- Plant the cane setts in ring-pits having 30 cm depth, 75 cm diameter and 105 cm distance from centre to centre of pits or in 30 cm deep and 60 cm wide trenches. In conventional method of planting, plant cane at closer row spacing on heavy soil rich in organic matter.
- Undertake earthing-up operation.
- Undertake hoeing in the inter-row spaces to create dust mulch to break soil capillaries for checking loss of surface moisture.
- Ten cm thick trash mulch treated with HCH 5 litre/ha (1kg a. i.) is provided in the interrow space of sugarcane settlings after their complete emergence (about 35 days) for conserving soil moisture and checking weeds and thereby, the water loss due to them.
- Strip the dried lower leaves of the standing sugarcane crop and spread as mulch in the inter-row spaces to conserve soil moisture.
- Spray 6% Kaolin, an anti-transpirent on the sugarcane foliage between 60 to 150 days after planting. It improves cane yield by 25.75%.
- Spraying of urea and muriate of potash each at 2.5% concentration at 60, 90 and 120 days after planting, combined with trash mulching at 60 days after planting mitigate the adverse effects of drought on sugarcane crop.
- Follow prophylactic measures to keep sugarcane free from insect-pests and diseases.

Drought Management in Sugarcane

सत्यमेव जयते

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Drought Management in Sugarcane

Sugarcane being a long duration crop faces one or the other vagaries of nature, that adversely affect cane and sucrose productivity. Drought is one of the vagaries of nature with devastating effects on cane yield. It occurs, when there is a less annual precipitation than normal, long intervening dry spell during rainy season and fast decline in ground water much below the root zone of the crop. All of these causal factors for drought are the resultant of monsoon when either it fails or is deficient/scanty.

Drought is a meteorological term and is defined as a period without a significant rainfall. Infact, when evapo-transpiration exceeds soil moisture supply i.e. water uptake, the water deficit/drought is resulted. The ultimate result of drought is plant dehydration. The slow rate of water uptake than its loss is due to limited water supply or restricted availability of free water as a result of changing osmotic potential of growing media. Thus, drought is also known as an osmotic stress. When water potential exceeds - 0.45 MPa in soil and - 2.05 MPa in sugarcane leaves, the drought injuries are caused.

There is no definite periodicity of drought occurrence, however, it is becoming a recurring feature in India. Deficient/irregular occurrence of monsoon for more than two years i.e. 2000 to 2002 resulted drought which broke the record of last 100 years in India. Government of India spent Rs. 714 crores to partially compensate the loss to farmers in 12 states of the country. The total loss in crop produce and animal life was estimated to be enormous.

The environment is changing. The occurrence and duration of season is shifting. Hence, the past observation viz. drought occurs once in roughly 15 years in Assam, 2.5 years in western Rajasthan and 4-5 years in West Bengal, Madhya Pradesh, Coastal Andhra Pradesh, Maharashtra, Konkan, Kerala, Bihar, Orissa, South interior Mysore, eastern and western Uttar Pradesh, Vidarbh, Gujarat, eastern Rajasthan, Tamil Nadu, Kashmir, Rayalseema and Telangana meteorological subdivisions has to be looked afresh with a view to manage drought and save crop from colossal loss.

Drought severely depresses cane yield to the tune of 20-40%, whereas, the sucrose formation and sucrose recovery are reduced up to 5%. The severe drought causes the complete failure of crop and sucrose recovery. It also favours the attack of certain insects like woolly aphids, which infact, is less common pest but recorded severe attack on sugarcane in recent drought years of 2000-2002 in Maharashtra and Gujarat states. Besides , drought also favours the attack of stalk borers, termites and pink mealy bug and the diseases like wilt and smut in sugarcane.

Agro-techniques for mitigating deteriorating effects of drought on sugarcane

The adverse effects of drought on the growth, yield, sucrose content and sugar recovery in sugarcane may be mitigated by adopting the following agro-techniques:

- Plant the cane setts after soaking in saturated lime solution for 2 hours. This technique induces drought hardiness and improves cane yield by 7 to 8 %. In absence of lime solution, the soaking of setts in water for about 24 hours before planting improves germination under drought conditions.
- Immature or mature cane setts from top half portion of cane are the best seed material for drought conditions.
- Select and grow drought tolerant varieties.
- Follow balanced application of fertilizers.
- Use of organic manures/fertilizers helps in mitigating the adverse effects of drought.
- Grow varieties efficient in water-use efficiency.
- Dipping of setts in 100 g/ha emisan or bavistin dissolved in 100 litre water and application of endosulphan or chlorpyriphos at 1.0 kg active ingradient (a.i.) per ha in furrow/pit improves bud sprouting and controls termites, respectively under drought conditions.