

Farm Mechanisation

FARM MECHANISATION

Agricultural Mechanization

- **Farm mechanization refers to the development and use of machines that can take the place of human and animal power in agricultural processes.**
- **“Agricultural Mechanization removes the drudgery associated with agricultural labour, overcomes time and labour bottlenecks to perform tasks within optimum time windows and can influence the environmental footprint of agriculture leading to sustainable outcomes.”**

Agricultural mechanization implies the use of various power sources and improved farm tools and equipment, with a view to reduce the drudgery of the human beings and draught animals, enhance the cropping intensity, precision in metering and placement of inputs and timelines of efficiency of utilization of various crop inputs (seed, chemical, fertilizer, irrigation, water etc.) and reduce the losses at different stages of crop production. The end objective of farm mechanization is to enhance the overall productivity and production with the lowest cost of production.

It also helps in the conservation of the produce and byproducts from qualitative and quantitative damages; enables value addition and establishment of agro processing enterprises for additional income and employment generation from farm produce. It is one of the important inputs to user in all round development in the rural India.

In Andhra Pradesh, though, there has been a considerable progress of mechanization in agriculture; its spread has, however, been most uneven. Some of the initial problems in farm mechanization had been the small and scattered size of farm holdings, financially challenged farmers, lack of awareness among the marginal farmers, and the issue of dry land agriculture. Majority of these problems have been addressed in our State with sustained focus on farm mechanization by the successive governments by way of extending financial aid by providing subsidy to the farmers in procuring farm implements suitable to their needs.

The problems like small holdings and rain fed agriculture still remain, but there is a general air of concern regarding the further progress in this sector. What is really amiss is that we are still very much behind in respect of overall farm mechanization which calls for employment of contemporary highly mechanized farm machinery.

Status of mechanisation in the State: Status of mechanisation in the State:

In Andhra Pradesh at present the Farm power availability is below 2.00Kw / Ha which is low and there is lot of scope for improvement. This can be improved by providing adequate subsidies to procure high cost machinery and by concentrating more on the financially challenged regions in addition to the developed regions which already have a sound farm mechanization infrastructure.

The farming system continues to utilize manual power, animal power and tractor Power. In order to bring more land under cultivation and to improve productivity per unit area it is necessary to introduce other sources of power like tractors, power tillers, oil engines, electric motors and renewable energy.

Agricultural mechanization has made significant contribution in enhancing cropping intensity. Furthermore, the percent gross cropped area irrigated is positively related to cropping intensity. The facilities of tubewell irrigation and mechanical power helped the farmers in raising the cropping intensity of their farms. Cropping intensity was mainly dependent on annual water availability and the farm power available.

Factors emphasizing the need for Farm Mechanization:

- * Increased migration of rural workers to urban areas, increase in cost of farm labour.
- * Sustainable agricultural productivity.
- * Over dependence on monsoons.
- * Need for High Cost Machinery for better turnout in shorter time.
- * The use of tractors enhanced agricultural productivity due to better seed-bed preparation, timeliness of operations and precision in distribution and placement of seed and fertilizer owing to the use of the seed-cum-fertilizer drills.

Funding :

*** State Development Plan (SDP)-**

Aims in supply of individual implement / equipment to individual farmers. This equipment performs a single operation or part of various operations in a crop. This normally being funded by the State Government through SDP (State Development Plan). The budget allocation in BE 2017-18 is Rs.146.63 crores.

Rashtriya Krishi Vikas Yojana (RKVY) –

Central Sector Scheme with funding pattern of 60:40 (Central : State). Aims in supply of Crop based group (set) of machinery / equipment to a group (Rythu Mithra Groups / Joint Liability Groups etc.) of farmers. These set of equipment aims in performing all /majority of feasible farm operations of a particular crop. This is being funded by the Govt. of India through RKVY (Rastriya Krishi Vikas Yojana). The budget allocation in BE 2017-18 is Rs.113.16 crores.

- * **Sub-Mission on Agriculture Mechanization (SMAM):** Central Sector Scheme with funding pattern of 60:40 (Central : State) for supply of farm machinery. Training and demonstrations have 100% central funding. The budget allocation in BE 2017-18 is Rs.155.765 crores.

The total budget allocation towards Farm mechanization scheme during 2017-18 is Rs. 415.555 crores. As huge amounts are involved transparency in implementation of the scheme is given utmost importance. To ensure quick and transparent transaction right from receipt of application to the delivery of the equipment and payments to the firms. Online application system through Meeseva is followed since last two years and is a big success.

Establishment of Custom Hiring Service Centres (CHSC) on PPP Mode in Andhra Pradesh

Andhra Pradesh State is typically an agrarian State with 100.00 lakh ha of geographical area with 80.96 lakh ha of net sown area and has about 65.39 lakh ha operational holdings & 34.35 lakh ha are small and marginal holdings.

Diversified agriculture and horticulture crops grown in varied Agro-climatic regions of the state. The challenge is to get higher yields, in spite of vagaries of nature besides other problems such as decrease in the availability of agriculture labourers and migration of farmers from rural area to cities etc. Mechanization of farm activities is the need of our to increase production and productivity. Though subsidy is being provided for farm machinery, due to prohibitive cost of farm machinery all farmers may not come forward to own them. Hence, establishment of Custom Hiring Service Centre (CHSC) is a boon for farmers especially for the small and marginal farmers.

The Applicant selected at District level will have to establish custom hire service centres at Mandal level in the selected District. One Applicant can apply for more than one District.

To participate in the process minimum selection unit is District. Criteria will be given to the applicants whose firm had experience in manufacturing crop specific equipment. For each district 10% allocation will be given to NGO's/PACS/FPO's provided they must possess appropriate credentials.

Government assistance for each centre:

The Department of Agriculture proposes to establish 200 CHSCs (Rs.50.00 lakhs to one crore per centre) during the year 2017-18. **Government assistance is 50% subsidy. The total cost is expected to be about 150 to 170 crores.**

Fixing of the Hiring Charges:

The hiring and service charges for tractor and other equipments shall be fixed by the Districts Implementation Committee headed by the District Collector.

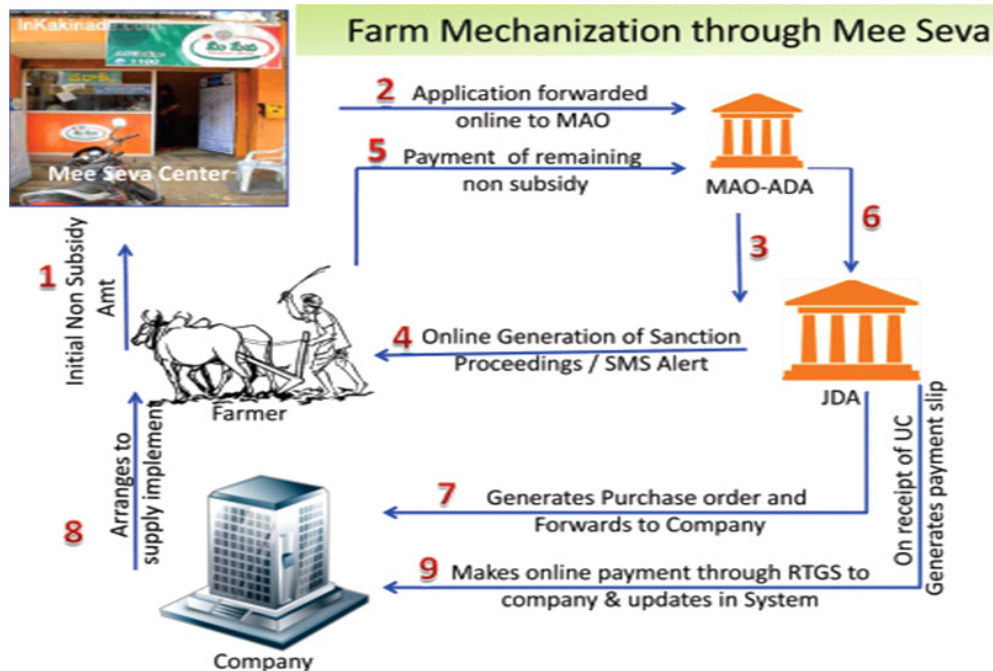
The committee will comprise of the

1. Committee headed by the District Collector.
2. District Joint Director of Agriculture,
3. Two Progressive Farmer (awardees),
4. Leading farm machinery manufacturer in the District,
5. ADA (FM)
6. CHSC representative,
7. University of Agriculture representative and
8. DM, APAGROS as members.

The committee shall take into account the fuel prices, interest payable to bank on loan and return on investment, salary of drivers, repairs, both preventive and breakdown, distance from Service Centre to fields, wear and tear, life of the machinery and other incidental expenses including establishment expenses while determining the hiring charges. Separate hiring charges should be fixed for Small & Marginal Farmers as a category and other category farmers, **wherein hiring charges for Small and Marginal category farmers will be lower than the other category farmers. Rates should be reasonable and realistic and should be in reference to market rates as obtaining from time to time.**

TECHNOLOGY SUPPORT

The short listed applicant is expected to create appropriate facility for manual and automatic order booking, real time order status tracking, real time tractor location tracking, break down and delay management, driver management, implement management either by phone to a toll free call number or through a mobile app or through a website.



The equipment that is required and to be supplied under Farm Mechanization subsidy schemes 2017-18 were finalized in consultation with the scientists of Agricultural University, CRIDA (Central research Institute for Dry land Agriculture, CIPET (Central Institute of Plastic & Engineering Technology), FMTTI (Farm Machinery training & Testing Institute), Farmers and Mandal & District level Officers from the Department of Agriculture.

The equipment finalized for supply under various Farm Mechanization subsidy schemes during 2017-18 useful to farmers right from land preparation to harvesting and post harvest are as follows:

Land Preparatory & Sowing –Planting Equipment:

1. 2 & 3 MB Plough normal & reversible
2. 5, 7, 9 & 11 tyne cultivator, Duck foot cultivators
3. Guntaka blades
4. Bund Former,
5. Spike tooth Harrow
6. SubSoiler

7. Disc Harrow, Power Harrow, Rice Harrow
8. Disc Puddler
9. Vishnu puddler
10. Levelling blade Reversible
11. Power Tiller
12. Rotavator 24, 36 & 42 blades, multi gear
13. Laser Guided Land Leveller
14. Transplanters 6 & 8 row Riding & 4 & 6 row Walking type
15. Mobile Shredder 1 or 2 row
16. Mulcher cum Shredder
17. Animal Drawn Seed Drills
18. Ananta Model Seed Drills
19. Automatic Multi Crop Seed drill
20. Drum Seeder
21. Seed cum fertilizer drill
22. Rows Adjustable Channel type Seed Drills (Vikas & Vijay model)
23. Pneumatic Seed Drill
24. Green Manure Trampler

Irrigation & Inter cultivation Equipment

1. Diesel Engine with accessories (pump and suction pipe, Foot valve, Delivery pipe, trolley)
2. Tractor PTO Generator
3. Power weeder – Double Row
4. Roto Weeders
5. Paddy Multiple Row Weeder

Plant Protection Equipment

1. High Pressure Knapsack Sprayers
2. Hand Sprayers
3. Foot Sprayers
4. Rocker Sprayers
5. Tractor Mounted Boom Sprayers etc.

Harvest Equipment.

1. All Existing Harvesters during 15-16
2. Paddy reaper
3. Paddy Reaper cum binder
4. Tractor front mounted reaper (Compatible to all HP Tractors)

Post Harvest Equipment.

1. Paddy Threshers
2. Straw Ballers
3. Winnowing Fans
4. Mini Dal Mill
5. Multi Crop Threshers
6. Turmeric Boilers
7. Maize Shellers
8. Tarpaulins

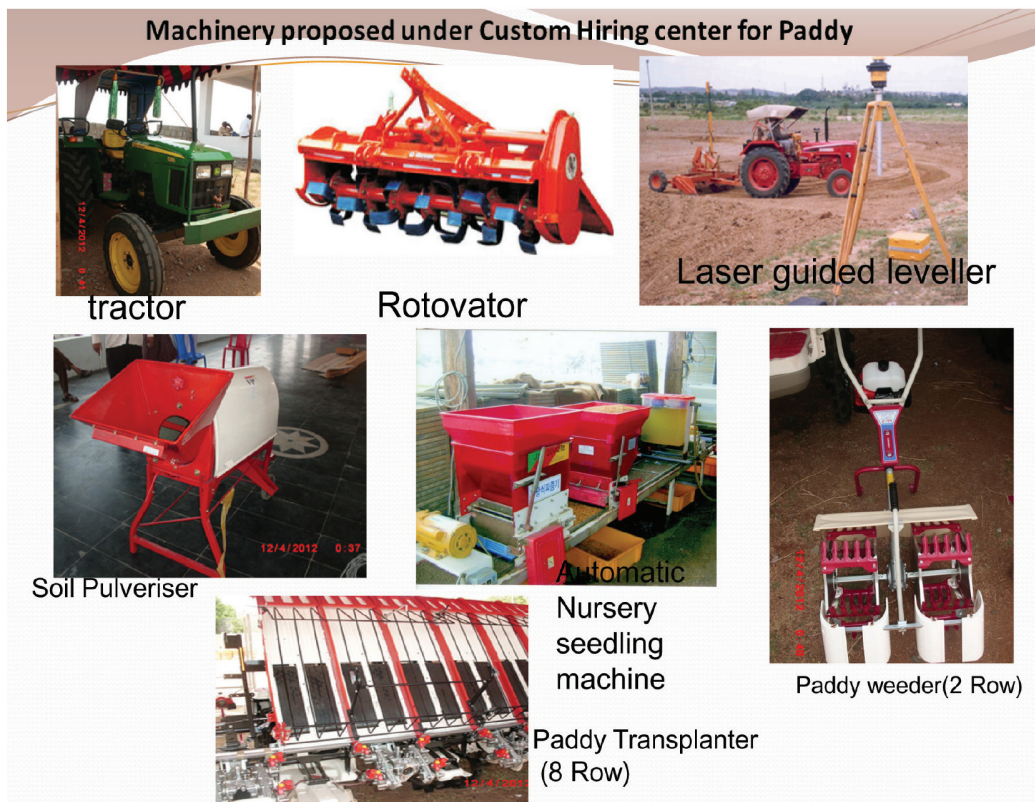
Others

1. Bullock carts

CUSTOM HIRING CENTERS (CHC): These are packages of Crop Specific Machinery designed with machinery required for land preparation to harvesting.

During 2017-18 CHC's for Paddy (SMSRI, Mini SMSRI & Harvesting), Maize and Groundnut are supplied to Group of farmers / RMG's / JLG's/ SHG's with 50% subsidy on total cost of package.

1. MSRI (Mechanized System of Rice Intensification) Package :



S No	Machinery particulars	Quantity	Recommendations of the Expert committee
1	Nursery Raising Machine (Manual) (or) Automatic seedling machine	1	Optional
2	Nursery Trays	8000 to 10000	Optional
3	6 row (or) 8 row Paddy transplanter	1or 2	1 Mandatory and 1 optional
4	Tractor drawn wet land leveler	1	Optional
5	35HP and above tractor with Rotavator/ Power Tiller	1	Mandatory
6	Soil Pulveriser 5 HP	1	optional
7	Power Weeder	1 to 4	Optional
8	Tractor operated Laser guided land	1	Optional
9	Paddy Reaper cum binder	1	Mandatory

2. Package of Mini MSRI machinery

Mini MSRI



4walker transplanter



Reaper



Mini Tractor with Rotovator



Power tiller




Paddy thresher




S. No.	Machinery particulars	Quantity (in Nos.)	Recommendations of the Expert committee
1	4 walker Paddy Transplanter (or) 6 row or 8 row riding type.	1	Mandatory
2	Nursery trays	1600 to 2200 Nos.	Optional
3	Manual seedling machine	1	Optional
4	Paddy reaper / Reaper cum binder	1	Optional
5	Power Tiller with Rotary tiller (or) 4 wheel drive Mini Tractor with Rotovator (<24 HP)	1	Mandatory
6	Paddy Thresher	1	Optional

3. Package of Machinery for Maize:


CHC MAIZE




Tractor




Rotovator



Laser guided leveller



Maize Harvester



SEED DRILL

S.No	Machinery	Quantity	Recommendations of the Expert committee
1	Above 35HP Tractors with Rotovator	1	Optional
2	Tractor drawn Multi crop Planter	1	Mandatory
3	Tractor drawn Zero Till Seed drill	1	Optional
4	Combine Harvester for Maize (Tyre or Track type)	1	Mandatory
5	Tractor operated Laser guided land leveller	1	Optional

4. Package of Machinery for Ground Nut:

Package of Machinery being supplied under Groundnut package

Tractor with Rotovator

Groundnut seed drill(gorru)

Groundnut planter

Groundnut digger cum shaker

Groundnut thresher

S. No	Machinery	Quantity	Recommendations of the Expert committee
1	Above 35 HP Tractor with Rotavator	1	Optional
2	Tractor drawn Multi Crop Planter	1	Mandatory
3	Ground nut digger/shaker cum windrower	1	Optional
4	Tractor mounted boom sprayer/Aeroblast sprayer (400 lt capacity)	1	Optional
5	Power operated Ground nut wet Pod Thresher Or Dry Pod thresher (power operated)/ Modern Automatic High Capacity Multi Crop Thresher	1	Mandatory
6	4 Row bullock drawn automatic Groundnut planter	1	Optional
7	Hand operated Groundnut decorticator	1	Optional
8	Inter cultivation equipment along with slim tyres	1	Optional

5. Package of Machinery for Harvesting:

HARVESTING PACKAGE



HARVESTER



STRAW BALER



SHREDDER CUM MULCHER



S.No	Machinery	Quantity	Recommendations of the Expert committee
1	Self Propelled Combined Harvester	1	Mandatory
2	Straw Baler / Shredder cum mulcher	1	Mandatory

Scheme wise District wise Budget Allocations during 2017-18:

Rs.in Lakhs

Name of the Scheme : SDP 2017-18					
S.No	District	General	SCSP	TSP	Grand Total
1	Srikakulam	622.70	170.60	59.71	853.02
2	Vizianagaram	367.56	100.70	35.25	503.51
3	Visakhapatnam	292.00	80.00	28.00	400.00
4	East Godavari	810.67	222.10	77.74	1110.51
5	West Godavari	1044.27	286.10	100.14	1430.51
6	Krishna	697.52	191.10	66.89	955.51
7	Guntur	969.81	265.70	93.00	1328.51
8	Prakasam	576.19	157.86	55.25	789.30
9	Nellore	663.79	181.86	63.65	909.30
10	Kurnool	1003.71	274.99	96.25	1374.94
11	Ananthapur	1271.58	348.38	121.93	1741.89
12	Kadapa	1110.86	304.35	106.52	1521.73
13	Chittoor	1273.41	348.88	122.11	1744.40
Grand Total		10704.07	2932.62	1026.42	14663.11

FARM MECHANIZATION DISTRICT WISE ALLOCATION
SMAM 2017-18

S.No	Name of the District	General	SC	ST	TOTAL
1	SRIKAKULAM	522.42	147.16	66.22	735.80
2	VIZIANAGARAM	287.15	80.89	36.40	404.43
3	VISHAKAPATNAM	381.41	107.44	48.35	537.20
4	EAST GODAVARI	768.98	216.61	97.48	1083.07
5	WEST GODAVARI	1637.12	461.16	207.52	2305.80
6	KRISHNA	462.21	130.20	58.59	651.00
7	GUNTUR	891.76	251.20	113.04	1256.00
8	PRAKASAM	865.28	243.74	109.68	1218.70
9	NELLORE	396.82	111.78	50.30	558.90
10	KURNOOL	764.17	215.26	96.87	1076.30
11	ANANTAPUR	494.59	139.32	62.69	696.60
12	KADAPA	2404.42	677.30	304.79	3386.50
13	CHITTOR	626.01	176.34	79.35	881.70
TOTAL		10502.32	2958.40	1331.28	14792.00

Rs.in lakhs

Name of the Scheme : RKVY 2017-18					
S.No	District	General	SCSP	TSP	Grand Total
1	Srikakulam	294.56	80.70	28.25	403.50
2	Vizianagaram	208.78	57.20	20.02	286.00
3	Visakhapatnam	21.90	6.00	2.10	30.00
4	East Godavari	658.83	180.50	63.18	902.50
5	West Godavari	936.23	256.50	89.78	1282.50
6	Krishna	273.75	75.00	26.25	375.00
7	Guntur	538.38	147.50	51.63	737.50
8	Prakasam	63.88	17.50	6.13	87.50
9	Nellore	237.25	65.00	22.75	325.00
10	Kurnool	1538.48	421.50	147.53	2107.50
11	Ananthapur	881.48	241.50	84.53	1207.50
12	Kadapa	1198.30	328.30	114.91	1641.50
13	Chittoor	1408.90	386.00	135.10	1930.00
Grand Total		8260.68	2263.20	792.12	11316.00

