

Ruchi Biochemicals

Main Land Preparation and Planting

Deep ploughing followed by 2-3 harrowings are necessary to bring the soil to fine tilth. Prepare 0.45 x 0.45 x 0.45m size pits at recommended spacing. Incorporate 6-8 tons of FYM / acre during initial ploughing or fill the pits with 4-5kg FYM at the time of planting. Mix 300g of SSP with the dug out soil in each pit. Plant the treated rhizome / sucker in the center of the pit and press the soil around it without leaving any gap and soon irrigate the crop.

Intercultivation

Keep the field weed free during initial 90-100days by removing weeds 3-4 times depending on their intensity. As plants start growing earth up the soil near the base and prepare rectangular / trapezoidal shape beds within 3-3 ½ months of planting. Once the bed is prepared the soil around the plant should not be disturbed as root system of banana is superficial in nature. Bed preparation provides anchorage and aeration to the plant and sufficient soil volume for the root proliferation and facilitates drainage of excess water.



Water Management

Banana needs copious irrigation and its water requirement vary depending upon the topography, soil, climate, type of culture and economic factors. Under drip, ensure sufficient wetting of the bed in the beginning for proper settlement of soil particles and later schedule the irrigation based on pan evaporation and crop factor. Irrigating the banana through drip creates unique soil-water-air relations that are highly favourable for its growth and development. Proper bed preparation allows to keep the soil friable by drip and thus prevents soil compaction. Further, through drip, soil moisture in the bed is maintained near field capacity encouraging the development of concentrated feeding roots which are mainly involved in the absorption of water and nutrients. Therefore, in order to maintain this condition, irrigation interval under drip should not exceed more than 3 days.

Banana, in general requires heavy irrigations both for establishment of young plants as well as for proper growth and fruiting, but it cannot withstand water logging. Water deficits in flowering period limit leaf growth and number of fruits. Water deficits in yield formation period affect both fruit size and quality (poorly filled fingers). A reduce leaf area reduces rate of fruit filling and at harvest time this leads to the bunches looking older than they appear to be and consequently the fruits are liable to premature ripening during storage.

Under good water and nutrient management Banana produces taller plants with greater leaf area and results in earlier shooting and higher yields. Irrigation intervals should very short as the root system is very fragile and has limited penetration power. Under drip, banana matures early by 20-30days and gives 20-25% more yield as well as there is a saving of 30-40% water besides other advantages. Critical stage of the crop for moisture is bunch emergence to till maturity. Water requirement of banana ranges from 900mm to 1300mm.

Months After Planting	1 & 2	3	4	5	6 & 7	8 to till maturity
Crop factor (Kc)	0.65	0.75	0.85	0.9	1.0	1.05 to 1.15

Nutrient Management

Adequate and efficient manuring of young and mature plants is essential to maintain the health of the banana and to obtain high yields. Being a heavy feeder, banana should be nourished with balanced nutrition.

Apply 4-5kg FYM along with 300g of single super phosphate per pit at the time of planting. Recommended nutrient dose for banana is 500-250-562.5 to 600-250-625 kg/ha of N-P₂O₅-K₂O respectively under drip depending on the soil fertility status and crop response. Fertigating banana at 5 or 7 days interval with water soluble fertilizers in small doses as per the crop growth stage increases the fertilizer use efficiency by the way of ensuring precise supply of essential nutrients at the active root zone of the crop. In zinc deficit soils, application of 10g of zinc sulphate per pit or foliar spray of the same @2g/lit at 15days interval twice is suggested.

Desuckering

Suckers are cut back at an interval of 20-25days till 75% maturity of the crop in order to prevent the competition with the mother plant. Later, one of the healthy suckers is allowed to grow to take the ratoon crop.

Harvesting and Yield

After the complete emergence of bunches, top one or two leaves are covered over them to give protection against sunscald. Harvesting of banana starts from 11months after planting to 14months depending on the cultivar and climate. Under good management practices through drip fertigation, dwarf cavendish, robusta and grandnane give 23-26kg bunches while, tissue culture varieties can yield up to 30-35kg.

Ratooning

One of the sword suckers is allowed to grow when bunch of the mother plant is matured by 75% and it is economical to take one or two ratoons depending on the crop condition. Ratoon crop should not be taken in nematode and disease endemic areas.

Plant Protection

Insect Pests

- **Rhizome weevil** : Both grubs and adults bore in to the rhizome and pseudostem and make tunnels by feeding. As a result, rotting of rhizomes take place thus plants wither and breakdown with strong winds. Trimming the rhizomes and dipping in methyl oxy demeton @2ml/lit or applying 10g phorate granules per pit controls the pest. mix 20g Metarhizium anisoplae.
- **Burrowing Nematode** : Nematode affected plant roots are reduced and show reddish brown lesions. Such plants are stunted in growth. Crop rotation, trimming the roots on rhizomes, dipping the rhizomes in clay slurry and applying 40g Pacilomyces granules per pit are the remedial measures.

Diseases

- **Panama Wilt** : Older leaves turn yellow and break at petiole and hang down along the pseudo stem. There is discolouration of vascular region and splitting of pseudo stem, ultimately results in the death of plant. Selection of healthy suckers and dipping in Trichoderma solution (@1g/lit) are the remedies.
- **Sigatoka leaf spot** : Leaves show spindle or eye shaped brown spots with yellow halo. Such spots gives a scorched appearance affecting the photosynthesis of the crop. Spraying thiophanate methyl @1g/lit or Psudomonas fluorocens @10g/lit and removal of severely affected leaves are the control measures.
- **Anthracnose** : Infected fruits, flowers and distal end of hands show circular black, sunken spots surrounded by yellow

halo. Spray chlorothalonil @2g/lit or fruit dipping in aqueous solution of 1000ppm benomyl or 100ppm aureofungin against the disease.

- **Bunchy top** : Leaves emerge in clusters with wavy margins. Affected plants are stunted without any bunch. Selection of suckers / rhizomes from virus free plants and destruction of affected plants minimize the problem.
- **Mosaic** : Light green streaks run parallel to leaf veins giving leaf a striped appearance. Leaves are small, narrow and chlorotic. Affected plants are dwarf and do not bear bunch. Selection of suckers from virus free plants and destruction of affected plants alleviate the problem.