

CABBAGE, CAULIFLOWER, RADISH, CARROT

SEASON

S.no	Crop	Season
1	Cabbage	Hills: The crop can be planted during January – February, July – August and September – October. Plains: August – November is suitable season.
2	Cauliflower	This can be grown in plains during September to February.
3	Radish	June –July in hills and September in plains are best suited.
4	Carrot	It can be grown during July– February

SEED

S.no	Crop	Seed Rate (Per acre)	Spacing
1	Cabbage	250 gm	<ul style="list-style-type: none"> • Hills :40x40cm • Plains: 45 x 30 cm • Hybrid: 60x45x45cm in paired row system
2	Cauliflower	150 gm	<ul style="list-style-type: none"> • 45cm either way in hills. • Form ridges and furrows at 60 cm in plains
3	Radish	4 kg	15 x 10 cm spacing is normally adopted
4	Carrot	1.6 kg	Ridges and furrows are formed at 30 cm spacing. Plant to plant 5cm

SEED TREATMENT

- Treat the seeds with Beejamrutham
- 25g of Azospirillum is required for the seed treatment of 250g cauliflower seeds.
- Seed treatment with *Pseudomonas fluorescens* at 10g/kg of seeds to prevent club root

NURSERY MANAGEMENT

a) Cabbage and Cauliflower

- About 40sq.m nursery area is required for raising plants for one acre area.
- Apply 20 kg of Ghanajeevamrutham and 200 kg of NADEP (if available) and treated with *Trichoderma viridi* to the raised nursery bed
- Sow the seeds at 10 cm between rows in raised seed beds then drench the beds with *Trichoderma viridi* (8 grams per litre of water)
- Transplant 40-45 days old seedlings at a spacing of 45cm.

b) Radish and Carrot–Direct sowing

LAND PREPARATION

- Till the soil to a fine tilth.

SOIL FERTILITY MANAGEMENT

a) Cabbage and Cauliflower

- Apply 2500 kg NADEP Compost, (if available) 400 kgs of Ghanajeevamrutham as a basal dressing during final ploughing
- Apply 200 kg Ghanajeevamrutham during transplantation at the base of the plant 30 days after transplantation–apply 125 kg Ghanajeevamrutham

- On 45 and 60 day, apply 200 litres of Dhravajeevamrutham

b) Radish and Carrot

- Apply 2500 kg NADEP Compost, (if available) 200 kg of Ghanajeevamrutham as a basal dressing during final plough 30 days after sowing–apply 200 kg Ghanajeevamrutham
- At every 10 days interval apply 200 litres of Dhravajeevamrutham

WEED MANAGEMENT

Mulching with suitable and available straw material to suppress the weed growth after transplanting of bulbs

WATER MANAGEMENT

Mulching with suitable and available straw material to conserve soil moisture there by reducing the frequency of irrigation in irrigated system after transplanting of bulbs

PEST AND DISEASE MANAGEMENT

DIAMOND BACK MOTH (*PLUTELLA XYLOSTELLA* LINNAEUS OR CABBAGE MOTH)

Habitat / Crop(s) damaged

Cruciferous crops like cabbage, cauliflower, mustard, kale, radish ,turnip, broccoli, Brussels sprouts, collards ,etc.

Symptoms include leaves showing papery mines initially; riddled with a lot of holes, Skeletnized and soiled with excreta, the veins remain untouched; presence of

pale green, slender larvae which wriggle violently if touched and pupae in cocoons; small brown coloured adult moths with characteristic dorsal pattern, taking to wings when disturbed.



Pest status: A major and cosmopolitan pest of cruciferous crops.

Control Measures

- Erect light trap
- Installing pheromone traps @ 5/ acre to monitor the adult activity. Collection and careful destruction of the larvae.
- 4:1 cabbage and mustard intercrop
- Spray Neemastram (200 litres for one acre) or 5% NSKE two times within 10 days to cause infertility of the eggs of black moth there by reducing the infestation levels drastically
- Spray Brahmastram 5 litres in 100 litres of water per acre (Add 0.5 L of decoction to 10 litres tank or Add 0.75 L of decoction to 15 Ltrs tank) for controlling feeding larvae
- Spray chilli, garlic extract (10 litres of extract in 100 litres of water per acre) for controlling advanced stage larval instars



Headworm	Larva	Damage

Habitat / Crop(s) damaged: Cruciferous crops like cabbage, cauliflower, mustard, kale, radish, turnip, broccoli, Brussels sprouts, collards, etc.

Early stage larvae mine the leaves and also bore into the shoots and later burrow into the stems. The area of feeding is usually covered with a silken web and frass. The larva is creamy white with brownish stripes.

Pest status: A major pest of cruciferous crops.

Control Measures

- Spray 2 times Neemastram 200 litres per acre at 7 days interval to cause infertility of the eggs of black moth there by reducing the infestation levels drastically
- Spray Brahmastram 5 litres in 100 litres of water per acre (Add 0.5 L of decoction to 10 Ltrs tank or Add 0.75 Ltr of decoction to 15 Ltr tank) for controlling feeding larvae
- Spray chilli, garlic extract (10 litres of extract in 100 litres of water per acre) for controlling advanced stage larval instars

LEAF WEBBER (*CROCIDOLOMIA BINOTALIS*)

Habitat / Crop(s) damaged

Cruciferous crops (Brassicaceae) like cabbage, cauliflower, mustard, kale, radish, turnip, broccoli, Brussels sprouts, collards, etc.

Early stage larvae feed on the under sides of leaves and later feed on the remaining parts and also the central shoot. The larva is greenish with yellowish white stripes and black spots.

Control Measures

- Spray 5% neem seed kernel extract
- Spray Brahmastram (3.5 litres of solution in 100 litres of water per acre)
- Remove and destroy the webbed leaves with caterpillars within.
- Set up light traps @ 1/acre.



Adult



Larva



Damage

CABBAGE APHID (BREVICORYNE BRASSICAE LINNAEUS)

Symptoms of damage:

- Yellowing of leaves
- Crinkling and cupping
- Distorted primordia
- Presence of white casts kin at the base of the plant

Habitat / hosts

Mustard, cabbage, cauliflower, knol-kohl.

Pest status:Major.

Control Measures

1. Install yellow sticky traps,at @ 6/ acre to monitor
2. winged adult.
3. Spray5% NSKE
Spray Datura Leaf extract (5 litres solution in 100 liters of water)



Aphid



Damage

CABBAGE BUTTERFLY (PIERIS BRASSICAE)

Symptoms of damage:

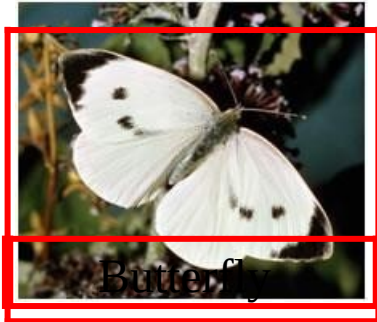
- Defoliation
- Bores into the heads of cabbage

Control Measure's

- Fine-mesh netting in nursery will stop butterflies from reaching the crop and lay eggs.
- Erect bird perche @ 15 per acre
- Spray Neemastram (200litres) 2 times at 7days interval after noticing the pest
 - Spray Brahmastram 5 litres in 100 litres of water per acre (Add 0.5L of decoction to 10L tank or Add

0.75L of decoction to 15L tank) for controlling feeding larvae

- Spray chilli, garlic extract (10 litres of extract in 100 litres of water per acre)) for controlling advanced stage larval instars



DAMPING OFF : by *PYTHIUM APHANIDERMATUM*

Stems are black and shrunken at the soil line, and ultimately they die

Damping off is a major problem in vegetable seedling growing areas

Control Measures

- Quality seed be used.
- Excessive watering and poorly drained areas of field should be avoided
- Use raised beds: more than 15cm height is better for water drainage or use pro trays for raising seedlings
- Drenching nursery with *Trichoderma viridi* (8 grams per litre of water)
- Apply ghanajeevamrutham (treated with *Trichoderma viridi* @4kg) @ 400kgs / acre



Reference:

Manual Prepared by Rythu Sadhikara Samstha (RySS), Andhra Pradesh