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# Reasons for Adoption and Non-adoption of Direct Seeded Rice in Punjab

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**ABSTRACT**

Direct seeded rice (DSR) technique is becoming popular nowadays because of its low-input demanding nature. There are many reasons which motivated the respondents for adoption of direct seeded rice such as water saving, labour saving and profitable technique *etc.* All the respondents started direct seeded rice because it gives better results than transplanting method. To study the reasons of adoption and non-adoption of DSR, the study was conducted in five districts of Punjab; Moga, Mukatsar Sahib, Faridkot, Sangrur and Patiala. From each district one village and from each village 15 farmers of DSR and 15 of transplanting were selected by using random sampling technique. Data were collected by using personal interview method. The data reveal that 98.67 per cent of the respondents started DSR as it saves time spent on paddy nursery and reduce the transplanting cost. Whereas 97.33 per cent desired to save water and reducing labour cost, easy practice which did not need puddling exercise and 96 per cent of the respondents showed their interest in DSR and adopted the DSR technique. For the non-adoption of DSR, 90.67 per cent of the respondents reported that there was high risk to crop in DSR. Whereas 89.33 per cent reasoned non-adoption due to non-availability of DSR drill and 88 per cent for germination failure of direct seeded crop and due to more requirement of weedicide.

**Keywords:** Direct seeded rice, Resource conservation, Reasons, Weeds, Adoption.

## INTRODUCTION

Rice (*Oryza sativa L.*) is the leading cereal of the world and more than half of the human race depends on rice for their daily sustenance. Direct seeding of rice refers to the process of establishing the crop from seeds sown in the field rather than by transplanting seedlings from the nursery (Farooq *et. al.,* 2008). Direct seeding avoids three basic operations namely, puddling (a process where soil is compacted to reduce water seepage), transplanting and maintaining standing water. Prior to the 1950s, direct seeding was most common, but was gradually replaced by puddled transplanting. The transplanted puddled rice (TPR), leads to higher losses of water through puddling, surface evaporation and percolation. Excessive pumping of water for puddling in peak summers in north -west Indo-gangetic plains (IGP) causes problems of declining water table and poor quality water for irrigation. Huge water inputs, labour costs and labour requirements for TPR have reduced profit margins. Thus, low wages and adequate availability of water favour transplanting, whereas high wages and low water availability favour DSR (Pandey and Velasco 2005). Under present situation of water and labour scarcity there is a need to adopt the alternative way to produce rice crop *i.e.* DSR. Adoption of DSR for lowland rice culture would significantly decrease costs of rice production (Flinn and Mandac, 1986).

## METHODOLOGY

Five clusters were selected from the Punjab state and from these clusters, five districts *viz;* Moga, Mukatsar Sahib, Faridkot, Sangrur and Patiala were purposively selected based on their crop productivity. From each district one village and from each village 15 farmers growing rice by direct seeding and 15 farmers growing rice by transplanting method were selected randomly. Thereby, total sample comprised of 150 farmers for the study purpose. Data were collected by using personal interview method.

## RESULTS AND DISCUSSION

**Reasons for adoption and non adoption of direct seeded rice are discussed under the following heads:**

It can be pointed out from the data presented in the Table 1 that all the respondents started direct seeded rice because it gave better results than transplanting method. The data further reveal that 98.67 per cent of the respondents started DSR as it saved time spent on paddy

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nursery and reduce the transplanting cost. Whereas 97.33 per cent for their desire to save water and reducing labour cost, easy practice which did not need puddling exercise and 96 per cent of the respondents showed their interest in DSR and adopted the DSR technique. About 87 per cent of the respondents started DSR due to expectations of more income and 78.67 per cent of respondents started DSR due to suggestion by other farmers. Only 68 per cent of the respondents adopted DSR to save the environment. These findings are in contradiction with the findings of Kaur (1999) and Sharma (2001).

**Table 1: Distribution of respondents according to the reasons for adoption of direct seeded rice**

**n=75**

| Reasons | Frequency* | Percentage |
|---|---|---|
| Due to own interest | 72 | 96.00 |
| Better results than transplanting | 75 | 100 |
| Saves water | 73 | 97.33 |
| Saves time spent on paddy nursery | 74 | 98.67 |
| Less labour cost | 73 | 97.33 |
| Reduces the transplanting cost | 74 | 98.67 |
| Saves the environment | 51 | 68.00 |
| In DSR, no need of puddling exercise | 73 | 97.33 |
| Expectation for more income | 65 | 86.67 |
| Easy practice | 73 | 97.33 |
| Suggested by other farmers | 59 | 78.67 |

*Multiple response

There were many reasons which de-motivated the respondents for non-adoption of direct seeded rice. It can be pointed out from the data presented in the Table 2 that all the respondents pointed out that weed infestation was the major problem in direct seeded rice.

The data further reveal that 90.67 per cent of the respondents reported that there was high risk to crop in DSR. Whereas 89.33 per cent gave the reason for non-adoption of DSR due to non-availability of DSR drill, 88 per cent of the respondents gave the reasons for non-adoption of DSR as germination failure of direct seeded crop and due to more requirement of weedicide, it increased the cost of production. About 75per cent of the respondents gave the requirement of specific machinery as the reason for non-adoption of the DSR technique. About 67 per cent of the respondents gave less yield as reason of non-adoption of direct seeded rice.

Forty per cent of respondents gave more ecological damage as a reason for non-adoption of DSR, while thirty two per cent of the respondents reported requirement of more pesticides as a reason of non-adoption of DSR.

**Table 2: Distribution of respondents growing rice with transplanting method according to the reasons for non-adoption of direct seeded rice**

**n=75**

| Reasons | Frequency* | Percentage |
|---|---|---|
| High risk to crop in DSR | 68 | 90.67 |
| Less yield of crop | 50 | 66.67 |
| Requirement of specific machinery | 56 | 74.67 |
| More weed infestation | 75 | 100 |
| Germination failure | 66 | 88.00 |
| More ecological damage | 30 | 40.00 |
| DSR requires more pesticides | 24 | 32.00 |
| DSR requires more weedicide | 66 | 88.00 |
| Non-availability of DSR drill | 67 | 89.33 |
| In DSR appearance of deficiency of Zinc | 49 | 65.33 |
| Iron | 40 | 53.33 |
| Phosphorus | 7 | 9.33 |
| Sulphur | 5 | 6.67 |
| Increased cost of production due to more requirement of herbicide | 66 | 88.00 |

*Multiple response

## CONCLUSION

Direct seeding of rice is the necessity of current water depleting situation. It reduces the overall water demand. There were many reasons to adopt it like saving of water, labour cost and time. For non-adoption of this useful technology the major reasons were weed infestation, non-availability of specific machinery and risk in germination.

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