Growth of Engineering Inputs in Agriculture of Odisha

[Article ID: SIMM0348]

Dr. Jyoti Nayak, Er. Chaitrali Shashank Mhatre, Er. Pragati Kishore Rout, Ms Lopamudra Mohanty

ICAR –Central Institute for women in Agriculture, Bhubaneswar

Introduction

Odisha is a developing state in the eastern part of India. It is located between the parallels of 17.49N and 22.34N latitudes and meridians of 81.27E and 87.29E longitudes. It is bound by the Bay of Bengal on the east; Chhattisgarh on the west and Andhra Pradesh on the south. It has a coast line of about 450 kms. It extends over an area of 155,707 square kms, accounting for about 4.87 % of the total area of India. Its population is 4.79 Crores (2023).

The agricultural sector is the dominant sector in Odisha as most of the people depend upon agriculture. But people of Odisha are not aware enough about the modern technologies of farming with developed machineries. On top of the shortage of labour, the farming community is affected by the continuous rural to urban migration. The migration however, is not due to better employment opportunities in terms of the income and satisfactory jobs available elsewhere, but rather, to a large extent, due to the attraction to wards modern amenities. Scarcity of agriculture workers can be managed only by mechanized farming system.

Mechanization of the farming system cannot be done by forcing the farmers. It depends upon their requirement. During extension of a new technology the primitive technology and idea of the farmer should be given due importance. The implementing agency should act like a catalyst to modify or rectify their ideas with mutual understanding. Otherwise, the new technology cannot be sustained. Therefore, farmers should be impressed upon the benefits and necessity of mechanization.

Benefits of farm mechanization

- Increases power inputs for farming activities, hence putting more land into production;
- Increases productivity by 12-34 % through precision planting / transplanting machines;
- Saves of 20 % seed and 15-20 % fertilizer in case of precision seed cum fertilizer planter.
- Improves the timeliness by saving 20-30 % time of farm operations;
- Accomplishes tasks by reducing labour requirement of 20-30 % which are difficult to perform without mechanical aids;
- Enhances cropping intensity by 5-22 %;
- Improves the quality and value of work, produce and processed products;
- Provides employment (entrepreneurship) and sustainable rural livelihoods through custom hiring centres;
- Reduces drudgery in farming activities, thereby enhancing lifestyles.

Constraints of Farm Mechanization

i. **Social barrier:** Most of the farmers believe that bullock and cow as their God. They worship the bullock and cow in several occasions. These people are hardly motivated towards mechanization of their farming system.

ii. **Small and scattered land holding:** Most of the farmers of Odisha are marginal farmers (<1 ha) with scattered patches of land. These people are not interested in mechanization.

iii. **Small plot size:** As per convention, the parental property including land, home, money and all assets should be equally divided among children. Though Orissa Consolidation of Holdings and Prevention of Fragmentation of Land Act have been functional by Government of Odisha from 1972, which declared fragmentation of land as illegal, still its effect is minimal. So, land is divided into many parts and the plot size is becoming smaller. Operation of tractor or big machineries like combine harvester is difficult in small plots.

iv. **Poverty of farmer:** Odisha is one of the poorest states of India. Huge amount of money is needed as initial investment to purchase the machineries, which is not possible on the part of poor farmers of Odisha.

v. **Lack of awareness of farmers:** Generally, farmers cultivate their field in the traditional way and their awareness about the modern technology of farming and modern machineries used in farming system is very little in interior districts. Some farmers take technologies/ machinery lightly and therefore these machineries become failure at the end. That creates a bad impression about the machine.

vi. **Availability of animal power:** As on 2009-10 Odisha has availability of 1.1 kW/ha farm power, out of which 0.589 kW/ha (53.55% of total farm power) is from draft animal. That indicates Odisha is having good draft animal wealth. So generally, farmers are not going for power operated machineries.

vii. **Fuel cost:** The cost of operation of power operated machineries is increasing due to rapid and constant rise in price, adulteration and unavailability of petroleum-based fuel in interior places. This situation keeps away farmers from agricultural mechanization.

viii. **Natural calamity:** Odisha is facing both flood and draught for last several years. Farmers are psychologically affected due to crop loss every year and therefore, farmer suicide is increasing every year.

ix. **Less irrigated area:** Odisha has only 2962.21 and 1476.81 thousand hectors of land irrigated during *Kharif* and *Rabi* season out of total 6.56 million hectares of agricultural land respectively (2009-10). For which, most of farmers go for single crop in a year. So, the annual use of the machinery decreases leading to creation of non-performing asset.

x. **Training Programme:** Less no of farmers' training programmes are conducted in Odisha for which farmers have less technical knowledge about machineries. Therefore, breakdown of machineries during operation takes place with low field efficiency.

Mechanization needs

Odisha has received a national award for being the Best Food grain Award 2010-2011 under the second category states of India. The award carries a cash prize of Rs 2 crore. That shows farmers of Odisha have potential to produce more food grains and mechanization plays a major role in it. They need more help and support from Government, SAU (OUAT), NGOs, Manufactures and other leading organizations. Some needs are listed below

for mechanization as per current situation and requirement of farmers of Odisha.

Immediate needs

i. Mechanization gaps in seeding and transplanting is very obvious. Therefore, machinery for this operation should be demonstrated to create awareness and save valuable inputs like seed and fertilizer.
ii. Development of manufacturing technology and commercial production of rotavator tynes for tractor and power tiller through local manufactures.
iii. Commercial production of power paddy reaper and its components, power tiller/ tractor operated axial flow threshers.
iv. Low-cost matching equipment's for tractor and power tiller should be developed to increase their utilization and for effective mechanization.
v. Training of farmers and local mechanics on selection, use and minor repair and maintenance of commonly used farm implements.
vi. Capacity building of field staff and engineers for operation and maintenance of machinery at block/ panchayat/ district level.

Long term needs

i. Popularisation and adoption of self-propelled rice transplanters, combine harvesters and machineries for horticultural crops.
ii. Commercial production of machineries related to the above purpose.
iii. Ergonomically safety and Performance quality of the machines should be properly checked.
iv. Establishment and popularisation of more number of Agro Service Centres.
v. Research and development, proto-type development units may be created in four zones of state instead of only at Bhubaneswar.

Conclusion

From the above discussion, it is clearly visible that the growth in farm mechanization in Odisha is phenomenal during the last decade, but to achieve a stable socio-economic condition in agricultural sector a joint effort from all the allied sectors is needed for the farming community. The only feasible solution for long term sustainability of farming is to increase the labour efficiency, alleviate drudgery and improve the technical knowledge of the farmers with improved technologies. Inclusive growth i.e. economic, social and cultural development of rural people should be focused to achieve through mechanized farming.

References

Anonymous. 2011. Farm Mechanization in Odisha . Souvenir Dept. of Agriculture, Govt. of Odisha, Bhubaneswar.

Anonymous. 2011. Odisha Agriculture Statistics 2009-10. Directorate of Agriculture and Food Production, Govt. of Odisha, Bhubaneswar.

Swain, S. and Goel, A.K. 2006. Agricultural Mechanization in Orissa. Souvenir 2006, CAET Alumni Association, pp: 93-95.

Thinley, K.; Wangchen, C. and Sakurai, H. 2011. Farm Mechanization in Bhutan. AMA. Vol.42 (4): 9-1