

Sugarcane

Adequate supply for nutrients has the greatest impact on sugarcane yields along with water/irrigation management of the crop. Today, when the soil is under stress & various environmental factors are critical to maintaining, it is important to fertilize efficiently to maintain the profitability of the sugarcane crop. Being one of the major crops of India, it is essential to adhere to the basic principles of applying nutrients in terms of amount, placement, timing & genuine quality of fertilizers.

The major Sugarcane growing regions in the country are - (1) Satluj-Ganga plain from Punjab to Bihar containing 51% of the total area and 60% of the country's total production, (2) the black soil belt from Maharashtra to Tamil Nadu along the eastern slopes of the Western Ghats and (3) Coastal Andhra Pradesh and Krishna river valley.

GROW WITH KNOWLEDGE



CLIMATE AND SOILS: Sugarcane is a long duration crop, which takes around 10 to 15 months to be harvested, the maturity of the crop also depends upon the local geographical conditions. As Sugarcane requires a large quantity of water, areas with high rainfall or good irrigation are best suited for sugarcane cultivation. The soil required for sugarcane should be rich in nitrogen, calcium, and phosphorus, however it should not be either too acidic or too alkaline. It is a nutrient intensive crop leading to fast depletion of soil fertility, thus requiring appropriate amount of manures & fertilizers for cultivation. A flat plain or level plateau is an advantageous soil type for sugarcane cultivation as it facilitates irrigation for the crop.



LAND PREPARATION & FARM MANAGEMENT: As sugarcane crop stands in the field for more than a year, it is necessary to give deep plowing by mould board plow drawn by a tractor. The proper time for plowing is immediately after the preceding crop is harvested or just after a good shower of rain is received. After this, the land should be exposed to the atmosphere for a month and the harrowing should be done 3 to 4 times to break clods to make the land smooth and to facilitate uniform irrigation.

A very important recommendation is to practice intercropping with Sugarcane, as it offers great opportunity for increasing farm income. Crops like groundnut, soybean, watermelon, cucumber, potato, gram, cabbage, cauliflower, onion, radish, coriander, fenugreek, etc. can be grown effectively, as these crops compliments sugarcane growth and thus increase the yield.

Farmers engaged in sugarcane farming should conserve the trash and should refrain from burning it as it helps in providing the essential nutrients to the soil. Trash mulching conserves soil moisture and mulched trash should be incorporated into the soil at the time of earthing-up.



METHOD OF PLANTING: Sugarcane is planted by three methods in different parts of the country.

FLAT PLANTING: Shallow furrows are opened with a local plow or cultivator and at the time of planting. The sets are planted end to end in the furrows, with one three-budded selt falling in each thirty-centimeter length of the furrow. Following that, the furrows are filled with soil & the land is leveled with heavy planking. It is recommended that the soil must have enough moisture at the time of planting.



FURROW PLANTING: Furrows are made with a sugarcane ridger, which is about 10-15 centimeters deep in Northern India and about 20 centimeters in South India. Selts are planted end to end in the furrows and is covered with 5-6 centimeters of soil, leaving upper portion of furrows unfilled. This furrow planting practice is prevalent in parts of eastern Uttar Pradesh and in Peninsular India, particularly in heavy soils.



TRENCH METHOD: Trenches are dug by hand or with the help of a ridger. After that, the fertilizer and soil is mixed completely and is then placed evenly in the trenches. In trenches, the selts are planted end to end and to control termites, shoot and root borers, gamma BHC EC in water is sprayed over the planted selts in the trenches. After that the trenches are filled with loose dirt.



HOEING & EARTHING-UP: Hoeing is necessary for better aeration, moisture conservation and control of weeds. It is done after one & three weeks of planting and subsequently after every irrigation. Earthing-up is required 2-3 times during the crop period as it cultivates the suppressed growth of excess tillers, minimize fertilizer losses through leaching and facilitate irrigation. Earthing up helps to drain out the excess water from the field to control weed infestation and to protect the crop from lodging.

STATES	PLANTING SEASON		
	AUTUMN / PRE SEASONAL / EKSALI	SPRING SEASON / SEASONAL / SURU	ADSALI
UP (West & Central) Punjab, Haryana	September to October	February to March	–
Eastern UP, Bihar, West Bengal	October to November	February to March	–
Maharashtra, Karnataka, Gujarat, Madhya Pradesh	October to November	January to February	July-August
Andhra Pradesh, Tamil Nadu	October to November	2nd Fortnight of December to end of February	2nd fortnight of June to end of July

IRRIGATION MANAGEMENT: First irrigation should be done when 20-25% plants have germinated or about 20 days after sowing. Regular irrigation should be done at an interval of 10-15 days during summer, 25-30 days during winter. The Sugarcane crop needs maximum water at tillering stage and during elongation or grand growth phase.



STATES	NO. OF IRRIGATION REQUIRED
UP	8
PUNJAB & HARYANA	13
BIHAR	7
MAHARASHTRA	32
KARNATAKA	32
TAMIL NADU	25
ANDHRA PRADESH	28

FERTILIZER SCHEDULE OF MOSAIC PRODUCTS



Germination And Emergence Stage

15 - 30
DAYS AFTER PLANTING



Mosaic DAP-50 kg/acre

Mosaic MOP-50 kg/acre

Mosaic K-Mag-25 kg/acre



Tillering And Stem Elongation Phase

31 - 120 DAYS

Seaweed extract @
2.5ml/Litre at 40-45 &
70-75 DAS

Liquid Boron @ 250
ml/acre at 40-45 & 70-
75 DAS

Liquid Zinc @ 250
ml/acre at 40-45 & 70-
75 DAS



Grand Growth Phase

121 - 210 DAYS



Mosaic DAP-50 kg/per

Mosaic MOP-30 kg/per

Mosaic K-Mag-25 kg/per



Ripening Phase

211 - 365 DAYS

BENEFITS

Proper root
development

Germination

Initial plant growth

Improves photosynthetic
activity & number of tillers

Boron helps in young root
and shoots development

Zinc helps in improving
number of tillers and
internodal length.

Further root development,

Improves
photosynthetic activity

Strength to stalk,
stalk elongation

Improving
internodal length

Number of internodes
per stalk

Maintain water balance

Improves weight of stalk







Sugar Content

Pest and disease resistance

NOTE:

- Above dosages are applicable for Maharashtra.
- Apply nutrients based on soil test values and crop requirements to improve crop and soil health.
- Apply well decomposed Farm Yard Manure (FYM) or compost (@ 5-6 MT/acre) 2-3 weeks before sowing.
- Application of nitrogen fixing (Azospirillum and Gluconacetobacter) and phosphate solubilizing (Phosphobacteria) bio-fertilizers are found to reduce the requirement of chemical fertilizers to the extent of 25%.
- Tying and Wrapping- These operations are most essential in sugarcane cultivation just to provide mechanical support to the grown-up plants to prevent lodging.

NUTRIENT DEFICIENCY

Nutrients	Deficiency Symptoms	Affected Area	Nutrition Required
Phosphorus	Greenish blue or Red and purple discoloration of tips.	Reduction in length of sugarcane stalk, poor tillering, restricted root development.	 <p>Apply Mosaic DAP 50Kg/acre.</p>
Potassium	Yellowing and marginal drying of older leaves, Development of slender stalks.	Slender stalks, stunted growth, and reduction in yield.	 <p>Apply Mosaic MOP 50Kg/acre.</p>
Magnesium	Chlorotic appearance at the tip and margins of leaves, Red necrotic lesions resulting in "rusty" appearance.	Less number of tillers and growth.	 <p>Apply Mosaic K-Mag 50 kg/acre.</p>
Sulphur	Yellowish-green appearance in younger leaves, thin stalks.	The leaves stay narrow and short, can reduce the sucrose content.	 <p>Apply Mosaic K-Mag 50 kg/acre.</p>
Zinc	Interveinal chlorosis in younger leaves, red lesions on leaves may appear.	Reduced tillering and shorter internodes and thinner stalks.	 <p>Foliar application of Liquid Zinc @500 ml/acre and Soil application Zinc sulphate based on soil test before the last ploughing.</p>
Boron	Smaller and malformed leaves.	Reduction in new shoot and root growth.	 <p>Foliar application of Liquid Boron at 500 ml/acre.</p>