

Package of Practice for Cotton Cultivation in Southern Karnataka

Chamarajanagar, UASB, Karnataka State

Chamarajanagar and Mysore districts are the major ELS cotton growing regions of Karnataka, It is being cultivated in an area of more than 0.5 lakh hectare. Interspecific Bt Cotton hybrids are widely cultivated among the farmers in the region. The package of practices developed by University of Agricultural Sciences; Bengaluru is provided below.

Cotton varieties/hybrids and their special characteristics

Varieties/ hybrids	Zone	Duration (Days)	Time of Sowing	Special Characteristics	Yield (q/ha)
Inter-specific Hybrids					
DHB -105	4, 6, & 7	180	May- June	ELS cotton, tolerant to leaf reddening	18-20
DCH-32	4, 6, & 7	190	May- June	ELS cotton,	18-20
Varalakshmi	4, 6, & 7	190	May -July	ELS cotton,	18-20
Intra-specific Hybrids					
NHH-44	4	160	May-July 15 th	Has regenerative character	18-20
DHH-11	4	160	May-July 15 th	Bigger boll size , good boll opening and regenerative character	18-20

Seed rate: Linted seeds: 2.5 kg/ha and delinted seeds 1.25 kg/ha

Planting geometry: Rainfed: 90 x 60 cm, Irrigated: 120 x 60 or 90 x 60 cm

Nutrient Management

- **Organic manures:** Apply FYM/Compost @ 12.5 t/ha, 2-3 weeks before sowing
- **Inorganic Fertilizers:** 150:75:75 kg NPK/ha
- For rainfed cotton apply entire dose of P & K and 50 percent N as basal at the time of sowing and top dress remaining 50% N at 60 DAS.
- Under irrigated conditions, apply 50 % N & entire dose of P and K as basal at the time of sowing and top dress remaining 50 % N in equal splits at 50, 80 and 110 DAS.
- Apply 2% Urea or DAP as foliar spray at 80 DAS and subsequently at 20 days interval

Weed management and Intercultural Operations

- Provide three to four intercultivations at an interval of 15 days after 30 DAS, followed by hand weeding..
- Pre emergent application of Diuron (80%) @ 1.25 kg/ha or Pendimethalin (30 EC) @ 3 lit/ha or Butachlor 50 EC 2.0 lit/ha or Fluchloralin 45 EC 2.0 lit/ha in 500-750 lits of water immediately after sowing or within 3 DAS.
- Post emergent application of Quizalofop p-ethyl 5 EC (1 lit/ha) + Pyriithibac sodium 10 EC (625 ml/ha) as tank mixture at 2-4 leaf stage.

Water Management

- Depending on the soil and climatic condition provide irrigation once in 8-10 days for sandy loam soils and 15-20 days in black soils
- Adoption of furrow method of irrigation is better
- Irrigate immediately after sowing and provide 2 irrigations before flowering and 4 irrigations after flowering.

Physiological disorders in cotton.

- Foliar spray of Planofix @ 0.25ml/lit of water during pre flowering and peak flowering stage of the crop to reduce square and flower drop.
- Foliar spray of 2% urea or DAP at 80 DAS and subsequently at 20 days interval reduces the leaf reddening.

CROP PROTECTION:

A. Major diseases, symptoms and their control measures.

S.No.	Name of the disease	Symptoms of the disease	Suggested control measures
1	Bacterial blight	Water soaked angular leaf spots appear on the leaves, later spread to the veins and vein lets	Foliar spray of Streptomycine Sulphate @ 0.5 g/litre and Copper-Oxychlode @ 3 g / litre of water as and when symptoms are seen
2.	Leaf spot disease	Brownish spots appears on leaves	Foliar spray of Zinab @ 2 g or Copper-Oxychloride @ 3g/litre or Chlorotalonil @ 2 g or Carbendizium @ 1gm/litre of water

B. Major insect Pests, symptoms and their control measures.

1. Sucking pests:

S.No.	Name of the pests	Damage Symptoms	Suggested control measures
1	Jassids	Yellowing, reddening along the leaf margin and complete drying of leaves	Seed treatment: Treat the seeds with 10 g Imidacloprid 70WS Foliar spray of 2 ml Oxydemton methyl 25 EC or 1.7 ml Dimethoate 30 EC or 0.5 ml Imidacloprid 200 SL/litre of water
2	Thrips	White streaks on	

		leaves, backward curling and complete drying of leaves	
3	Aphids	Yellowing, crinkling and development of black sooty mildew on leaves	
4	White flies	Yellowing of leaves, Premature dropping of squares and bolls	Spray 1.5 ml Monocrotophos 36 EC + 1ml DDVP + 0.25 ml Tipal
5	Mites	Appearance of red spots on leaves, curling of leaves	Spray 2.5 ml of Dicofol 18.5 EC or 1ml Difenthurion per liter of water
6	Dusky cotton Bugs	Bad boll opening and deterioration of seed quality	Spray Quinolphos 25 E.C @ 2 ml/litre of water
7	Red cotton Bugs	Suck the sap from the matured bolls. Quality of the lint deteriorates.	Spray Penthoate 100 E.C @ 2ml or Phosolone 35 E.C 2 ml per litre of water

2. Bollworms:

1	American Bollworm	Feeds on squares, flowers and bolls. Flaring up symptoms and dropping of squares. Bored entry holes on boll.	Spray Delta methrin 2.8 E.C @ 0.5 ml, Cypermethrin 10 E.C @0.5ml, Fenvalarate 20 E.C @ 0.5ml/litre of water
2	Pink bollworm	Feeds on developing bolls. Rosetted flowers. No damage symptoms on bolls as it feeds on seeds inside the bolls	Spray Monocrotophos 36 S.L @ 2.5ml, Spinosad 45 S.C @ 0.2ml/litre of water
3	Spotted bollworm	Feeds on squares, flowers and bolls. Flaring up of squares and damage holes on bolls	Spray Quinalphos 25 E.C @ 2 ml or Profenophos 50 E.C @ 2ml or Thiodicarb 75 W.P @ 1g or Methomyl 40 S.P @ 1.6g or Indaxacarb 14.5 S,C @ 1 ml/litre of water

Special Instructions.

- Always use recommended varieties/hybrids and certified seeds only.
- For better germination and plant stand use delinted seeds.
- Early sowing during the season helps to get higher yields.
- Always use urea for top dressing to provide nitrogen.
- Dibble 2 seeds/hill at the time of sowing and thin out one seedling at 10-12 days by retaining one healthy seeds.
- Apply pre-emergent weedicides under sufficient soil moisture condition.

- Avoid repetitive use of same insecticides.
- Avoid excess application of nitrogenous fertilizers to minimize sucking pest incidence.
- Avoid ratooning in cotton
- Adopt crop rotation to reduce pest and disease incidence and getting sustainable yield.
- Do not mix the late picked cotton with first picked cotton.

Low cost cultural practices.

- Follow deep ploughing during summer.
- Apply FYM/ Compost 2-3 weeks before sowing. Do not heap the FYM in field for longer period to avoid nutrient loss due to high temperature.
- Adopt contour cultivations practices under rainfed conditions
- In areas of soil compaction due to high rainfall, apply handful of FYM/hill and dibble cotton seeds along with field bean to encourage germination. Remove the bean seedlings after 8-10 DAS.
- Adopt recommended spacing and maintain optimum plant population.
- Apply fertilizers based on the soil test recommendations.
- In ridges and furrow method of cultivation, sowing to be done on ridges to conserve moisture under rainfed conditions. During high rainfall situations, furrow helps to remove the excess water.
- In rainfed areas follow 2-3 deep intercultivation for management of weeds.
- Top dressing fertilizers need to be applied in bands around the seedlings and cover with soil.
- Sowing of bendi as trap crop at 20: 1 row proportion helps to minimize insect pest damage.
- Squares, flowers and bolls dropped due insect damage need to be collected and buried.
- Under water scarcity adoption of alternative furrow irrigation saves 25% of water.
- Paired row sowing of cotton saves 25% of water and intercrops such as onion, garlic, chilly, soybean etc., can be cultivated between pairs.
- Under irrigated condition chilly, onion, lucerne and soybean can be cultivated as intercrops
- Under rainfed conditions cultivation of chilly, groundnut, cowpea, green gram, black gram as intercrops helps to get higher yield and income, also improves the soil fertility.
- Harvest the cotton during morning hours, shade dry and store in clean place.

Information provided by: AICRP on Cotton, Chamarajanagar, UASB, Karnataka State. (2023)

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