# Mechanization of Paddy Transplanting Through Cooperative Societies in Jalandhar Distt. of Punjab

**Pankaj Kumar[1], Kuldeep Singh[2], Rupinder Chandel[3] and Harjeet Kaur[4]**

1. Astt. Prof. Ext. Edu., KVK, Jalandhar, 2. Deputy Director (Trg). KVK, Jalandhar), 3. Demonstrator (Agil. Engg)., KVK, Jalandhar, 4. M.Sc. Home Sci. Ext. Edu., PAU, Ludhiana

*shelleypankaj@gmail.com*

## ABSTRACT

*Paddy is a major Kharif crop of the Punjab state. Most of the cultural operations especially the transplanting is done manually in paddy crop. The major factor of non popularization of manual transplanting was wide availability of labour at cheaper rates. But due to shrinkage in transplanting span and shortage of labour now day's mechanization of paddy transplanting is imperative. So farmers have started thinking if mechanized transplanting of paddy. State Govt. has also taken initiative by announcing subsidy on the paddy transplanters. There are three types of transplanters available in the market. Efforts for the popularization of paddy transplanters were again started extensively during the year 2009. In Jalandhar distt. the cooperative societies had purchased 14 paddy transplanters and the total area under mechanized transplanting was 170 acre during 2009 and 365 acre during the year 2010. One of the reasons of non adoption of paddy transplanter is its high cost and requirement of expertise in growing mat type nursery and operating the machines. These problems may be overcome by the purchase of paddy transplanters through cooperative societies and custom hiring of these. Further cooperative societies can do a wonderful job by imparting the knowledge and skills in growing mat type nursery and operating the paddy transplanter to the farmers with the help of KVKs, Agriculture Dept. and SAUs, etc.*

***Key words :*** *Paddy ; Transplanting; Mechanized transplanting; Cooperative societies;*

Paddy is a major crop of Punjab during the Kharif season. Although this is not the traditional crop of the Punjab, but due to assured irrigation facilities, secured and high returns the cultivation of this crop has been spread throughout the state and still increasing. In Punjab state, which is well known for its agriculture especially mechanization in agriculture, the paddy cultivation specifically the sowing and transplanting is still practiced by traditional methods i.e. manual sowing and transplanting. This practice gone well during the past 3-4 decades due to cheap and wide availability of the labour migrated from UP, Bihar, West Bengal etc.

According to a study by PAU, Ludhiana, 90% of the paddy sowing in the state is done by migrant labourers from Bihar and UP. But now days the development of these areas is on the rise and other rural development programmes like NAREGA etc. are running successfully. So availability of migratory labour is decreasing day by day. As a result farmers of Punjab face a lot of problems in paddy transplanting and labour charges for this has gone as high as up to Rs 5000/- ha. From Rs 2000/- per ha. Pitching in to help, the state government has deployed a Central grant of Rs 6 crore under the Agricultural Product Pattern Adjustment Programme to provide a 50% subsidy for mechanized paddy transplanters. Another Rs 4,000-per acre subsidy will be available for growing 'Modified Rice Mat Nurseries'.

*Need of Mechanization of paddy transplanting:* Decreasing availability and increasing cost of labour day by day, Govt. has specified the transplanting dates so less time is available for transplanting (only one month) over the state. So large area is to be transplanted in less time, Hindrance in other recommended operations in manual transplanting e.g. one dose of urea is recommended to be applied before transplanting. But if we do so it badly affects the skin of the labourers so this is applied after the transplanting. No of plants per

sq.m is not uniform and often very less (up to 50%) in manual transplanting resulting in yield loss. No. of plants per hill is also less resulting in low plant density

*Means of mechanization paddy transplanting:* For the paddy transplanting a no of companies are making machines of different types. According to their type these can be classified broadly into three types as mentioned below

- Manual walk behind machine (efficiency is low)
- Self propelled walk behind machine (efficiency better than manual but still low)
- Riding type - riding type machines are further of two types
- Floating type
- Four wheel drive

Four wheel drive Paddy Transplanter

Self propelled walk behind Paddy Transplanter

Floating Type Paddy Transplanter

Manual Paddy Transplanter

*Role of Cooperative societies in mechanization of paddy transplanting in Jalandhar Distt.:* During the year Govt of Punjab has passed an act in which transplanting of the paddy cannot be started before 10th of June. This act helped in saving natural resources of the State but crated a new problem of labour requirement. As transplanting span was decreased by nearly one month, the same area is to be transplanted in half of the time. So transplanting efficiency needs to be doubled. On the contrary the labour availability is decreased many fold. So the only way out was the adoption of the mechanized paddy transplanting. All the machines invented for the paddy transplanting are costly. The cost of these machines ranges from 2 -12 lakh. As most of the farmers in Punjab are marginal to medium (nearly three quarters of Punjab's farmers having land holdings of less than two hectares), they can't afford so costly equipment which put a heavy

economic burden. Although the subsidy is also announced by the State Govt. for the popularization of these machines but still the cost too high to afford by most of the farmers as these are to be used only once in a year for some days. Hence the best way out is the purchase of machines by cooperative societies and then custom hiring. This model is being adopted by most of the cooperative societies in Jalandhar Distt as well as in Punjab. In Jalandhar distt. 14 paddy transplanter has been purchased by cooperative societies and offered to the farmers on custom hiring basis from the year Kharif, 2009. But in the year 2009 this method was not much popularized. The following reasons may be attributed to this:

- In Bihar state floods has displaced many families as a result availability of migratory increased in the Punjab and too at cheaper rates in this year
- Not many operators were fully trained in the operation of machine which creates mockery among interested farmers
- Nursery raising for these machines is a very précised job and not many farmers were succeeded in this as they were not well trained.
- Most of the societies were having Floating type transplanter which doesn't thrive well on light texture soils
- So all of these factors led to very poor response to the adoption of these machines. Keeping these factors in view different agencies like KVK, Agriculture Department, Cooperative societies etc. organized various programmes like field days, method demonstrations, trainings in mat type nursery raising etc. which created somewhat awareness and technical knowhow about the paddy transplanter and raising mat type nursery. As a result farmers started showing interest in this and during the season Kharif, 2010 total of 146 ha area was come under mechanized paddy transplantation.

**Table: Area under mechanized paddy transplanting**

| Year | Total area under paddy cultivation | Area under mechanized transplanting |
|---|---|---|
| 2009 | 161000 ha | 68 ha |
| 2010 | 163000 ha | 146 ha |

*(Source: Chief Agriculture Office, Jalandhar)*

*SWOT* analysis of the mechanization of paddy transplanting

*Strengths:*

- Work efficiency is much more than manual transplanting
- Uniform maintenance of plant to plant and row to row spacing
- Number of plants per hill are more as compared to traditional method resulting in higher yield
- Plant to plant spacing is adjustable, so suitable for different varieties requiring different spacing

*Weaknesses :*

- This operates well in laser leveled field hence increase input cost
- This requires fine field preparations
- Not suitable for light textured soils
- Requires full expertise for proper operation of the machine
- Particular machine works for particular mat size only
- The nursery required for this machine requires continuous look after and precise job a single mistake can led to failure of nursery

*Opportunities:*

- Paddy is grown over 90% area of the distt. shows lot of scope
- Machine can be well suitable in the custom hiring system
- A handsome subsidy is given by the Govt.
- Farmers can even earn from lending it on custom hiring
- Labour availability is declining day by day so only these machines are capable of covering so much area in short span of time
- Employment generation through the repair and service

*Threats :*

- Lack of proper training for nursery growing can led to failure of nursery
- Lack of training in operating the machine
- Very high initial cost of the machine
- Majority of the farmers are small

- Any breakdown in the machine results in wastage of time as being a new machinery very few mechanic are there
- Spare parts availability is low due to less number of dealers.

## CONCLUSION

Mechanization of paddy transplanting is need of the hour due to decreasing availability of the labour and shortened time span for transplanting. But high cost of machines can be overcome through the purchase of these by cooperatives and custom hiring. Further the operators of the machine should be properly trained. Farmer also required a good training in raising mat type nursery as this is the basic requirement. So cooperative societies can do a wonder by imparting the knowledge and skills in growing mat type nursery and operating the paddy transplanter to the farmers with the help of KVKs, Agriculture Dept. and SAUs, etc. We are hoping the time will come soon when whole of the Punjab will be covered under the mechanized transplanting of the paddy as done by her in most of the crops.

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