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Technological Mitigation Strategies to Overcome Drought situations in Tamil Nadu

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ABSTRACT

Monsoon failure is experienced in many parts of India almost every year. In order to assess the effect of this stress the study was conducted in Namakkal district of Tamil Nadu state, with the objective to identify and document the technological mitigation strategies that are currently adopted by the farmers in the study area to overcome the adverse effects of drought. Simple random sampling method was used in selection of 100 farmers. The findings revealed that more than 75.00 per cent of the respondents were aware of most of the technological mitigation strategies. A gap between awareness and acceptance was found during acceptance of technological mitigation strategies.

Keywords: *Drought*; *Technological mitigation strategies; Awareness; Adoption; Tamil Nadu*

India Meteorological Department (IMD) (2014) had reported that approximately 16 per cent of India's geographic area, mostly arid, semi-arid and sub-humid is drought-prone. Due to high temporal and spatial variability in rainfall and wide variations in physiographic and climatic conditions in the country, droughts are experienced in varying intensities (moderate or severe) almost every, year irrespective of a good monsoon.

Since 2001, the country has experienced six major droughts, in the years of 2002, 2004, 2009, 2012, 2013 and 2016. Tamil Nadu has been witnessing severe drought leading to poor agricultural productivity, rural distress, acute shortage of drinking water and fodder in the last consecutive Five years and the State government had declared the state as drought hit in 2012-2013 & 2016-17 (State Planning Commission report 2016). In Tamil Nadu, drought had been viewed as a long-term development challenge and efforts were made to tackle the challenges. Such efforts mainly concentrated on the aspects like access to risk-reducing and productivity-enhancing technologies, diversification of livelihoods, better access to crop insurance and improved infrastructure for reducing vulnerability of poor due to failure of monsoon. In order to assess the adoption level of drought mitigation strategies the present study was taken up.

METHODOLOGY

Namakkal District of Tamil Nadu was purposively selected for this study. It had

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received normal rainfall only two years out of the past five years (Rainfall data 2017, JDA office Namakkal). Two blocks namely Kabilarmalai block and Vennandur block out of 15 blocks of Namakkal district were chosen for major area of annual crops (namely Sugarcane and Tapioca) and Seasonal crops (Maize and Groundnut) respectively. Villages were chosen based on major area under cultivation and the respondents were chosen randomly to constitute a sample size of 100 from five villages. Data were collected through pretested semi-structured interview schedule.

FINDINGS AND DISCUSSION

Among different mitigation strategies adopted by farmers, the technological mitigation strategies were taken into consideration. The coping mechanism followed by the farmers to mitigate the drought through some proven scientific technologies, recommended by the Tamil Nadu Agricultural University and popularized by the State Department of Agriculture and Horticulture was assessed. The awareness, acceptance and adoption level of farmers regarding technological mitigation strategies are given in Table 1.

Table 1.
Awareness and Adoption level of Farmers regarding Technological Mitigation Strategies

(n=100)

Sl.No	Technological mitigation strategies followed	Awareness	Adoption
1.	Drip/Sprinkler method of irrigation	88 (88%)	37 (42.05%)
2.	Mulching (Stubble, straw or Plastic mulching) to reduce moisture loss	75 (75%)	31 (41.33%)
3.	Selection of drought tolerant varieties	79 (79%)	38 (48.10%)
4.	Shifting to less water consuming crops	86 (86%)	72 (83.72%)
5.	Changing of planting dates	85 (85%)	58 (68.24%)
6.	Formation of farm pond or other rain water harvesting structures for effective management of scarce water	57 (57%)	5 (8.77%)
7.	Application of anti-transpirant chemicals, foliar Spray of Pink Pigmented Facultative Metholotrophs, spraying crop boosters etc.	47 (47%)	21 (44.68%)
8.	Preserving dry fodder for livestock	100 (100.00%)	81 (81.00%)

From the table, it could be observed that more than 75.00 per cent of the respondents were aware of most of the technological mitigation strategies. As preservation of dry fodder was a traditional mitigation strategy being followed generation after generation, the awareness level was found to be higher.

Due to intensive extension strategies being promoted through various programmes like NATP (National Agricultural Technology Project), NHM (National Horticulture Mission), Precision farming etc, the awareness level on drip/sprinkler method of irrigation, selection of drought tolerant varieties and mulching to reduce moisture loss, was found to be higher. Though formation of farm pond was promoted by the State Agricultural Department for the past one decade, such establishments were not well routed, as farmers had the fear of losing their cropped area.

The study has indicated that the respondents were not having full realization of water conservation and preservation methods that were being promoted through different extension programmes.

A higher level of technological adoption gap was observed in formation of farm pond or other rain water harvesting structures among the farmers, as the initial investment for establishment of rain water harvesting structures was found to be higher.

Though many modern technologies are being promoted by State Department of Agriculture and Tamil Nadu Agricultural University for farmers to mitigating drought situation, the farmers are interested in adopting only traditional mitigation practices that are being followed generation after generation, it could be concluded.

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