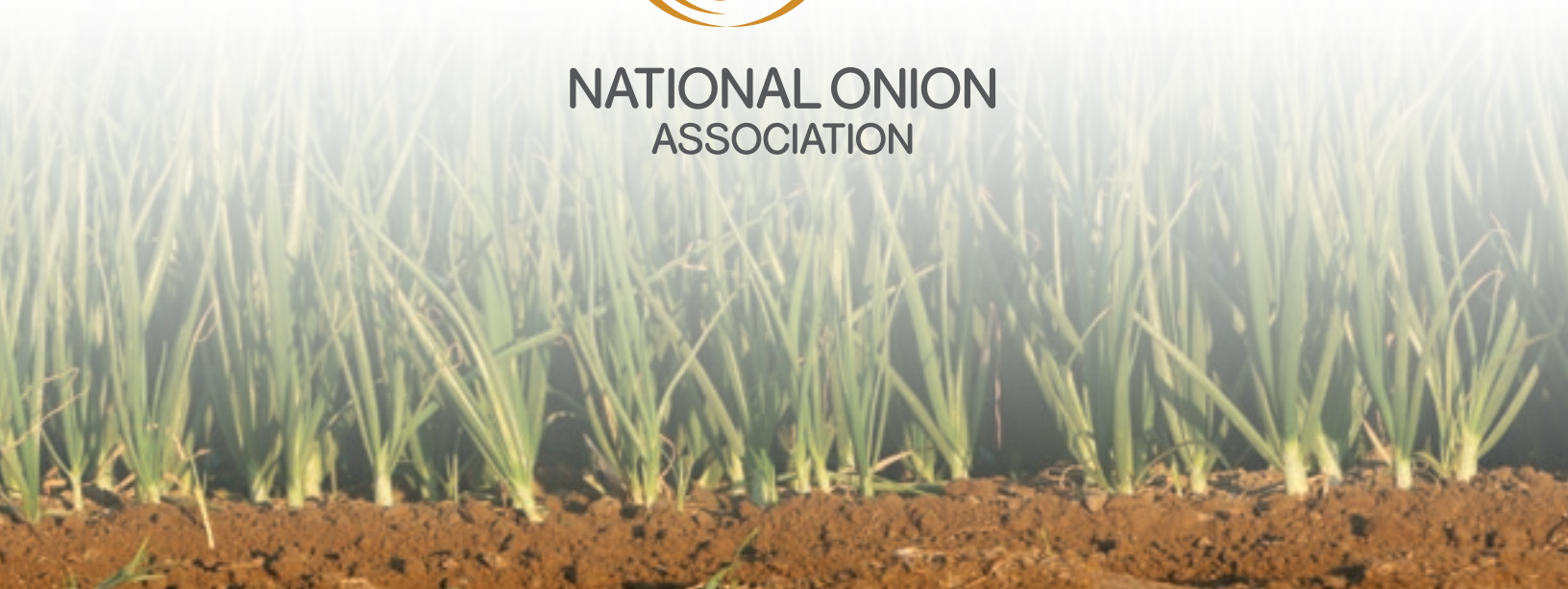


# *Onions - Layers of Flavor*

Culinary Curriculum From the  
National Onion Association



NATIONAL ONION  
ASSOCIATION



# *Onions - Layers of Flavor*

Culinary Curriculum from the National Onion Association

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# Onions - Layers of Flavor

Culinary Curriculum from the National Onion Association

## LEARNING OBJECTIVES

Onions have long been a staple for foodservice operators. From soups to sandwiches to appetizers to salads, onions add color, texture and flavor to menus. The onion is a ubiquitous ingredient in kitchens throughout the world. No matter what the cuisine, chances are the recipe begins with the chopping of an onion.

Onions - Layers of Flavor Culinary Curriculum Objectives:

- **Explore** the history and production of onions
- **Differentiate** between spring/summer and fall/winter onions and how onion type impacts cooking time and texture
- **Identify** the colors and sizes of onions
- **Understand** the proper handling and storage of onions
- **Practice** cutting an onion for the highest yield
- **Appreciate** health and nutritional benefits of onions
- **Recognize** onions as a versatile ingredient in diverse menu items
- **Learn** common cooking techniques for onions



# Onions - Layers of Flavor

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## LESSON 1 - ONION HISTORY, PRODUCTION, AVAILABILITY AND CONSUMPTION

### ONION HISTORY

Long before farming, or even writing was invented, it is believed wild onions were a staple in the prehistoric diet. Many botanists, food historians and archaeologists think onions originated in central Asia. Other research suggests onions were first grown in Iran and West Pakistan.

Onions in Chinese gardens are referenced in some of the oldest Vedic writing from India, as early as 5,000 years ago. In Egypt, onions can be traced back to 3500 B.C. A Sumerian text dated to about 2500 B.C. tells of someone plowing over the city governor's onion patch.

Early documents describe the importance of onions, not only as a food, but for use in art, medicine and mummification.

Onions may be one of the earliest cultivated crops because they were less perishable than other food of the time, were transportable, were easy to grow and could be grown in a variety of soils and climates. In addition, onions were useful for sustaining human life. Onions prevented thirst and could be dried and preserved for later consumption.

**FACT - Onions are part of the Allium genus which includes chives, garlic, leeks and shallots.**

While the place and time of origin is still a mystery, onions found their way into diverse cuisines long before man began to record recipes.

### ONION PRODUCTION

**FACT - Onions 3 - 2 - 1: Onions are the third largest fresh vegetable crop in the United States, the second most diversely consumed vegetable in the world, and the most widely traded raw vegetable on the planet.**

World onion production is estimated at approximately 105 billion pounds each year. At least 175 countries grow onions. Leading onion production countries are China, India, United States, Turkey and Pakistan, respectively.

Onions are grown in 20 states from coast to coast. Leading U.S. onion production areas are California, Idaho-Eastern Oregon and Washington. Growers in the United States plant approximately 125,000 acres of onions each year, which yield about 6.2 billion pounds for fresh consumption.

The United States accounts for 1.6 percent of the world onion acreage and produces about four percent of the world's annual supply. The U.S. dry bulb onion crop value exceeds \$1 billion at farmgate and generates \$5 to \$7 billion dollars at consumer purchase level.

**FACT - Root versus a bulb vegetable? A root vegetable is an earthy-flavored vegetable that grows underground and has leaves above ground. A bulb vegetable is a highly-flavored vegetable that grows underground and consists of a short stem base with one or more buds that are enclosed in overlapping membranes or leaves. Onions are bulb vegetables. About 2/3 of an onion bulb grows above ground.**



## GROWING, IRRIGATING AND HARVESTING ONIONS

Onions may be grown from seed, sets or transplants.

Most commercial onions grow from a tiny seed which first develops a root and a single leaf. From that point, the root structure and more leaves develop. A combination of day length and temperature triggers bulb formation. The neck of the plant starts to thicken and the bulb begins to form. The bulb will continue to swell and the dry outer bulb skin begins to form. The size of the onion bulb is influenced by temperature, nutrition and soil moisture.

Over time, new leaves quit growing and the neck loses its rigidity causing the neck of the onion and foliage to collapse. This indicates the onion bulb has reached its final size and maturity. Finally, the outer skin on the bulb will dry, cure and the foliage will dry up.

Onions typically grow for about five to six months. Farmers harvest their onions when the tops have begun to fall over. Most spring/summer onions are harvested by hand while most storage onions are harvested by machine. After harvest, onions are cured at low humidity and temperatures to ensure dormancy and to protect the bulbs from disease.

Before planting, growers prepare the soil by tilling, removing any weeds or rocks. Alliums such as onions have short root systems and thus need frequent watering to keep the top soil moist. Irrigation is often provided to make sure onions receive the necessary water.



# UNITED STATES COMMERCIAL ONION AVAILABILITY

Spring/Summer		Fall/Winter						Over Lap					
State		January	February	March	April	May	June	July	August	September	October	November	December
Arizona													
California	Desert Valleys												
	San Joaquin Valley												
	Coastal Valleys												
	High Desert Valleys												
Colorado													
Florida	Limited Production												
Georgia													
Hawaii	Limited Production												
Illinois, Indiana, Iowa	Limited Production												
Idaho-Eastern Oregon													
Massachusetts, New Jersey, Pennsylvania	Limited Production												
Michigan													
Minnesota													
New Mexico													
New York													
Nevada													
North & South Carolina	Limited Production												
North Dakota													
Ohio													
Oregon West/Central													
Texas	Rio Grande Valley												
	Winter Garden												
Utah													
Washington	Columbia Basin												
	Walla Walla												
Wisconsin													

**FACT - Onion plants form a bulb in response to specific day lengths and latitude. This photoperiodic response is classified as short, intermediate or long day length varieties. Short-day onion plants can initiate bulb formation when day lengths reach 10 to 12 hours. Intermediate onions when day length is more than 14 hours, and long-day types require 14-16 hours of daylight. In the United States, short-day onions are grown in southern latitudes where it is sown in the fall or early winter. Bulb formation is in winter and harvest is in spring and early summer. Intermediate types are grown in middle latitudes as an over-wintered crop. They begin to bulb in spring and are harvested in late spring and early summer. Long-day onions are grown in the northern latitudes and sown in early spring. Bulb formation takes place during the summer months and harvest occurs in late summer and fall.**



### **ONION CONSUMPTION**

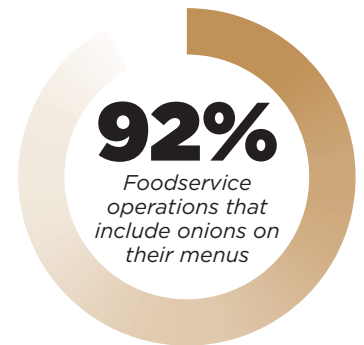
The average annual world consumption of onions is more than 13 pounds per person. Libya has the highest reported use of onions with an astounding average per capita consumption of 66 pounds.

U.S. per capita onion consumption has risen over 70 percent in the last two decades, from 12.2 pounds per person in 1982 to 20 pounds per person in 2010. This volume translates into more than 450 semi-truck loads of onions each day.

### **ONIONS ON THE MENU**

Onions are the most commonly mentioned vegetable on today's menus. More than 92 percent of all foodservice operations include onions on their menus.

Onions are ubiquitous on menus overall and are found on diverse menus including Thai, Greek, Indian, Tex-Mex, Mediterranean, Italian, African, Middle Eastern, Mexican, French and American cuisines.



"I crawled into the vegetable bin, settled on a giant onion and ate it, skin and all. It must have marked me for life for I have never ceased to love the hearty flavor of onions."

**-James Beard,**

*American cooking expert and author*

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## LESSON 2 - ONION TYPES, COLORS AND SIZES

### TYPES OF ONIONS

Onions can be divided into two categories: spring/summer and fall/winter.

#### Spring/Summer Onion Traits

- Availability: March through August
- Skin: one or two thin layers, often transparent and lighter in color, especially yellow varieties
- Water Content: high, which leads to a shorter shelf-life (30-60 days) and easier bruising
- Flavor: sweet to mild
- Best Uses: raw, pickled, lightly-cooked or grilled

#### Fall/Winter Onion Traits

- Availability: August through May
- Skin: multiple, thick, paper-like layers, darker in color, especially yellow varieties
- Water Content: lower than Spring/Summer, which leads to longer shelf-life (30-180 days)
- Flavor: mild to pungent
- Best Uses: raw, caramelized, roasted, grilled, fried or any dish with a long cook time

spring/summer  
(sweet) onions



fall/winter  
onions

### COLORS OF ONIONS

Bulb onions can be yellow, red or white.



**Yellow Onions** are well-suited for any application from raw to cooked. A reliable standby for cooking, they turn a rich, dark brown when caramelized and give French Onion Soup its tangy sweet flavor. Approximately 85 percent of the U.S. crop is devoted to yellow onion production.





**Red Onions** with their wonderful color are a good choice for fresh uses like pickling or marinating, and for grilling, charbroiling and roasting. The demand for red onions has increased in recent years. Eight to ten percent of the U.S. crop is red onions.



**White Onions** are often used in prepared salads, salsas, chutneys, white sauces and classic Mexican and Italian cuisine. They tend to have a sharper flavor than yellow onions, but when sautéed they yield a mild flavor. White onions account for five percent of the U.S. onion crop.

**ADDITIONAL LAYER: ONION TASTING BY COLOR**

Cut a yellow, red and white onion into large dices and place in individual containers.

Provide students with toothpicks and a tasting sheet. Have students taste each color and discuss the nuances of flavor and texture. Is there a distinct difference?

Consider cutting a yellow onion several hours in advance and then compare to freshly cut pieces. How does flavor vary based on time?

Ask students why a foodservice operation might desire one color of onion over another?

**ADDITIONAL LAYER: ONION BY SEASON**

Discuss how onions will vary depending on season. Which onion has a higher water content? Which onion will take longer to cook? Why?

**FACT - The flavor of a raw onion depends on the variety (genetic type and color), the time of year it was produced, soil type and growing conditions (e.g., plant stressors like heat, cold, drought, excessively wet, weeds, insects and disease).**

**ONION SIZES**

Onions range in size from less than one-inch in diameter to more than 4-1/2 inches in diameter. The most common sizes sold in the United States are Medium (2-to 3-1/4 inches in diameter) and Large/Jumbo (3 to 3-3/4 inches in diameter).



Size Designation	Diameter
Super Colossal	4-1/4" and Up
Colossal	3-3/4" and Up
Large/Jumbo	3" and Up
Medium	2" to 3-1/4"
Pre-pack	1-3/4" to 3"
Small	1" to 2-1/4"
Boiler	1" to 1-7/8"
Creamer (Pickler/Pearl)	Under 1"

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## LESSON 3 - ONION RECEIVING, HANDLING AND STORAGE

### RECEIVING ONIONS

Onions should feel firm and dry but may have some loose outer skins. Onions should be free of gray or black mold and should not have any visible signs of sprouting.

Always handle onions with care. Do not drop onions as this will cause bruising.

### STORING ONIONS

Keep onions dry, cool, away from direct sunlight, and in a well-ventilated area for optimum shelf-life. Maintain storage temperature between 45 and 70 degrees F or as instructed by your supplier.

Bags or boxes of onions should be stored at least one foot away from walls and other pallets to allow proper air movement. Do not wrap whole unpeeled onions in plastic or store in plastic bags. A lack of air circulation will reduce shelf life.

To avoid sprouting, keep onions out of direct sunlight.

Peeled and fresh-cut onions must be refrigerated and may be kept in a sealed container or in plastic bags. Always follow "use by" dates and the Food Code published by the U.S. Food and Drug Administration.

### ONION HANDLING AND STORAGE ATTRIBUTES

The quality and safety of onions is dependent upon proper handling and storage. Always follow the procedures and guidelines outlined by the U.S. Department of Agriculture, Food and Drug Administration Food Code, manufacturers label, or shipper's instructions.

Attributes	Spring/Summer Varieties	Fall/Winter Varieties
<b>On-farm Storage</b>	Typically not stored, the crop is packed and shipped at harvest, unless placed into controlled atmosphere or refrigeration. Up to 60 days	Stored for long periods, most of the crop is packed and shipped post-harvest. Up to 180+ days
<b>Retail Shelf-life</b>	30 days or less	
<b>Temperature</b>	Dry storage	
<b>Humidity</b>	Keep in a dry, well-ventilated place	
<b>Freezing Injury</b>	Moderately sensitive. Highest freezing point = 30.6°F or 0.8°C	More hardy compared to other varieties. Highest freezing point = 30.6°F or 0.8°C
<b>Odor Sensitivity</b>	Odors will be absorbed by apples, celery and pears. Will absorb odors produced by apples and pears.	
<b>Flavor Profile</b>	Sweet, mild, slightly pungent	Mild, full-flavored, very pungent
<b>Aroma</b>	Mild to slightly pungent	Mildly pungent to strong
<b>Colors</b>	Yellow, Red, White	
<b>Exterior Shell</b>	One or two thin layers, often transparent	Multiple layers of thick, paper-like skin
<b>Interior Onion Texture</b>	Soft to medium	Medium to firm

**FACT - Do not store onions near other produce such as apples, celery and pears. Apples, celery and pears can absorb odor from an onion. Likewise, onions can take on the odor of apples and pears.**

## ONION PACKAGING

Dry bulb onions are packaged in:

- Bags (2, 3, 5, 10, 25 and 50 lb.)
- Cartons (40 and 50 lb.)
- Industrial totes (2,000-2,200 lb.)



## FRESH CUT AND FROZEN ONIONS

Peeled, cut, and frozen products offer time and labor savings with little to no waste. Ready-to-use products have many applications in foodservice and industrial kitchens.

Fresh-cut onions are available in a variety of sizes and cuts including:

- Diced
- Rings
- Whole sliced
- Whole peeled
- Ready-to-bloom
- Slivered
- Pureed

Several different packaging options are available. Standard sizes range from a 40 pound box to a 2,200 pound industrial tote. Custom bagging is also available.

Individual Quick Frozen (IQF) onions are commonly available in the following cuts:

- Diced
- Rings
- Strips

Roasted, caramelized and custom seasoning formulas may be available from certain suppliers.

Fresh and frozen products have standard and custom packaging options including bags, trays, cartons and industrial totes. Standard and custom sizes are available. Check with suppliers for details.

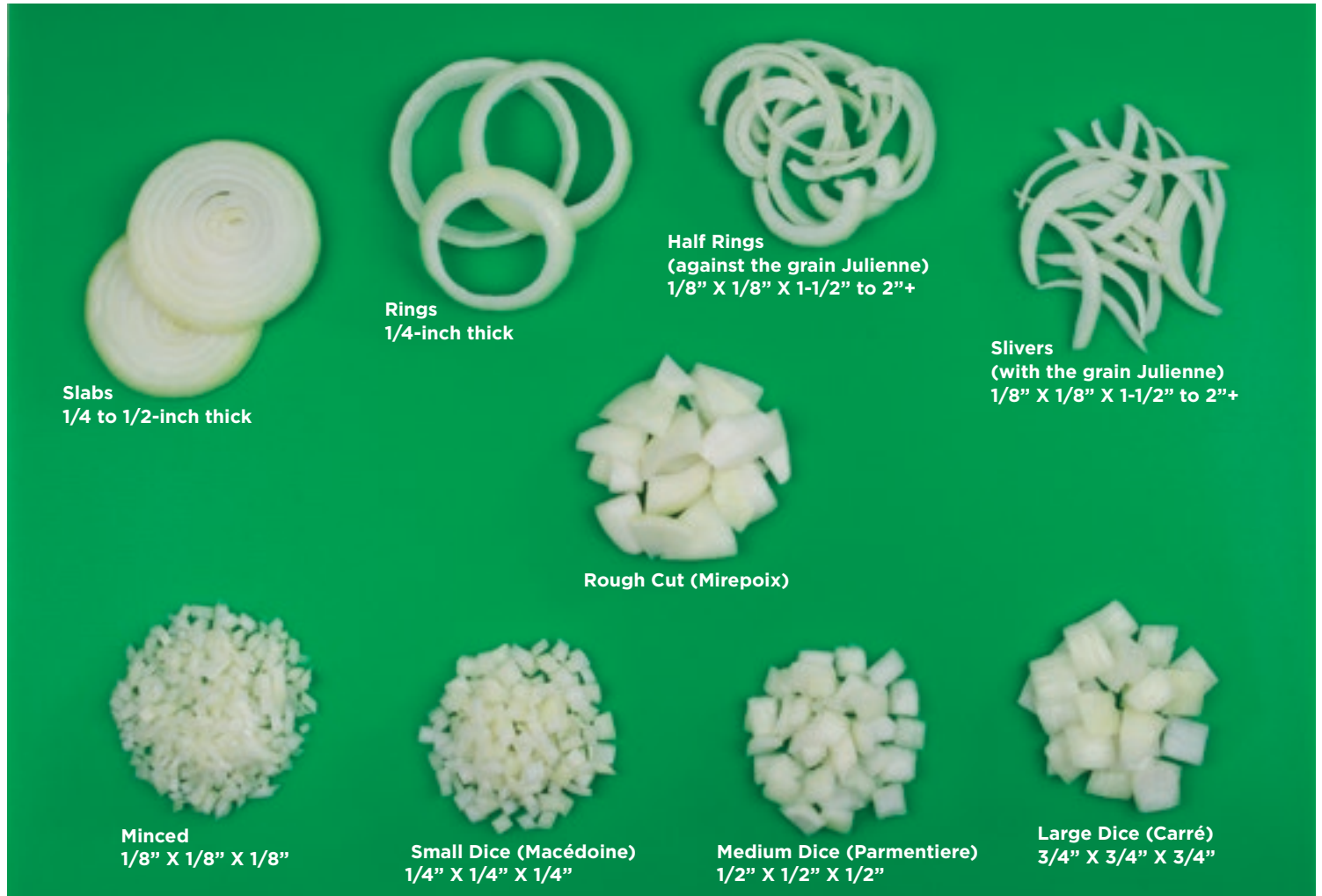
# Onions - Layers of Flavor

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## LESSON 4 - CUTTING ONIONS AND ONION YIELDS

### CUTTING ONIONS

So many great dishes start with the cutting of an onion. The image below shows common cuts of onions:



**FACT - Onion flavor deteriorates quickly after cutting.**

### ADDITIONAL LAYER: PRACTICE SLICING AND DICING ONIONS

Dicing an onion is routine in the professional kitchen. Diced onions are an ingredient in many dishes. Students should have a cutting board and a knife. Each student should peel an onion. Using proper knife technique, students should then cut an onion in half from root end to stem end. One half of the onion should be cut to make onion perpendicular slices or julienne onions. The other half should be used to make diced onions. (See How to Cut Onions sheet for steps and tips.)

# How to Cut Onions

## TO DICE



STEP 1

Cut off the stem/top of the onion. Peel off the outer layers of skin. Dispose of skin and trim root end if necessary. Make sure not to contaminate the cutting surface and clean the knife before proceeding.



STEP 2

Cut the whole peeled onion in half, from root end to stem end.



STEP 3

Place the onion halves onto the cutting surface cut-side down. For dicing and mincing, make evenly spaced lengthwise cuts from root end to stem end, leaving the root end intact.



STEP 4

Make one or two cuts through the width of the onion parallel to the cutting surface. Again, be sure to leave the root end intact.



STEP 5

Make crosswise cuts at the same intervals as the first parallel cuts, working from stem end towards the root end.



STEP 6

The more uniform the onion pieces, the more evenly they will cook. Standard Dice Cuts: large = 3/4-inch, medium = 1/2-inch, small = 1/4-inch. To mince, cut into fine pieces (1/8-inch or smaller).



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## To Cut Slices and Rings



For perpendicular slices (wedges), cut whole peeled onion in half from stem end to root end. Make evenly spaced cuts with the grain.



For onion rings, place a whole onion on its side and slice crosswise every 1/4 to 1/2-inch. Separate each slice into individual rings. Save the centers for dicing and mincing.

### TO REDUCE TEARING:

When an onion is pierced, a chemical reaction takes place releasing organosulfur compounds. These compounds may irritate the eye and cause tearing.

### TIPS:

- Chill onion about 30 minutes before cutting.
- Always use a sharp knife.
- Begin cutting at the top, leave root end uncut as long as possible as it contains the highest concentration of sulfur compounds.

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## ONION YIELD CHART

The following chart shows the approximate measurements for onions:

Onion Size	2-1/2"	3"	3-1/2"	4"	4-1/2"
Raw Onion Average Weight	4.34 ounces	7.27 ounces	11.09 ounces	16.17 ounces	21.62 ounces
Raw Onion Weight Range	3.71-5.33 ounces	6.26-9.23 ounces	10.06-12.32 ounces	15.00-18.06 ounces	20.85-22.07 ounces
Usable Peeled Onion Per Raw Onion Peeled Weight	73.54%	77.72%	78.54%	80.77%	81.64%
Peeled Onion Weight Range	2.47-4.86 ounces	4.81-7.84 ounces	7.7-10.11 ounces	11.46-15.64 ounces	15.90-18.96 ounces
Usable Onion Slabs (7/16") Range	3 -4 slabs	4 -5 slabs	4 -5 slabs	5 - 6 slabs	6 - 8 slabs
Usable Onion Rings (7/16" slabs separated into individual rings with diameter of more than 1") Range	12 - 19 rings	16 - 27 rings	24 - 38 rings	20 - 49 rings	38 - 59 rings
Usable Onion Slivers (1/8" horizontal slices) Per Raw Onion Weight	72.65%	72.36%	76.49%	79.55%	79.41%
Measure Diced Onions (3/8" pieces) Per Raw Onion Weight	2.47 cups per pound	2.71 cups per pound	2.74 cups per pound	2.79 cups per pound	2.82 cups pr pound
Measure Minced Onions (1/8" pieces) Per Raw Onion Weight	4.38 cups per pound	4.80 cups per pound	4.88 cups per pound	4.78 cups per pound	4.93 cups per pound

Source: Idaho Eastern Oregon Onion Yield Data/Menu Doctor LLC

### ADDITIONAL LAYER: ONION YIELDS

Approximately how many usable onion rings would you get from six 3-inch diameter onions? Why would you not use rings with less than 1-inch diameter for onion rings? What else might you use those pieces for?

## ONIONS AND TEARING

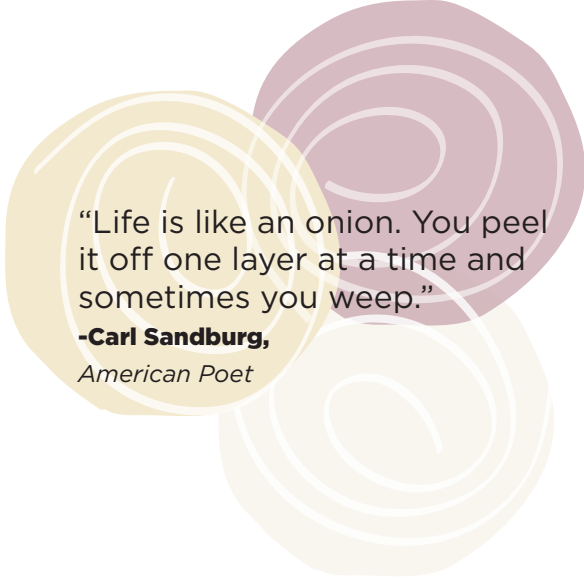
Have you ever cut an onion and started to cry?

Onions contain the chemical sulfur. Onions also have enzymes that speed up chemical reactions. These enzymes and the sulfur rest on opposite sides of the onions' cell walls until they are cut.

When an onion is cut, the sulfur and enzymes come in contact with each other and start a chain of chemical reactions. While you cannot see these reactions, you can feel the results when your eyes start to burn and tear. That's because new molecules are released and float up in the air. This compound reacts with the nerve cell membrane of the eye to form sulfuric acid and causes tearing.

To reduce tearing, follow these steps:

- Chill onion for 30 minutes before cutting. The reaction that takes place in onions is slowed down by a lower temperature.
- Always use a sharp knife.
- Begin cutting at the stem end; leave the root end uncut as long as possible as it contains the highest concentration of sulfur compounds.



“Life is like an onion. You peel it off one layer at a time and sometimes you weep.”

**-Carl Sandburg,**  
*American Poet*

# Onions - Layers of Flavor

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## LESSON 5 - ONION NUTRITION AND HEALTH BENEFITS

### ONION NUTRITION

Onions not only provide flavor, they also provide health-promoting phytochemicals as well as nutrients.

With only 45 calories per serving, onions are naturally fat and cholesterol free. They are a source of dietary fiber, Vitamin C, Vitamin B6, Potassium and other key nutrients including Folate, Calcium and Iron.

Onion Nutrition Facts	Serving Size 1 Medium Onion (148 g)	Percent Daily Values*
Calories	45	
Total Fat	0	0%
Cholesterol	0	0%
Sodium	5 mg	0%
Total Carbohydrate	11 g	4%
Dietary Fiber	3 g	12%
Sugars	9 g	
Protein	1.6 g	3%
Vitamin A	3 IU	0%
Vitamin C	11.8 mg	20%
Vitamin B6	0.2 mg	9%
Folate	28.5 mcg	7%
Calcium	36.8 mg	4%
Iron	.3 mg	2%
Magnesium	15 mg	4%
Phosphorus	43.5 mg	4%
Potassium	190 mg	5%
Zinc	0.3 mg	2%
Copper	0.1 mg	3%
Manganese	0.2 mcg	10%
Selenium	0.7 mcg	1%

\*Percent(%) Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

Source: Food and Drug Administration (FDA)

## ONION HEALTH BENEFITS

Plant-based foods not only contain vitamins, minerals and fiber, they also contain phytonutrients (phytochemicals). Plants produce these compounds naturally to protect themselves against bacteria, fungi, viruses, insects, drought and the sun. Phytonutrients also provide plants with their unique aroma, color, texture and flavor. More than 25,000 phytonutrients have been discovered by scientists.

Two of the phytonutrient classes studied in onions include flavonoids and sulfides/thiols. One common flavonol in onion that researchers have associated with health benefits is quercetin. The research is new, and more studies are needed to create a significant, reliable body of science; however, the initial findings indicate quercetin functions as a powerful anti-inflammatory. Foods that reduce inflammation protect against cardiovascular disease, cancer, diabetes, obesity and other chronic illnesses.

Onion is also a rich source of sulfides/thiols, specifically allyl sulfides that support heart, immune and digestive health. The combination of phytonutrients found in onions is thought to be part of the reason they are effective in preventing many forms of cancer.

Visit [www.onions-usa.org/all-about-onions/onion-health-research](http://www.onions-usa.org/all-about-onions/onion-health-research) for an in-depth look at the various research studies.

**FACT - Onions have been valued throughout history for their healing powers. The Greeks used onions to fortify athletes for the Olympic Games.**

# Onions - Layers of Flavor

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## LESSON 6 - PREPARATION METHODS FOR ONIONS

Onions are versatile and appear in a wide range of menu items – from soups to salads to burgers and sandwiches to entrées. And of course, onion rings and blooms remain popular appetizers.

The flavor of onions can be enhanced by grilling, sautéing and caramelizing. Dishes with golden caramelized onion tend to earn a higher menu price. In a recent menu survey, entrée items with caramelized onions averaged \$1.80 more per item than onions menued without a noted preparation method.\*

\*Source: Menu Trends DIRECT Onion Study July 2010, Datassential



### RAW ONIONS

Raw onions – sliced, diced or minced – are used in salsas, salads and as condiments for burgers and sandwiches.

**Recipe Link:** [Garden Breakfast Focaccia](#)

### SWEATING ONIONS

Sweating is the gentle heating of vegetables over low heat in order to soften them without browning. A little fat is used to begin the cooking process and the pan is covered during cooking so the ingredients retain some of their natural moisture. Sweating results in tender, translucent onion pieces.



### SAUTÉING ONIONS

Sautéing is quickly cooking an item in a small amount of hot fat over high heat. In French, the word sauté means “to jump.” Onions are often tossed or flipped in a pan to make them jump to ensure even cooking without burning them.

**Recipe Link:** [Onion White Bean Sauté Gremolata](#)







### CARAMELIZING ONIONS

Caramelization is the browning that occurs when the naturally present sugars of the onion are heated to the appropriate temperatures, which creates a rich, complex aroma, flavor and brown color. To caramelize, slowly cook onions in a small amount of fat. The exact time needed will vary based on water content and cut of onions as well as volume.

**Recipe Link:** [Spicy Onion Panini with Basil and Roasted Red Pepper](#)

### Caramelized Onion Volumes

	Raw Weight	Caramelized Weight	Caramelized Volume*	Approx. Temperature & Cook Time
<b>1 cup diced</b>				
1/8-inch	6.6 ounces	2.1 ounces	1/2 cup	235°F / 8:30 minutes
1/4-inch	4.7 ounces	1.4 ounces	1/4 cup	260°F / 10:41 minutes
1/2-inch	4.5 ounces	1.5 ounces	1/2 cup	260°F / 9:78 minutes
3/4-inch	4.3 ounces	1.6 ounces	1/2 cup	255°F / 9:10 minutes
<b>Julienne</b> 1/8 x 1/8 x 1-1/2 inches	4.4 ounces	2.1 ounces	2/3 cup	230°F / 11:04 minutes

\*Volumes are approximate.

#### ADDITIONAL LAYER: CUT AND CARAMELIZATION

How does the cut of the onion affect caramelization? Compare caramelization of diced onions to julienne onions cut with the grain and against the grain. Which cut would be best for stews and soups? Which cut would be best for topping an entrée? When would a combination of cuts work well?

#### ADDITIONAL LAYER: COMPARING SWEATING, SAUTEING AND CARAMELIZING

Compare sweating, sautéing and caramelizing of onions. How does each technique impact the color, texture and flavor of onions? Discuss how each could best be showcased in a menu item.

**FACT - A mirepoix (pronounced mir-pwah) is a mixture of diced vegetables - 50 percent onions, 25 percent celery and 25 percent carrots. Mirepoix (raw, roasted or sautéed) is the flavor base for a wide variety of dishes.**

# Steps to Caramelizing Onions

Caramelizing brings out the naturally sweet flavor of onions. The key is to cook them slowly at the right temperatures. The result? A savory ingredient to use in soups and sauces or to top sandwiches, pizzas, steaks and chops.



STEP 1

Onions may be diced or cut in julienne slices with the grain or against the grain for caramelizing. The cut will alter cooking time and texture, see sidebar for details. In the following steps, onions cut with the grain are shown.

**TIP:** The all-purpose yellow onion is best for cooking.



STEP 2

Add a small amount of oil or butter to coat the bottom of a sauté pan. Place onions in pan. Over low heat, sweat the onions by covering the pan with a lid to keep the onions moist and slow down browning.



STEP 3

When onions are soft and translucent, uncover the pan, and increase heat to medium. Sauté until onions on the bottom of the pan start to brown.

**TIP:** If the onions start to look dry or stick to the pan, add small amounts of water to moisten and dissolve the burning sugars.



STEP 4

Lower the heat and continue to cook slowly, stirring occasionally until the onions are limp and have turned dark golden brown.

**TIP:** The thicker the cut, the lower the heat should be in the final stage of caramelizing.



STEP 5

Serve caramelized onions warm as a savory side or use in pastas, sauces and soups or to top your favorite steak or chop.

**TIP:** Caramelized onions can be prepared ahead and refrigerated up to 5 days in an airtight container.



## Caramelization

### What causes onion texture, color & flavor to differ?

Sautéed and caramelized onions have a noticeably different texture, color and flavor. Full caramelization happens when the naturally present sugars oxidize. Onions contain sucrose which is a disaccharide. When heat is applied, sucrose breaks into fructose and glucose (both monosaccharides). Fructose begins to caramelize at 230°F and glucose begins to caramelize at 320°F. Fructose causes the highest degree of color development.

The cut of onion also affects texture. When identifiable onion texture is desired, cut with the grain. Or, skip sweating and start by sautéing on medium heat. For less noticeable texture (i.e. for thickening soups, sauces) and added depth of flavor use onions cut against the grain. A combination of cuts may be desirable in some dishes (i.e. French onion soup).

Caramelization takes time - exactly how much time will vary based on the water content, cut of the onion and the volume.

- Spring/summer varieties are higher in water content, which will increase the cook time in comparison to fall/winter varieties.

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### **BROILING/GRILLING ONIONS**

Broiling is a dry heat method where food is cooked directly under or over a heat source. Grilling is a dry heat cooking method where food is cooked on open grates above a direct heat source. A broiler or grill is typically scraped clean and seasoned with fat to prevent food from sticking.

Broiling and grilling are both fast methods for cooking onions.

Onions may be sliced or cut into wedges for broiling or grilling. Broiled or grilled onions add a savory flavor to salsas, relishes and sandwiches.

**Recipe Link:** [Grilled Balsamic Onions with Bleu Cheese Crumbles](#)

### **MARINATING ONIONS**

Marinating is the process of soaking foods in a seasoned, often acidic, liquid before cooking. Marinating adds flavor to the food.

**Recipe Link:** [Avocado Citrus Salad with Marinated Onion](#)



### **PICKLING ONIONS**

Pickling is the saturation of fruits or vegetables with acid, usually vinegar, in order to preserve them. Pickled onions are used in salads and as a topping for sandwiches and tacos.

**Recipe Link:** [Pickled Ginger Onion Relish](#)

### **ROASTING ONIONS**

Roasting is a dry-heat method where food is surrounded by hot air. Roasted onions are an easy-to-prepare side dish. Onions may also be placed beside a large cut of meat while roasting.

**Recipe Link:** [Paella Prawn Salad with Roasted Onions](#)







### STUFFED ONIONS

Onions may be used to hold a variety of ingredients. Hollowed out raw onion bulbs may be used to hold dips or may be stuffed and baked or roasted.

**FACT - An onion pique is a half of an onion studded with cloves and a bay leaf. Onion piques are traditionally used in béchamel (pronounced bay-shah-mehl) sauce and sometimes found in other traditional French recipes.**

**FACT - The term “holy trinity” is sometimes used to describe the Creole version of mirepoix - a chopped mixture of onions, celery and bell pepper sautéed in a small amount of fat and used as the base in many Cajun dishes.**

### DEEP FRYING ONIONS

From rings to blooms, deep fried onions remain a popular appetizer and side dish.

Deep fried onions are coated with a breading or a batter before frying. This helps to seal in the moisture of the onions and keeps them from becoming too greasy. With breading, the onions are first dredged in flour and then dipped into a combination of beaten eggs and a liquid and finally dipped into bread crumbs. With battering, the onions are dredged in a flour mixture and then dipped into a liquid batter.

See sheets on following pages with steps for making battered onion rings and breaded onion rings.

**FACT - The water content of onions can affect the fry time. As a general rule, spring/summer onions have a higher water content than fall/winter onions and thus will require a longer fry time.**

“If you hear an onion ring,  
answer it.”

**-Anonymous**

# Onion Rings Understood

Crispy on the outside and tender on the inside, onion rings are a popular appetizer, side dish or a fun topping on soups, salads and burgers. Onion rings can be made using a breading or battering technique. The following are basic steps for both techniques to making perfect onion rings. Experiment with the breading, batter or the dipping sauce to create a signature item.



## BREADED ONION RING STEPS



**STEP 1 & 2**  
Preheat oil to 365 degrees F/185 degrees C.  
Peel 2 large yellow onions. Slice crosswise to make 1/4 to 1/2-inch thick slices. Gently separate into individual rings, rinse with water and drain the excess. (Keep moist if preparing in advance.)



**STEP 3**  
Whisk together 2 cups whole milk, 2 large eggs, 2 teaspoons Kosher salt and 1 cup all-purpose flour until smooth.  
**NOTE:** Add paprika to flour mixture for extra color and flavor. For extra spice, add a pinch of cayenne pepper.



**STEP 4**  
Sift together 2 cups all-purpose flour, 1 teaspoon double acting baking powder. Lightly toss onions in flour mixture until fully coated; pat off excess flour.



**STEP 5**  
Drop onions into egg mixture and gently toss to coat evenly. (Stir egg mixture occasionally to keep flour mixed in.)



**STEP 6**  
Lift onions out of egg mixture and transfer into 4 cups of breadcrumbs.



**STEP 7**  
Gently toss onions in breadcrumbs to coat evenly.  
**NOTE:** Having plenty of breadcrumbs to work with is needed to secure an even coating.



**STEP 8**  
Deep fry in preheated oil, turning occasionally (every 30-45 seconds) until golden brown.  
**NOTE:** Frying time will vary depending on water content of the onions. More water equals more fry time. Spring/summer varieties tend to be higher in water content.



**STEP 9**  
Remove onion rings from oil and drain.



**STEP 10**  
Serve onion rings warm with your favorite dipping sauce.

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## BATTERED ONION RING STEPS



**STEP 1 & 2**

Preheat oil to 350 degrees F/177 degrees C.  
Peel 2 large yellow onions and slice crosswise to make 1/4 to 1/2-inch thick slices. Gently separate into individual rings, rinse with water and drain the excess. (Keep moist if preparing in advance.)



**STEP 3**

Sift 2-1/2 cups flour with 1 cup cornstarch and 2 teaspoons double acting baking powder. Mix in 2 teaspoons of kosher salt and 1 teaspoon ground black pepper. Whisk in 3 cups of beer or club soda and 1/2 cup water into the flour mixture until smooth. Let the batter rest for 5 minutes before using to ensure proper thickness.

**NOTE:** Beer batter tends to brown faster than club soda batter.



**STEP 4**

Sift 2 cups all-purpose flour. Lightly toss onions in flour until fully coated; pat off excess flour.



**STEP 5**

Dredge onions in batter to coat evenly.



**STEP 6**

Deep fry onion rings in preheated oil, turning occasionally (60 to 90 seconds), until golden brown.

**NOTE:** Frying time will vary depending on water content of the onions. More water equals more fry time. Spring/summer varieties tend to be higher in water content.



**STEP 7**

Remove onion rings from oil and drain.



**STEP 8**

Serve onion rings warm with your favorite dipping sauce.

### ONION RINGS TIPS

1. When cut 1/4 to 1/2-inch thick, onions will be tender on the inside and crispy on the outside.
2. Use one utensil (or hand) to coat onion rings with dry ingredients and another for the wet ingredients.
3. For a light, airy batter use beer, club soda or another low-sugar carbonated liquid. When using club soda and other bland liquids, more seasoning may be required.
4. Cornstarch does not brown as fast as flour, but is void of gluten. Using a 2.5 to 1 ratio of flour and cornstarch will help the batter adhere better to the onion and result in a finer textured, crisp, golden crust.

# Onions - Layers of Flavor

Culinary Curriculum from the National Onion Association

## GLOSSARY OF ALLIUM TERMS

**Allium** - the plant genus of onion which includes chive, garlic, leek, scallion and shallot. Alliums belong to the lily family; it is a diverse genus with edible and ornamental species.

**Allium Cepa** - cepa is Latin for onion and refers to the species of allium. There are hundreds of Allium species and even more cultivars or specific varieties. Allium cepa is the third largest fresh vegetable crop in the United States, the second most diversely consumed vegetable in the world, and the most widely traded raw vegetable on the globe.

**Bermuda** - a cultivar of onion in its original form that no longer exists in the United States. Many hybrid varieties have Bermuda genetics. Bermuda as a term is still used in USDA Grade Standards.

**Cipollini** - (pronounced chip-oh-lee-knee) small, flat onion with a sweet, yet developed allium flavor without being sharp. Cipollinis store well and can be used as a side dish, in stews or as a flavoring in sauces. Meant to be eaten whole, they are most often pickled or marinated in balsamic vinegar.

**Fresh Onion** - synonymous for spring/summer onions harvested in the United States and available March through August. Fresh onions have one to two thin layers of skin, often transparent and lighter colored, especially the yellow varieties. They have a shorter shelf life and higher water content (lower dry matter) than varieties available at other times of the year.

**Green Onion** - plant with straight, hollow green leaves, a white shaft with no bulb. Produced from Allium fistulosum or cepa cultivars, both green and white parts are edible. They have a mild onion flavor and are usually eaten raw or used for garnish. (Often called scallions and bunching onions.)

**Onion Powder** - finely ground dehydrated onion.

**Onion Salt** - onion powder combined with salt.

**Pearl Onion** - onions measuring less than one-inch in diameter, they often have a mild flavor and are served as a side dish or pickled. (Also called Creamer Onion.)

**Scallion** -see Green Onion.

**Sweet Spanish** - large, globe-shaped onion with genetic origins in Spain. These varieties have fewer papery layers, store well, and tend to be mild, yet offer classic onion flavor.

**Spring Onion or Mexican Green Onion** - green onions with a small immature bulb typically used for grilling, but suited for long simmering. Like a green onion, both green and white parts are edible. (Also called a BBQ Onion.)

**Storage Onion** - synonymous for fall/winter onions harvested in the United States and available August through May. Storage onions have multiple layers of thick, paper-like skin that can be darker in color, especially the yellow varieties. They have a longer shelf life and lower water content (higher dry matter) than varieties available at other times of the year. (Also referred to as a cooking onion.)

**Sweet** - term used to describe the mildest varieties of onions. Many specialty onions are grown for this characteristic. A few U.S. trade names include Maui, Vidalia and Walla Walla.

# Onions - Layers of Flavor

Culinary Curriculum from the National Onion Association

## APPENDIX

### ABOUT THE NATIONAL ONION ASSOCIATION - THE VOICE OF THE ONION INDUSTRY

The National Onion Association is the official organization representing growers, shippers, brokers and commercial representatives of the U.S. onion industry. Founded in 1913, the association is the source of information about onion production, their health benefits and numerous culinary uses. For more information contact:

#### National Onion Association

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Greeley, CO 80631  
(970) 353-5895

[www.onions-usa.org](http://www.onions-usa.org)



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#### ADDITIONAL RESOURCES

USDA Grades of Onions - [www.ams.usda.gov/grades-and-standards/onions](http://www.ams.usda.gov/grades-and-standards/onions)

FDA Nutrition Information for Raw Fruits, Vegetables, and Fish

[www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm063367.htm](http://www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm063367.htm)

Food Safety

<https://www.onions-usa.org/foodservice/receiving-handling-and-storage>

<http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm253380.htm>