

## Winter Brassica Crops

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**Botanical Name:** *Brassica* sp. **Also called:** Cole crops, cruciferous crops, crucifers

### Varieties/Cultivars

Asian radish, Broccoli, sprouting broccoli, Broccolini, Brussels sprouts, cabbage, canola, cauliflower, collards, Chinese broccoli, Chinese greens, Chinese lettuce, choy sum, dia gai choy, gai lan, haukurei, kale, kohlrabi, komatsuna, lo bok, mibuna, mizuna, mustard greens, napa cabbage, pak choy, purple top turnip, raab, rapini, rutabaga, sarson, savoy cabbage, sui choy, toria, turnip, toy choy, white top turnip, yu choy.

### An Overview

This is a genus of the mustard family (*Brassicaceae*), hence the name, 'Brassica'. As the list of common names indicates, the genus probably represents the most diverse of all our food crops. It is also, arguably, the most important. Brassicas are hardy inland as well as on the coast. Full of nutrition and minerals, they are reliable producers with many heritage varieties to choose from. With the exception of Canola, a summer crop grown for seed oil, all are found in the winter garden.

The Brassica genus has been cultivated for thousands of years in the Mediterranean, Northern Europe, the Indian sub-continent, the Near East, Ethiopia, and Asia. References found in Sanskrit writings from 2,000 B.C., tell us the wild seeds were gathered for lamp oil and used in soap making. Cabbage and kale were favoured by the Greeks and Romans, and wild cabbages still grow on the maritime cliffs there. Turnips were cultivated in Western Europe as early as the 1300s.

Few people develop allergies to any of the Brassicas. We eat the stalks, leaves, swollen stems, roots, seeds, and flowers. We eat them raw, cooked, and pickled. They are annuals and biennials, and we harvest the biennials at both stages in their life cycle. We eat the Brassicas in autumn, all through winter, and over-wintered varieties when they sprout in early spring. We cultivate the faster-growing cultivars as early spring salad and cooked greens as well as late season greens. Certain varieties make good green manure, while others (kale, rape) are used as green fodder because grazed tops re-grow readily.

### Hardiness Zone

(Vancouver is 6A-8A)  
4a – 9b

### Harvest (from direct seed)

from 30 days to 6 months

### Size at Maturity

1" h by 2" w, to 6 ft h by 4 ft w

### Ideal Site & Soil

These are generally cool weather, cool season crops. They will tolerate half sun, and their needs vary from lean to rich soil, from slightly alkaline to slightly acid soil. They are heavy feeders, needing even moisture and soil enriched with lots of compost. In the coastal garden an application at planting time of rock phosphate is highly recommended, as is green sand.

### Pests and Diseases

For such an ancient group of cultivated plants, the Brassica genus has relatively few problems. All can be easily monitored, and quickly remedied using good cultural practices, and eco-friendly controls. Following are the major pests and diseases.

#### Aphid:

These sucking insects infest the undersides of leaves, and can be washed off with a blast of cold water. Once on the ground they die or are quickly eaten by beneficial insects.

#### Boron Deficiency:

Cauliflower, rutabaga, and turnip are the most susceptible to boron deficiency which causes a hollow core in main stalk or head of the plant. It occurs most frequently in coarse or sandy soils, soils with a

pH greater than 7.0, and soils subject to excessive leaching. No cultivar is completely resistant. Cultivation practices are the primary answer to the problem.

- Enrich the soil with compost and mulch at planting, with added green sand to increase tilth.
- Boron becomes less available during periods of drought, so irrigate at regular intervals.
- Apply boron (20 Mule Team Borax) in the transplanting water, or handful as side dressing along the newly planted row. Applying boron after symptoms occur is too late to prevent the problem.

#### Cabbage fly:

This European pest has few natural enemies in North America. Several generations of white butterflies with 2 or 3 black spots on each wing start appearing in late spring. They lay small eggs, singly, on all brassicas. The larvae eat leaves and heads throughout most of the growing season.

- If you are continuously diligent, and only have a few plants, the larvae can be hand picked.
- Reemay (fabric cover) can prevent the butterflies from depositing eggs.
- If using Bt, carefully apply the mixture to the centre of each plant, where the larvae almost always feed. The chance of harming other butterfly species is very small since cabbage worms are the only caterpillars that feed in the center of the plant.
- The larvae of the cabbage looper moth can be controlled in this manner as well.

#### Club Root:

This fungus is probably the most dangerous disease of Brassicas. It is worldwide and occurs on broccoli, Brussels sprouts, cabbage, cauliflower, turnip, rutabaga, and radish (a related crop).

- Maintain high pH by regular lime applications. High pH can lead to boron deficiency in coarse soils.
- Maintain high levels of calcium (egg shell in your compost) and magnesium (a handful of Epsom Salts along a row as side dressing).
- Use long (5-7 years) rotations between Brassica crops.
- Improve soil drainage (raised beds in high rain areas).
- Grow your own plants from seed, as club root is almost always imported from a nursery environment.

#### Downy Mildew:

- Remove crop debris.
- Practice rotation with non-brassica crops.
- Manage in the seedling bed by improving air circulation, irrigating early in the day.
- Plant resistant or tolerant cultivars.

#### Flea beetle:

This pest can be a deadly problem to young plants in early season, favouring speciality Brassica crops, like Chinese cabbage and bok choy, over the 'traditional' cole crops.

- Reemay (fabric cover) at seeding or transplanting excludes them.

#### Swede midge:

It is not yet a problem in BC. It was first found in Ontario in 2000, representing the first occurrence of this pest in North America. It is now widely distributed in Ontario and Quebec and has been detected in Nova Scotia, Saskatchewan and several U.S. states. Caveat: don't bring home orphans from your vacation in other parts of the country!