



ROHINI COLLEGE OF ENGINEERING AND TECHNOLOGY
AUTONOMOUS INSTITUTION

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Anjugramam - Kanyakumari Main Road, Palkulam, Varivoor P.O. - 629 401, Kanyakumari District.

24AG201 - CROP PRODUCTION TECHNOLOGY

UNIT 4

PRODUCTION PRACTICES

OF AGRICULTURAL

CROPS

Field preparation

Prepare the land to fine tilth and form beds and channels.

Seed rate

STRAIN	Quantity of seed required (kg/ha)	
	Pure crop	Mixed crop
Paiyur 1,VBN1,VBN2,CO 6, CO(CP)7	25	12.5

Optimum plant population 3,50,000/ha.

Nutrient management

Rainfed:12.5kgN+25kgP₂O₅+12.5kgK₂O+10kgS*/ha Irrigated: 25 kg N + 50 kg P₂O₅ + 25 kg K₂O + 20 kg S*/ha

Water management

- Irrigate immediately after sowing followed by life irrigation on the third day.
- Irrigate at intervals of 7 to 10 days depending upon soil and climatic conditions.
- Flowering and pod formation stages are critical periods when irrigation is a must. Avoid water stagnation at all stages. .

Weed management

- Pre-emergence application of Pendimethalin 2 litres on 3 days after sowing using Backpack/ Knapsack/Rocker sprayer.

Harvest

- Green pods for use as vegetable can be harvested 45-90daysafter sowing depending on the variety.
- For grains, the crop can be harvested in about 90-125 days after sowing when pods are fully matured.
- The crop should be then dried and threshed, threshed grain should be dried in sun before storage.

OIL SEEDS AND THEIR IMPORTANCE

1. Ground nut - *Arachis hypogaea*

Soil

- Well drained soil is so ideal

- Light colored loose, friable, sandy loam
- Soil with well supplied calcium and moderate amount of organic matter

Growing seasons In

Tamil Nadu

Rainfed

- Apr-May-(Pollachi, Theni, Tenkasi)
- Jun-Jul-(NEZ)
- Jul-Aug–Most dts
- Oct–NEZ & Kanyakumari

Irrigated

- Summer–All districts
- Dec-Jan–All dts

Varieties in TamilNadu

- TMV2
- TMV7
- TMV10
- JL24
- VRI2
- VRI3
- VRI4

Seed management

- Selected seeds are soaked for 6 hrs with 0.5% CaCl_2 solution in 50% by volume
- Spread the seeds in moist gunny bag and cover with moist gunny bag for 20-24hrs

Seed rate

- 140kgforrainfed
- 125kgforirrigated

Spacing

- 30 cmx10cm
- 15cmx15cmwhereverringmosaicis prevalent

Field preparation

- Fine tilth to be obtained
- Chiseling for soil with hard pan
- Farm beds and channels
10 to 20m -2

Nutrient management

- Rainfed
 - 10:10:45 kgN, P₂O₅, K₂O /ha
- Irrigated
 - 17:34:54 kgN, P₂O₅, K₂O /ha

Irrigation management

- Total water requirement 400-600 mm
 - Sowing or pre-sowing irrigation
 - 20 days after sowing
 - At flowering 2 irrigations
 - At pegging one or two
 - In pod development 2-3

Weed management

- Stirring the soil to remove weeds also aerates
 - Aeration is more essential for peg formation
- Fluchloralin 2 lit

Harvesting

- Maturity
- Yellowing of foliage
- Spotting of leaves
- Dropping of leaves
- Hardening and toughness of pods

Sesame

Sesamum indicum

Climate

- Requires fairly high temp
- 2700 heat units are normally required
- 27-33°C is found to be optimum
- A rainfall of 500-650 mm

Soils

- From sandy to clay soils
- Thrives well under well drained moderately fertile soils of medium texture
- Soils with impervious sub-soil are not suitable
- Soils with neutral pH

Land preparation

- Fine tilth by deep ploughing

- Land should be leveled properly
- Beds and channels is more suitable
- In heavy rainfall areas broad bed furrows
- Ridges may be to drain the excess rainfall

Improved varieties

- CO1
- TMV3,TMV4,TMV5,TMV6
- Paiyur1
- SVPR1(white)
- VRI1



Duration

- 80-85days

Season

In TamilNadu

- Jun15-Jly7
- Nov30-Dec15
- Feb15-March30

Seed rate& spacing

- Seed rate -5kg/ha
- Spacing
 - 30cmx30cm(11plantsm-2)
 - Broadcastingandthinningto-11

Seed treatment & sowing

- Treat the seeds with Trichoderma@4g/kg
- 3 pockets of Azospirillum/ha

Transplanting of gingelly

- Transplanting is possible
 - In light textured soil

- Nursery
 - Raised bed, 300m-2
 - Seed rate: 1.0 to 2.0 g seeds/m-2
- Seedlings of 15-20 days old
- Irrigate and transplant
- Transplant at late afternoon
- Optimum population with equidistance gives yield advantage

HARVESTING

- Sesame is ready for harvesting 90 to 150 days after planting.
- At maturity, leaves and stems tend to change from green to yellow to red in color
- When 90% of sesame plants had mature seed capsules at the top of the plant

2. Sun flower

Helianthus annuus

The climate

- Temperature 8-34°C
- Optimum 20 & 25°C

Soil

- Can be in wide range of soils
- Any soil with good drainage is more important
- Neutral to moderately alkaline soils
- pH ranges 6.5 to 8.0
- Complete failure in sandy soil with pH 4.6

Varieties

- CO1, CO2, CO3, CO4, Modern, K2, K1, BSH1
- EC68415, MSFH1, BSH1

Seasons

Rainfed

- June-July, Kharif in North
- Oct-

Nov Irrigated

- Dec-Jan
- April-May

Field preparation

- Fine tilth
- Apply FYM/ Compost in corporate
- Ridges and furrows

Spacing

- 30 to 60 cm according to variety
- 10 to 15cm for short & medium stature
- 15to30 cm for tall

Seed rate

- @ 2 seeds per hole
- Seed weight of 45g/1000

o30x10	30kg
o30x15	20kg
o30x30	10kg
o 60x30	5kg

Seed treatment

- Trichoderma 4g /kg
- Azospirillum 600g tone ha

Sowing

- Well prepared deep, friable seed bed is more preferable
- Depth of sowing 3-5cm

Nutrient management

- TN 40-20-20

Weed management

- Fluchloralin /Pendimethalin
- Hoeing and weeding on 15th day & 30th day

Water management

- Immediately after sowing
- 4-5 days later once
- Interval of 7-8 days
- Seeding, flowering and seed development stages are critical

**Harvesting**

- Cut the capitula (flower heads)only
- Thresh and clean
- Immediately after harvest, dry the heads in the sun for 3 days.

3. Castor - *Ricinus communis*

1. Preparation of the field

Plough two- three times with country or mould board plough.

2. Application of Organic Manures

- Spread 12.5 t/ha of FYM or compost evenly on the main field before last ploughing and incorporate in to soil by working a country plough.
- Apply 30 kg sulphur/ ha through gypsum at the time of last ploughing for higher castor yield.

3. Seed rate

Adopt a seed rate of 10 kg/ha for varieties and 5kg /ha for hybrid.

4. SPACING

Adopt the following spacing.

	Rainfed situation	Irrigated situation
Varieties	90cmx60cm	90cmx90cm
Hybrids	120cmx90cm	150cmx120cm

5. Application of fertilizers

	Recommended NPK kg/ ha
Rainfed conditions	
Varieties	45:15:15NPKkg/ha
Hybrids	60:30:30NPKkg/ha
Irrigated condition	
Varieties	60:30:30NPKkg/ha
Hybrids	90:45:45NPKkg/ha

6. Pre treatment of seeds

- Treat the seeds with Carbendazim @2g/ kg of seed.
- Soak the seeds in water for 20hours.

7. Sowing

- Sow the seeds adopting there commended spacing.
- Place the seeds at depth 4-6cm.
- Put one seed in each hole.

8. Gap filling

Gap fill on the 15th day of sowing and simultaneously thinning may be done leaving one healthy plant.

9. Weed management

10. Apply pre emergence herbicide Pendimethalin @3lit/ha or Fluchloralin @2 lit/ha on 3DAS followed by hand weeding twice on 20th & 40th DAS.

11. Intercropping

Raise one row of castor for every six rows of groundnut. In the case of late receipt of monsoon blackgram + castor at 6:1 ratio is recommended.



12. Harvesting the crop

Observe the crop considering the average duration of the variety.

- One or more capsules show sign of drying.
- Cut the matured racemes without damaging the secondaries.
- Dry the capsule in the sun without heaping it in the shade.
- Use castor sheller to separate the seeds or beat the dried capsule with wooden planks, winnow and collect the seeds.

Sugar crops

1. SUGARCANE –

Saccharum officinarum