| S. No | Diseases | Damage | Control | Reference |
|---|---|---|---|---|
| 1 | Red Rot (Caused by the fungus *Colletotrichum falcatum*) | • The stalk tissue becomes red and rotten<br>• Red and white patches within the cane<br>• Canes have sour alcoholic odor when split open | • Treat sett with Carbendazim 50 WP (@ 0.5 gm/1 litre of water or Carbendazim 25 DS @ 1gm/1 litre of water) before planting |  |
| 2 | Sugarcane Smut (caused by the fungus *Sporisorium scitamineum*) | • Black whip-like structure that forms from the growing point of the sugarcane plant<br>• Infected plants are usually stunted and individual stalks are thin with a grass like appearance | • Plant resistant varieties<br>• Hot-water treatment and fungicide application to seed-canes. (name of fungicide) |  |
| 3 | Ratoon Stunting | • Diseased clumps usually display stunted growth, reduced tillering, thin stalks with shortened internodes and yellowish foliage | • Solution to be prepared : chlorpyrifos @ 2 ml as well as carbendamzim + mancozeb @ 2.5 gm per liter of water, dipped for 5 min before sowing |  |

| S. No | Pest | Damage | Control | Reference |
|---|---|---|---|---|
| 1 | Stem Borers (*Chilo terrenellus*) | • Stem borer Caterpillars damage sugarcane plants by boring or tunnelling inside their plant stems | • (Apply Chlorpyrifos 50% + Cypermethrin 5%) |  |
| 2 | Termites | • Termites eat their way into roots and stems and hollow out the internodes; causing widespread lodging and plant wilting | • Imidacloprid 70 WS or imidacloprid 200 SL can be used against termites in sugarcane as sett dip and spray over setts in furrows |  |
| 3 | Nematodes | • Above-ground symptoms of nematode damage include chlorosis, Stunting of internodes, Wilting (particularly during periods of high transpiration and/or water stress), Patchy growth, Spiky leaves, Reduced tillering and thin stalks | • Furadan insecticide can be used to control Nematodes |  |

| S. No | Nutrient | Deficiency Symptoms | Reference | Healthy Sugarcane | Reference |
|---|---|---|---|---|---|
| 1 | Nitrogen | • Older leaves become light green – yellow<br>• Leaf tip turns necrotic<br>• Stunted and thin stalk |  | • Growth and development<br>• Tillering and stalk elongation |  |
| 2 | Phosphorus | • Redish to brown discoloration starting from the main leaf vein<br>• Discoloration spread along leaf edges<br>• Whitish spot which occurs along the mid rib |  | • Stimulates tillering<br>• Root growth<br>• Hasten maturity |  |
| 3 | Potassium | • Yellowing of the older leaves<br>• Marginal drying of the older leaves<br>• Development of slender stalk |  | • Improves cane development<br>• Increase internode growth<br>• Results in higher yeild |  |

## INDORAMA GRANULAR UREA


- Uniform granule size.
- Low moisture, anticaking properties, low biuret content & Free flowing.
- Higher crushing strength, which prevents caking.
- Standards Organization of Nigeria ( SON ) Certified.

## INDORAMA NEEM COATED UREA


- Enhances the nitrogen use efficiency and crop remain green for longer time.
- It increases crop productivity
- Protect crop from pest and diseases.
- Prevent Urea application losses by Volatilization and Leaching.

## INDORAMA NPK


- Indorama NPK maintains quality and have a perfect balance of nitrogen, phosphorus, and potassium.
- Nitrogen is needed for vegetative growth.
- Phosphorus is needed to produce strong roots and shoots.
- Potassium is needed to produce quality fruit and flowers, also increases resistance to diseases.
- Calcium from limestone granules helps in decreasing soil acidity.

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Essential materials. Better lives.

# Sugarcane

## Sweet Symphony of Nigeria's Soil, Nurturing Sugary Delight

Sugarcane accounts for about 80% of the world sugar production. The plant is also grown for biofuel production. Nigeria is the second largest sugar market in the Sub-Sahara Africa and accounts for 50% of the sugar consumed in West Africa. Nigeria has about 500,000 ha of land suitable for cultivating sugarcane which can produce 25 million metric tons of sugarcane from an average yield of 50 tonnes/ha. Hence there is prospect for sustained sugarcane cultivation in Nigeria. Major producing states are Kwara, Niger, Kano, Kaduna, Kastina, Jigawa, Taraba, Adamawa, Nassarawa, Sokoto and Kebbi.


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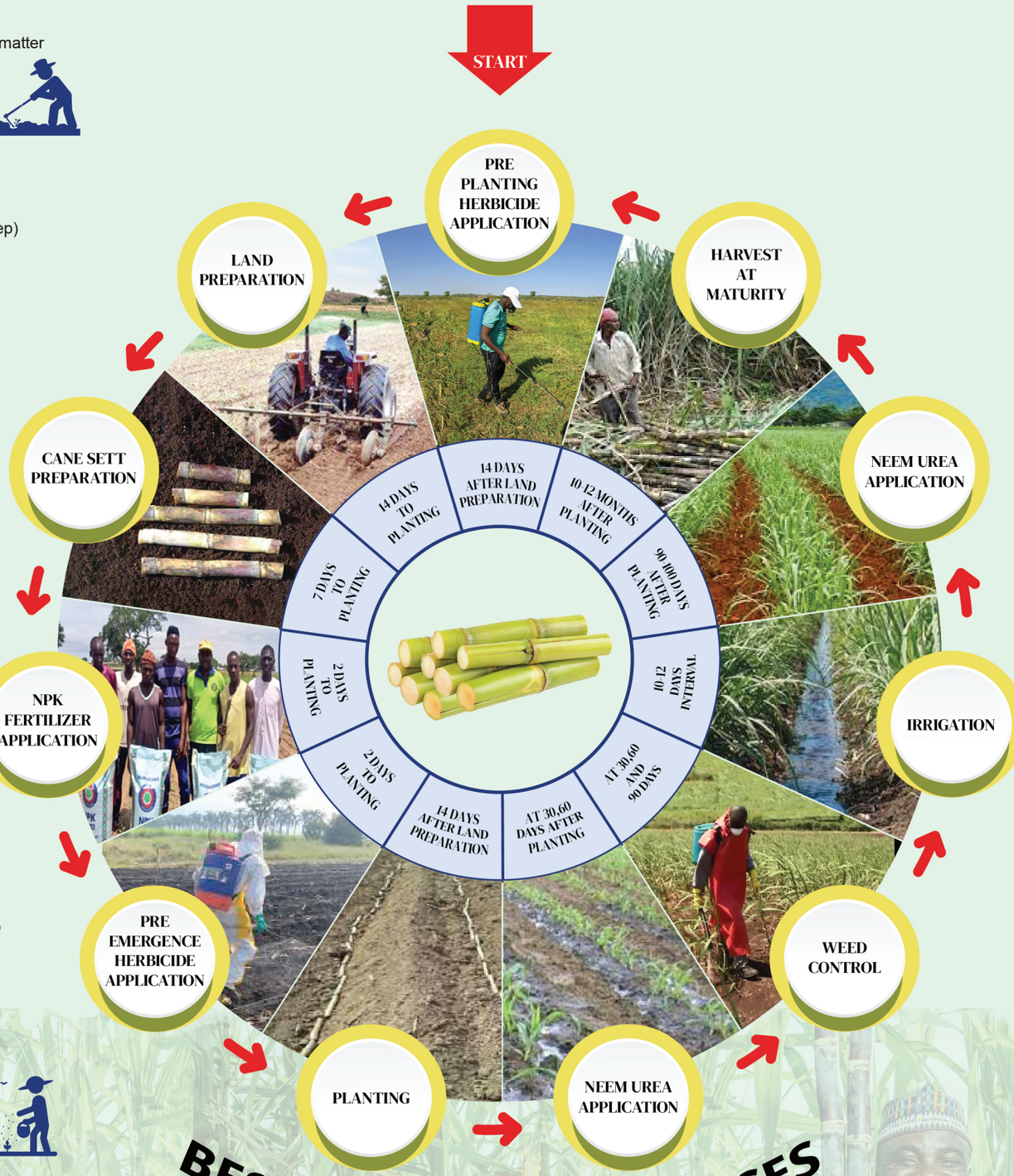
# SUGARCANE CROP




## Land Preparation, Soil and Climate Requirement

- Sugarcane grows best in deep, well-drained loamy soil rich in organic matter and with pH between 5.0 and 8.0.
- Sugarcane requires a temperature of 26-33°C, and sufficient annual average rainfall of 150 cm.
- The land should be cleared and harrowed to a fine tilth.
- Shallow furrows of 8-10 cm deep are made.
- Distance between two rows should be kept at 75-90 cm.
- Trenches at a distance of 75-90 cm could also be dug (20 – 25 cm deep) with the help of ridger or by manual labor.

## Planting

- Sugarcane is majorly propagated by vegetative materials (setts or settlings).
- Healthy sugarcane plants should be selected (long and thick stems about 40 cm long).
- Treat the setts with hot water at 50°C for about 2 hours; this gives 100 percent control.
- Treat the setts with Propiconazole (500 g/L ai) at 10ml/100 L water.
- About 35,000 – 40,000 setts are needed to plant 1 ha.
- Furrows or trenches should be dug about 5 cm deep, and the sett planted horizontally in the furrows.
- Place the sugarcane setts in the furrows, making sure to position them with the nodes facing upward and row to row spacing varies from 60 - 90 cm depending on variety.
- The furrow is covered by 5 - 7 cm of soil and the field is leveled by planking.
- In areas where the crop grows very tall and there is strong winds during rainy season, trench method is adopted to save the crop from lodging.

## Fertilizer Management with 4R Nutrient Stewardship

- Sugarcane requires 200 kg Nitrogen, 60 kg Phosphorus and 60 kg Potassium per hectre for optimum yield.
- Entire recommended dose of Phosphorus and Potassium is applied during the basal application of NPK fertilizer at planting using 12 bags (600 kg) of Indorama NPK.
- 200kg Nitrogen balance is applied in 3 splits at 30, 60 and 90 days after planting using Indorama neem coated urea fertilizer.

## How to Reduce Fertilizer Loss

- Apply only the recommended dose of urea fertilizer.
- Split application of urea fertilizer to reduce Nitrogen losses.
- Apply urea fertilizer late in the evening or early in the morning.
- Use side placement method of urea fertilizer after weeding to avoid competition from indigenous weeds.
- Proper water management practices (avoid excessive irrigation).
- Proper drainage will reduce urea fertilizer loss due to runoff.

## Weed management

- Requires weed free for the first 90 - 100 days.
- Pre-planting herbicide should be applied 2 weeks prior to land preparation.
- Post emergence herbicide (2,4 D) can be used to control broadleaf weeds in sugarcane. The application is done 25, 55 and 85 days after planting.
- Sugarcane is most sensitive to weeds during tillering stage.
- Manual weeding could be employed at 30, 60 & 90 days before application of urea fertiliser.
- Mulching is effective against many weeds.
- Initial ploughing and trash mulching are the weed control methods in ratoon.

## Water Management

- Irrigation interval depends on soil type and season.
- Ratoon crop require more frequent irrigation than planted crops.
- Irrigation at 10-12 days interval is required.
- Water is mostly required during formative and grand growth phases.
- Light and frequent irrigations gave higher yield, than heavy irrigations at longer intervals.

## Earthing Up and Propping

- Earthing-up is done at 90 - 120 days after planting to check excessive tillering, prevent the crop against lodging, facilitate the water flow in furrows and manage weeds.
- Propping is done to prevent the crop against lodging due to heavy winds and to keep the crop field open for better aeration
- It is done by tying the canes together using the dry leaves and bottom green leaves.

## Harvesting

- Sugarcane can be harvested manually or using mechanized tools.
- Maturity is recognized by drying of older leaves leaving few top leaves green.
- Stalks are cut at the ground level; dried leaves are stripped off from the cane.
- In big plantations, harvesting is carried out by mechanized harvesters.
- Harvesting the plant crop close to the ground level is most important for good ratooning.
- After the harvest of cane crop, stubble shaving should be done to ground level either by using sharp blade or stubble shaver.
- This is done to facilitate healthy underground buds to sprout and establish a deeper root system in the ratoon crop.

# BEST FARMING PRACTICES

*Indorama Fertilizer: Improving Agriculture, Improving Lives*