



Redwood Barn Nursery

1607 Fifth Street Davis, California

Of Cabbages and Kings

Strolling along the windswept limestone cliffs of southern and western Europe, in places where salt spray limited the growth of other plants and temperatures were usually mild but cool, one of our forebears evidently noticed that the leaves of a common plant were edible. Bitter, a little skunky smelling, fibrous, but edible.

It wouldn't have been something she found growing among other plants. This plant doesn't like competition. But it didn't mind poor-ish soils or wind or lack of abundant sunshine.

That was at least a couple of thousand years ago.

Subsequent generations discovered that the flower buds were more tender than the leaves. That the leaves were sweeter after a frost. That plants could be selected for larger leaves. That under certain conditions the plant would form a large head that was packed with even more tender leaves, which were sweeter and less bitter. That these could be stored whole or could be pickled. That the growth buds could be cooked separately, and the plant would keep growing and producing more of them. Later, even more tender flower heads were found and selected, including one with flower buds arranged in a striking fractal pattern. Odd forms with swollen stems were selected just for those turnip-like organs. Large forms with ruffled leaves emerged. To use botanical jargon, selection over many generations has led to larger leaves, terminal buds, lateral buds, tender stems, enlarged stems, and especially bigger, more tender, and even colorful inflorescences (flower structures).

And thus, through artificial selection over many centuries from that original wild cabbage were born, more or less in this order:

- Kale and collard greens, closest to the original wild cabbage, probably introduced about 5th century BCE, grown for the leaves.
- Chinese broccoli (Gai-lan), dates from about the same time.
- Cabbage, 1st century CE, forms a large head in winter preparing to flower in late spring.
- Broccoli, 6th century, grown for the flower heads.
- Brussels sprouts, grown for enlarged lateral buds. Maybe 5th century (Romans), or 1213 (in Brussels), or 1597 (written references). People have been foisting these on children for centuries.
- Cauliflower and Romanesco broccoli, 15th century, grown for the tender heads of flower buds.
- Kohlrabi (literally means cabbage turnip), 16th century, grown for the odd swollen stems that look and taste somewhat like turnips.
- Savoy cabbage, sometimes called king cabbages, may have been introduced in the 1200's. Widely planted by the 17th and 18th centuries for their elegant curled, crisp and tender leaves, and their greater cold tolerance.
- The newest introduction to the family was created via conventional hybridization of regular and Chinese broccoli: asparbroc, also called broccolini, introduced by Sakata Seed in 1993, makes tender stems for stir-fry and steaming.

All of these are the same genus and species: *Brassica oleracea*, so they are collectively called brassicas. If you do allow them to go to flower, you'll notice similar flowers: the recognizable 4-petaled blooms of the mustard family, formerly called *Cruciferae* for the 'cross-like' flower structure. The flowers are all mustard yellow.

Note: one similar plant is more of a cousin. Broccoli raab is actually not a broccoli at all. It is a variety in the same species as turnips (*Brassica rapa ssp rapa*). It makes leafy stems with multiple shoots, and all above-ground parts of the plant (leaves, stems, flower buds, flowers) are used. Those with sophisticated palates may notice a somewhat more pungent, spicier flavor.

Since all of this selection happened long before formal taxonomy and the development of Latin binomials, the range of outcomes has been a subject of debate among plant taxonomists from the start. "Enterprising farmers over the last several thousand years contributed to domesticating several distinct lineages of *B. oleracea*, each amplifying different parts of this wild plant to produce several vegetable varieties, or cultivar groups or subspecies ("ssp.')." – Jeannie L. D. Osnas, in her blog *Botanist In the Kitchen*.

Most of the garden varieties of wild cabbage function as biennials: plants which grow one season, then bloom the next. Biennials store energy in a large crown, rosette, stem or root for use when longer days trigger the plant to bloom. The stored energy allows the plant to make bigger flowers and taller flower stalks. We plant in the fall, let all that energy and nutrients get stored in tightly-packed leaves or flower buds, and then harvest them just before the flowering cycle would begin.

Although they're considered biennial, members of the cabbage family can sometimes make it through the summer and continue for a second year, especially in coastal areas. My father's Brussels sprouts grew into shrub-like monstrosities in coastal San Diego, making sprouts nearly year-around. Some forms have been selected for this perennial habit, such as the tree kale: a truly Dr. Seuss-like plant that makes a taller and taller stem with a head of kale or collards bearing edible leaves higher and higher up on a plant ultimately reaching 6 to 8 feet or more on a single stem.

All of the brassicas have some culinary, nutritional, and olfactory characteristics in common.

- They contain bitter compounds that some find objectionable. Some people are sensitive to bitter taste while others barely notice it. My daughter crinkled her face at her first bite of a Brussels sprout, whereas my son would munch them raw like radishes.
- They contain sulfur compounds that are released upon cooking. Many people object to the smell of cooking brassicas. My mother refused to cook my father's Brussels sprouts because "they make the house stink," and we were happy to support her in this mutiny. I have since learned to like Brussels sprouts, once I realized you didn't have to cook them into mush.
- They are packed with nutrients. Eat your broccoli. It's good for you.
- They share certain pests:
 - an aphid that is quite cold-tolerant and overwinters on the leaves. Blast off with water, or spray with light oils if necessary.

- Imported cabbageworm, larvae of the cabbage white butterfly, and cabbage loopers feed on the leaves in fall until nights get cold. Lethal measures may be needed if hand-picking isn't sufficient.
- Harlequin bugs move from wild mustard onto brassicas in spring, then to your summer vegetables. Large populations can do significant damage. The simplest control is to remove all brassicas from the garden in late spring to reduce the population.

When to plant, when you'll harvest.

Start planting brassicas as early as July, and some can be planted all the way to February. Full sun is best. They don't need special soil amendments or fertilizers. It's important that heading types not be crowded or have competition from weeds or other garden plants.

-- Those that form a big head, stem, or condensed flower stalk need time to build energy reserves before they expand and form the edible part.

Brussels sprouts need to be planted in July or early August to develop sufficient size to make flowering stems in mid-winter.

Large, older varieties of cauliflower need to be planted by mid-September for sufficient size. Newer varieties such as Early Snowball will set from later plantings.

Romanesco broccoli takes a while to get going. It makes a plant two feet across before that central flower head starts to develop. You get one really big head per plant, usually in late November from August plantings, or February from later plantings. The spirals of flowers on the flower head are a Fibonacci number, making a fascinating fractal pattern. Large-headed cabbages such as the savoy need lots of room and time to develop but are especially tolerant of cold.

-- Broccoli, one of the most popular cool-season vegetables in the U.S. since its introduction by Italian immigrants in 1927, comes in two basic forms.

Varieties that form one large head are grown for a single crop, mostly by farmers. These take longer to get going, so plant in early fall for winter harvest. Expect February harvest from later plantings.

Home gardeners may prefer heirloom types such as DeCicco and Waltham, which have one small initial head and then lots of side shoots. Plant them any time August through February and continue to harvest baby broccoli shoots into mid-spring.

-- For those brassicas which we harvest mainly the leaves, you can plant any time in fall and winter, and begin picking outer leaves just a few weeks after planting. The whole 'head' or plant can be cut in a couple of months, or just continue picking leaves through winter and into mid-spring. This includes kale and collards, asparbroc and broccolini, as well as the broccoli raab. These all can be planted inter-mixed with leafy greens such as lettuce and spinach and are fine crowded into a container.

Temperature affects the flavor and quality. Brassicas taste sweeter when the temperatures are cold. Frost is not harmful and often improves the flavor. Like many plants adapted to cooler climates, they convert starches to sugars as the average temperature drops. At the other end of the season, heat makes the leaves and stems tough, and the flavor gets less sweet and more bitter. Brassicas are mostly done here by April.

Flowering kale

The Japanese developed forms of kale plants whose leaves turn showy colors with the onset of cold weather and form tight heads, making interesting and colorful additions to the winter flower border. Round-leaf forms are called flowering cabbage. Yes, they're edible, but tough and not very palatable. Just like their cousins, these ornamentals will flower when days get longer. Most people pull them before they bloom, but the pretty flowers are bright yellow and attract beneficial insects, including pollinators.

For further reading about the science of brassicas:

<https://botanistinthekitchen.blog/2012/11/05/the-extraordinary-diversity-of-brassica-oleracea/>



http://redwoodbarn.com/images/DE_brassica/Brassica%20oleracea%20wild.jpg

Where they all came from: [Brassica oleracea](#) (Wild Cabbage), a naturalized population growing on sea cliffs below a mediaeval monastery at Tynemouth, Northumberland, UK

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<https://commons.wikimedia.org/w/index.php?curid=442342>



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http://redwoodbarn.com/images/DE_brassica/Romanesco%20blooming.jpg

If you let your Romanesco go too long, this is what you get: tight spikes of bright yellow flowers expanding out from the crown you would have eaten. Brassicas all have similar flowers, the color of mustard in the classic cross shape that led to the older plant family name of Cruciferae.

http://redwoodbarn.com/images/DE_brassica/Romanesco%20broccoli.jpg

Romanesco broccoli head, showing the fractal pattern. The number of flowers in the inflorescence is a Fibonacci number. Also, they're tender and delicious.

By Aurelien Guichard - Flickr: Borough Market, CC BY-SA 2.0,

<https://commons.wikimedia.org/w/index.php?curid=24508561>

http://redwoodbarn.com/images/DE_brassica/ornamental%20kale.jpg

Ornamental kale was selected from regular kale for the showy leaves that form in the center of the head. When the leaves are rounder, it's often called ornamental cabbage. The plants make a pretty garden ornamental through the winter, then send up flowers in early spring. Sort of edible, but tough and not very tasty.

http://redwoodbarn.com/images/DE_brassica/kale%20display.jpg

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http://redwoodbarn.com/images/DE_brassica/kale%20ornamental%20white%20sparkly.jpg

Ornamental kale was selected from regular kale for the showy leaves that form in the center of the head. Here the leaves have trapped droplets of water during a rain storm. The plants make pretty garden ornamentals through the winter, then send up flowers in early spring. Leaves are sort of edible, but tough and not very tasty.

http://redwoodbarn.com/images/DE_brassica/kale%20droplets.jpg

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http://redwoodbarn.com/images/DE_brassica/kale%20ornamental%20flowers.jpg

When brassicas flower, they look like this with pretty yellow blossoms. This color is known to attract lots of beneficial insects into the garden, so it's ok to leave them if you missed the harvest.

http://redwoodbarn.com/images/DE_brassica/longlegged%20fly%20on%20broccoli%20raab%2002.jpg

Broccoli raab is a close cousin of the other brassicas. It's more closely related to turnip but is used much like broccolini and kale. The flowers are edible as well.

http://redwoodbarn.com/images/DE_brassica/Brassica%20oleracea%20wild.jpg

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