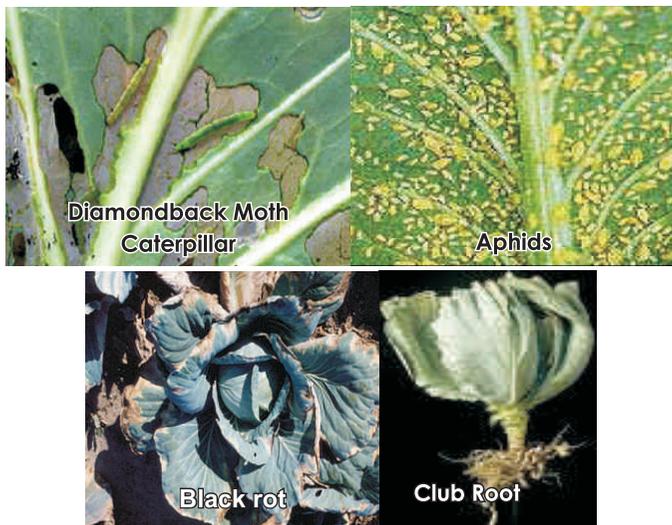


| | | |
|-----|-------------------|---|
| 14 | Harvesting | The outer mature unfolded leaves are removed during harvesting. Also remove if any long hard portion of stem is present. These heads are graded according to the size and quality and packed in gunny bags or plastic crates and transported to the markets in trucks. Harvest during late afternoon or early in the morning and store the fruits in a shaded area or room with good ventilation. |
| 15. | Yield | Local varieties: 20 - 25 tons/ha Hybrid varieties: 25 - 30 tons/ha |

Common Insect and Disease Symptoms of Cabbage Crop:



Model of nutrition calculation for cabbage:

| No. | Organic source | N kg/ha | P kg/ha | K kg/ha |
|-----|---|---------|---------|---------|
| 1 | Total crop nutrient needs | 100 | 125 | 150 |
| 2 | Recommendation based on soil test | X | 95 | 85 |
| 3 | Credits: | | | |
| | a. Soil organic matter 1% will release | 22 | - | - |
| | b. Farm Yard Manure 10 MT (50% Nutrients) | 25 | 25 | 50 |
| | c. Daincha 5 MT (50% nutrient release) | 75 | 15 | 30 |
| 4 | Total Credit | 122 | 40 | 80 |
| 5 | Balance required (2-4) | - | 55 | 5 |
| | Add Rock Phosphate 550 kg (+ PSB 1kg) 50% Nutrient release | | 55 | |
| | Add Wood ash 100kg + granite dust 500kg (5% K) (1% K) 50% release | | | 5 |

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Organic Package of Practices for Cabbage



**INTERNATIONAL COMPETENCE CENTRE FOR ORGANIC AGRICULTURE (ICCOA)
BANGALORE**

Organic Cabbage Cultivation

| S.No. | Organic Activity | Details |
|-------|--|--|
| 1. | Selection and preparation of land | Soils with a pH range of 6-6.5 and more than 1% of organic carbon are well suited for cabbage cultivation. It is required to test the soil once a year to check the levels of pH, organic carbon, macronutrients (NPK) and microbial population in the field. If the organic carbon content is less than 1%, apply 25-30 tons/ha of FYM and plough the field 2-3 times to mix the manure thoroughly. Adequate buffer zone must be provided between certified organic fields and non-organic fields at a distance of about 7 meters from non-organic fields to prevent drift of prohibited materials on to certified organic fields. |
| 2. | Sowing season and time | Cabbage prefers cooler weather and best time to sowing are Kharif season (June-July) and Rabi season (Oct-Nov). |
| 3. | Variety selection | Seed selection is an important step in organic cabbage production. Seeds should be carefully selected from certified organic farms or from farmers' own field which is raised organically. The seeds (which are not treated with chemicals) from local high yielding varieties can also be used in the absence of organically produced seeds. Select disease resistant and locally demand varieties. e.g., Pusa Mukta variety is resistant to black rot. Kharif season - Gold and Pride, Early Snowball, Early drumhead Rabi season - Pusa Mukta, Golden Acre, Pride of India, Late drumhead. There are both early maturing and late varieties: Early maturing varieties: The varieties under this group are usually ready within 60-70 days after transplanting the seedlings. Late varieties: These varieties require long winter season for good yield and quality. The heads are ready in 90-120 days after transplanting. |
| 4. | Seed rate | About 375 gm/ ha organic or chemically untreated seed required. |
| 5. | Seed treatment | Treat seed with 5% Trichoderma solution and dry under shade before sowing. |
| 6. | Nursery raising | The soil of nursery bed should be well prepared and free from weeds and disease organisms. Mix 100gm Trichoderma viride with 100 kg decomposed farm yard manure and apply to reduce nematode attack. Use Neem cake @ 1 kg/sq.metre to reduce insect damage. To keep the upper soil of nursery beds moist a thin layer of dry grass is spread on the beds. Raised seed beds of 8.5x1.0 m size with 15-20 cm height are prepared for raising seedlings. About 15 such seed beds are required for raising seedlings for one hectare. Apply 40gm of VAM, 200gm each of Azospirillum and Phosphate soluble bacteria per square meter area of nursery by mixing with compost and farm yard manure. Seedlings will be ready in 25-30 days. 4-5 days before removing the seedlings, watering should be stopped and exposed to full outdoor sun to harden the plants. |
| 7. | Seed spacing (nursery) | The seeds are sown 1 - 2 cm deep by dropping at 4-5 cm in rows 10 cm apart. |
| 8. | Seedling treatment | Spray BT (Bacillus thuringiensis) @1ml/lit dilution to the seedlings 1 day before transplanting. At the time of transplanting, dip the root portion of seedlings with 1% Bordeaux mixture or drench the tray with it. |
| 9. | Soil fertility management | Grow leguminous green manure crops like Daincha, Sun hemp, cowpea or horse gram 2 months before planting cabbage. Apply 30 tons of farm yard manure, 1.5 tons of vermi compost and 250 kg of neem cake with 8% oil to the field. The nitrogen requirement is met through crop rotation, leguminous crops, compost, green manure and mulches. The additional phosphate requirement can be met by the use of organic fertilizers like oil cakes, bone meal, fish meal, rock phosphate etc. The additional potassium requirement can be met from wood ash, granite dust or |

| | | |
|-----|---|---|
| | | Potassium Sulphate. The model work sheet given below will be helpful in calculating the nutrient requirement. |
| 10. | Transplanting and Spacing (main field) | Generally, 4-5 weeks old healthy seedlings are selected for transplanting in the main field. Make ridges and furrows. Give a spacing of 45cm X 30 cm for early varieties and 60cm X 45cm for late varieties. |
| 11. | Irrigation and water requirement | Drip irrigation is better for efficient water use and conservation. If flood irrigation is followed, care should be taken to avoid water logging. Irrigate before planting. Give life irrigation on the 3rd day. Afterwards, irrigate every 10-15 days. Stop irrigation when the head is in the maturing stage to avoid breaking. |
| 12. | Cultural practices and weed management | Regular hand weeding and earthing up should be done. Mulching with dry crop/weeded grass residues can be done between rows to suppress weeds and to conserve moisture. Weed management should be required upto 60 days of crop growth. |
| 13. | CROP PROTECTION | <ul style="list-style-type: none"> • Crop rotation prevents build up of diseases and nematodes and suppresses weeds. It helps in breaking pest cycle. • Sow mustard and marigold crop along the bunds of the field 10 days before planting cabbage. This will help in trapping some pests attacking cabbage. • Pheromone traps should be set up @ 12 per hectare to trap the adult insects. This will help in monitoring the pest attack. |
| (a) | Insect Mgmt. Diamondback moth caterpillar | <ul style="list-style-type: none"> • Spray bio control agents like Bacillus thuringiensis var. kurstaki on the crop @ 2 ml/lit in the early stages. • Spray neem seed kernel extract (5% solution) at later stages. • Beauveria bassiana can be sprayed as an alternate round. • Place bio card which can release parasite Diadegma semiclausum @ 50,000/ha, 60 days after planting • Spray 10% garlic chilli extract 3 times i.e. 2nd, 4th and 6th weeks. |
| | Aphids | <ul style="list-style-type: none"> • Sowing early allows the crop to establish before aphids become numerous. • Spray neem oil 2.5 lit per hectare. • Spraying of Bacillus thuringiensis to control DBM will also help in controlling aphids as well. |
| (b) | Disease management | <ul style="list-style-type: none"> • A number of diseases are favored by wet conditions. Any practice that promotes leaf drying can slow development of these foliar diseases. Plant rows of crop in an east-west direction and avoid overcrowding to promote drying of the soil and reduce moisture in the plant canopy. |
| | Club root | <ul style="list-style-type: none"> • Club root infestations decline more quickly when tomato, cucumber or beans, is included in the crop rotation • Use Pseudomonas as detailed below: <ul style="list-style-type: none"> • For seed treatment @ 10gm/kg of seed • For seedling dip @ 5gm/litre of water • For soil application, use 2.5 kg mixed with compost. • It is advisable to avoid crucifers for 3 years in the club root infested area. |
| | Black rot | <ul style="list-style-type: none"> • Spray Bacillus subtilis @ 10gm/ litre of water or neem oil @ 4ml/ litre of water. |