

Vegetables

LONG OVERLOOKED and underrated, vegetables are enjoying a comeback in popularity. Gone are the days when a chef included vegetables as an afterthought to the “meat and potatoes” of the meal. Now properly prepared fresh vegetables are used to add flavor, color and a variety to almost any meal. Many restaurants are featuring vegetarian entrees, an extensive selection of vegetable side dishes or an entire vegetarian menu. This trend reflects the demands of more knowledgeable and health-conscious consumers as well as the increased availability of high-quality fresh produce.



Objective:



Summarize how vegetables are classified and describe how to properly purchase and store fresh vegetables.

Key Terms:



bouquetiere
bulb vegetable
flower vegetable
fruit vegetable
hasten

leaf vegetable
mandoline
produce
ripe
root vegetable

seed vegetable
stem vegetable
tuber vegetable
unripe

Vegetables

Vegetables are classified based on which part of the plant is being eaten. The following are the eight classifications of vegetables.

- ◆ **FLOWERS:** A **flower vegetable** comes from the flower of the plant. These vegetables can be cooked or eaten raw. Examples of flower vegetables are cauliflower and broccoli.

◆ SEEDS: A **seed vegetable** comes from the seeds of the plant, which is the part of the plant that grows new plants. These vegetables are high in nutrients and require minimal cooking. Examples of seed vegetables include beans, corn and peas.

◆ STEMS: A **stem vegetable** is the edible stem of the plant, when the stalk is the main part of the vegetable. These vegetables are tender, needing minimal cooking. Examples of stem vegetables are celery and asparagus.

◆ LEAVES: A **leaf vegetable** is the edible leaves of plants. Leaf vegetables are tender and can be eaten raw or require minimal cooking. Examples of leaf vegetables include cabbage, lettuce, Brussel sprouts, spinach and kale. When eaten raw they are known as salad and when eaten cooked these vegetables are known as cooked greens.

◆ ROOTS: A **root vegetable** is the fleshy, enlarged root of a plant used as a vegetable. Root vegetables store the entire plant's food supply. Some root vegetables are eaten raw and some require cooking. Root vegetables include carrots, turnips and radishes.

◆ TUBERS: A **tuber vegetable** grow underground on the root of a plant and is the underground system that stores nutrients. This part of the plant must be cooked and cannot be eaten raw. The only tuber vegetable is the potato.

◆ BULBS: A **bulb vegetable** grows underground just below the surface and produces a fleshy, leafy shoot above the ground. Bulb vegetables have fleshy leaves surrounding the underground part of the stem. These vegetables can be eaten raw or cooked and are used in a variety of recipes. Bulbs include onions and garlic.

◆ FRUITS: A **fruit vegetable** is a fleshy product that contains seeds which are sometimes eaten. Most vegetables from the fruit part of the plant can be eaten raw. These fruit



FIGURE 1. Vegetables add freshness, texture, color and variety to any meal.



FIGURE 2. Leaf vegetables, also called leafy greens are low in calories and fat and high in protein, fiber, vitamins and minerals.

vegetables include tomatoes, cucumbers, peppers. Fruit vegetables that are eaten cooked include eggplant and squash.

PURCHASING VEGETABLES

The quality of ingredients used to prepare dishes directly affects the outcome of the finished product. Vegetables are no different and understanding how to select fresh, high quality vegetables will help ensure fresh, flavorful dishes.

Grading

The USDA provides a voluntary grading system for vegetables that is used by almost all wholesalers. Grades are based on the appearance, quality, and condition of vegetables when they arrive on the market. Vegetables are graded as:

- ◆ U.S. Extra Fancy
- ◆ U.S. Fancy
- ◆ U.S. Extra No. 1
- ◆ U.S. No. 1

Premium vegetables are classified as U.S. Extra Fancy. When choosing vegetables to use in a foodservice operation, you should look for the highest quality product. For the retail market, some vegetables are graded differently. For example, onions, potatoes and carrots are graded by an alphabetical system, with Grade A being the best.

Ripening

Ripe is when a vegetable is developed to the point of readiness to harvest or eat. Although many vegetables are fully ripe when purchased, they will continue to ripen when exposed to oxygen in the air. The ripening rate depends on the type of vegetable and the way it is stored. Some vegetables will require continued ripening. For example, tomatoes and other fruit-vegetables may be purchased **unripe**, meaning not ready to eat, so they are less damaged during shipping. With these fruit vegetables you can **hasten**, or speed up the ripening process by exposing these fruit vegetables to ethylene gas.



FIGURE 3. Stop and take a look at the produce you are purchasing. Are you inspecting it to see if it is high quality? Look to see that there is no mold, bruises, dents or abnormal sizing. Vegetables should be ripe, bright in color and free from dents, bruises or mold.

Selection Qualities

Aside from checking to see if a vegetable is graded highly or ripe, there are a few more qualities to look for when selecting fresh vegetables. When shopping, take a few minutes to inspect the **produce**, which include anything that has been produced or grown, by farming. Look for plump, crisp, bright-colored vegetables that are heavy for their size. The heaviness will indicate that the vegetables has a lot of moisture, which is a good quality to have. Avoid vegetables that are bruised, shriveled, moldy or blemished.

Market Forms

Vegetables can be purchased in a variety of ways. To purchase the highest quality of vegetable, purchasing fresh vegetables is the best bet. However, many recipes do not always require vegetables to be fresh and other forms of vegetables may be a better or more convenient choice. Vegetables can be purchased in the following ways:

- ◆ **Canned:** Almost every variety of vegetable is available canned, which brings many advantages to the kitchen. Canned vegetables are already cleaned, peeled, cut into pieces and cooked. Combinations of vegetables combined with seasonings and flavorings are also available canned. Additionally, they have been heat-treated to kill microorganisms. Canning vegetables effectively preserves the flavor and texture of the vegetables, however the heat used during canning softens most vegetables and can cause some nutrient loss. Canning can also dull the color of the vegetables.
- ◆ **Frozen:** Frozen vegetables offer convenience similar to that of canned vegetables, but the quality of frozen vegetables is higher. Most nutrients are able to be retained during freezing and vegetables will also keep their bright colors and flavors because of the quickness with which they are precooked and frozen. Some frozen vegetables are frozen raw, while others are completely cooked and will require only to be thawed and reheated before serving. Some vegetables are frozen with a sauce, for example broccoli and cheese or corn and butter.
- ◆ **Dried:** Dried vegetables are not as common as canned or frozen vegetables. The drying process will affect the appearance, taste, and texture of the vegetables. However, the advantage of using dried vegetables is convenience.



BROADENING AWARENESS...

AMAZING ASPECTS: Treasures of the New World

In lieu of many spices, golden treasures and precious gems, early Spanish explorers returned to Spain with items of much greater significance: tomatoes, potatoes and corn. Unfortunately for those who financed the voyagers, the value of this produce was not immediately appreciated.

The Spanish and the Italians hailed the tomato as an aphrodisiac, perhaps because of its resemblance to the human heart, when it arrived from the New World during the 16th century. Even though soon tomatoes became a part of Spanish and Italian cuisines, most other Europeans, New World colonists and later, Americans considered tomatoes poisonous.

- ◆ Preserved: Techniques like canning, freezing, and drying are used to lengthen the shelf life of vegetables. These techniques may affect the flavor and texture of vegetables.

STORING VEGETABLES

Different vegetables will require different storage conditions. Starchy vegetables, such as potatoes, winter squash and vegetables in the onion family, are best stored at 60°F to 70°F in a dry location. If these vegetables are stored in a refrigerator, they will lose flavor and texture. Most other vegetables should be stored at refrigerator temperatures of 41°F or below. Vegetables should be stored away from fruits that emit ethylene gas, such as bananas, due to the gas continuing to ripen the vegetable and can cause it to spoil quicker.

COOKING VEGETABLES

Unlike fruits, most vegetables are served cooked. Cooking will soften the vegetables and intensify their flavors. The cooking process will also make them easier to chew and digest. Efficiently preparing and arranging vegetables is an important step in cooking vegetables.

Washing

Since vegetables grow outside and often close to the ground, they can pick up sand, dirt, grit, chemicals and even insects. It is very important to clean vegetables thoroughly just before preparation. Since water can remove nutrients from vegetables, clean the produce quickly under cold running water, do not soak. Follow the following guidelines when cleaning vegetables:

- ◆ Scrub root vegetables with a strong bristled brush
- ◆ Soak vegetables, such as cabbage, in salted water for a short period of time. This will help draw out the insects.
- ◆ Store cut vegetables, such as carrots, in the refrigerator until ready to be used.
- ◆ Unlike other vegetables, leafy green vegetables are washed in a water bath. This allows debris and sand to settle to the bottom of the vegetable sink. To avoid further contact with the debris, lift the greens out of the water when finished.

Peeling, Cutting and Shaping

- ◆ The way you peel, cut and shape vegetables will influence how they will cook and how they will look when they are served. Depending on how the vegetable is being used, will determine how they will need to be prepared.
- ◆ Trim off and discard the inedible skins, leaves, stems, and stalks. A vegetable peeler can be used to remove thin layers of skin.

- ◆ Cut vegetables into uniform pieces to ensure even cooking. A food processor can also be used to uniformly cut vegetables. A **mandoline** is used for slicing vegetables, such as potatoes.

Cooking Vegetables with Dry Heat

Cooking vegetables with dry heat preserves flavors and nutrients. Since vegetables are not submerged in water, there is no risk of nutrients leaching into liquid.



FIGURE 4. It is important to wash, peel and cut your vegetables to the desired size for cooking. Cutting your vegetables in uniform size will ensure they are cooking consistently.

BROILING AND GRILLING

- ◆ Broiling cook vegetables quickly with relatively high heat in the oven. Arrange slices or chunks of vegetables on a sheet pan. The heat will caramelize the vegetables and give them a pleasant flavor. Many kinds of vegetables can be broiled, including potatoes, tomatoes, corn, peppers, squash, eggplant and zucchini. Broiling can also be used to reheat a vegetable that has already been cooked.
- ◆ Grilling vegetables also utilizes high heat and cooks quickly. Vegetables can be placed onto wooden or metal skewers for grilling, such as mushrooms, onions or tomatoes. Larger vegetables, such as eggplant and squash, can be cut and placed directly onto the grill.

BAKING

Baking cooks vegetables at a lower temperature for a longer period of time than grilling or broiling. Squash, onions, potatoes, and other root vegetables are perfect for baking. They should be well cleaned, peeled and unless baked whole, cut into uniform pieces. Vegetables are often baked into casseroles and are a good option for vegetarians or those wanting a healthier meal option.

SAUTÉING

Sautéing cooks vegetables in a small amount of butter or oil in a hot sauté pan. Sautéing happens quickly due to the heat being on high. This means that all vegetables must be cut and ready to cook before beginning the cooking process. Many vegetable varieties can be sautéed such as mushrooms, summer squash, and onions. Firmer vegetables such as broccoli, Brussels sprouts, carrots, beans, celery and potatoes need to be blanched prior to sautéing, otherwise they will not get soft enough. Sautéed vegetables should be brightly colored and still slightly crisp.

DEEP-FRYING

Deep-frying coats vegetables in a batter, then submerges in hot oil. Potatoes are a popular deep-fried vegetable turning into French fries or potato chips. Other vegetables that are commonly deep-fried include onions, mushrooms, cauliflower, okra, and eggplant. It is important to remember to cut vegetables into even pieces to ensure they cook evenly and wipe off any excess moisture prior to deep-frying.

Cooking Vegetables with Moist Heat

Moist cooking methods used in vegetable cookery include blanching, parboiling, steaming, simmering, poaching, and braising. Before cooking with these techniques, clean vegetables thoroughly and cut them into uniform pieces, this will allow the vegetables to cook evenly.

Clean all surfaces and utensils that touch fresh vegetables with hot water and soap before and after preparation. To retain nutrients, cook vegetables for the minimum amount of time needed and in a small amount of liquid. [NOTE: Green vegetables need to be cooked without a cover to let the acid escape. However, red vegetables need to be cooked covered to keep the acid inside. Red vegetables also need to have an acid such as vinegar added to the water to replace the lost acid.]



FIGURE 5. There are a variety of high heat and moist heat methods of cooking vegetables. Depending on the use you have for your vegetables and your desired end result, will help decide what method of cooking you will choose.

BLANCHING

Blanching involves plunging foods briefly into boiling water and then plunging them into cold water to stop the cooking process. Blanching is also used to increase the color and flavor of vegetables before freezing them. Often, blanching is a first step for a second cooking process such as sautéing. [NOTE: It can also aide in the process of removing skins from tomatoes.]

PARBOILING

Parboiling partially cooks vegetables, then another method of cooking is used to finish cooking; such as grilling or sautéing. Parboiling also removes strong flavors and loosens the skins or peels of vegetables. Winter squash, root vegetables such as potatoes, and vegetables like cabbage and kale are commonly parboiled.

STEAMING AND SIMMERING

- ◆ Steaming cooks by being placing vegetables above boiling water in a perforated container.

- ◆ Simmering cooks vegetables in a shallow layer of lightly boiling water, using just enough water to cover the bottom of the pan, and then cover with a lid.
- ◆ Both steaming and simmering techniques result in the same: soft, colorful, flavorful vegetables.

POACHING AND BRAISING

- ◆ Poaching cooks vegetables in just enough simmering liquid to cover the food.
- ◆ Braising cooks by simmering vegetables in a seasoned liquid or sauce in the oven. Save the liquid and serve it with the vegetables for added flavor. Popular vegetables used for braising are cabbages, celery, leeks, onions, Swiss chard and fennel.

Determining Doneness of Vegetables

Every vegetable has slightly different characteristics when it is properly cooked, so there is not one single rule to follow for cooking time. Instead of relying on a specific cooking time, pay attention to how vegetables look, taste, smell and feel.

Most vegetables are done cooking when they are just tender enough to cut with a fork. Leafy vegetables should become brighter in color than when they are raw, and should be slightly wilted.

Plating and Garnishing Vegetables

An important factor in cooking vegetables is its visual appeal on the plate. Uniform-pieces arranged in an attractive pattern make the entire plate look appealing. Plate vegetables using the following arrangements:

- ◆ Place the main entrée to the front of the plate, with the vegetables to the back.
- ◆ Place the main item in the center of the plate with the vegetables placed randomly around the main item. You could also arrange vegetables in a pattern.
- ◆ Place vegetables in the center of the plate with the main item leaning against the vegetables. The main item could also be sliced and placed around the vegetables.
- ◆ Place a **bouquetiere**, a bouquet of three or more vegetables, arranged on a plate surrounded by other foods.

Plating vegetables allows the use of a lot of creativity. Simple garnishes, such as chopped scallions or minced lemon zest can add visual appeal, texture and flavor to the vegetables.



FIGURE 6. An important factor in cooking vegetables is its visual appeal on the plate. Uniform-pieces arranged in an attractive pattern make the entire plate look appealing.

Summary:



Vegetables are parts of the plants that are consumed by humans or other animals as food. Vegetables are classified by which part of the plant they derive from including: flowers, fruits, stems, seeds, leaves, roots, bulbs and tubers. Vegetables provide us with a variety of vitamins and minerals and according to the nutritional guidelines we should be filling half our plates with vegetables each meal. Since vegetables are so versatile, they can be prepared and eaten in a variety of ways. Vegetables can be plated in and among a salad, deep-fried as an appetizer served as a side or even a full entrée.

Checking Your Knowledge:



1. Explain how being in season affects the price, quality and availability of vegetables.
2. Why is it important to cut vegetables into a uniform size before cooking?
3. Summarize techniques used for determining the doneness of vegetables.
4. Describe how vegetables are classified.
5. Describe the guidelines to follow when plating vegetables.

Expanding Your Knowledge:



“Sweating Vegetables” in a little oil over low heat in a covered pot is, in effect, a vegetable sauna. All of the flavors of the vegetables emerge slowly in a juicy tangle, in a much more intense manner than if you simply added them just-cut to a stock. Like roasting garlic, it is a way to enlarge the natural flavors very dramatically.

Web Links:



Beginners Guide to Cooking Vegetables

<https://www.youtube.com/watch?v=zu8FS3-MIAs>

Does Cooking Vegetables Destroy Nutrients? How to Cook Veggies Properly

<https://www.youtube.com/watch?v=dvoHpif16Eo>

14 Weird Facts About Vegetables

<https://www.thetalko.com/15-weird-facts-about-vegetables/>.

Veggies From A–Z

<https://www.halfyourplate.ca/fruits-and-veggies-a-z/>.

15 of the Healthiest Vegetables You Can Eat

<https://www.goodhousekeeping.com/health/diet-nutrition/g28556528/healthiest-vegetables/>.