Cabbage Types:
Bok Choy–Pale green stalks topped by distinctive leaves at tips, mild flavored.
Green (Standard)–Tightly packed, heavy green heads.
Napa (Chinese/Asian/Celery)–Thick white stalks with lighter green ruffled leaves, oblong shaped, mild flavored.
Red/purple–tightly packed heavy heads; similar to Green type but normally smaller in size.
Savoy–Deeply ridged and lacy, green leaves; less compact than standard and more tender.
Ornamental–Hybridized varieties developed for colors from cream to purple in a rosette form. Edible, but grown for ornamental use.

Growing Basics:
• Soil–Requires well drained, fertile soil with a pH between 6-7.5 in full sun as shade will slow maturity (but can be helpful with growing in very warm regions). Due to pest & disease issues, do not plant in same location each year. Soil should be firm and not too light in tilth in order to support plants.
• Air Temperatures–Considered a cool season crop developing best at 60-65°F. Tolerates frost somewhat, but tender leaves inside may be affected while outer leaves will appear unaffected. Extended period of temperatures between 35-50°F can lead to flowering instead of head formation.
• Days to Emergence–4 to 7 depending on variety and conditions
• Seed Longevity–if properly stored, the seeds should be viable for up to 4 years
• Spacing–12-24 inches apart in rows 18 to 34 inches wide, depending on variety (late season varieties need most space before harvest)
• Companion planting–Incompatibility–Strawberries, tomatoes, pole beans, garlic. Companions–cucumbers, thyme, mint, onions, sage, celery, beets, potatoes.
• Water Requirements–water needs to be consistent to avoid head splitting. Avoid overhead watering, best to use drip irrigation. Mulches should be used to retain moisture as the plants are shallow rooted.
• Fertilization–Address amendments prior to transplanting into garden, supplementing per product label.

Planting & Growing:
Sowing–Spring Planting–Sow seeds indoors 4-6 weeks before last spring frost date. Plant 1/4-1/2" deep in dampened soilless mix (Quickroot) to prevent damping off. Keep soil about 60-70°F and moist. Use grow lights if light is not sufficient and keep soil cooler after germination. This will help prevent leggy plants. After first true set of leaves have formed, feed with half dilutions of liquid fish and liquid kelp every couple of days.
When the transplants have 5-6 true leaves they are suitable for hardening off before planting, spacing about 12-18” apart (depending on variety). Transplant out when night time temperatures are 45°F and danger of frost has past. Cover plants with a row cover if there is a danger of frost. Plant with lowest leaves at soil level. Feed with a fertilizer that is higher in phosphorus and lower in nitrogen.
Summer Planting–Can be started indoors in late May for transplanting in June/July for fall crop, or direct seed in July for a fall crop.

Harvesting:
Squeeze heads to detect firmness. If loose rather than firm, allow to mature further. Heavy rains can cause heads to split, so may want to harvest if rain in in the forcast. If heads crack, harvest immediately.
Cut at soil line or use a shovel to cut below surface. If seasons are long enough, head can be cut above leaves and the plant may yield another head before the season ends.

Store several weeks refrigerated. Early varieties do not store as well or long as late varieties.

Common Pests & Diseases:

- Cabbage Aphid–Gray/green with a waxy coating, usually in clusters. Usually found on the underside of leaves or on flower head. Control by strong spray of water, beneficial insects, or organic insecticides labeled for aphids.

- Flea Beetles–Visual symptoms are holes in leaves. Cover with floating row covers (remove when temperatures get hot), hand pick, beneficial insects, sticky traps or an organic insecticide labeled for flea beetles.

- Cabbage Worm–Leaves eaten. Cover with floating row covers (remove when temperatures get hot), hand pick, beneficial insects, or an organic insecticide labeled for cabbage worms.

- Cabbage Root Maggot–From eggs of tiny grayish/brown flies. Eggs can sometimes be detected on the stem at soil level. Larvae tunnel into the roots causing early wilting and eventual death of plant, especially if plant is young and small. Avoid over fertilization with manures, can cover young plants with floating row covers (remove when temperatures get hot).

- Diamondback Moth–Larvae feed on underside of leaves. More likely seen in spring to early summer. Hand pick, beneficial insects, or use an organic insecticide labeled for Diamondback moths.

- Cut worms–can use foil collars around the base of the plants (at soil level).

- Clubroot–May see stunting, yellowing or wilting of foliage and swelling and distortion of the roots. Don’t plant vegetables in the brassicae family in the same location each year. If present, raise pH to 7.2 with lime. Can solarize soil to help control.

Pest Control–IPM:

Important to practice good cultural controls for pest management of cabbage. Cultural controls such as removing plants after harvest (to avoid leaving food for insects to continue to multiply on), practice crop rotation (i.e. do not plant crops in same family in the same area for 3 years), use row covers such as Agribon AG15 (cover before insects arrive or to protect against birds when plants are young).

Common Questions:

Why do the heads split? Usually this is due to stress, such as rains following a dry spell, but can also be that the head is past maturity and should be harvested.

Are cabbage plants container compatible? Best suited to in ground situations, they can be grown in large, deep containers if moisture and nutritional needs are monitored. They do not do well in grow bags.

Tips of leaves inside cabbage head are brown, but it does not show on outer leaves. What causes this? Do not use ammonium forms of nitrogen to fertilize and avoid water stress.