

Asian Vegetables - Horticulture

Reviewed by Ben Phillips, Liz Maynard – Oct 2020

Crop Description

U.S. demand for ethnic vegetables is increasing rapidly—from a growing ethnic Asian population and from other 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.), as well as South Asia (India and Pakistan). The crops listed here are adapted to production in the Midwest. The short-season crops might be suitable in double crop situations, such as following wheat or an early cabbage or sweet corn crop.

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 specific crops mentioned in this chapter will be associated with pesticides in the crop chapters of this guide, pesticide labels will list crops on which specific products may be used.

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. Below are descriptions and horticultural information for some of these crops that are not otherwise discussed in other chapters.

Brassica Leafy Greens

Chinese cabbage (*Brassica rapa*), 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 cole crops such as broccoli. Chinese cabbage is especially sensitive to bolting in response to cold temperatures and other stressful conditions.

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° to 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

Napa cabbages form broad-leafed, compact heads of layered leaves and are also known as pe-tsai, perstai, hsin pei tsai, celery cabbage, Chinese white cabbage, Peking cabbage, won bok, nappa (Japanese), hakusai (Japanese), and pao. There are two types, Chihili and Che-foo.

Chihili types 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.

Recommended spacing for Napa cabbage is 18 inches within the rows and 24 inches between rows.

Group II: Bok choy

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. The most commonly accepted designations are bok choy or pak choy. Many refer to it as Chinese mustard. 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.

Recommended spacing for Bok choy is 8 to 12 inches within the row and 24 inches between rows.

Mustard and other greens: Other brassica greens, such as mizuna, mibuna, tatsoi, komatsuna, 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.

Stem and Leafy Vegetables (Non-Brassica)

Celtuce (*Lactuca sativa* var. *asparagina*): This vegetable is closely related to standard head lettuces, with similar cultivation practices. But, celtuce is grown for its thick stem. Plants are cut at the base when the stem is 8 to 10 inches long, and all the leaves are removed except at the tip.

Garlic scapes (*Allium sativum*): In the production of hard neck garlic, a flower shoot, called a “scape”, is produced. The scapes must be clipped off to maximize bulb size, and can be bunched or bagged for sale.

Malabar spinach (*Basella alba*): This vegetable is not related to spinach, but has a similar flavor, and can be grown in the hot summer months. In its native range of Southeast Asia it grows as a perennial. But it can be seeded as a frost-killed annual in the midwestern United States. It grows as a vine, and should be trellised like peas or runner beans.

Pea shoots and leaves (*Pisum sativum*): Before, during, and after pod formation on pea plants, young shoots from the middle and top sections of the plant can be clipped 3 to 4 inches from the growing tip for bunching or bagging.

Sweet potato vines and leaves (*Ipomoea batatas*): This vegetable is grown all over the world for its sweet storage roots. But the leaves are commonly consumed in Asia too. Harvest the top 10 inches of vines for bunching or bagged loose leaf.

Cucurbit Vegetables

Bittermelon (*Mormodica charantia*): This vegetable is native to India. Like cucumbers and squashes, bittermelon is a member of the Cucurbit family. It is a warm-season vegetable. It is usually grown on a trellis system and its fruit is about the size of a summer squash. The trellis should be 6-foot high and 4 to 6 feet apart. The seeds can be planted directly in the field or grown as seedlings and then transplanted to a field spacing of 1-1/2 to 2 feet between plants and 3 to 5 feet between rows. Bittermelon is harvested green before there is any color change. Bright orange fruits are saved for seed collection.

Calabash (*Lagenaria siceraria*): Also known as snake gourd, bottle gourd, or opo. This vegetable is grown like winter squash for the ornamental hard-shelled mature fruit and used for making food and drink utensils and vessels, and instruments. In Asia, fruits are also harvested young and tender for eating, like a summer squash.

Smooth luffa (*Luffa cylindrica*) and **angled luffa** (*Luffa acutangula*): These vegetables originated in India and were later taken to China. It is mainly grown for the young squash-like edible fruits. If left to mature on the plant, both smooth and angled luffa gourds produce the familiar “luffa sponge” found in stores, but smooth luffas make a better-quality sponge. Some of the smooth luffa cultivars are Smooth Boy, Smooth Beauty, and Southern

Asian Vegetables - Horticulture

Winner. Some angled luffa cultivars are Hybrid Green Glory, Hybrid Asian Pride, Lucky Boy, and Summer Long. Luffa plants are warm-season vegetables and need to be trellised.

Winter melon (*Benincasa hispida*): This vegetable is also known as ash gourd or wax gourd and is a vegetable native to Southeast Asia. It is grown like a watermelon and matures into a large green fruit with a waxy bloom and white flesh. When mature, it keeps for several months like a hard squash. The flavor is bland and it is used in soups and other dishes to absorb flavor of other ingredients, and candied for sweet chewy dried treats.

Fruiting Vegetables

Asian Eggplants (*Solanum melongena*): This crop is native to tropical Asia and very popular in Japan, China, India, Thailand, and the Philippines. Many varieties are available. They can be light or dark purple, brown, or green in skin color; and round and slender in shape. Culture is similar to standard eggplant.

Legumes

Asparagus (Yardlong) Bean (Chinese Long Bean, *Vigna sesquipedalis*): This long, trailing vine should be grown on trellises. This plant is more closely related to Southern peas (cowpeas, black-eyed peas) than to the common green snap bean, but it vines like a pole bean, and needs support to make long straight bean pods. Dark and light green varieties are available as well as a red type. The darker varieties are generally preferred. It is a warm-season vegetable. Yardlong beans are cut into 2-inch pieces and added to various stir fries. The paler green is sweeter and more tender than the dark green.

Edamame (*Glycine max*): This vegetable is the immature pod of a soybean plant. These can be grown like soybeans, but with a larger between-row spacing like a bush bean, for easier hand-harvesting. They are harvested 35 to 40 days after flowering when pods are plump, bright green, and succulent.

Popular varieties include Envy, Butterbeans, Sayamusume, Shiromufi, Tohya, Midori Giant, and Chiba Green.

Sugar Snap Pea and Snow Pea (*Pisum sativum*): These cool-season vegetables should be sowed in April for a spring crop or sowed in July for a fall crop. Plants deteriorate quickly in the heat of summer. The plants of sugar snap pea and snow pea grow similarly to bush beans. It is often helpful to grow them on trellises to facilitate picking; however, if grown for the tender shoot tips, they are usually left untrellised.

Root and Rhizome Vegetables

Many root vegetables popular in Asia are long-lived perennial plants that are not suitable for our climate in the midwestern United States. However, a few can be grown in the field (sweet potato and daikon radish) and others can be grown in protected culture (ginger and turmeric).

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. 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, it is recommended to plant in high raised beds that are amended with organic matter, such as compost. At each cultivation, move soil higher and higher around the roots, as they grow, to prevent greening of the root. Most daikon radishes reach their useable size in 60 to 70 days.

Ginger (*Zingiber officinale*) and **Turmeric** (*Curcuma longa*): These perennial crops are grown in tropical environments for their rhizomes, which creep laterally under the soil surface like irises. In the Midwest, they can be grown from 1-inch rhizome cuttings as a long-season annual planted in hoopouses that maintain minimum 50° F soil

temps and 70° F air temps. Trench, hill, and irrigate like potatoes. Harvest and sell as “new” or “baby” ginger in mid-late fall. Our season is not long enough (5 to 7 months) to produce large mature and cured rhizomes, which require 8 to 10 months.

Sweet potato (*Ipomoea batatas*): Sweet potato varieties of Asian origin are starchier than more commonly grown varieties, and often are white or purple fleshed, instead of orange. Varieties include Murasaki, Okinawa Purple, Molokai Purple, Red Japanese, and Stokes Purple. Murasaki has been adopted in the Mid-Atlantic region of the United States and is easier to get than the others. However, most of these varieties take 120 to 140 days to mature, unlike orange-fleshed varieties which take 90 to 110 days; Red Japanese is an exception at 110 days. The longer-maturing varieties can be grown in a hoop house.

Marketing

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 many 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. Growers who market directly to consumers or restaurants often have more opportunity to educate customers about how to use the crops. It is more and more common to see Asian crops included in salad mixes at farmers markets.

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 of these crops are very labor intensive, so you will need a strong and dependable labor force for timely harvest and proper cultural management.

Resources

“Ethnic Vegetables: Asian,” University of Kentucky Extension, <https://uky.edu/ccd/content/ethnic-vegetables-asian>

“Asian Vegetables: Selected Fruit and Leafy Types,” Purdue University Center for New Crops and Plants Products, <http://hort.purdue.edu/newcrop/proceedings1996/v3-488.html>

“Asian Vegetables,” Purdue University Center for New Crops and Plants Products, <http://hort.purdue.edu/newcrop/proceedings1990/V1-387.html>

Specialty and Minor Crops Handbook, second edition, University of California Agriculture and Natural Resources publication 3346, available from ANRCatalog, <https://anrcatalog.ucanr.edu/>

Manual of Minor Vegetables, University of Florida IFAS publication SP 40, available from IFAS Extension Bookstore, <http://ifasbooks.ifas.ufl.edu/>

Asparagus - Horticulture

Reviewed by Ben Phillips, Liz Maynard – Oct 2020

Crop Description

Hybrid varieties of asparagus (*Asparagus officinalis*) have improved vigor, disease tolerance, and higher yields, and are grown from seeds or crowns. All-male hybrids have higher yields and do not produce seed. Absence of seed production is desirable because seeds develop into volunteer asparagus seedlings that are a weed problem. Order hybrids well in advance.

All-male hybrids (listed in order of performance): Jersey General, Jersey Giant (56X22-8),