AgriCos e-Newsletter
ISSN: 2582-7049
Volume : 02 Issue : 02 February 2021 Article No: 32

Drought of India

Kawade. A.A.[1], Panchal V.V.[2] and Dhanawde S. B.[1]
[1]Assistant Professor, College of Agriculture, Babhulgaon. Yeola. Nashik, (M.S.)
[2]Regional manager (Kolhapur), S.V Agro Solutions Pvt. Ltd. Indapur, Pune, (M.S.)

SUMMARY

Drought is a condition where water availability falls below the statistical requirements for a region. In India due to high temporal and spatial variations in rainfall and climatic conditions, drought is experienced almost every year in varying intensities. Drought declaration is announced when the rainfall is –20% to –59% (early warning), –60% to 99% (drought) and –1005 of normal (severe drought) conditions. Around 68% of the country is prone to drought in varying degrees. 35% which receives rainfall between 750 mm and 1125 mm is considered drought prone while 33% receiving less than 750 mm is chronically drought prone. Climate change like variability in the volume and pattern of rainfall from the SW monsoon are primarily responsible for droughts in India. Further, El Niño phase of the Southern Oscillation (ENSO) too has impacted droughts in India. Land-use changes, improper agricultural practice and drainage issues. All these reduce the water retention capacity of the soil. Natural resource degradation, poor water management, deforestation have aggravated drought occurrences and vulnerability.

INTRODUCTION

A drought is an event of prolonged shortages in the water supply, whether it is atmospheric surface water or ground water. As an extreme event, drought severely affects global plant growth and food production. Considering climate change and anthropogenic influences4, an overall enhanced drought risk for crop yield in the future is well documented. In India, this risk is greater due to deviated monsoon rains, depleted groundwater, and the pressure of food demand from a population of 1.252 billion Drought has economic, environmental and social impact. Drought causes agricultural losses and reducing income and purchasing power of farmers rendering them unemployed. Drought occurred in 2002 is one of the severest in India, affected 56 per cent of its geographical area, the livelihoods of 300 million people and 150 million cattle in 18 states. Shortage of drinking water supplies and food insecurity, fodder deficit, distress sale of animals lowering of soil moisture and ground water table, malnutrition, starvation, etc are the other consequences. Regions of Rajasthan, Bundelkhand, Karnataka and Orissa are typical examples of drought-related deprivation and resultant conflicts, whereas drought in states like Chhattisgarh, Punjab, Haryana, etc. are the result of improper agriculture practices and poor water management.

Drought Management in India

The Union Ministry of Agriculture is the nodal Ministry in respect of monitoring and managing drought conditions. Over the years, India's drought management strategies have contributed to overall development. The drought of 1965–1967 encouraged the 'green revolution', after the 1972 drought employment generation programmes were developed for the rural poor.

Strategies for Drought Management

The different strategies for drought management on farm level are discussed under the following heads.

Adjusting the plant population: The plant population should be lesser in dryland conditions than under irrigated conditions. The rectangular type of planting pattern should always be followed under dryland conditions. This adjustment of plant population can be done by

Increasing the inter row distance: By adjusting more number of plants within the row and increasing the distance between the rows reduces the competition during any part of the growing period of the crop. Hence it is more suitable for limited moisture supply conditions.

Increasing the intra row distance: Here the distance between plants is increased by which plants grow luxuriantly from the beginning. There will be competition for moisture during the reproductive period of the crop. Hence it is less advantageous as compared to above under limited moisture supply.

Mid- season corrections: The contingent management practices done in the standing crop to overcome the unfavorable soil moisture conditions due to prolonged dry spells are known as mid-season conditions.

Thinning: This ca be done by removing every alternate row or every third row which will save the crop from failure by reducing the competition

Spraying: In crops like groundnut, castor, redgram, etc., during prolonged dry spells the crop can saved by spraying water at weekly intervals or 2 per cent urea at week to 10 days interval.

Ratooning: In crops like sorghum and bajra, ratooning can practiced as mid- season correction measure after break of dry spell.

Mulching: It is a practice of spreading any covering material on soil surface to reduce evaporation losses. The mulches will prolong the moisture availability in the soil and save the crop during drought conditions.

Weed control: Weeds compete with crop for different growth resources are seriously under dryland conditions. The water requirement of most of the weeds is more than the crop plants. Hence they compete more for soil moisture. Therefore the weed control, especially during early stages of crop growth reduces the impact of dry spell by soil moisture conservation.

Water harvesting and lifes aving irrigation: The collection of runoff water during peak periods of rainfall and storing in different structures is known as water harvesting. The stored water can be used for giving the lifesaving irrigation during prolonged dry spells.

Use of wind breaks and shelterbelts: Wind breaks are any structures that obstruct wind flow and reduce wind speed while shelterbelts are rows of trees planted for protection of crops against wind. The direction from which wind is blowing is called windward side and direction to which wind is blowing is called leeward side. Shelterbelts are planted across the direction of wind. They do not obstruct the wind flow completely. Depending upon their porosity, certain amount of wind passes through the shelterbelts while the rest deflects and crosses over the shelterbelts. It thus reduces wind speed without causing turbulence. The protection offered by the shelterbelts is dependent on the height of central tree row in the shelterbelts. Generally, shelterbelts give protection from desiccating winds to the extent of 5 to 10 times their height on windward side and up to 30 times on leeward side. Due to reduction in wind speed, evaporation losses are reduced and more water is available for plants. The beneficial effects of shelterbelts are seen more clearly in drought years. In addition, shelterbelts reduce wind erosion.

CONCLUSION

Drought management practices have reduced the adverse consequences for the people at large. However, these efforts need to emphasize more on environmental conservation and management like using modern technologies for rainwater harvesting and groundwater recharge, water conservation at basin or micro level etc. Further there is a need to enhance capacity building and skills for early warning system in light of climate change impacts. There is need of top-down approach to provide national real-time drought monitoring and seasonal forecasting, and a bottom-up approach that builds upon existing regional and local systems to provide national coverage.

REFRENCES

Zhang, X., Obringer, R. and Wei, C. 2017. Droughts in India from 1981 to 2013 and Implications to Wheat Production. *Scientific Reports* 0**7**: 44552.

Mallya, G., Mishra, V., Niyogi, D., Tripathi, S. and Govindaraju, R. S. 2015. Trends and variability of droughts over the Indian monsoon region. *Weather and Climate Extremes*. **12**: 43–68

Chakravarti, A. K. 2010. Green revolution in India. *Annals of the Association of American Geographer*. **63**: 319–330

Ojha, R., Kumar, D. N., Sharma, A. & Mehrotra, R. 2013.Assessing severe drought and wet events over India in a future climate using a nested bias-correction approach. *Journal of Hydraulic Engeenering*. **18** (07): 760–772.