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# The Pharma Innovation



ISSN (E): 2277- 7695 ISSN (P): 2349-8242 NAAS Rating: 5.23 TPI 2021; SP-10(12): 1510-1513 © 2021 TPI www.thepharmajournal.com

Received: 22-09-2021 Accepted: 08-11-2021

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# Constraints and suggestions of small farmers from drought prone area

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#### Abstract

The changing climate and weather variability has caused invariable drought condition in India, especially in Maharashtra. The increasing challenges and effects of climate change are exploiting on land use and other land resources. Events such as drought are notably shifting growing seasons meanwhile exposing the population to food insecurity. Majority of agricultural land in Maharashtra is rainfed and considerable area is drought prone. Drought has been a severe cause of numerous farmers suicide in Maharashtra. Droughts are believed to affect the small and marginal farmers to a larger extent. Hence, there was a need to study and access the constraints and suggestions of small farmers from drought prone area. Present study was purposively conducted in Ahmednagar district of Maharashtra based on least annual rainfall received. From Ahmednagar district Parner and Pathardi tehsils were selected for the study and further five villages were selected from each tehsil. Total 140 respondent small farmers were interviewed.

Keywords: Small farmers, drought, constraints, suggestions, climate

#### Introduction

Drought, a hydro-meteorological phenomenon, is as natural as climate and its variability. Droughts are believed to be creeping phenomena because of their slow onset (Gillette, 1950), intensity and uncertainty of duration. Droughts can be meteorological, hydrological, agricultural or socio-economic depending on rainfall or run-off deficiencies, the availability of water for crops in the growing season or the impact of drought on human activities, both, direct and indirect (O'Farell et al., 2009). Yevjevich et al. (1978) have suggested the term "sociological drought" which refers to the meteorological and hydrological conditions in which less water is available than anticipated and relied on for a normal level of social and economic activity in the region. In a country like India where rain-fed agriculture is the dominant source of food production, drought inherently coexists with farmers, society and the economy. Approximately 16 per cent of India's geographical area which is mostly arid, semiarid and sub-humid land is drought prone (Reserve Bank of India, 2013). Irrigated agriculture is no different because most irrigation systems rely on surface water, so they are also linked to precipitation. With the reality of climate change, rainfall is predicted to become more variable in India and dry regions are expected to become drier; extreme and intense droughts are expected at higher frequencies in the coming years.

Drought in India has resulted in tens of millions of deaths over the 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> centuries. Indian agriculture is heavily dependent on the country's climate: a favourable southwest summer monsoon is critical to securing water for irrigating crops. Recurring drought is a major challenge in drought prone area of Maharashtra state in India. Decrease in yield of cereals, horticultural crops, livestock production and loss of employment, all associated with decreased income of farmers, were the most immediate impacts of drought. Hence, the constraints and suggestions of small farmers from drought prone area were studied.

#### Methodology

#### A. Place of research work

- Ahmednagar district.
- Tehsils-Parner and Pathardi (Five villages from each Tehsil).

#### **B.** Sampling procedure

Purposive and random sampling.

#### C. Sample size

• 14 small farmers from each village were selected randomly.

• Total = 140 respondents.

### **D.** Data collection tool

Interview schedule.

Result A. Constraints faced by the small farmers from drought prone area

The constraints generated from the present study are mentioned herewith.

Sr. No.	Constraints	Frequency (N=140)	Percentage
1.	Successive droughts	140	100.00
2.	Soil erosion	140	100.00
3.	Lack of proper training	140	100.00
4.	Poor resource base of farmers	138	98.57
5.	Decline in livestock prices	137	97.85
6.	Non-availability of inputs	136	97.14
7.	Effect on schooling and education of children	133	95.00
8.	Lack of irrigation facilities	131	93.57
9.	Non-availability of non-farm employment opportunities	129	92.14
10.	Complexities in loan facilities and procedures	128	91.42
11.	Lack of technical guidance	127	90.71
12.	High crop yield variability and crop price variability	127	90.71
13.	Breakage and wreckage/breakdown of irrigation infrastructure	127	90.71
14.	Lack of knowledge about technology	126	90.00
15.	High cost of transportation	126	90.00
16.	High debt burden	125	89.28
17.	Non-availability of skilled labour	125	89.28
18.	Non-availability of storage facilities	125	89.28
19.	Exploitation by market middlemen	123	87.85
20.	Food scarcity	121	86.42
21.	High rate of interest	121	86.42
22.	Increased cost of cultivation	121	86.42
23.	Low price for produce/output	121	86.42
24.	Population/youth migration	121	86.42
25.	Reduction in household income	120	85.71
26.	Malnutrition and poor health of human beings	86	61.42
27.	Malnutrition and poor health of livestock	86	61.42
28.	Lack of self-confidence and depression	26	18.57
29.	Drought ends the urge to live life	10	7.14

Constraints of small farmers from drought prone area are unending. However, they can be minimized. The small farmers from drought prone area were requested to express the constraints faced by them in agriculture.

Frequency and percentage for each constraint were calculated and on the basis of that, the constraints are presented in Table 3.1

As seen from the Table 3.1, major constraints faced by small farmers were successive droughts, soil erosion and lack of proper training (100.00 per cent), poor resource base of farmers (98.57 per cent), decline in livestock prices (97.85 per cent), non-availability of inputs (97.14 per cent) and effect on schooling and education of children (95.00 per cent) followed by lack of irrigation facilities (93.57 per cent), non-availability of non-farm employment opportunities (92.14 per cent), complexities in loan facilities and procedures (91.42 per cent), lack of technical guidance, high crop yield variability and crop price variability, breakage and wreckage/breakdown of irrigation infrastructure (90.71 per cent, each), lack of knowledge about technology and high cost of transportation (90.00 per cent, each).

These constraints are important as these were expressed by

Ninety per cent or more than Ninety per cent of the respondents.

Likewise, the constraints, *viz.*; high debt burden, nonavailability of skilled labour, non-availability of storage facilities, exploitation by market middleman, food scarcity, high rate of interest, increased cost of cultivation, low price for produce/output, population/youth migration and reduction in household income were also important constraints mentioned by more than Eighty per cent of the respondents but less than Ninety per cent of them. The constraints malnutrition and poor health of animals were reported by equal number of respondents (61.42 per cent, each).

The constraint of lack of self-confidence and depression was stated by 18.57 per cent respondents lastly followed by 7.14 per cent respondents who mentioned that drought ends the urge to live life (7.14 per cent).

#### B. Suggestions of small farmers from drought prone area

Suggestions were invited from small farmers from drought prone area to overcome the constraints faced by them. Suggestions made by the respondents are shown in the Table 3.2.

#### **Table 3.2:** Suggestions of small farmers from drought prone area

Sr. No.	Suggestion	Frequency (N=140)	Percentage
1	Changing to low water consuming crops	140	100.00
2	Soil and water conservation measures should be followed	140	100.00
3	Storage of food to avoid food scarcity during drought should be followed	140	100.00
4	Development of irrigation facilities	139	99.28
5	Change traditional irrigation practices to sprinkler/drip irrigation	137	97.85
6	Proper information regarding different farm subsidies should be followed	132	94.28
7	Water should be followed by reducing wastage during drought year	128	91.42
8	Changing crop calendar/cropping dates	127	90.71
9	Proper guidance regarding state and centrally sponsored schemes and policies should be provided	127	90.71
10	Supply of water by government water tanks should be provided	127	90.71
11	Rainwater harvesting on rural/agricultural lands should be followed	126	90.00
12	Watershed area development approach should be followed	125	89.28
13	Drought resistant varieties of crops should be planted	124	88.57
14	Works in NREGA scheme should be conducted during droughts	124	88.57
15	Water harvesting through farm ponds and <i>in-situ</i> water conservation practices should be followed	123	87.85
16	Faster and necessary arrangements to provide compensation/insurance for crop loss during droughts should be made	121	86.42
17	Other employment opportunities should be tried within locality	121	86.42
18	Cattle should be kept in government cattle camps	98	70.00
19	Adoption of mixed intercropping	89	63.57
20	Exploitation of groundwater for irrigation should be done	85	60.71
21	Land should be kept unsown after anticipated drought	83	59.28
22	Crop insurance should be emphasized	75	53.57
23	New source of food like wild fruits, tubers, bulbs, seeds, nuts, berries, etc. should be sought	26	18.57

It was observed from Table 3.2 that, all the respondents (100.00 per cent) suggested changing cultivation to low water consuming crops, soil and water conservation measures should be followed and storage of food is necessary to avoid food scarcity during drought. Almost all (99.28 per cent and 97.85 per cent of the respondents, respectively) of the small farmer respondents suggested that development of irrigation facilities is necessary in drought prone area and is it necessary to change traditional irrigation practices to sprinkler/drip irrigation.

The suggestions such as proper information regarding different farm subsidies should be provided (94.28 per cent), water should be saved by reducing wastage during drought year (91.42 per cent), changing crop calendar/cropping dates, proper guidance regarding state and centrally sponsored schemes and policies should be provided and supply of water by government water tanks should be provided were the three suggestions made by 90.71 per cent respondents, each. Ninety per cent of the respondents also suggested that rainwater harvesting on rural/agricultural land should be followed.

Other important suggestions that were given by more than Eighty per cent of the respondents but by less than Ninety per cent respondents were watershed area development approach be followed, drought resistant varieties of crops should be planted, works in NAREGA scheme should be conducted during drought, water harvesting through farm ponds and *in situ* water conservation practices should be followed, faster and necessary arrangements to provide compensation/ insurance for crop loss during droughts should be made and other employment opportunities should be tried within locality.

Seventy per cent of the small farmer respondents suggested that cattle should be kept in government cattle camps followed by near about Sixty per cent respondents suggesting exploiting ground water for irrigation and keeping land fallow in anticipated drought. More than half (53.57 per cent) respondent suggested to emphasize on crop loans. The suggestions of seeking new food sources in wild fruits, tubers, bulbs, seeds, nuts, berries, etc. was also given by 18.57 per cent of the respondents.

# Conclusion

The conclusion of the study is as follows-

- 1. The major constraints faced by the small farmers were successive droughts, soil erosion, lack of proper training, poor resource base of farmers, decline in livestock prices, non-availability of inputs and effect on schooling and education of children.
- 2. Majority of respondents suggested that one should change agriculture practices to low water consuming crops, soil and water conservation measures should be followed, storage of food to avoid food scarcity during drought should be done, development of irrigation facilities is necessary in drought prone area and one should change traditional irrigation practices to sprinkler or drip irrigation.

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