Cultivation Technologies of Capsicum

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Capsicum (Sweet pepper / Bell pepper) is botanically called as *Capsicum annuum* belongs to the family Solanaceae. This crop is suitable for growing in winter season in tropical areas and in shady places. It can also be suitable for intercropping in plantation crops which allows lesser sunlight in to the orchard. It is a high value low volume crop suitable for protected cultivation during off seasons.

Varieties

Arka Athulya, Arka Basant, Arka Gaurav and Arka Mohini are some important varieties of Capsicum released from Indian Institute of Horticultural Research, Bengaluru. Few other popular capsicum varieties such as Green Gold, Bharath.are also popular varieties among the growers. Special features of important varieties are as follows.

Soil

It can be cultivated in wide range of soils but sandy loam with a pH o 5.5 to 6.8 is ideal. Well drained loamy soil rich in organic matter is compartivlely better growing condition for capsicums. Water stagnation is detrimental to this crop. High acid soils need to be reclaimed using wither dolomite or lime stone before growing capsicums.

Season of sowing: September - February

Seed rate

For varieties: 1.25 kg/ha

For hybrids: 200 g / ha

Nursery: 3 cents /ha

Seeds have to be treated with of Carbendazim @ 2 g /kg of seed and sown in lines across the bed at a spacing of 2.5 cm and then cover with top soil and then paddy straw. Watering with rose can has to be done daily. On 20th day of sowing, 300g of carbofuran 3G granules have to be applied in between the seedling lines across the bed, the soil has to be stirred and then the beds are irrigated.

Protected nursery

- Nursery preparation in an area of 3 cents with slanting slope of 2 % is necessary for the seedlings production to cover planting area of 1 ha.
- Nursery area has to be covered with 50 % shade net and sides also have to be covered with 40/50 mesh insect proof nylon net.
- Raised beds have to be formed with the size of 1 m width and convenient length and HDPV pipes have to be placed at 2m interval for further protection with polythene sheets during rainy months.
- Sterilized cocopeat @ 300 kg is to be mixed with 5 kg neem cake along with Azospirillum and phosphobacteria each @ 1 kg. Approximately 1.2 kg of cocopeat is required for filling one protray. About 238 protrays (98 cells) are required for the production of 23,324 seedlings, which are required for one hectare adopting a spacing of 90 x 60 x 60 cm in a paired row system.
- Treated seeds have to be sown in protrays @ 1 seed per cell.
- Seeds have to be covered with cocopeat and arrangements should to be made to keep the trays one above the other and it should be covered with a polythene sheet till germination starts.
- After 6 days, protrays with germinated seeds have to be placed individually on the raised beds inside the shade net.
- Watering can be done with rose-can every day and drenching with 19:19:19 @ 0.5% (5g/l) should be done at 18 days after sowing.



Preparation of field

Field should be thoroughly prepared to a fine tilth and ridges and furrows should be formed at 45 or 60 cm apart. Transplanting can be doneusing 40-45 days old seedlings at 30 cm spacing.

Irrigation

Irrigation can be done at weekly or 10 days interval depending upon the soil and climatic conditions.

Layout and planting for precision farming systems

- FYM @ 25 t / ha can be applied as basal dose before last ploughing.
- 2 kg/ha of Azospirillum and 2 kg/ha of Phosphobacteria by mixing with 20 kg of FYM can also be applied.
- 75 % total recommended dose of super phosphate i.e., 703 kg / ha can be applied as basal.
- Drip irrigation with main and sub main pipes have to installed and lateral tubes have to be placed at an interval of 1.5 m.
- Drippers in lateral tubes have to be placed at an interval of 60 cm and 50 cm spacing with 4 LPH and 3.5 LPH capacities respectively.
- Raised beds of 120 cm width at an interval of 30 cm have to be formed and the laterals are placed at the centre of the each bed.
- Before planting, the beds have to be made wet using drip system for 8-12 hrs.
- Then planting can be done at a spacing of 90 x 60 x 60 cm in the paired row system, using ropes marked at 60 cm spacing.
- Pendimethalin 1.0 kg a.i. /ha or Fluchloralin 1.0 kg a.i/ha as pre-emergence herbicide can be sprayed at 3rd day after planting.
- Gap filling has to be done at 7th day after transplanting.

Application of fertilizers

FYM 25 t/ha and NPK 40:60:30 kg /ha as basal and 40 kg N/ha each on 30, 60 and 90 days of planting as top dressing.

Fertigation schedule for capsicum F1 Hybrid

Recommended dose: 250:150:150 kg / ha

Weed control

On 30th day, hoeing and weeding has to be done once and the plants are earthed up.

Growth regulator

Spraying of 1.25 ppm Triacontanol (12.5 mg /10 l of water) on 20th, 40th, 60th and 80th day after transplanting can be done for better vegetative growth of the plants.

Spraying of NAA 10 ppm (10 mg/l of water) on 60 and 90 days after planting can be done for preventing flower drop and improving the fruit set.

Diseases

Powdery mildew - wettable sulphur @ 0.3%

CIB recommendation - Myclobutanil 10% WP @ 0.04% or azoxystrobin 18.2% w/w + difenoconazole 11.4% w/w SC @ 1ml/l

Anthracnose - Mancozeb 2 g/l or azoxystrobin 18.2% w/w + difenoconazole 11.4% w/w SC @ 0.1% or metiram 55% + pyraclostrobin 5% WG @ 0.3%

Die-back and fruit rot - Mancozeb @ 2 g /l

CIB recommendation - Difenoconazole 25% EC @ 0.05%

Nematodes and sucking pests: Carbofuran 3 G @10-12kg/ha at 15 days after transplanting, followed by dimethoate @1ml/lit at 25 days interval.

Harvest and yield

Harvesting of fully matured green fruits can be done before ripening.

Yield: 15 tonnes/ha in 150-160 days.



CPMRH

Table 1: Varieties of Capsicum and their characteristics

Arka Athulya

- High yielding F1 hybrid with powdery mildew tolerance.
- Plants are continuous in growth habit with dark green foliage.
- Suitable for fresh green market and yields 45-50t/ ha in 140-150 days.
- Fruits are firm, blocky with 3-4 lobes and medium large (100-120g).
- Suitable for kharif & rabi season cultivation under open field conditions.

Arka Gaurav

- Indeterminate plant habit with green foliage.
- Thick fleshed, 3-4 lobed green blocky fruits.
- Average fruit weight 130-150 g. Fruits erect which turn orange yellow on ripening.
- Yield potential of 16 t/ha
- Duration of 150 days

Arka Basant

- Indeterminate plant habit with yellow green foliage.
- Thick fleshed, 2-3 lobed conical fruits
- Average fruit weight 50-80 g
- Fruits erect, cream coloured, orange red on ripening.
- Yield 16 t/ha
- Duration 150 days

Arka Mohini

- Determinate plant habit with dark green foliage.
- Thick fleshed, 3-4 lobed dark green blocky fruits.
- Average fruit weight 180-200 gms fruits pendent, which turn red on ripening.
- Yield potential of 20 t/ha duration of 160 days





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