsidy to farmers can be routed through the Aadhaar linked DBT (direct benefit transfer) mechanism to ensure that the support reaches right beneficiary. To prevent misuse or over use, the farmer may be required to pay the rental in full, to the CHC or AMB, and subsequently get relief in the rental through direct benefit transfer. The hiring facility would require to upload and confirm the utilization including the running hours and other details of farmer, the field and type of equipment. This system would also provide granular data to the monitoring departments to assess better the mechanization in use, and penetration of farm mechanization in each region.

Annexure A

Major Commonly used Farm Machineries and Implements

Tractor

Manufacturers	Specifications (PTO HP)	Price Range
EICHER	20.5 – 38	₹ 575000 to ₹ 620000 (39 -42 PTO HP)
HMT	21.9 – 64	
John Deere	32.5 – 63.35	
Mahindra	13 – 51	
TAFE	27.5 – 75	
Sonalika	24.67 – 40.63	
Shaktiman	26.2 – 52	
Mitsubishi Shakti	18.5	



Tractor

Power tillers

Manufacturers	Specifications (PTO HP)	Price Range
GREAVES	14.6 W.C. Engine	₹ 161000 (with Rotary) approx
KAVI	11 KW 14.75 HP	
KRANTI	11-2 KW 15 HP	
Manam	7.00 KW	
RHINO	10.7 (KW) 14.5 HP	
SHRACHI	8.5 KW 11.4 HP -9.00 KW 12 HP	
VIJAY	VR-15 L 14.3 HP	
VST	9 – 14.3 HP	



Power tillers

Rotavator

Manufacturers	Specifications (PTO HP)	Price Range
Shaktiman	should be matching with	Approx 105000
MALWA	Tractor/Power Tiller to be	
Sonalika	purchased	
Fieldkin		



Rotavator

MB Plough

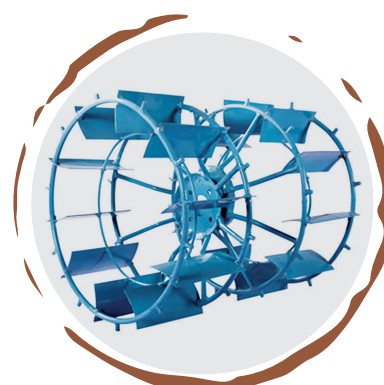
Manufacturers	Specifications (PTO HP)	Price Range
Not Specific	should be matching with Tractor/Power Tiller to be purchased	Approx. 27000 and above



MB Plough

Cage Wheel

Manufacturers	Specifications (PTO HP)	Price Range
Not Specific	should be matching with Tractor to be purchased	



Cage Wheel

Disc Harrow

Manufacturers	Specifications (PTO HP)	Price Range
Not Specific	should be matching with Tractor/Power Tiller to be purchased	₹ 46000 approx. and above (depending upon no. of discs)



Disc Harrow

Cultivator

Manufacturers	Specifications (PTO HP)	Price Range
Not Specific	should be matching with Tractor/Power Tiller to be purchased	₹ 20000 approx.



Cultivator

Seed cum Fertilizer Drill

Manufacturers	Specifications	Price Range
Not Specific	7,9 & 11 tynes, should be matching with Tractor	₹ 40000 approx. and above



Seed cum Fertilizer Drill

Paddy Transplanter

Manufacturers	Specifications (PTO HP)	Price Range
Mahindra & Mahindra	2.3 HP / 170 Kg	₹ 182000 approx
VST Tractors & Tillers	2.3 HP / 305 Kg Self propelled	



Paddy Transplanter

Power Reaper

Manufacturers	Specifications	Price Range
Mahindra & Mahindra	2.3 HP / 170 Kg	₹ 110000 approx
VST Tractors & Tillers	2.3 HP / 305 Kg Self propelled	



Power Reaper

Thresher

Manufacturers	Specifications (PTO HP)	Price Range
Guru Hindustan	25 HP Multicrop	₹ 1,50,000 approx. and above
Krishana	7.5 HP – 20 HP Motor Operated, 25 HP Tractor Operated	
MALWA	10-20 HP Multi Crop/ Paddy	
Sonalika	5 – 25 HP Multi Crop/ Paddy, Tractor / Motor Operated	
Vijay	5 – 20 HP Multicrop	



Thresher

Combine Harvester

Manufacturers	Specifications (PTO HP)	Price Range
Not Specific	Not Specific	₹ 10.00 Lakh approx. for tractor mounted and ₹ 19.00 Lakh approx. for self propelled.



Combine Harvester

Annexure B

List of Drudgery Reducing Technologies for Women in Agriculture

Sr. No.	Name of Implement	Function	Cost (₹)
1.	Hand Ridger	For making ridges in field to sow vegetables on ridges and for making furrows in field for irrigation.	700
2.	Seed Treatment Drum	For uniform mixing of chemicals in seeds for its treatment before sowing.	2000
3.	Fertilizer Broadcaster	For uniform application of granular fertilizer in field.	2500
4.	CIAE Seed Drill	For row sowing seeds of wheat, soybean, maize, gram, pigeon pea etc.	5000
5.	PAU Seed Drill	For row sowing seeds of wheat, soybean, maize, gram, pigeon pea etc.	5000
6.	Naveen Dibbler	For dibbling bold (like maize, soybean) or costly/scarce seeds in less area and for gap filling purpose.	700
7.	Rotary Dibbler	For dibbling bold or medium or costly/ scarce seeds in less area or gap filling of seeds in soybean, sorghum and maize crops.	2300
8.	Four Row Paddy Drum Seeder	For line sowing of sprouted paddy seeds in puddled field.	6000
9.	Two Row Rice Transplanter	For transplanting of 20–25 days old mat type rice seedlings (at 3-4 leaf stage) in two rows simultaneously under puddled conditions.	6000
10.	Twin Wheel Hoe	For weeding and interculture in up land row crops in black soil region.	800
11.	Improved Sickie	For harvesting wheat, rice, soybean, chickpea, grasses and thin stalked crops.	60
12.	Sitting type Groundnut Decorticator	For separating kernels from groundnut pods.	2400
13.	Groundnut Stripper	For stripping on groundnut pods	2500
14.	Tabular Maize Sheller	For shelling maize from dehusked cob	60
15.	Rotary Maize Sheller	For shelling maize from dehusked cob.	6000
16.	Cono Weeder	Uprooting and burying of weeds in between standing rows of rice crop in wetlands	1900
17.	Cotton Stalk Puller	To uproot cotton plant stalks from soil.	1200
18.	Sugarcane stripper	For stripping of sugarcane.	220
19.	Peddle operated Paddy Thresher	For threshing of paddy	5500
20.	Fruit Harvester	Plucking of fruits from orchard trees.	600
21.	Hanging Type Grain Cleaner with Sack Holder	For separating impurities like stubbles, chaff, dirt and broken received with grain after threshing.	5700
22.	Paddy Winnowing	For cleaning grain after harvesting.	6000
23.	Double Reflector Box Type Solar Cooker	For cooking and roasting of food items.	4500
24.	Bhindi Plucker	To protect worker from thorny/chemical materials during bhindi harvesting.	35
25.	Wheel Barrow	Carrying of agricultural materials	2000
26.	Grain Mill	For making flour from grains/ other items.	19000
27.	Hand Operated Chaff Cutter	For cutting chaff/fodder/stalk into small pieces	7000
28.	Dal Mill	Preparation of Dal from whole pulse grain	30000
29.	CIAE Cook Stove	For cooking	1000
30.	Scissor type Tea Plucker	For plucking tea leaves	450
31.	Rotary Arecanuts Dehusker	For dehusking arecanuts	3000

Source: <https://farmech.dac.gov.in/>



NABARD

Farm Sector Policy Department
National Bank for Agricultural and Rural Development

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Bandra East, Mumbai 400051.
Tel.: 022 – 26539895, 26539896, 26539899
Website: www.nabard.org

2018



The Banyan is great, not because of its trunk, but because of its offshoots.
We take pride in our partners, because it is they who enable us to reach out to rural India.



WYATT Prism
COMMUNICATIONS (info@wyatt.co.in)