Bok Choy

Description
Brassica rapa Chinensis group is a member of the Brassicaceae (mustard) family. Bok Choy is a common non-heading Asian vegetable cabbage, also referred to as Chinese Chard, Chinese White Cabbage and Chinese Mustard. Bok choy typically has dark green leaves and succulent white midribs, which form from a bulbous base. The exceptions are the varieties referred to as Shanghai or baby bok choy, which produce olive green stalks and leaves. Although it is called a cabbage, it is unusual in that it does not form a true head and resembles Swiss Chard when grown. Bok choy is used in a wide range of dishes, and can be eaten both raw and cooked. The entire plant is edible and can be used in salads and side dishes, stir fries, soups and stews, where its ability to absorb other flavors makes it an all around versatile vegetable.

Cultivars
There are a wide range of varieties, which include Canton Pak Choy, Pai Tsai, Lei Choy, Pak Choy and Shanghai Bok Choy. Depending on variety, plants range between 4.5 to 20 inches (10 to 45 cm) in height at maturity and diameter differs widely among varieties. The Canton variety also produces short compact plants with dark green leaves and white stalks that can be harvested early as baby bok choy. For more information contact Manitoba Agriculture and Food’s Vegetable Specialist.

Climatic and Soil Requirements
Bok choy is essentially a cool season crop, which prefers temperatures between 15 to 20°C, with the exception of the Canton varieties, which prefer warmer temperatures. Bok choy performs best on well drained, fertile loamy soils with a pH of between 5.5 -7.0, and is often grown on raised beds to improve drainage and air circulation. Most varieties can tolerate light frosts, with the Shanghai varieties being the most tolerant. Bok choy should be harvested prior to the first hard frost.

Seeding and Spacing
Bok choy can be direct seeded or transplanted. If transplanting, it is important to harden off the plants prior to planting to minimize transplant shock that can cause premature bolting (seed head formation). Planting density will depend on variety. When direct seeding, plant seeds 0.70 inch (1.5 cm) deep with in-row spacing of 3 to 4.5 inches (7 to 10 cm) row spacing and 18-30 inches (40 to 60 cm) between row spacing. Plants should later be thinned to 9 inches (20 cm) in row. Smaller varieties only require 1-4.5 inch (2.5 to 10 cm) in row spacing, and 9 inches (20 cm) between row spacing.

Fertility
Refer to Tables 1 through 9 for this crop. For general recommendations in the absence of a soil test, refer to Table 10 in the fertility section.

It is recommended that all of the phosphorus and potassium be applied before or at time of planting to avoid phosphorus deficiencies, which can occur during prolonged cool wet weather. About half of the nitrogen should be applied at seeding and the remainder side-dressed after thinning.

Irrigation
Frequent irrigation 0.25 inch/application (6.0 mm) is recommended to encourage brisk growth. Bok Choy should receive at least 1 inch of water weekly (irrigation or rainfall) for optimum yield and quality. Irrigation should be applied early in the day to allow plants time to dry before evening. This also facilitates lower field temperatures during the day, which is an additional benefit during warmer days of midsummer.

Pest Management

Diseases
The most common disease problems are bacterial soft rot (Erwinia caratovora), downy mildew (Peronospora parasitica), Alternaria leaf spot (Alternaria spp.) and clubroot (Plasmodiophora
Chinese, Napa, Pe-tsai and Celery Cabbage

Description
Chinese cabbage, a member of the Brassica (mustard) family, also commonly known as celery or napa cabbage, is reported to be the first brassica cultivated in North America. Demand for this vegetable has grown with its increasing popularity in western kitchens.

This variety produces large, savoyed leaves with thick succulent midribs and has a sweet mild cabbage flavor and crisp texture when eaten raw. The flavor is also somewhat milder than traditional green cabbage when cooked. Chinese cabbage is excellent used raw in salads and side dishes, and is also popular used in stir fry dishes, soups, and pickled. Chinese cabbage can also be substituted for green cabbage in a wide range of western dishes.

Cultivars
There are two principal types of Napa cabbage. The loose leaf type known as Chihili or Mitchihili forms a long cylindrical head, which can reach 17 to 21 inches (38 to 46 cm) in length and 7 to 9 inches (15 to 20 cm) in diameter. The other, known as Wong Bok, forms a compact drum-shaped head which is slightly taller than its width. They grow to about 9 to 11 inch (20 to 25 cm) in height and 7 to 9 inch (15 to 20 cm) in diameter. Market research indicates the Wong Bok variety is also favored by consumers. Chinese cabbage cultivars can differ greatly in plant size, days to maturity and disease tolerance. Producers will need to choose varieties best suited to their particular soil and growing conditions.

Climatic and Soil Requirements
Chinese cabbage is relatively easy to grow, and thrives best during cooler periods of the growing season. Ideal temperature for plant development is between 13 to 18°C, although a number of cultivars can tolerate higher temperatures provided there is ample soil moisture.

Chinese cabbage can also withstand light frost in the fall, but leaf tissue damage can occur with alternate freezing and thawing. Chinese cabbage performs best on well drained medium textured soils. Soils with pH levels of 5.5 to 7.6 are required with 7.0 being ideal. Sandy or porous soils are not recommended for Napa production due to poor water and nutrient retention capacities.

Harvest, Storage and Packing
Depending on variety, bok choy is ready to harvest between 30 to 60 days from seeding. To harvest cut entire plant off at ground level, then remove any damaged leaves and trim root base. Pack loosely into boxes to allow adequate air circulation. Bok choy is easily bruised and care must be taken at harvest to avoid cracking ribs and bruising leaves. Storage and shipping requires temperatures to be held at or near 0°C with a relative humidity of 95-100%.

Insects
Insects which can cause damage to bok choy include aphids, flea beetles and diamond back moth larvae. Flea beetles and aphids are the most common and can easily render a crop unfit for sale. No insecticides are registered on bok choy.

Weeds
Unavailability of registered herbicides requires manual and mechanical cultivation, and should commence before weeds become established.

Physiological Disorders
Common crop production problems are premature bolting and occasional black spot (pepper spot).