

Brussels sprout

The **Brussels sprout** is a member of the Gemmifera Group of cabbages (*Brassica oleracea*), grown for its edible buds.

The leafy green vegetables are typically 2.5–4 cm (0.98–1.6 in) in diameter and look like miniature cabbages. The Brussels sprout has long been popular in Brussels, Belgium, and may have originated and gained its name there.^[1]

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Etymology

Although native to the Mediterranean region with other cabbage species, Brussels sprouts first appeared in northern Europe during the fifth century, later being cultivated in the thirteenth century near Brussels from which they derived their name.^{[1][2]} In common names and misspelling, they may also be called brussels sprouts, Brussel sprouts, or brussel sprouts.^{[2][3]}

Cultivation

Forerunners to modern Brussels sprouts were probably cultivated in Ancient Rome. Brussels sprouts as they are now known were grown possibly as early as the 13th century in what is now Belgium. The first written reference dates to 1587. During the 16th century, they enjoyed a popularity in the Southern Netherlands that eventually spread throughout the cooler parts of Northern Europe.

Brussels sprout



Brussels sprouts (cultivar unknown)

Species	<i>Brassica oleracea</i>
Cultivar group	Gemmifera Group
Origin	Low Countries (year unknown)

Brussels sprouts, raw (edible parts)

Nutritional value per 100 g (3.5 oz)		
Energy	179 kJ (43 kcal)	
Carbohydrates	8.95 g	
Sugars	2.2 g	
Dietary fibre	3.8 g	
Fat	0.3 g	
Protein	3.48 g	
Vitamins	Quantity	%DV[†]
Vitamin A equiv.	38 µg	5%
beta-Carotene	450 µg	4%
lutein zeaxanthin	1590 µg	
Thiamine (B ₁)	0.139 mg	12%
Riboflavin (B ₂)	0.09 mg	8%
Niacin (B ₃)	0.745 mg	5%
Pantothenic acid (B ₅)	0.309 mg	6%

Brussels sprouts grow in temperature ranges of 7–24 °C (45–75 °F), with highest yields at 15–18 °C (59–64 °F).^[2] Fields are ready for harvest 90 to 180 days after planting. The edible sprouts grow like buds in helical patterns along the side of long, thick stalks of about 60 to 120 cm (24 to 47 in) in height, maturing over several weeks from the lower to the upper part of the stalk. Sprouts may be picked by hand into baskets, in which case several harvests are made of five to 15 sprouts at a time, or by cutting the entire stalk at once for processing, or by mechanical harvester, depending on variety. Each stalk can produce 1.1 to 1.4 kg (2.4 to 3.1 lb), although the commercial yield is about 900 g (2.0 lb) per stalk.^[2] Harvest season in temperate zones of the northern latitudes is September to March, making Brussels sprout a traditional winter stock vegetable. In the home garden, harvest can be delayed as quality does not suffer from freezing. Sprouts are considered to be sweetest after a frost.^[4]

Brussels sprouts are a cultivar group of the same species as cabbage, collard greens, broccoli, kale, and kohlrabi; they are cruciferous (they belong to the Brassicaceae family; old name Cruciferae). Many cultivars are available, some being purple in color, such as *Ruby Crunch* or *Red Bull*.^[5] The purple varieties are hybrids between purple cabbage and regular green Brussels sprouts developed by a Dutch botanist in the 1940s, yielding a variety with some of the red cabbage's purple colors and greater sweetness.^[6]

Vitamin B ₆	0.219 mg	17%
Folate (B ₉)	61 µg	15%
Choline	19.1 mg	4%
Vitamin C	85 mg	102%
Vitamin E	0.88 mg	6%
Vitamin K	177 µg	169%
Minerals	Quantity	%DV[†]
Calcium	42 mg	4%
Iron	1.4 mg	11%
Magnesium	23 mg	6%
Manganese	0.337 mg	16%
Phosphorus	69 mg	10%
Potassium	389 mg	8%
Sodium	25 mg	2%
Zinc	0.42 mg	4%
Other constituents	Quantity	
Water	86 g	
approx. 5-10 sprouts per 100 g Link to USDA Database entry (http://ndb.nal.usda.gov/ndb/search/list?qlookup=11098&format=Full)		
Units µg = micrograms • mg = milligrams IU = International units		
[†] Percentages are roughly approximated using US recommendations for adults. Source: USDA Nutrient Database (https://ndb.nal.usda.gov/ndb/search/list)		

Europe

In Continental Europe, the largest producers are the Netherlands, at 82,000 metric tons, and Germany, at 10,000 tons. The United Kingdom has production comparable to that of the Netherlands, but its crop is generally not exported.^[7]

North America

Production of Brussels sprouts in the United States began in the 18th century, when French settlers brought them to Louisiana.^[2] The first plantings in California's Central Coast began in the 1920s, with significant production beginning in the 1940s. Currently, several thousand acres are planted in coastal areas of San Mateo, Santa Cruz, and Monterey counties of California, which offer an ideal combination of coastal fog and cool temperatures year-round. The harvest season lasts from June through January.

Most U.S. production is in California,^[8] with a smaller percentage of the crop grown in Skagit Valley, Washington, where cool springs, mild summers, and rich soil abounds, and to a lesser degree on Long Island, New York.^[9] Total U.S. production is approximately 32,000 tons, with a value of \$27 million.^[2]

About 80% to 85% of U.S. production is for the frozen food market, with the remainder for fresh consumption.^[9] Once harvested, sprouts last three to five weeks under ideal near-freezing conditions before wilting and discoloring, and about half as long at refrigerator temperature.^[2] U.S. varieties are generally 2.5–5 cm (0.98–1.97 in) in diameter.^[2]

Nutrients, phytochemicals and research

Raw Brussels sprouts are 86% water, 9% carbohydrates, 3% protein, and contain negligible fat. In a 100 gram reference amount, they supply high levels (20% or more of the Daily Value, DV) of vitamin C (102% DV) and vitamin K (169% DV), with more moderate amounts of B vitamins, such as folate and vitamin B6 (USDA nutrient table, right); essential minerals and dietary fiber exist in moderate to low amounts (table).

Brussels sprouts, as with broccoli and other brassics, contain sulforaphane, a phytochemical under basic research for its potential biological properties. Although boiling reduces the level of sulforaphane, neither steaming, microwave cooking, nor stir frying cause a significant loss.^[10]

Consuming Brussels sprouts in excess may not be suitable for patients taking anticoagulants, such as warfarin, since they contain vitamin K, a blood-clotting factor. In one reported incident, eating too many Brussels sprouts precipitated hospitalization for an individual on blood-thinning therapy.^[11]

Cooking and preparation

The most common method of preparing Brussels sprouts for cooking begins with cutting the buds off the stalk. Any surplus stem is cut away, and any loose surface leaves are peeled and discarded. Once cut and cleaned, the buds are typically cooked by boiling, steaming, stir frying, grilling, slow cooking, or roasting. To ensure even cooking throughout, buds of a similar size are usually chosen. Some cooks will make a single cut or a cross in the center of the stem to aid the penetration of heat.

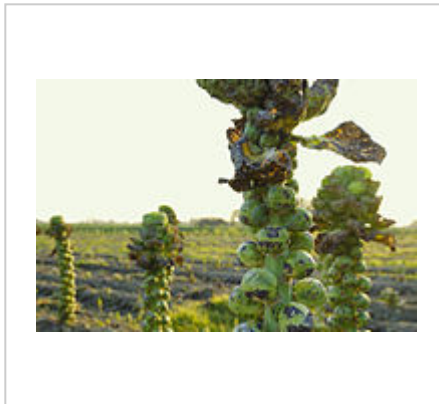
Overcooking will render the buds gray and soft, and they then develop a strong flavor and odor that some dislike.^[8] The odor is associated with the glucosinolate sinigrin, an organic compound that contains sulfur: hence the strong smell. For taste, roasting Brussels sprouts is a common way to cook them to bring out flavor.^[12] Common toppings or additions for Brussels sprouts include Parmesan cheese and butter, balsamic vinegar, apple cider vinegar, bacon, pistachios, pine nuts, mustard, brown sugar, chestnuts or pepper. Another popular way of cooking Brussels sprouts is to sauté them.

Brussels sprouts can be pickled as an alternative to cooking them.

Gallery



Brussels sprouts on stalks



Brussels Sprouts ready for harvest

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External links

- Brassica oleracea gemmifera* (<http://www.pfaf.org/user/Plant.aspx?LatinName=Brassica%20oleracea%20gemmifera>) – Plants For a Future database entry

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