Package of Practices for Cotton Cultivation in Telangana

ARS, Adilabad, PJTSAU, Telangana

Cotton is an important fiber crop cultivated majorly in Nalgonda, Adilabad, Nagarkurnool, K. Asifabad, Vikarabad, Khammam districts of Telangana state and cultivated nearly in 50 Lakh ac areas.

Soils:

Deep black soils having good drainage facility are mostly preferable. This crop can be grown in red loamy soils supported with supplemental irrigation.

Sowing time:

Crop can be sown with onset of monsoon under rainfed situation (June I FN onwards)**.** Doesn't sown cotton crop beyond July I FN. As per as possible, sown the crop in a span of 1 week to 10 days in a particular location to minimize the incidence of PBW.

Suitable varieties:

Adilabad Kapas-1 (ADB-542), WGCV-48, WGCV-79, Narasimha (NA 1325), Sri Rama (NDLH-1938), Shivanandi (NDLH-1755) etc.

Suitable hybrids:

Select private Bt. hybrids that performed well in past 3-5 years in a specific location.

Seed rate:

Varieties *(G. hirsutum.* L*)*: 5 kg/ha;
Varietés for closer spacing/ HDPS sowings: 10-12 kg/ha;
Hybrids: 2-2.5 kg/ha

Spacing:

Normal sowings for varieties: 90 x 45 cm (or) 60 x 60 cm;
Normal sowings for hybrids: 120 x 60 cm (or) 90 x 60 cm (or) 60 x 60 cm;
Closer spacing for varieties/ HDPS sowings: 60 x 30 cm / 60 x 15 cm;
Closer spacing for hybrids/ HDPS sowings: 80 x 20 cm (or) 90 x 15 cm

Seed treatment:

Treat the seed with Imidacloprid 600 FS (Gaucho) @ 5 ml/kg (or) (or)Thiamethoxam 70 WS (Cruiser) @ 4 g/kg followed by treatment with (or) fungicide Carbendazim 50 WP @ 2 g/kg and bio-fungicide *Pseudomonas fluorescens* @ 10 g/kg (or) *Trichoderma viridae* @ 10 g/kg seed.

Intercrops:

Prefer short duration intercrops like greengram/ blackgram/ cowpea (or) medium duration redgram varieties in rainfed areas to minimize the crop losses under prolonged drought.
Follow crop rotation once in 2-3 years.
Early termination of the cotton crop is recommended to avoid PBW infestation.
Grow location specific suitable short to medium duration crops under irrigated situations during *rabi*/summer.

Fertilizers:

Follow INM practices to realize higher cotton yield. Based on soil health card data, inorganic fertilizers can be applied. Use FYM @ 10 t/ha.

Varieties: 90 kg N + 45 kg P_2O_5 + 45 K_2O/ha;
Hybrids: 120-150 kg N + 60 kg P_2O_5 + 60 kg K_2O/ha.

- Recommended nitrogen and potassium can be applied in 3 splits at 30, 60 and 90 DAS to the varieties. Similarly, recommended nitrogen and potassium can be applied in 4 splits at 20, 40, 60 and 80 DAS for hybrids.
- Foliar nutrients *viz.*, Urea/ DAP @ 2% (20 g/l) (or) Multi-K (KNO_3) (or) Polyfeed 19:19:19 (or) 20-20-20 NPK @ 1% (10 g./l) during boll formation to boll development stages at 7-10 day intervals during adverse climate (drought/excess rains).

Weed management:

- Follow IWM for effective weed control.
- Intercultivation 2-3 times at 20 days interval is found to be more effective for weed control.
- Spray pre-emergence herbicide Pendimethalin 30% EC (Stomp) @ 1.2 l/acre or Pendimethalin 37.8% CS (Stomp xtra) @ 700 ml/acre within 48 hours after sowing.
- Post-emergence spraying of Quizalofop ethyl @ 400 ml/acre (or) Propaquizafop @ 250ml/acre along with Pyrithiobac sodium @ 250 ml/acre at 25-30 DAS can be used to control grassy and broad-leaved weeds.

Irrigation:

Provide supportive irrigations during boll formation to boll development stages in case of prolonged drought for reaping higher yields.

Insect pest management:

Jassids/aphids/thrips:

- Follow stem application of Monocrotophos (with water) at 1:4 ratio at 30 and 45 DAS followed by Flonicamid (with water) at 1:20 ratio at 60 DAS for economical control of sucking pests.

- Spray application of Monocrotophos 36 SL @ 1.6 ml/l; Acephate 75 SP @ 1.5 g/l; Imidacloprid 17.8 SL @ 0.25 ml/l; Acetamiprid 20 SP @ 0.2 g/l; Thiamethoxam 25 WG @ 0.2 g/l; Fipronil 5 SC @ 2.0 ml/l; Diafenthiuron @ 1.25 g/l; Flonicamid@ 0.3 g /l; Spinetoram 117% SC @ 0.9 ml/l; Sulfoxaflor (D one) @ 1 g/l; Acephate + Imidacloprid (Lancer gold) @ 2 g/l; Dinutoferan @ 0.3g/l.

Whitefly:

- Profenophos 50 EC @ 2.0 ml/l; Diafenthiuron 50% WP @ 1.25 g/l; Sulfoxaflor @ 1 g/l; Bifenthrin @ 0.65 ml/l; Diafenthiuron (+) Bifenthrin (Takaf) @1.25 ml/l; Pyriproxyfen (+) Fenpropathrin 15% EC (Sumiprempt) @ 1.2 ml/l.

Red spider mite:

- Wettable sulphur 80 WP @ 3.0 g/l; Dicofol 18.5 SC @ 5 ml/l; Spiromesifen 22.9% SC@ 1 ml/l.

Mealy bug:

- Profenophos @ 3 ml (+) Sandovit /Triton @ 1ml/l (or)/l; Acephate @ 2 g/l (+) @ Sandovit /Triton @1 ml/lt.

Bollworms:

- Spray application of Thiodicarb @ 1.5 g/l (or) Indoxacarb @ 1 ml/l (or) Spinosad @ 0.35 ml/l (or) Emamectin benzoate @ 0.5 g/l (or) Novaluron @ 1 ml/l (or) Spinetoram @ 0.9 ml/l (or) Chlorantraniliprole @ 0.3 ml (or) Flubendiamide @ 0.2 g/l (or) Quinalphos @ 2 ml/l and Chlorpyriphos @ 2 ml/l.

Note: Adopt important IPM strategies like growing of border crops, intercrops, and trap crops, erection of pheromone traps, yellow sticky traps and use of NSKE / Neem oil sprays for effective control of crop pests.
Follow rotation of insecticide sprays for high efficacy.

Diseases management:

Black arm/ Angular leaf spot/ bacterial blight:

- Seed treatment with Carboxin (+) Thiram (Vitavax power) @ 2.5 g/kg or *Pseudomonas fluorescens* @ 10 g/kg seed. Spray Copper oxy chloride @ 3 g/l starting from 60 days after sowing twice at fortnight interval.

Leaf spots:

- Spray application of Mancozeb @ 2.5 g/l (or) Copper oxy chloride @ 3 g/l (or) Propiconazole @ 1 ml/l (or) Pyraclostrobin @ 2.0 g/l (or) Fluxapyroxad + Pyraclostrobin @ 0.6 ml/l (Merivon) (or) Tebuconazole + Trifloxystrobin (Nativo) @ 0.6 g/l (or) Pyraclostrobin (+) Metiram (Cabriotop) @ 2 g/l.

Grey mildew:

- Wettable Sulphur @ 3 g/l (or) Carbendazim @ 1 g/l (or) Kresoxim methyl @ 1 ml/l.

Boll rot:

- Spray application of Copper-oxy-chloride @ 3 g/l (or) Kresoxim methyl @ 1 ml/l (or) Dithane M-45 @ 2.5 g/l (or) Carbendazim @ 1 g/l of water.

Root rot:

- Seed treatment with Carbendazim @ 2 g/kg seed.
- Soil application of *Trichoderma viridae* @ 5 kg/ha along with FYM.
- Soil drenching with Copper oxy chloride @ 3 g/l around the base of affected plants.

Harvesting:

- Kapas from fully opened bolls should be collected during cooler times of the day and it should be free from debris like dried leaves/ bracts etc. Picking, bagging and selling of kapas should be done variety wise to maintain quality and fetch better price

Comprehensive measures for management of pink boll worm (PBW) in cotton:

- Follow deep summer ploughing regularly.
- Adopt community sowing in a particular area/ village in a span of 1 week to 10 days.
- Incorporate crop stubbles in the field by tractor drawn rotary chip shredder.
- Install or erect pheromone traps at 45 DAS @ 4/acre for monitoring of pest or @ 8/acre for mass trapping of the pest.
- Remove and destroy the rosette flowers continuously during early flowering period (45-70 DAS), to avoid/minimize the pest in later stage of the crop.
- Take up control measures, if pheromone catches exceed 8/day/trap for 3 consecutive days (or) if 10 % rosette flowers (or) 10% damaged green bolls are noticed in the crop.
- Spray NSKE 5% or Neem oil (1500 ppm) @ 5 ml/l of water with detergent powder (or) Sandovit @ 1 ml/l of water as a prophylactic measure at 40- 45 days of the crop.
- Take up spraying of chemicals like Profenophos @ 2 ml/l (or) Quinalphos @ 2 ml// (or) Thiodicarb @ 1.5 g/l (or) Emamectin benzoate @ 0.5 g/l (or) Chlorantraniliprole @ 0.3 ml/l (or) Indoxacarb @ 0.4 g/l (or) Spinosad @ 0.375 ml/l (or) Spinetoram @ 0.9 ml/l etc., alternatively at an interval of 7-10 days depending on pest load for effective control of pest.
- Mix Azadirachtin (Neem oil) once in 2-3 sprays with the above mentioned chemicals for increasing their efficacy against the pest.
- Spraying of synthetic pyrethroids namely Cypermethrin @ 1 ml/l (or) Lambda cyhalothrin @ 1 ml/l (or) Chlorpyriphos (+) Cypermethrin @ 2 ml/l (or) Thiomethaxam (+) Lamdacyhalothrin @ 0.4 ml/l (or) Profenophos (+) Cypermethrin @ 2 ml/l once or twice, whenever the pest incidence is severe.
- Terminate the crop at 140-150 days and go for the suitable short to medium duration *rabi*/ summer crops based on irrigation water availability.

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