

Asian Vegetables

U.S. demand for ethnic vegetables is increasing rapidly — from a growing ethnic Asian population and from health-conscious consumers seeking variety.

Asian vegetables are those that have originated from East Asia (China, Japan, and Korea) and Southeast Asia (Indonesia, Laos, the Philippines, Singapore, Thailand, Vietnam, etc.). Most Asian vegetables are not well-known to American farmers, because they are typically cultivated by the Asian growers exclusively for Asian-Americans. However, some of these Asian vegetables may be considered as options for Midwest producers.

The information below should be considered an introduction to Asian vegetables. More detailed information can be found in the resources section. General pest management recommendations for the crop families described below can be found in the corresponding crop chapters in this Guide. Although not all of the Asian vegetable crops mentioned in this chapter will be associated with pesticides in the crop chapters of this guide, more detailed information can be found on the pesticide label.

Marketing

Growers might consider Asian vegetables in double crop situations (such as following a wheat or early cabbage or sweet corn crop). Growers who want to diversify their farming operations by including Asian vegetables need to be very cautious before beginning production. Marketing information for Asian crops is not widely published. Since Asian crops are niche items, only specialized produce companies deal in them. Most of these buyers deal with restaurants, some chain stores, and specialty food stores.

Do your homework. Establish markets and buyers before buying any seed. Calculate budgets and collect economic data on any crop to determine its profit potential. And remember that all Asian crops are very labor intensive, so you will need a strong and dependable labor force for timely harvest and proper cultural management.

Common Asian Vegetables

Asian vegetables have different names in different languages. You must properly identify the crop to market it properly and to select the appropriate pest control measures.

Cole Crops and Brassica Leafy Greens

Cole Crops

The term “cole crops” refers to leafy brassicas, with waxy leaves, of the species. Cabbage, cauliflower, broccoli, Brussels sprouts, kale, kohlrabi, daikon radish, and Chinese cabbage are hardy crops and well adapted to cool weather. Careful selection of the planting date and the cultivars to grow is crucial to a good harvest in the Midwest. Plants maturing under cool weather conditions are the highest in quality. This diverse family of cole crops has similar diseases, insects, and nutrient requirements.

Cabbage: Among the brassica crops, cabbage is the easiest to grow and the most widely grown. There are varieties of cabbage that mature in as little as 60 days and others that mature in as much as 120 days from transplanting. Small-headed varieties of cabbage (3-4 lbs.) are the most desired varieties for fresh market sales.

Cauliflower: Cauliflower is relatively more difficult to grow than cabbage. The most common problems associated with cauliflower production are failure to head properly and poor curd quality. A fertile, moist soil and high level of organic matter and nitrogen in the soil are needed for a successful production of cauliflower. Cauliflower buttoning is the premature formation of curd. When the curd is formed very early in the plant's life, the leaves of the plant are not large enough to sustain its development to a marketable size. Cold temperatures at transplanting slow vegetative growth and encourage buttoning. Cauliflower varieties range in maturity from 55 to 95 days.

Broccoli: Broccoli is not as demanding in its requirements as cauliflower. However, it must be harvested as soon as the head is mature to avoid flowering. During the critical period of head formation, prolonged periods of heat (over 85°F.) result in poor head quality. Broccoli varieties range in maturity from 55 to 75 days.

Brussels sprouts: Brussels sprouts are generally long season crops grown for harvest in the fall. They should be harvested when the buds are about 1 inch in diameter, firm, tight and of good color. The crop can be harvested as buds or stalks. Harvesting the Brussels sprouts as stalks saves on labor and extends the shelf life of the buds.

Kale: Kale is hardy and grows best as a fall crop when grown for full-size leaves. It can also be succession planted all season and may be grown as a component of a salad mix. Flowering kale varieties may be grown as ornamental crops and are susceptible to tip burn during hot weather. The flavor of edible kale is best after a light frost.

Kohlrabi: Kohlrabi looks like a turnip growing on top of the ground with sprouting leaves over the surface. It must be harvested when its diameter reaches 1 1/2 to 2 inches for best quality. Larger sizes may be tough and stringy.

Daikon Radish (*Raphanus sativus*, var. *longipinnatus*) is also called Chinese radish and is closely related to the common radish crop. The main planting time for daikon is spring and fall, but some varieties can be planted almost year-round. The seeds need to be planted very close to the surface (3/4 inch deep) as they need light to germinate. April planting generates spring harvest, and July planting generates fall harvest. Spacing should be 4 to 6 inches within the rows and 3 feet between rows. To accommodate the large roots, daikon needs to be planted in high raised beds that are amended with organic matter, such as compost. At each cultivation time, the soil needs to be worked higher and higher around the roots, as they grow, to prevent photosynthesis and greening of the root. Most daikon radishes reach their useable size in 60-70 days.

Brassica Leafy Greens

Chinese cabbage (*Brassica napa*), and mustard greens (*Brassica juncea*) are grown as salad or braising greens or as heading crops. Their leaves are not waxy, and most of them are Asian in origin. They can be grown as components of a salad mix. Crops in this group are more susceptible to damage from flea beetles but tend to be less attractive to caterpillars than other cole crops. Chinese cabbage is especially sensitive to bolting in response to cold temperatures and other stressful conditions. Nitrogen management for Chinese cabbage is slightly different than that of cole crops.

Chinese cabbage: Chinese cabbage has been grown in Asia since the fifth century. It is a cool-season annual vegetable. It grows best with short days and moderate to cool temperatures (60-70°F.). Its cultural requirements are similar to those of cabbage and lettuce. Chinese cabbage is fairly quick to mature. It varies from 40 days from sowing to harvest for some cultivars to 75 days for the longer-maturing ones. Chinese cabbage is a term applied to a wide range of types and varieties. The main types and varieties of Chinese cabbage are:

Group I:

Napa cabbage (*Brassica campestris*) is commonly called the pe-tsai group. Its common names also include celery cabbage, Chinese white cabbage, Peking cabbage, pe-tsai, won bok, nappa (Japanese), hakusai (Japanese), pao, and hsin pei tsai. Napa cabbage includes broad-leafed, compact-heading varieties of which there are two forms, Chihili and Che-foo. Napa cabbage needs to be spaced 18 inches within the rows and 24 inches between rows.

Chihili forms of Napa cabbage form a cylindrical head 18 inches long and 6 inches in diameter, with an erect, upright growing habit. Some varieties of this form are Chihili, Michihli, Market Pride, Shantung, and Shaho Tsai.

Che-foo types form a compact, round head of green-bladed, white petioled leaves. Some varieties in this group are Che-foo, Tropical Pride, and Oriental King.

Group II:

Bok choy (*Brassica campestris*) is sometimes called *Brassica chinensis*. The most commonly accepted designations are bok choy or pak choy. Many refer to it as Chinese mustard.

Bok choy is a non-heading form of Chinese cabbage, with several thick white leafstalks. The smooth, glossy, dark green leaf blades form a celery-like cluster. Bok choy need to be spaced 8-12 inches within the row and 24 inches between rows. There are not as many varieties of bok choy as there are of the Napa cabbage. Bok choy varieties include Canton Choice and Long White Petiole.

Many other brassica greens, such as mizuna, mibuna, tat-soi, komatsuna, arugula, and mustard are usually direct seeded. Some varieties are prone to premature flowering, which is enhanced by cold temperatures in the spring. Transplanting, which is less common than direct seeding, can also increase premature flowering in the spring due to increased plant stress. Plant populations vary tremendously and should be geared toward the intended harvest age and size.