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I. VARIETIES ACCEPTED FOR RELEASE OR ADOPTION

CEREALS:

1. Sorghum (Variety: SPV-2217)
   - **Duration:** 120 -125 days
   - **Zone:** Zone 8 of Karnataka
   - **Yield:** (Average) 15 -18 q / ha
     (Potential) 25 -30 q / ha

   **Special features:**
   Superior to M-35-1 in grain yield and seed size
   Tolerant to charcoal rot disease
   No lodging at the time of maturity

   **Qualitative distinguishing Characters:**
   Bold round seeds (4.0 to 4.5/100 seed), leaf sheath dark purple colored
   and grey coloured glumes at the time of the maturing.

2. Bread Wheat (Variety: HD-3090)
   - **Duration:** 97 days
   - **Zone:** Zone -3 of Karnataka
   - **Yield:** (Average) 40 q / ha
     (Potential) 45 q / ha

   **Special features:**
   Resistant to leaf and stem rust races
   of Karnataka

   **Qualitative distinguishing characters:**
   Pearl ear shape, weak ear wax
OILSEEDS:

1. **Groundnut (Variety : Dh-101)**
   - **Duration:** 119-124 days (summer)
   - **Zone:** All India Zone-4, Karnataka Zone-3 and 8
   - **Yield:** (Average) 29 -30 q / ha
     (Potential) 24-42 q / ha

   **Special features:**
   Tolerance to stem rot and PBND, insect pest like thrips and Spodeptera damage.

   **Qualitative distinguishing characters:**
   Spanish bush small leaves, semi-dwarf, light green foliage medium sited and good pods.

PULSES:

1. **Greengram (Variety : DGG-1)**
   - **Duration:** 75 days
   - **Zone:** Zone 8 of Karnataka
   - **Yield (Average):** 12 q/ha
     (Potential): 14 q/ha

   **Special Features:**
   Moderately tolerant to apion beetle, powdery mildew and cercospora leaf spot.
   Moderately resistance to shattering of pods
   Suitable to mechanical harvesting.

   **Qualitative distinguishing characters:**
   Bold and shining seeds.

2. **Chickpea (Variety :JAKI-9218)**
   - **Duration:** 90-95 days
   - **Zone:** Zone 3 and 8 of Karnataka
   - **Yield:** (Average) 18 -20 q / ha
     (Potential) 20 - 21q / ha

   **Special features:**
   Semi spreading, bold seeded,
   Profuse branching
   Resistant to *Fusarium* wilt
   Suitable for mechanical harvesting

   **Qualitative distinguishing characters:**
   Semi spreading variety with tertiary branding angular golden yellow seeds. Pubescent purple stem.
COMMERCIAL & FIBRE CROPS:

1. Cotton Hybrid (Variety :1071)

- **Duration:** 190 - 200 days
- **Zone:** 2,3 and 8 and South of India (Karnataka, Tamil Nadu and Andhra Pradesh)
- **Yield:** (Average) 16 q / ha  
  (Potential) 18-20 q / ha

**Special features:**
- Tolerant to leaf reddening than DCH -32.
- Yields 39 % higher than DCH -32

**Qualitative distinguishing characters:**
- Spreading open type plant with green leaves

HORTICULTURAL CROPS:

Capsicum : (Variety : DMC 14)

- **Duration:** 120 days
- **Zone:** Zone 3 and 8 of Karnataka
- **Yield (Average):** 25 tons/ha  
  (Potential): 28 tons/ha

**Special features:**
- Fruit has thin pericarp and contains high ascorbic acid (206 mg/100 g).

**Qualitative distinguishing characters:**
- Number of loucles per fruit 3-4. Ascorbic acid 206 mg / 100g.

2. Ridge gourd : (Variety : DMRG-1)

- **Duration:** 120
- **Zone:** 3 and 8 of Karnataka
- **Yield (Average):** 21 tons/ha  
  (Potential): 25 tons/ha

**Special features:**
- Bear long tender fruits (28-30 cm)
- More number of female flowers / vine
- Fruit weight 230-240 g.

**Qualitative distinguishing characters:**
- Tender fruits : 28-30 cm. More female flowers / vine
II. TECHNOLOGIES ACCEPTED FOR RELEASE

CROP PRODUCTION:

1. **Nutrient management in groundnut + hybrid Bt cotton inter cropping system**

   In Groundnut + Hybrid Bt Cotton (3:1 row proportion) (30 cm × 10 cm – 120 cm × 60 cm) intercropping system under rainfed situations of Northern Transitional Zone (Zone 8) of Karnataka state, application of 75 % recommended dose of fertilizers to groundnut (i.e., 18.75 kg N, 56.25 kg P₂O₅ and 18.75 kg K₂O ha⁻¹) and 100 % recommended dose of fertilizers for hybrid Bt-cotton (i.e., 80 kg N, 40 kg P₂O₅ and 40 kg K₂O ha⁻¹) is profitable.

2. **Spacing studies in Rabi Bajra**

   With wider row spacing of 120cm between rows with normal seed rate (4 kg/ha), this practice is well suited in dry land situation. This technology increases the effective root zone retains soil moisture for a longer period. Repeated inter-cultivation helps in effective weed control and prevents soil evaporation, increase the yield by 20-25 per cent over normal sowing.
3. **Agro techniques for Baby corn**

Plough the land once or twice and apply 6 tons of farmyard manure before sowing and mix thoroughly with soil. Apply 40 kg of nitrogen, 60 kg phosphorus, 40 kg potash, 10 kg each of zinc and iron before sowing in the opened rows and mix thoroughly with soil. Sow the seeds in 60 cm rows at 10 cm spacing between plant to plant. Top dress remaining quantity of nitrogen @ 40 kg /ha each at 25 and 45 days after sowing and take up inter cultivation. By practicing this technology one can get 55-60 q/ha baby corn with husk, 18-20 q/ha baby corn without husk and 20-25 t/ha green fodder.

**Variety:** HM-4 or DMH-2. **FYM 6 t/ha** Fertilizers: 120:60:40 kg N: P<sub>2</sub>O<sub>5</sub>: K<sub>2</sub>O / ha. **Harvest** at 1 or 2 days after silk emergence

4. **Use of Organics in paddy cultivation in hilly region**

This technology consists: Dipping of seedlings roots in *Azospirillum* + PSB culture slurry before transplanting. Apply 16 tones of Eupatorium to meet recommended nitrogen requirement of 75 kg N/ha. Take up two sprays of cow urine @ 10 % between 30 to 60 DAP at an interval of 15-20 days. By following this technology 50 q/ha paddy yield and 5.5 t/ha fodder can be obtained.
5. **Use of pyraclostrobin in Soybean**

After urea spray and before weed control, foliar spraying of pyraclostrobin 20% WG @ 500 g/ha (0.66g/l of water) at 40 days after sowing will enhance the yield in soybean to an extent of 9.9 per cent.

![Effect of Pyraclostrobin 20% WG on Yield in Soybean](image)

6. **Growth control in inter specific Cotton hybrids**

The inter specific Bt cotton hybrids put up heavy vegetative growth & their relative growth rate (RGR) is comparatively high. The use of growth retardant Cycocel (CCC) 0.6 ml/l of water at 75 and 95 days will reduce the leaf area and plant height leading to less coverage of the canopy. As a result the light interception will be more leading to better growth & partitioning of the biomass into reproductive bodies their by enhancing the seed cotton yield to extent of 10-12 per cent.

![Use of growth retardants in enhancing productivity of inter specific (HB) Bt cotton](image)
7. Use of nitrobenzene in Bt cotton

Foliar application of nitrobenzene @ 1ml/l at 55, 75 and 95 days after sowing has resulted in significant increase in seed cotton yield. Nitrobenzene being growth promoter will boost the crop growth in terms of more reproductive bodies enhanced leaf area and chlorophyll content (greenness). The seed weight is also enhanced apart from number of bolls per plant. This growth supplement is far better than other nutrient supplements.

8. Linseed planting geometry:

Soon after land preparation, sow linseed with the help of seed drill maintaining spacing of 45 cm between the rows and 10 cm between seeds. This practice helps to attain higher yield.
9. Linseed based inter cropping system:

By growing linseed crop with inter row spacing of 45 cm, sorghum and bengalgram as intercrop (two rows of linseed + one row sorghum or two rows of linseed + one row of bengalgram) can help to increase the productivity of crops and fetch higher income.

10. Nitrogen management through leaf colour chart:

After planting, leaf colour chart to be compared with fully opened leaf from the top (mid portion) for every 15 days from 45 days to 240 days. If the average value is less than 5, then apply 50 kg nitrogen / ha as top dress. This helps to supply nitrogen as per requirement of the crop and thus results in attaining 10.63% higher yield.
11. Planting method to improve the productivity of Safflower under rainfed condition:

Sowing of recommended quantity of safflower seeds in paired row (45 cm between rows and 30 cm between seed and after sowing two rows give one row gap or skip one row). After 25-30 days of sowing plough the skipped row which acts as irrigation channel and helps to store rain water in the soil leading to higher crop yield, to an extent of 10-15 per cent.
CROP PROTECTION:

1. Weed management in Bt cotton

In addition to pre-emergent herbicides, application of Quizalofop Ethyl-5 EC @ 0.05 kg ai/ha (1 lit/ha) can be used as post emergent herbicide after 40 days of sowing effectively controls grassy weeds without any phytotoxic effect on cotton.

2. Weed control in Soybean

Pre-emergence application of Pendimethalin 30 EC @ 1 kg ai/ha on the day of sowing or next day on the soil surface proved effective in management of weeds in soybean and increased the soybean seed yield by 109% compared to weedy check. Pre-emergent herbicide application ensures effective weed control in the early stages of soybean growth.
3. Mite management in Chilli

Spraying of chlorfenapyr 10SC @ 2.0 ml/l controlled mite infestation effectively and enhanced yield to the tune of 11.75% compare to earlier recommended acaricide (propargite 57 EC).

4. Plant protection in Soybean

Rynaxpyre 20 SC @ 0.2 ml / lit was found most effective for the management of both leaf eating and pod borer insects in soybean and increased production upto 12 per cent.
5. New insect problem in Cotton

Application Malathion 50EC @ 2.0ml/L during flower bud initiation stage will effectively control flower bud maggot in cotton.

Stages of severe infestation by cotton midge or flower bud maggot deformities

6. Management of Charcoal stalk rot in Maize

Seed treatment with Thiram 40 FS @5ml/kg seed was found effective in reducing the disease incidence and increased grain yield to an extent of 5.65 per cent.
7. Management of Cercospora leaf spot and Powdery mildew in Blackgram

Foliar application of Tebuconazole 250EC @ 1ml per liter of water immediately after the appearance of foliar diseases, found highly effective in minimizing the disease index and registered 29 per cent higher yield.

8. Management of Late blight disease in Potato

Cabrioteam is new compound with a combination of Dimethomorph 12% + Pyraclostrobin 6.7%. Among the various chemicals tested Cabrioteam18.7% WG 3g/lit was most effective in restricting the late blight incidence with mean disease incidence of 17.23 PDI compared to all other treatments and check (42.94 PDI) with highest yield of 13.22 t/ha over the year.
9. Management of late blight disease in Tomato

Among various treatments tested over the years Sectin 60 WG at 3 g/lit concentration was most effective in reducing late blight in comparison with all other treatments with mean PDI of 17.32 and average yield of 23.35 t/ha yield over the years. However mean disease incidence over the years was 51.77 PDI in control.

10. Seed treatment in Maize

Treating of maize seeds with polymer @ 3ml/kg+ (Thiram 75 wp + Carboxin 75wp) @ 2g/kg is very effective for storage of maize seed for ten month of storage period.

11. Management of leaf reddening in Bt Cotton

Application of magnesium sulphate @ 1% at 70 and 90 days matches the requirement of the crop. This leads to reduction in the development of anthocynin pigment and hence leaf reddening is reduced.
12. Powdery mildew management in Coriander through panchagavya:

Spraying of panchagavya @ of 5 % at the time of flowering and 15 days after flowering helps to control powdery mildew in coriander

13. Powdery mildew management in Mango through panchagavy:

Spraying of panchagavya @ of 10 % at the time of flowering and 15 days after flowering helps to control powdery mildew in mango.