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**Research Article**

# Constraints in adoption of improved dryland technologies

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**SUMMARY :** Present study entitled constraints in adoption of improved dryland farming technologies was conducted with the objectives of to study personal, socio-economic and psychological characters of dryland farmers and to study the constraints faced by farmers in adoption of improved dryland technologies. Majority of the dryland farmers were middle aged (55.83 per cent), educated (86.67 per cent). They were having medium size of family (47.50 per cent), low level of annual income (44.17 per cent), medium land holding (44.17 per cent), low cosmopoliteness (55.00 per cent), medium risk orientation (40.00 per cent), moderate in use of sources of information (34.17 per cent), medium knowledge about dryland farming technologies (60.00 per cent) and medium adoption of dryland farming technologies (56.67 per cent). The major constraints reported by dryland farmers were high labour cost and their shortage, high input cost, lack of information about antitranspirants, biofertilizer seed treatment, strip cropping and inadequate capital.

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## BACKGROUND AND OBJECTIVES

Out of 22.61 million hectares gross cropped area in 2009-10 in Maharashtra only 4.05 million hectares (17.9%) have irrigated and remaining 82.1 per cent area comes under dryland agriculture (Economic Survey of Maharashtra 2012-13). In 2012 Government of Maharashtra has declared 15 districts comprising 11,801 villages, drought affected. It includes all the talukas from Solapur district. Since per unit area productivity in irrigated areas is reaching a plateau, it is argued that bulk of the future increase in food production has to come from rainfed areas. In fact, the available technologies can enhance the productivity from 0.8 t/ha to 1.5 to 2.0 t/ha. This doubling of productivity can contributes another 40 million tons food grain from rainfed regions. To accomplish this target, the transfer of dryland technology is needed (Benal *et al.,* 2010).Present study was conducted with following objectives.

– To study personal, socio-economic and psychological characteristics of the dryland farmers.
– To study the constraints faced by the farmers in adoption of dryland farming technologies.

## RESOURCES AND METHODS

The study was conducted in Madha and Mohol taluka of Solapur district of Maharashtra state. From these talukas 10 villages were selected randomly and from that 120 farmers were selected randomly for study. The data were collected, analyzed, presented and discussed by using statistical tools. The findings are given as follows.

## OBSERVATIONS AND ANALYSIS

Distribution of dryland farmers according to their personal, socioeconomic and psychological characteristics is given in Table1.

From Table 1 it can be seen that the study pointed out that 55.83 per cent of the respondents belonged to middle age group followed by young age group (22.50 per cent) and old age group (21.67 per cent).A large

**Table1: Distribution of dryland farmers according to their personal, socio-economic and psychological characteristics (n=120)**

| Sr. No. | Characteristics | Respondents | |
|---|---|---|---|
| | | Number | Per cent |
| | **Age group** | | |
| 1. | Young (up to 35 years) | 27 | 22.50 |
| 2. | Middle age (36 to 55 years) | 67 | 55.83 |
| 3. | Old (56 and above) | 26 | 21.67 |
| | **Education** | | |
| 1. | Illiterate | 16 | 13.33 |
| 2. | Primary education (up to 7th std) | 52 | 43.34 |
| 3. | Secondary education (8th- 10th std) | 35 | 29.17 |
| 4. | Higher secondary education (11th &12th) | 10 | 8.33 |
| 5. | Graduate (above 12th) | 7 | 5.83 |
| | **Size of family** | | |
| 1. | Small (up to 5) | 47 | 39.17 |
| 2. | Medium (6 to 8) | 57 | 47.50 |
| 3. | Big (9 and above) | 16 | 13.33 |
| | **Annual income** | | |
| 1. | Low (up to Rs. 1,28,750/-) | 53 | 44.17 |
| 2. | Medium ( Rs. 1,28,751 to 1,87,500/-) | 43 | 35.83 |
| 3. | Moderate (Rs. 1,87,501 to 2,46,250/-) | 18 | 15.00 |
| 4. | High (Rs. 2,46251/- and above) | 6 | 5.00 |
| | **Size of land holding** | | |
| 1. | Marginal (up to 1 ha) | 14 | 11.67 |
| 2. | Small (1.01 to 2 ha) | 35 | 29.16 |
| 3. | Medium (2.01 to 4 ha) | 53 | 44.17 |
| 4. | Large (4.01 and above) | 18 | 15.00 |
| | **Cosmopoliteness** | | |
| 1. | Low ( up to 8 ) | 66 | 55.00 |
| 2. | Medium ( 9 to 12 ) | 38 | 31.67 |
| 3. | Moderate ( 13 to 16 ) | 11 | 9.17 |
| 4. | High ( 17 and above ) | 5 | 4.16 |
| | **Risk orientation** | | |
| 1. | Low ( up to 11 ) | 41 | 34.17 |
| 2. | Medium ( 12 to 16 ) | 48 | 40.00 |
| 3. | Moderate ( 17 to 21 ) | 23 | 19.16 |
| 4. | High (22 and above) | 8 | 6.67 |
| | **Sources of information used** | | |
| 1. | Low ( up to 10 ) | 26 | 21.67 |
| 2. | Medium ( 11 to 15 ) | 35 | 29.16 |
| 3. | Moderate ( 16 to 20 ) | 41 | 34.17 |
| 4. | High ( 21 and above ) | 18 | 15.00 |
| | **Knowledge** | | |
| 1. | Low ( up to 33 ) | 22 | 18.33 |
| 2. | Medium ( 34 to 51 ) | 72 | 60.00 |
| 3. | High ( 52 and above ) | 26 | 21.67 |
| | **Adoption** | | |
| 1. | Low ( up to 22 ) | 33 | 27.50 |
| 2. | Medium ( 23 to 37 ) | 68 | 56.67 |
| 3. | High ( 38 and above ) | 19 | 15.83 |

majority (86.67 per cent) of respondents had undergone formal education *i.e.* primary education (43.34 per cent), followed by secondary (29.17 per cent), higher secondary (8.33 per cent) and college level (5.83 per cent) education. Maximum numbers of the respondents have medium (47.50 per cent) and small (39.17 per cent) size of family. It was observed that 44.17 per cent of the respondents had low annual income followed by 35.83 per cent lave medium annual income. There were 44.17 per cent respondents who had medium size of land holding ranging from 2.01 to 4.00 ha. Maximum numbers (55.00 per cent) of the respondents had low cosmopoliteness. Two fifth (40.00 per cent) of the respondents had medium risk orientation followed by 34.17 per cent had low risk orientation. 34.17 per cent of the respondents had moderate and medium (29.16 per cent) sources of information. Three fifth (60.00 per cent) of the respondents had medium level of knowledge. 56.67 per cent of the respondents had medium level of adoption.

Constraints faced by the farmers in adoption of dryland farming technologies are given in Table 2.

From Table 2 it is revealed that in the constraints regarding input supply more than fifty per cent respondents have constraints that shortage of fodder and water for cattle (85.83 %) followed by availability of labour in time (70.83 %) and non-availability of seeds of drought resistant varieties at the time of saving (53.33 %).

In economic constraints major constraints were high labour cost (100.00 %), high input cost (91.67 %), inadequate capital (80.00 %), high cost of farm pond (52.5 %), high cost of drip installation (52.17%). Climatic constraints were uncertain rainfall (66.67 %) and prolonged dry spell (70.83 %).

Regarding the technical constraints major constraints were lack of information about antitranspirants (93.33 %), biofertilizer seed treatment (85.00 %), strip cropping (80.83 %) and biological methods of pest management (81.67 %). Lengthy procedure for Govt. subsidy was the constraint for 70.83 per cent respondents. Lack of information about farm pond (62.50 %), chemical methods of pest management (60.83 %) and ground water recharge (55.00 %) were also constraints.

## Conclusion:

Majority of the dryland farmers were middle aged, educated. They were having medium size of family, low level of annual income, medium land holding, low cosmopoliteness, medium risk orientation, moderate in use of sources of information, medium knowledge about dryland farming technologies and medium adoption of dryland farming technologies. The major constraints reported by dryland farmers were high labour cost and their shortage high input cost, lack of information about antitranspirants,

**Table 2: Constraints faced by the farmers in adoption of dryland farming technologies** **(n=120)**

| Sr. No. | Constraints | Frequency | Per cent |
|---|---|---|---|
| | **Constraints in input supply** | | |
| 1. | Non availability of seeds of drought resistant varieties at the time of sowing | 64 | 53.33 |
| 2. | Non availability of biofertilizers at proper time | 30 | 25.00 |
| 3. | Shortage of fodder and water for cattle | 103 | 85.83 |
| 4. | Non availability of labour in time | 85 | 70.83 |
| 5. | Non availability of loan from banks and co-operatives at proper time | 44 | 36.67 |
| | **Economic constraints** | | |
| 1. | High cost of inputs like seed, fertilizers and implements | 110 | 31.69 |
| 2. | Inadequate capital | 96 | 80.00 |
| 3. | High labour cost | 120 | 100.00 |
| 4. | High cost of drip installation | 65 | 52.17 |
| 5. | High cost of farm pond | 63 | 52.5 |
| | **Climate constraints** | | |
| 1. | Climate conditions affects the crop rotation | 72 | 60.00 |
| 2. | Multiple cropping depend on uncertain rainfall | 80 | 66.67 |
| 3. | Prolonged dry spell in August adversely affect contingent cropping | 85 | 70.83 |
| 4. | Due to high evaporation rate sprinkler irrigation not suited to the area | 35 | 29.17 |
| 5. | In case of alternate land use plantation trees are not saved in summer | 48 | 40.00 |
| | **Technical constraints** | | |
| 1. | Lengthy procedure for Govt. subsidy | 85 | 70.83 |
| 2. | Lack of information about contour bunding | 63 | 52.50 |
| 3. | Lack of complete information about biofertilizer seed treatment | 102 | 85.00 |
| 4. | Lack of information about drought resistant varieties | 46 | 38.33 |
| 5. | Lack of information about antitranspirants | 112 | 93.33 |
| 6. | Lack of information about contour cultivation | 52 | 43.33 |
| 7. | Lack of information about strip cropping | 97 | 80.83 |
| 8. | Lack of information about ground water recharge | 66 | 55.00 |
| 9. | Lack of information about farm pond | 75 | 62.50 |
| 10. | Lack of information about biological methods of pests management | 86 | 81.67 |
| 11. | Lack of information about chemical methods of pest management | 73 | 60.83 |

biofertilizer seed treatment, strip cropping and inadequate capital.

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