

Vegetables

OBJECTIVES

- After reading this section, you will be able to:
 - Identify the quality characteristics of fresh, canned, frozen, and dried vegetables.
 - Explain how to purchase and store varieties of fresh, canned, frozen, and dried vegetables.
 - Demonstrate dry and moist cooking of vegetables.

LIKE fruits, vegetables are versatile foods that add color, flavor, and texture to any meal. Many commercial kitchens offer vegetable-based entrées to meet the demands of health-conscious customers. Becoming familiar with the types and flavors of vegetables and the best ways to prepare and store them is important for every foodservice employee.



KEY TERMS

- tuber
- mealy
- waxy
- solanine
- drained weight
- packing medium
- mandoline
- bouquetière

IDENTIFYING VEGETABLES

Vegetables are edible plants. Different parts of vegetables are eaten, including the flowers, seeds, stems, leaves, roots, and tubers, or the short, fleshy underground stems of plants. The potato is an example of a tuber. Certain types of fruit are classified as vegetables by commercial kitchens because they are savory rather than sweet. These fruits, such as eggplants and tomatoes, are prepared and served like vegetables.

Classifying Vegetables

Commercial kitchens usually classify vegetables into the following categories: the squash family; roots and tubers; seeds and pods; the cabbage family; stems, stalks, and shoots; the onion family; fruit-vegetables; and leafy greens. These categories group vegetables by how they are used in the kitchen. For example, kale and cauliflower are members of the cabbage family, but from a culinary perspective they are used quite differently. Kale is a leafy green and cauliflower is a vegetable floret (FLOHR-uht). See Fig. 26-7 (Vegetables).

Vegetables



1. Squash Family

Members of the squash family have large root systems and trailing vines. Their flowers are often edible in addition to the main vegetable. Quality squash are firm, free of blemishes, and show no signs of mold.

2. Roots & Tubers

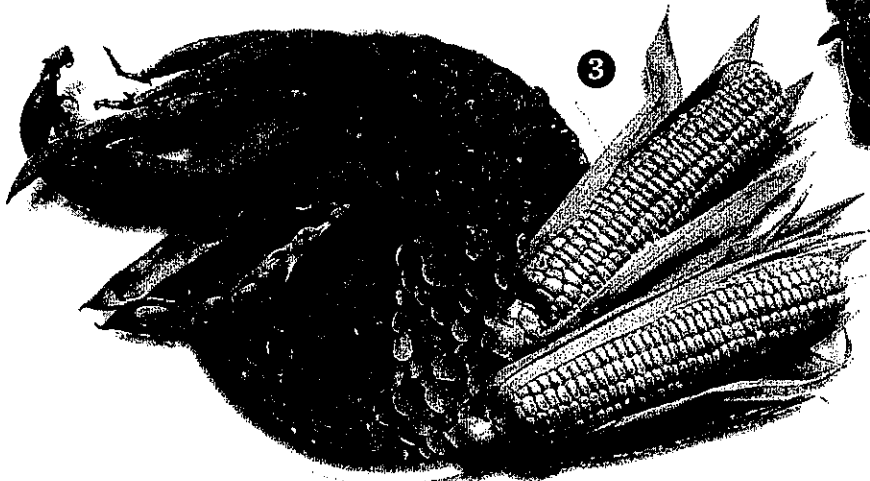
Roots grow deep into the soil, while tubers are large, round, underground stems that grow just below the surface of the soil. Both store and provide food to their plants, making them rich in nutrients. Quality roots and tubers are firm, unwrinkled, unblemished, and have good color.

3. Seeds & Pods

This category consists of vegetables with edible seeds. Some of the pods are also edible, but the seeds are more nutritious. Quality seeds and pods are firm, well-shaped, and without blemishes.

4. Cabbage Family

Vegetables in the cabbage family grow quickly in cool weather. Commercial kitchens use the flowers, leaves, and heads of these plants. They are served raw as well as cooked. Quality cauliflower, broccoli, and cabbage are firm, heavy for their size, and have good color.



5. Stems, Stalks & Shoots

Vegetables in this category produce edible stems, stalks, and shoots. They are picked when young and tender. Quality stems, stalks, and shoots are firm, unblemished, and have no browning.

6. Onion Family

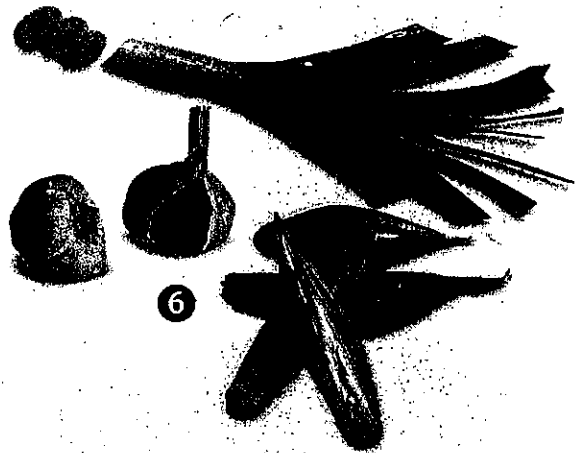
Vegetables in the onion family are often used for seasoning and flavoring. Most have a strong taste and odor. Quality onions are firm, fresh-looking, and have good color.

7. Fruit-Vegetables

Vegetables that are often called fruit-vegetables come from flowering plants and contain at least one seed. Therefore, they are technically the fruit of the plant. For the purpose of commercial kitchens, however, they are categorized as vegetables since they are savory rather than sweet. Quality fruit-vegetables have smooth, unblemished skin.

8. Leafy Greens

Vegetables in this category can be served raw or cooked. They shrink when cooked because of their high water content. Flavors of leafy greens range from mild to spicy. Quality greens have crisp, bright leaves without any brown spots.



X PURCHASING & STORING FRESH VEGETABLES

The quality of the ingredients you use to prepare dishes directly affects the outcome of the finished product. Vegetables are no exception. Understanding how to select fresh, high-quality vegetables and store them in a way that maintains this quality helps 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 quality is classified as U.S. Extra Fancy. When choosing vegetables to use in a food-service operation, look for the highest quality product. Some recipes, however, allow a lesser quality product to be used.

Some vegetables are graded differently for the retail market. Onions, potatoes, and carrots are graded by an alphabetical system, with Grade A being the best. See Fig. 26-8.

Ripening

Although many vegetables are fully ripe when purchased, they 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.

There are some vegetables you will want to continue to ripen. For example, tomatoes and other fruit-vegetables may be purchased unripe so they're damaged less in shipping. As with fruits, you can hasten ripening by exposing these fruit-vegetables to ethylene gas.

Storing

Different vegetables require different storage conditions. Starchy vegetables, such as potatoes, winter squash, and vegetables in the onion family, are best stored at 60°F–70°F in a dry location. If they 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. Store vegetables away from fruits that emit ethylene gas, such as bananas. The gas will cause continued ripening and possible decay.

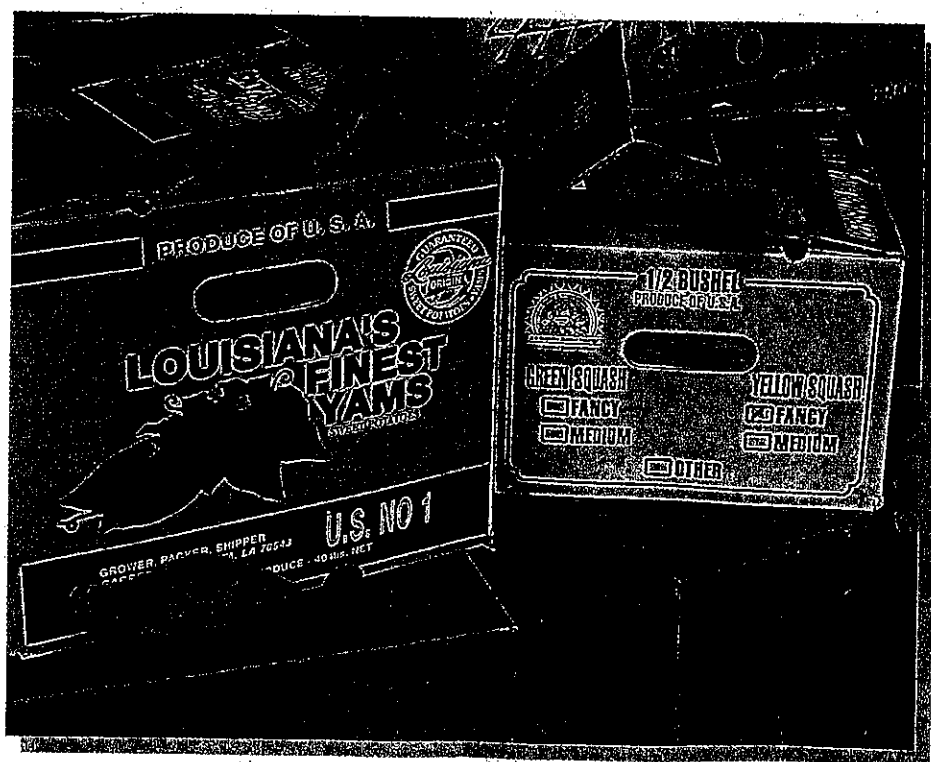


Fig. 26-8. USDA grades are used by wholesalers and buyers to ensure quality control.

PURCHASING & STORING POTATOES

Potatoes are a versatile vegetable. Foodservice operations use potatoes in some form at each meal. Most foodservice operations purchase potatoes in 50-lb. cartons or bags. See Fig. 26-9. The number of potatoes in each carton varies depending on the size of the potatoes.

Store potatoes in a dry, dark area with temperatures of 60°F–70°F. Do not refrigerate potatoes. The cool temperature will convert some of the potato starch to sugar, making the potato too sweet.

Types of Potatoes

Potatoes are divided into two main types: mealy and waxy. Mealy potatoes have thick skin and starchy flesh. They are best for deep-frying, baking, whipping, and puréeing. Waxy potatoes have thin skin and contain less starch than mealy potatoes. They are best for boiling.

There are a wide variety of mealy and waxy potatoes. See Fig. 26-10.

- **Russet.** A mealy potato also known as Idaho. Russets are a popular choice for baking and frying.
- **Red.** A waxy, pink- to red-skinned potato. Red potatoes are good roasted and in salads, soups, and purées.

Fig. 26-9. Potatoes are purchased in 50-lb. cartons or bags.

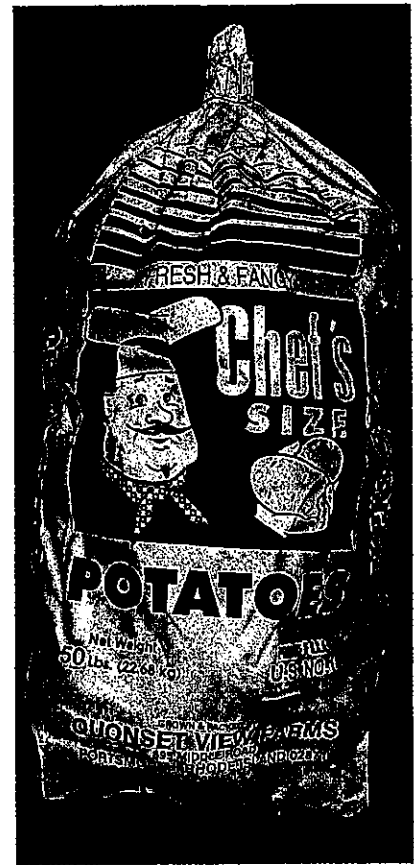


Fig. 26-10.

Types of Potatoes

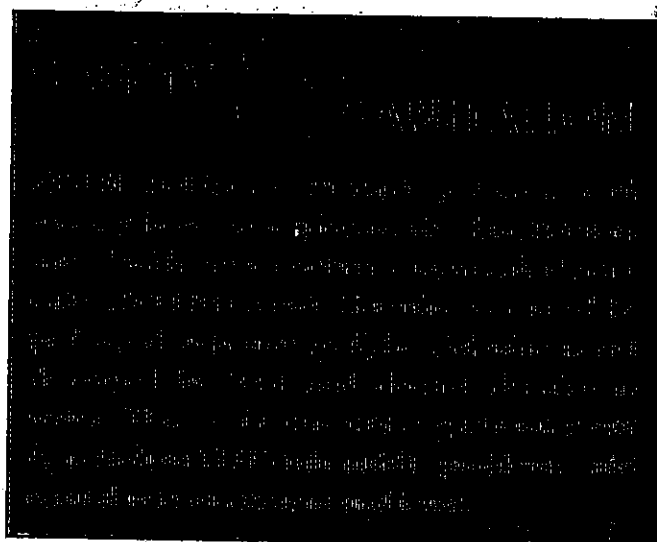


- **Yukon.** A buttery-flavored mealy potato with golden flesh. Yukon potatoes can be baked, puréed, and made into salads and casseroles.
- **Sweet.** This type comes in two varieties: white and red. White sweet potatoes have yellow flesh and a mealy texture. Red sweet potatoes have a darker orange flesh and a less mealy texture. Both types are used in soups and casseroles and can be boiled, roasted, and puréed.

Quality Characteristics

Use the following characteristics when selecting potatoes:

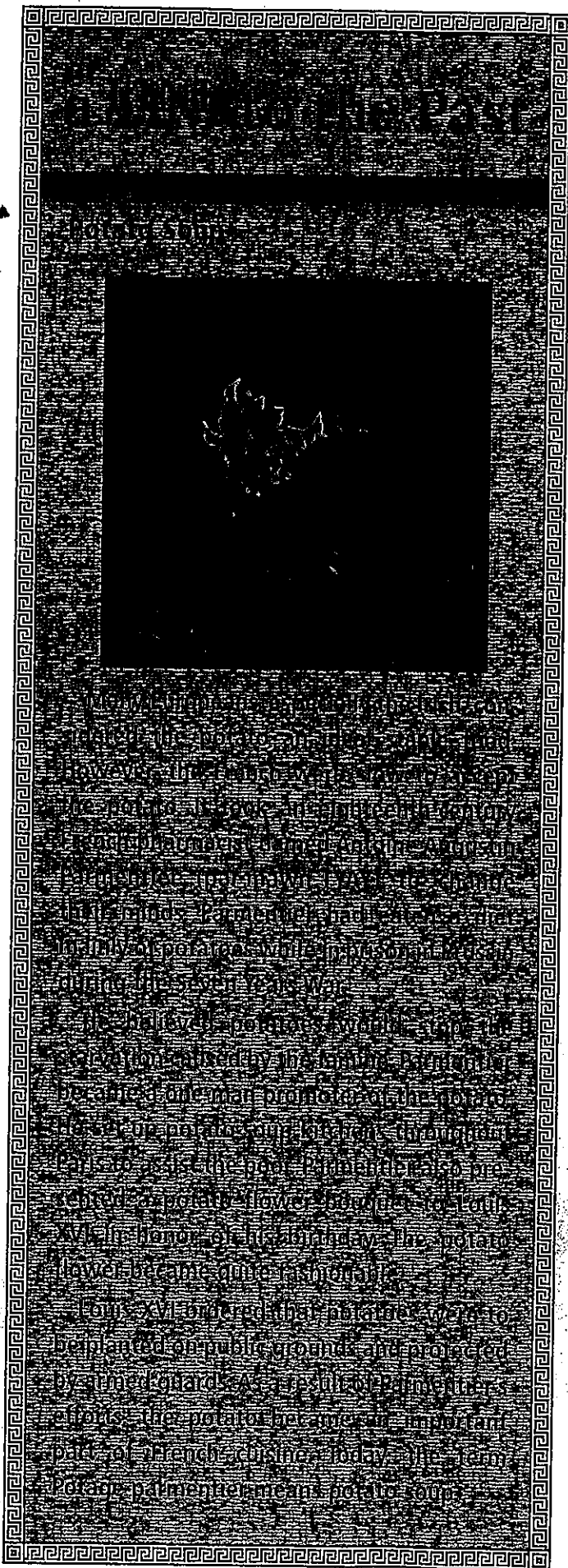
- All varieties of potatoes should be heavy and firm, without soft spots, green color, or sprouting eyes.
- Sweet potatoes should have dry-looking, orange and golden-orange skins.
- Avoid sweet potatoes with softened ends. This marks the beginning of spoilage.
- Other potatoes should have dry, tight skins, without wrinkles.



Market Forms of Potatoes

Many market forms of potatoes can be used in the professional kitchen.

- **Fresh.** Fresh potatoes are readily available year-round. They can be baked, fried, boiled, whipped, or puréed and served with sour cream, nonfat yogurt, or butter.



■ **Canned.** Most types of potatoes are available in cans, already cooked, whole or sliced. Use of canned potatoes eliminates the risk of spoilage and can result in a high-quality dish. Keep in mind, however, that most canned sweet potatoes are packed in a sugary or spicy sauce.

■ **Frozen.** Many foodservice operations purchase frozen potatoes that are precut for French fries. The French fries are blanched in deep-frying fat and then frozen. This product enables foodservice operations to quickly prepare French fries, without cleaning, peeling, and slicing fresh potatoes. Prepared potato dishes available frozen include hash browns and stuffed baked potatoes. These items can be heated, fried, or cooked in casseroles.

■ **Dehydrated.** Dried potato flakes can be mixed with milk or hot water to make mashed potatoes, hash browns, scalloped potatoes, and other popular dishes. Some dehydrated potatoes may need soaking before cooking.

✕ PURCHASING & STORING PRESERVED VEGETABLES

Techniques like canning, freezing, and drying are used to lengthen the shelf life of vegetables. Cooked vegetables can also be preserved through canning and freezing. These techniques may affect the flavor and texture of vegetables.

Canned Vegetables

Almost every variety of vegetable is available canned, which brings many advantages to the commercial 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 effectively preserves the flavor and texture of such vegetables as tomatoes, sweet potatoes, peas, corn, and beans. However, the heat used during canning softens most vegetables

Fig. 26-11.

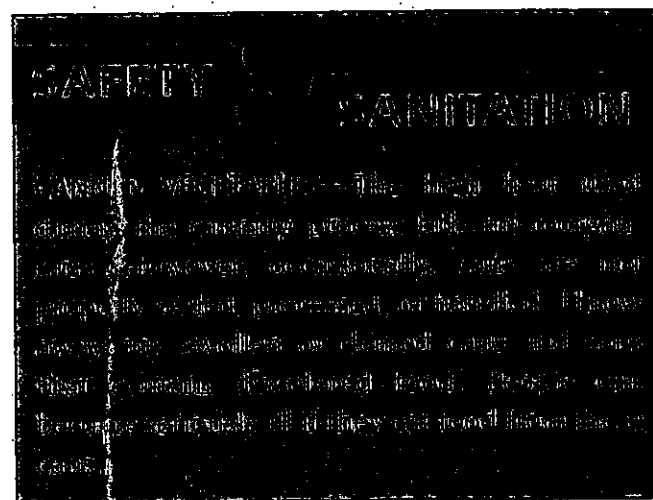
Grade	Net Weight	Drained Weight
No. 1	20 oz.	24
No. 2	28 oz.	24
No. 3	14.15 oz.	16
No. 4	15.41 oz.	16
No. 5	46.51 oz.	12
No. 10	6 lb. 10 oz.	6

and can cause some nutrient loss. Using the liquid from the canned vegetables retains some of these nutrients. Canning can also dull the color of green vegetables.

The USDA grading system for canned vegetables is:

- U.S. Grade A or Fancy.
- U.S. Grade B or Extra-Select.
- U.S. Grade C or Standard.

The net weight of canned vegetables is the weight of the contents. **Drained weight** is the weight of the food product without the packing medium. A **packing medium** is a liquid used to protect the food product. It can be thin or thick. Canned vegetables come in a variety of commercial sizes. See Fig. 26-11.



Frozen Vegetables

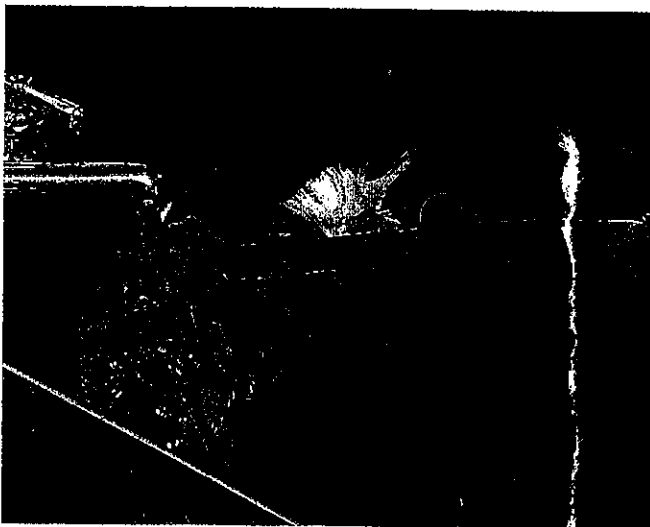
Frozen vegetables offer convenience similar to that found with canned vegetables, but the quality is higher. Most nutrients are retained during freezing. Vegetables also retain their bright colors and flavors due to the quickness with which they are precooked and frozen. As with fruits, some vegetables are individually quick frozen. This improves their texture and appearance.

Some frozen vegetables are frozen raw, while others are completely cooked and need only to be thawed and heated before serving. Do not refreeze unused portions. Instead, store them in the refrigerator as you would fresh vegetables.

The same grading system used for canned vegetables is used for frozen vegetables. The most common pack for frozen vegetables is a 20-lb. bulk bag in a cardboard case. Other packs include six 4-lb. bags and twelve 2.5-lb. bags or boxes. Keep all packages in a freezer at a steady temperature of 0°F or less.

Dried Vegetables

Dried vegetables are not as common in foodservice operations as canned and frozen vegetables. The drying process impacts the appearance, taste, and texture of vegetables. The advantage to using dehydrated vegetables is convenience. Essentially, everything is done in the processing plant instead of the commercial kitchen.



COOKING VEGETABLES

Unlike fruits, most vegetables are served cooked. Cooking softens vegetables and intensifies their flavor. To maintain flavor and quality, cook vegetables in batches as close to serving time as possible. Improper cooking and holding techniques can cause a loss of nutrients and damage to the texture, color, and flavor of vegetables. For example, to help white and red vegetables retain their color, cook them in liquid that is slightly acidic (uh-SIH-dihk). Learning how to apply the right cooking techniques will help you serve tender vegetables packed with nutrition and flavor.

Determining Doneness

Every vegetable has slightly different characteristics when properly cooked, so there is no one rule of thumb to follow regarding cooking time. However, most vegetables are finished cooking when they are just tender enough to cut with a fork. Leafy vegetables should become brighter in color than when raw and be just slightly wilted. Instead of relying on a specific cooking time, pay attention to how vegetables look, taste, smell, and feel.

Pre-Preparation for Vegetables

















Efficiently preparing and arranging vegetables is an important step in vegetable cookery. The number and types of vegetables you will need to prepare vary with each recipe.

■ **Washing.** Because vegetables grow outside and often close to the ground, they can pick up sand, dirt, grit, chemicals, and even insects. It is critical to clean them thoroughly just before preparation. Since water can leach nutrients from vegetables, clean the produce quickly under cold running water. See Fig 26-12. Follow these other guidelines:

Fig. 26-12. Vegetables should be thoroughly cleaned before preparation.

Fig. 26-13.

VEGETABLE CUTS

	French Fry 1/2 x 1/2 x 3 inches		Brannet (Jamaican) (WASH) 1/2 x 1/2 x 1/2 inches (extra small dice)
	Stick 1/2 x 1/2 x 2 inches		Waffle (WASH) 1/2 inch average rough cut
	Baton 1/2 x 1/2 x 3 inches (small stick)		Chips 1/2 inch thick slice
	Julienne (Joo-lee-ahn) 1/8 x 1/8 x 2 inches (short matchstick)		Waffle 1/2 inch thick slice, perforated
	Fine Matchstick 1/16 x 1/16 x 2 inches		Round (WASH) 1/2 inch, 2 inch long barrel
	Large Dice 1/2 x 1/2 x 1/2 inch		Round Round slices of varying thickness
	Medium Dice 1/4 x 1/4 x 1/4 inch		Diagonal Bias cut slices of variable thickness
	Small Dice 1/8 x 1/8 x 1/8 inch		California (Shin-uh-NAH-ee) Thin ribbons

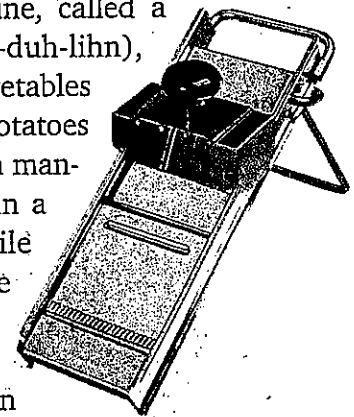
- Scrub root vegetables with a strong-bristled brush.
- Soak cabbage family vegetables, such as broccoli, in salted water for a short amount of time. This will draw out any insects.
- Store cut vegetables, such as carrots, in the refrigerator until ready to be used.

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 and sand, lift the greens out of the water.

■ **Peeling, cutting, and shaping.** Peeling, cutting, and shaping vegetables influence how they will cook and how they will look when served. Depending on how each vegetable will be used, its preparation will differ.

Always trim off and discard only inedible skins, leaves, stems, and stalks using the appropriate tools. For example, you could use a vegetable peeler to remove a thin layer of vegetable skin.

Cut vegetables into uniform pieces to ensure even cooking. Many foodservice operations use food processors to uniformly cut vegetables. Another hand-operated machine, called a **mandoline** (MAHN-duh-lihn), is used for slicing vegetables and fruits, such as potatoes and apples. In using a mandoline, food is held in a metal carriage while slicing to protect the fingers. See Fig. 26-13 for popular cuts and shapes used on vegetables and potatoes.



Cooking Vegetables with Dry Heat

Cooking vegetables with dry heat preserves flavors and nutrients. Since vegetables aren't submerged in water, the risk of nutrients leaching

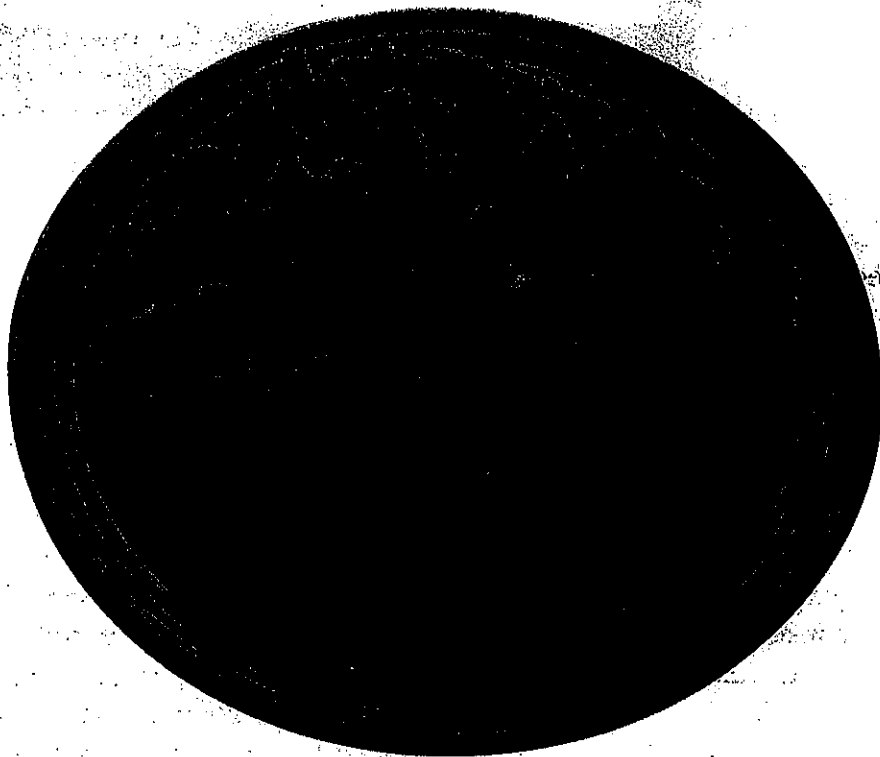


Fig. 26-14. This vegetable has been prepared using a dry cooking technique. What specific technique was used?

into liquid is eliminated. Dry cooking techniques such as grilling can also give vegetables interesting flavors.

You can brush butter, seasonings, flavorings, or flavored oils on vegetables before cooking for added flavor. Never use flavored oils for deep-frying. Evenly slice vegetables to ensure uniform cooking and add to the visual appeal of the final product. See Fig. 26-14.

■ **Broiling and grilling.** Broiling and grilling both cook vegetables quickly under relatively high heat. The heat caramelizes the vegetables, giving a pleasing flavor. Many kinds of vegetables can be grilled or broiled, including potatoes, tomatoes, peppers, squash, eggplant, zucchini, and corn.

You can thread small sliced vegetables, such as mushrooms and tomatoes, onto wooden or metal skewers for grilling. Be sure to cut larger vegetables, such as eggplant and squash, into slices and place them directly on the grill. For broiling, arrange slices or chunks of vegetables on a sheet pan. Broiling can also be used to reheat a vegetable that has already been cooked.

■ **Baking.** Baked vegetables are cooked at a lower temperature for a longer period of time than grilled or broiled vegetables. Squash, onions, potatoes, and other root vegetables are excellent

baked. They should be well cleaned, peeled, and unless baked whole, cut into uniform pieces.

■ **Sautéing.** Sautéing cooks vegetables in a small amount of butter or oil in a hot sauté pan. Sautéing happens quickly because the heat is high, so have all vegetables cut and ready to cook before you begin.

Many different kinds of vegetables can be sautéed, including mushrooms, summer squash, and onions. Firm vegetables such as broccoli, Brussels sprouts, carrots, beans, celery, and potatoes need to be blanched before sautéing. Sautéed vegetables should look brightly colored and still be slightly crisp.

■ **Deep-frying.** Deep-fried vegetables are usually coated in batter, then submerged in hot oil. Potatoes are popular deep-fried as French fries or potato chips. Other vegetables that can be deep-fried include onions, mushrooms, cauliflower, okra, and eggplant. Be sure to cut vegetables into even pieces and wipe off any excess moisture before deep-frying.

■ **Fondue.** When cooking fondue for vegetables, vegetable chunks such as cauliflower, mushrooms, and broccoli are cooked on skewers in hot oil. The cooked vegetables can then be dipped in a variety of flavorful sauces.

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. Add bouillon, herbs, spices, or butter to the cooking liquid for extra flavor. To retain nutrients, cook vegetables for the minimum amount of time needed and in a small amount of liquid. If possible, reuse this flavored liquid in the dish you're preparing, or in soups or stocks.

Green vegetables need to be cooked without a cover to let the acid escape. Red vegetables need to be cooked covered to keep the acid inside. They also may need to have an acid such as vinegar added to the water to replace lost acid. See Fig. 26-15.

■ **Blanching.** Often used to loosen the skins of vegetables, 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.

■ **Parboiling.** Parboiling is used to partially cook vegetables. Another method is then used to finish cooking the vegetables, such as grilling or sautéing. Parboiling is also helpful for removing strong flavors and loosening skins or peels. Winter squash, root vegetables, and members of the cabbage family are commonly parboiled.

■ **Steaming and simmering.** Steamed vegetables are cooked by being placed above boiling water in a perforated container. Today most commercial kitchens use combination or pressureless steamers. Simmered vegetables sit in a shallow layer of lightly boiling water. The end result of both techniques—soft, colorful, flavorful vegetables—is the same.

■ **Poaching and braising.** Poached vegetables cook in just enough simmering liquid to cover the food. Braising vegetables is achieved by simmering them in a seasoned brown sauce in the oven. Save this liquid and serve it with the vegetables for added flavor. Popular vegetables used for braising are cabbages, celery, leeks, onions, endive, and lettuces such as romaine. Refer to Chapter 15 for more information on poaching and braising.

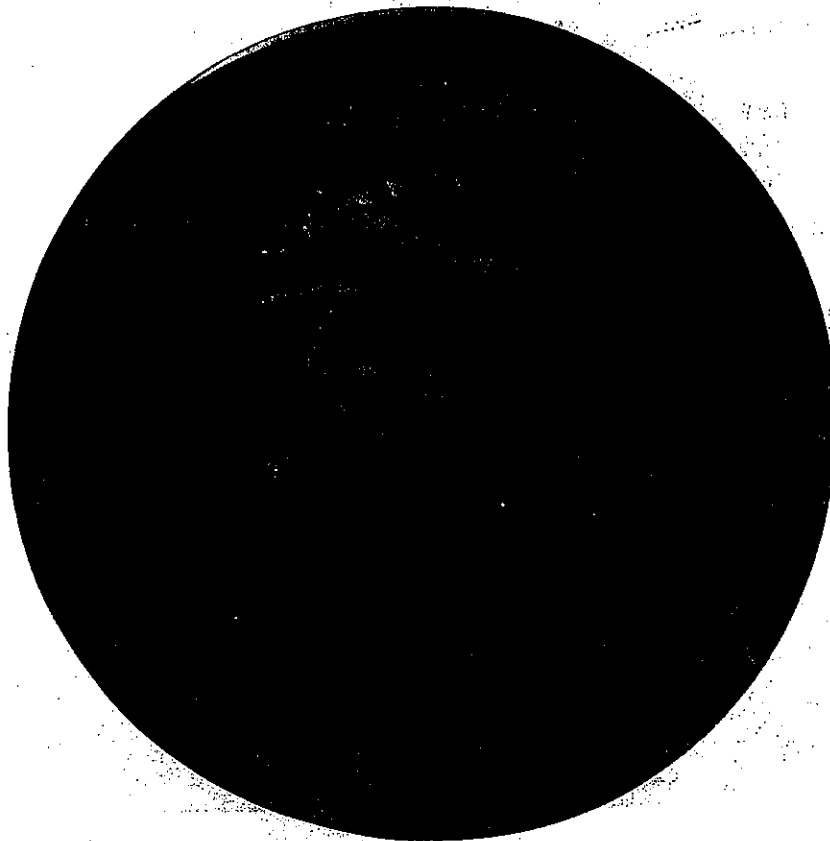


Fig. 26-15. Moist cooking techniques also offer many ways to prepare vegetables. Describe two ways to cook vegetables with moist heat.

PLATING & GARNISHING VEGETABLES

As with any other food, an important factor in vegetable cookery is its visual appeal on the plate. Uniform-size pieces arranged in an attractive pattern make the entire plate appealing. When plating vegetables, the following arrangements may be used:

- 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 vegetables placed randomly around the item. Vegetables could be arranged in a pattern instead.

- Place vegetables in the center of the plate with the main item leaning against it. The main item also could be sliced and placed around the vegetables.
- Put a **bouquetière** (boo-kuh-tyehr), or bouquet of three or more vegetables, arranged on a plate surrounded by other foods. See Fig. 26-16.

You can use a lot of creativity when plating vegetables. Simple garnishes, such as chopped scallions or minced lemon zest, add eye appeal, texture, and flavor. For example, to zest a lemon you pull the zester over the lemon to cut thin strips of the lemon zest.

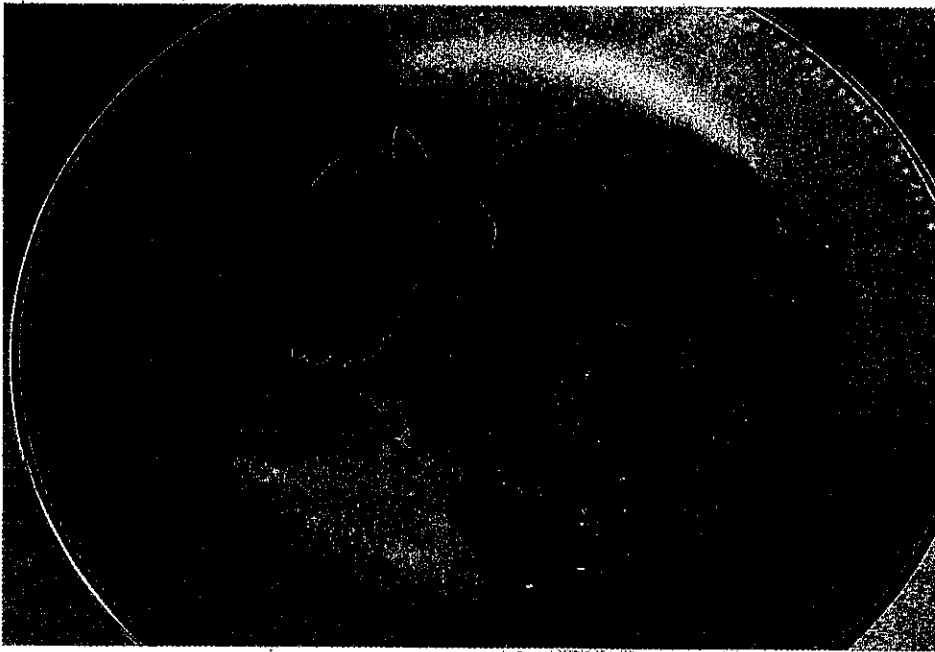


Fig. 26-16. A colorful combination of vegetables adds to the visual appeal of a plated dish. When presenting a plated dish to a customer, where should the vegetables be located?

SECTION 26.2 Knowledge Check

1. List the eight groups into which vegetables are classified, and give two examples of each.
2. Explain the advantages of using canned, frozen, and dried vegetables in a food service operation.
3. Describe one dry and one moist cooking method that can be used to cook vegetables.

WINDUP

You've been asked to add some vegetarian items to a café menu. The new menu item must include an appetizer, a soup, and two entrées. Describe how you would select, prepare, cook, and store the vegetables for each of these new menu items.