

Cabbage

Open Field Production

Crop group: Brassica (cabbage family) – cabbage, broccoli, cauliflower, pechay

Crop Rotation

Follow this crop with cucurbits, lettuce, sweet pepper, tomato, eggplant or sweet corn. Avoid following with broccoli, cauliflower or pechay.

Climate & Soil

Cabbage can be grown on any soil type with a good structure and fertility. Ideally grow in well-drained clay loam or sandy loam with plenty of organic matter and pH6-6.8. Cabbage grows well in areas 600 to 1,900m above sea level.

Land preparation

Plow and harrow two times, one week apart to break down soil clods, level the area and remove weeds.

Prepare raised beds, leaving about 0.5m between beds. In low and mid-elevations, the beds should be 0.5 m wide and in high elevations, the beds should be 0.75-1m wide. Create drainage canals along the sides of the area.

Water the beds well enough to moisten the soil in preparation for transplanting. With two rows per bed, dig planting holes equal to the depth of the seedling tray.

Organic mulching:

You can apply organic mulch about 2.5cm thick on the surface of the soil to minimize evaporation of moisture in the soil and suppress the growth of weeds.

Hagonoy weed (*Chromolaena odorata*) was found in trials to be the best mulching material, and may have some disease suppressive effect. Rice straw, rice hull, and kakawate leaves can also be used. The mulch should be applied to the top of the bed one week prior to transplanting.

Transplanting

Hardened seedlings are ready to transplant when they are 10cm tall with stem approximately 3mm in diameter. Water the seedlings well before removing from the tray. Water



Transplanting cabbages in the field.

the beds well enough to moisten the soil in preparation for transplanting. In low and mid-elevations, plant cabbage seedlings on the 0.5m wide beds in two rows with 35-40cm spacing between the plants.

Plant the cabbage seedlings 35-40 cm apart in three rows per bed to produce uniformly sized heads. Create drainage canals along the sides of the area.

Transplant late in the afternoon, or morning – if it's cloudy. Dig planting holes equal to the depth of the seedling tray, add fertilizer to the hole and mix it in so that raw fertilizer will not touch the seedling roots, and gently put seedlings in the hole. Gather the soil around the seedlings and tamp gently to keep them secure and even with the soil surface.

Water immediately to establish good root-soil contact. Drench around the plants with fungicide as needed.



Cutting a mature cabbage head.



Head splitting of an overmature cabbage.

Weed Control

- Cultivate the soil before planting to reduce weeds or stale seedbed
- Practice mulching to minimise the growth of weeds
- During the growth of the crop use a bolo to manually remove weeds
- Spray canals and between beds with contact/systemic herbicide as necessary

Harvesting

Harvest cabbage at 62–65 days from transplanting (before bolting) depending on the variety. Overmature cabbages split and so are not marketable. Harvest heads when fully formed but still firm.

Maturity: Mature heads can be indicated by the diameter of the head, which should be 20–30cm. The head should be dense with a core length of 10cm **or less** (increases with age), the wrapper leaves should be tight against the head.

Splitting: When a cabbage is overmature splitting of heads tends to occur. Early maturing heads can also split depending on variety.

Harvesting of cabbage heads should be done by cutting them away from the stalk with a sharp knife. The outer leaves may be removed if needed or leave the remainder of the plants in the field to allow the nutrients of the plant matter to return to the soil. Allow 3–4 wrapper leaves to remain on the cabbage for protection. Morning is the best time to harvest, as the heads are cool and are firmest.

Postharvest Handling




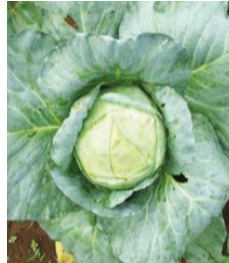
Cabbage is very susceptible to deterioration, so, upon harvesting follow these procedures:

1. **Harvest** in the cooler part of the day – early morning or late afternoon.
2. **Store** the harvested cabbage in a cool place keep away from the sun as possible.
3. **Remove** and discard any fruit which is deformed or insect damaged.
4. **Grade** the heads into size grades. Keep a premium grade which is the correct size for your market. Grade into small, medium and large, and pack separately. Leave 3-4 wrapper leaves as protection.
5. **Pack** the cabbage carefully in perforated cartons and plastic crates if possible, in a way that will minimize damage and maintain the freshness. Storage could reduce shelf life and quality.
6. **Deliver** the fruit to the possible market as soon as possible after harvesting.
7. **Monitor:** Find out how your fruit arrived at the market and aim to continuously improve the quality of your arriving at the market.

Follow up in the field

Finished crops should immediately be removed and destroyed, and the ground ploughed to prevent pest and disease populations spreading to other crops. This is extremely important!

Fertilizer, irrigation, pest and disease management

Cabbage growth stages					
	Pre plant	Transplant / Establishment	Vegetative	Head development	Maturity
					
Fertilizer	Before planting apply fertilizer into each planting hole and mix in with soil. During plant growth, apply fertilizer to each plant 2.5cm away from the base of the plant. Ensure no fertilizer touches the leaf of the plant to avoid leaf burning. Additional application can be applied 2 weeks apart during fruit development and harvest. Use the following rates per plant.				
Timing	At planting	2 weeks after planting	4 weeks after planting	6 weeks after planting	Additional applications
Rate	2 tablespoons (20g) of registered bio-organic fertilizer plus 1 tablespoon (10 g) 124-14-14 (NPK) per plant and water in or cultivate gently	5g of Urea (46-0-0), 3g of solophos (0-18-0) and 10g of potash (0-0-60) per plant and water in or cultivate gently	5g of Urea (46-0-0), 3g of solophos (0-18-0) and 10g of potash (0-0-60) per plant and water in or cultivate gently	1.5 tablespoon (15g) of 16-16-16 0.5 tablespoon (5g) 0-18-0 per plant and water in or cultivate gently	1.5 tablespoon (15g) of 16-16-6 0.5 tablespoon (5g) 0-18-0 per plant and water in or cultivate gently
Irrigation	Lay out trickle irrigation drip tube along the beds. Use one tube along each planting row. The spacing of drippers in the tube should be about 25cm or closer. The best strategy is to fully wet the soil profile and encourage roots to grow out into the moist soil.				
		Water immediately after transplanting until soil profile is fully wet	Water every 3-4 days for 4-6 hours or until soil is fully wet	Water every 3-4 days for 4-6 hours or until soil is fully wet. Do not under or over water plants.	
Pests	Monitor the crop regularly for pest and disease infestations. Approved fungicide and insecticide should be used as indicated on product labels.				
			Diamond back moth (DBM), cabbage webworm, cabbage looper, Aphids	Diamond back moth (DBM), cabbage webworm, cabbage looper, Aphids	Diamond back moth (DBM), cabbage webworm, cabbage looper, Aphids
Diseases	To reduce incidences of disease, use disease free and clean planting material. At transplanting, ensure seedlings are healthy and disease and pest free.				
			Black rot, Alternaria rot, damping off, white mould (sclerotinia)	Black rot, Alternaria rot, damping off, white mould (sclerotinia)	Black rot, Alternaria rot, damping off, white mould (sclerotinia)



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