

## **Maximising with Mechanization**



### **Background & Objectives**

To meet food and nutritional demands of a growing population, Indian agriculture needs to grow at about 4% during the 12th Five Year Plan, that too, in the challenging context of competing demands for land and water resources, scarcity of farm labour and a looming threat of climate change.

An accelerated growth in Farm Mechanization during the current decade will be a key enabler for coping with this challenge and helping to sustain desired agricultural growth.

In India, farm mechanization has gained ground in the last five years for carrying out various farm activities efficiently and effectively; it has gained additional momentum due to the ever increasing scarcity of agricultural labour in the recent years. However, farm mechanization in India, notwithstanding its strong and positive correlation with agricultural productivity, has only been able to achieve a meager growth rate of less than 5% in the last two decades.

The primary reason for the low level of mechanisation is the difficulty of mechanising the small and marginal farms (< 2 ha of farm size) who remain at the core of Indian agriculture. However, mechanizing these small and non-contiguous lands is against 'economies of scale' especially in operations like land preparation

and harvesting that require capital intensive equipment. With continued shrinkage in average farm size and lower credit worthiness of small farmers, individual ownership of agricultural machinery becomes progressively more uneconomical and out of reach of majority of Indian farming communities. This phenomenon of gradual 'exclusion' of majority of small and marginal farmers in India from the benefit of farm mechanization has been reaffirmed by NSSO sample survey (2005) that revealed that the degree of farm mechanization has developed a stronger bias towards larger land holdings (>5-6 ha farm size).

### **Intervention**

In Andhra Pradesh, focus on farm mechanization has, in the past, been by way of providing subsidy to farmers for procuring farm implements suitable to their needs. However, this benefit has, as elsewhere, not reached many of the small and marginal farmers. Therefore, though there has been considerable progress of mechanization in agriculture in the State, its spread has been very uneven.

Moreover, there were also concerns regarding further progress in this sector. What was really amiss was overall farm mechanization that required employment of contemporary highly mechanized farm machinery such as paddy transplanters, combine harvesters, multi-crop threshers, etc., was still to make any major impact in the process of agri-mechanization, primarily due to the high capital cost involved.

In order to accelerate the pace of agricultural mechanization in Andhra Pradesh, the Government undertook implementation of the Intensified Farm Mechanization Project under RKVY from 2008-09 to 2010-11.

Supply of Farm Implements to individual farmers on 50% subsidy was limited to Rs. 30,000 during 2008-09 and Rs. 45,000 during 2009-10 & 2010-11. Rs 96.46 crores have been invested in this intervention during the span of 3 years.

From 2009-10, the Project was extended to provide high cost machinery to Farmers' Groups on 50% subsidy, limited to Rs. 10.00 lakhs. Subsidy of Rs 50.66 crores was provided to various

farmers' groups for purchase of 541 modern high value implements like transplanters, harvesters, threshers, power weeders, etc in the 2009-10 and 2010-11.

## **Outcome**



Though increase in production of food grains has been made possible as a result of several factors like adoption of quality seeds, better use of fertilizers, plant protection techniques and improved irrigation facilities, it is observed that farm power availability contributes significantly in increasing productivity and promotes better handling of inputs and outputs, which results in saving in inputs and reduction in harvest losses.

Supply of highly end machinery has resulted in efficient management of inputs facilitating increased cropping intensity, plantation and harvest at proper stage, rapid and timely harvest that has provided extra days for land preparation and early planting of the next crop, reduction of cutting and containing losses to less than 2 percent, reduction in threshing time and obtaining required quality outputs compared to traditional threshing methods, and reduction in drudgery and operation time.

With increase in efficiency and timeliness of farm operations, mechanized farming will result in saving in inputs, viz., seed and fertilizer by 20% and increase in productivity by 10 to 30%. Therefore, on an average, net returns to farmers will improve due to timely operations, saving of labour cost, saving of inputs like seed and fertilizers, good quality produce etc., thereby reducing the cost of production as compared to the traditional cultivation practices.

### **This is what beneficiaries report -**

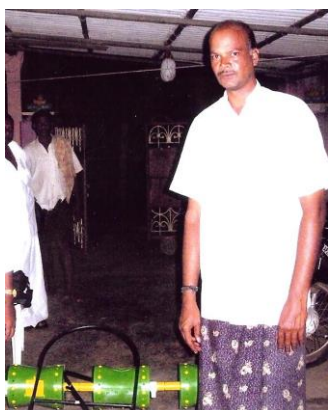
- **Rythu Club, Korrpadu Village, Rajupalem Mandal, Kadapa District**

“We have been facing lot of problems in completing rice transplanting in time because of labour shortage. To overcome this problem, we procured a Rice Transplanter costing Rs. 10.20 lakhs on 50% subsidy under RKVY this year. Spacing was perfectly maintained and as a result there was good aeration, more number of tillers and fewer problems of weeds. We have a total savings of around Rs. 1800 per acre and an increase of about 25% in yield; the quality of the grain is also better”.



• **Parimi Venkata Narsimha Rao, Pasivedala Village, Kovvur Mdl, West Godavari District**

“I procured an 8 row paddy drum seeder on subsidy for Rs. 3,201 (full cost Rs. 6,402). The labour required was much less compared to the traditional method and water consumption also got reduced. There was profuse tillering with uniform grains. I achieved 12% increase in productivity and Rs. 90,000 additional income per hectare.”



- **R. Subba Reddy, B. Cheruvu Village, Atmakur Mandal, Nellore District**

“I procured a Rotary Tiller (Rotavator) on subsidy used for preparatory cultivation. I took up paddy cultivation in 5 acres. There was good and optimum soil tilth condition. As a result, plant population was optimum. There was a saving of Rs. 1500/acre as there was no need to take up ploughing, puddling and levelling operations separately. Weeds, stubbles and green manure were effectively mixed in the soil thereby improving the organic content of the soil. I observed a 10% increase in yield, @ 2 qtls/acre. On the whole, I got a total benefit of Rs.3300/acre after using this implement.”

- **M. Thirupal Reddy, Thuvvapalli Village, Kodur Mandal, Kadapa District**

“I procured a Multi Crop Thresher. I cultivated Sunflower in 10 acres and used this Multi Crop Thresher for threshing the produce. There was substantial saving in time and labour cost and about 15% reduction in grain loss and good improvement in quality of grain. I could get a net benefit of Rs. 1000/acre with the use of this machine.”

The project on Intensified Farm Mechanization Project in Andhra Pradesh has come at a crucial time and has helped to widen the reach of farm mechanisation to traditionally excluded small and marginal farmers. Due to implementation of this programmatic intervention, farm power availability in the State has increased from 1.6 kw/ha during 2008 -2009 to 2.40 kw/ha in 2011-12.