

# 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'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

If required, contact your Ag Supply agronomist, Manitoba Agriculture agronomist or fee for service agronomist for fertilizer recommendations..

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*

*brassicae*). Bacterial soft rot is the most prevalent and occurs when there is excessive soil moisture.

### ***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).

There are a number of factors which can cause bolting, such as extended periods of hot or cold weather and nutrient deficiencies. Bok choy is also sensitive to long photoperiods (16-hour days for a month), which can induce flowering in some varieties.

### **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%.