CROP : COWPEA (Vigna unguiculata)

PlantCharacteristics

Cowpea belongs to the family Leguminoseae. It is a twining annual herbaceous plant. The stem is slightly ridged and glabrous. The leaves are trifoliate and alternate.Pods are long and cylindrical.
Cowpea can be grown throughout the year under Kerala conditions. It can be grown as a floor crop in coconut gardens and as an intercrop in tapioca during May-Sept. It can be grown as a pure crop in single-crop and double-crop rice fallows during rabi and summer seasons. Cowpea can be grown in homestead garden throughout the year and in kole lands of Thrissur district during summer where rice crop cannot be raised due to water scarcity.

Season

(1) Cowpea can be grown during any season.
(2) As a rainfed crop, sowing is done in the month of June. The most suitable time is after the first week of June.
(3) During the second crop season (rabi), i.e., September to December, cowpea can be grown as a fringe crop along the rice field bunds. Sowing can be done on either side of bunds on the day of transplanting the paddy crop.
(4) During summer, cowpea can be grown as a pure crop in rice fallows after the harvest of paddy.

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SelectionCriteriaForPlantingMaterials

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Varieties

1. **Vegetable type:**
(a) Bushy: Bhagyalakshmy, Pusa Barsathi, Pusa Komal. (b) Semitrailing: Kairali, Varun, Anaswara, Kanakamony (PTB-1), Arka Garima. (c) Trailing type: Sharika, Malika, KMV-1, Lola, Vyjayanthi, Manjeri Local, Vyalathur Local, Kurutholapayar.

2. **Grain type**: C-152, S-488, Pusa Phalguni, P-118, Pusa Do Fasli, Krishnamony (PTB-2), V-240, Amba (V-16), GC-827, CO-3 and Pournami (in summer rice fallows).

3. **Dual purpose type**: Kanakamony (PTB 1) and New Era

4. **As companion crop with tapioca**: V-26

5. **Floor crop:** Gujarat V-118, Cowpea-2

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SeedsAndCultivation

Seed rate

For vegetable type
Bush: 20-25 kg/ha
Trailing: 4-5 kg/ha

For grain and dual purpose type
Broadcasting: 60-65 kg/ha
(45 kg for Krishnamony)

Dibbling: 50-60 kg/ha

(40 kg for Krishnamony)

Seed inoculation and pelleting

Cowpea seeds should be inoculated with Rhizobium and pelleted with lime. Rhizobium cultures are available from the Assistant Soil Chemist, Microbiological Laboratory, Soil Testing Centre, Pattambi 679 306, Palakkad District. The strains that are available at Pattambi are the two isolates (No.11 and No.12) developed by the Kerala Agricultural University.

Procedure for seed inoculation

The content of each packet of Rhizobium inoculant is sufficient for seeds to be sown in the area indicated on the packet (250 to 375 g/ha). Use the inoculant only for the specific leguminous crop mentioned on the packet, before the expiry date. Do not expose the Rhizobium culture to direct sunlight or heat. Mix the inoculant uniformly with the seeds by using minimum quantity of water (instead of water, either 2.5% starch solution or kanjivellam of the previous day can be used in order to ensure better stickiness of the inoculant with the treated seed material). Take care to avoid any damage to the seed coat. Dry the inoculated seeds under shade over a clean paper or gunny bag and sow immediately. The Rhizobium culture or the inoculated seeds should not be mixed with chemical fertilizers.

Procedure for lime pelleting

1. Add finely powdered (300 mesh) calcium carbonate to moist fresh Rhizobium treated seeds and mix for 1-3 minutes until each seed is uniformly pelleted. Depending on the seed size, the following quantity of lime will be required.

Small seeds 1.0 kg/10 kg of seed
Medium sized seeds 0.6 kg/10 kg of seed
Large sized seeds 0.5 kg/10 kg of seed

2. Spread out the pelleted seeds on a clean paper to harden. Sow them as soon as possible. However, lime pelleted seeds can be stored up to one week in a cool place prior to sowing.

[Note:
(1) Lime coating is required only for seeds that are to be sown in acid soils.
(2) Ordinary agricultural lime is not good for pelleting because of its larger particle size.
(3) Hydrated lime should not be used for pelleting.
(4) The dry pellet should be firm enough to resist moderate pressure. It should appear dry without loose lime on its surface or in the container.
(5) The lime-pelleted seeds can be mixed with the fertilizer and sown. However, the period of contact between fertilizer and the pelleted seeds should be as short as possible.
(6) Pelleted seeds should not be sown into a dry seedbed.]

Sowing / spacing

Plough the land thoroughly 2-3 times and remove weeds and stubbles. Make channels of 30 cm breadth and 15 cm depth at 2 m apart to drain off excess rainwater. For grain type and dual-purpose type, if dibbling is adopted, spacing of 25 cm between rows and 15 cm between plants is recommended with two seeds per hole. If broadcasting is adopted, the seeds can be sown broadcast over the field and channels drawn after sowing. For bush vegetable type, spacing of 30 cm between rows and 15 cm between plants is suitable. For semi-trailing varieties, provide a spacing of 45 x 30 cm. Trailing varieties can be sown in pits (@ 3 plants / pit) at 2 x 2 m spacing for trailing on pandal or in channels at 1.5 m x 45 cm spacing for trailing on trellis.

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WaterManagement

Giving two irrigations is highly beneficial; i.e., at 15 days after sowing and at the time of flowering. Irrigation at the flowering stage induces better flowering and pod set.

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NutrientManagement

Manuring

FYM 20 t/ha
Lime 250 kg/ha or dolomite 400 kg/ha
N 20 kg/ha
P2O5 30 kg/ha
K2O 10 kg/ha

Lime may be applied at the time of the first ploughing. Half the quantity of N, whole of phosphorus and potash may be applied at the time of final ploughing. The remaining N may be applied 15-20 days after sowing.

[Note: For vegetable cowpea grown as an intercrop in the reclaimed alluvial soils of Kuttanad, N, P2O5, and K2O at the rate of 10, 20 and 10 kg/ha are recommended. For vegetable cowpea, fertilizers can be applied in several split doses at fortnightly intervals]

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WeedManagement

Hoeing at the time of application of the second dose of N will give adequate aeration to the soil and help the root system to spread easily. For grain and dual-purpose varieties, decapitation is found to be advantageous as the crop shows trailing tendency. For vegetable types, provide trellis or pandal for trailing.

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PestManagement

The fungus Fusarium pallidoroseum can be used for controlling black pea aphid. Bran based fungus can be applied at the rate of 3 kg per 400 m2 immediately after infestation is observed. Only one application is necessary.

Spray malathion (0.05%) or quinalphos (0.03%) for controlling pea aphids.

Spray carbaryl 0.2% or fenthion 0.05% to protect the crop from pod borers. Repeat the application, if infestation persists. Apply the insecticides after harvesting mature pods and pick the pods only 10 days after the application of insecticides.

For protecting cowpea seeds against pests under storage conditions, smear the seeds with groundnut or coconut oil at 1%.

The root-knot nematode and reniform nematode associated with cowpea can be effectively managed by the application of neem and eupatorium leaves @ 15 t/ha, two weeks before sowing.

Spray 1% Bordeaux mixture in early stages to protect the crop from fungal diseases.

For protecting the crop from anthracnose, treat the seeds with carbendazim (0.1%) and spray the crop with Bordeaux mixture 1% or carbendazim 0.1%.

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Harvesting

Green pods for use as vegetable can be harvested 45-90 days after sowing. Pods should be harvested while tender. For grains, the crop can be harvested in about 90-125 days after sowing.
Cowpea for fodder purpose should be cut when it attains the age of 40-45 days.

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Processing

The threshed grains should be dried in sun before storage.

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AverageYield

A good crop yields about 1.2-1.5 tons of grain and 5-6 tons of straw per hectare.
Green fodder yield is about 25-35 tons per hectare.

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