

Lesson 3 - Mango Variety, Availability & Ripeness Levels

Objectives: After completing this lesson students will be able to:

- Identify six major fresh mango varieties available in the U.S.
- Understand that fresh mangos are available in the U.S. year-round
- Describe the key differences of green, ripe and very ripe mango
- Understand how fresh mango, at different ripeness levels, interacts with other ingredients

Lesson Plan

Topic	Suggested Activity	Suggested Time
Mango Varieties & Ordering	Lecture/Discussion	5 minutes
Mango Availability	Lecture/Discussion	5 minutes
Mango Ripeness & Sensory Characteristics	Lecture/Discussion Class Activity: Mango Spices & Ripeness tasting and clean up	5 minutes 45 minutes

* The *Fresh Mango – The Basics for Foodservice* video supports information found in Lessons 2 and 3 of this curriculum. (mango.org/foodservice/culinary-education)



Ordering Fresh Mango

- Restaurants typically order fresh whole mangos from produce, specialty or broadline distributors.
 - Some suppliers pre-condition whole mangos to the ripeness level requested.
 - Some suppliers offer fresh-cut mango in a variety of forms (cheek, cube, baton) with a fresh shelf life of up to 28 days.
- The National Mango Board maintains an interactive database of fresh mango suppliers. (mango.org/foodservice/find-supplier)
 - Suppliers can be located by type of supplier, country and volume.

Mango Varieties

- Over 1,000 varieties of mangos grow throughout the world.
- Most of the mangos sold in the U.S. are one of six varieties: Ataulfo, Francis, Haden, Keitt, Kent, Tommy Atkins.
- While generally interchangeable in recipes, each mango variety differs in size, color, flavor and texture.

ATAULFO

Flavor: Sweet and creamy

Texture: Smooth, firm flesh with no fibers

Color: Vibrant yellow

Shape: Small, flattened oval shape

Ripening Cues: Skin turns to a deep golden color and small wrinkles appear when fully ripe. Squeeze gently to judge ripeness.

Primary Source Country: Mexico



FRANCIS

Flavor: Rich, spicy and sweet

Texture: Soft, juicy flesh with fibers

Color: Bright yellow skin with green overtones

Shape: Oblong and sigmoid S-shape

Ripening Cues: Green overtones diminish and the yellow becomes more golden as the Francis ripens. Squeeze gently to judge ripeness.

Primary Source Country: Haiti



HADEN

Flavor: Rich, with aromatic overtones

Texture: Firm flesh due to fine fibers

Color: Bright red with green and yellow overtones and small white dots

Shape: Medium to large with an oval to round shape

Ripening Cues: Green areas of the mango turn to yellow as it ripens. Squeeze gently to judge ripeness.

Primary Source Country: Mexico



KEITT

Flavor: Sweet and fruity

Texture: Firm, juicy flesh with limited fibers

Color: Dark to medium green, sometimes with a pink blush over a small portion of the mango

Shape: Large oval shape

Ripening Cues: Skin stays green even when ripe. Squeeze gently to judge ripeness.

Primary Source Countries: Mexico, United States



KENT

Flavor: Sweet and rich

Texture: Juicy, tender flesh with limited fibers

Color: Dark green and often has a dark red blush over a small portion of the mango

Shape: Large oval shape

Ripening Cues: Kents have yellow undertones or dots that cover more of the mango as it ripens. Squeeze gently to judge ripeness.

Primary Source Countries: Mexico, Ecuador, Peru



TOMMY ATKINS

Flavor: Mild and sweet

Texture: Firm flesh due to fibers throughout

Color: A dark red blush often covers much of the fruit with green and orange-yellow accents

Shape: Medium to large with oval or oblong shape

Ripening Cues: This mango may not provide any visual cues. Squeeze gently to judge ripeness.

Primary Source Countries: Mexico, Guatemala, Brazil, Ecuador, Peru



Year-round Mango Supply by Variety

A variety of source countries contribute to a year-round supply of fresh mangos.

Availability

Variety	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Ataulfo			Some Availability	Peak Availability	Peak Availability	Peak Availability	Peak Availability	Some Availability				
Francis				Some Availability	Peak Availability	Peak Availability	Peak Availability	Some Availability				
Haden		Some Availability	Peak Availability	Peak Availability	Peak Availability	Some Availability	Some Availability					
Keitt							Some Availability	Peak Availability	Peak Availability	Some Availability		
Kent	Some Availability	Peak Availability	Peak Availability	Some Availability		Some Availability	Peak Availability	Peak Availability	Some Availability			
Tommy Atkins	Peak Availability	Some Availability	Some Availability	Peak Availability	Peak Availability	Peak Availability	Peak Availability	Some Availability	Some Availability	Peak Availability	Peak Availability	Peak Availability



Peak Availability



Some Availability

Mango Ripeness Levels and Sensory Characteristics

RIPENESS	FIRMNESS	TEXTURE	COLOR	TASTE/AROMA
Green	Firm	Crisp	Pale green to yellow	Tart/faint scent
Ripe	Slight give to light	Slightly soft, juicy	Yellow to orange	Sweet, slightly sour/delicate floral scent
Very Ripe	Soft	Soft, very juicy	Deep yellow to orange	Very sweet/ very aromatic

Mango Spices & Ripeness Tasting Exercise

The Mango Spices & Ripeness exercise combines tasting mango at different ripeness levels with a variety of spice combinations to bring out the subtle nuances of each pairing.

- Mangos can be used in recipes at all ripeness levels in a variety of dishes.
- Ripeness level will affect the flavor and texture of the mango and will change how it interacts with the spices and other ingredients in recipes.
 - Ripe mango is the most popular ripeness level used in foodservice; the flavor can be described as the perfect mixture of sweet and sour, a delicate blend of peach, pineapple and apricot.

Tasting Exercise Set-up

- For each person:
 - Plate
 - Tasting spoons/toothpicks
 - Containers with 3 cubes each of green, ripe and very ripe mango
 - Containers with 1 lemon wedge and 2 lime wedges
 - Tasting notes page
- For each person or for sharing, containers with:
 - Salt
 - Chili powder
 - Garam Masala
 - Macadamia nuts, toasted or untoasted
 - Golden raisins
 - Shredded coconut, sweetened

FAST FACT ABOUT FIBERS

- When it comes to cooking with fresh mango, the most notable difference is the amount of fiber.
- A ripe mango with more fibers will stand up better for grilling, and fibrous mangos need to be strained for smooth sauces and drinks.

INSTRUCTOR NOTES

- Conduct the tasting in order of mango ripeness levels.
- Discuss how spices enhance the flavor of fresh mango at the different stages of ripeness.
- Ask students to imagine how the combinations will complement other ingredients in recipes, e.g. roasted or grilled chicken in an appetizer, a sandwich, an entrée.
- Consider using the Spices & Ripeness Experience video (10 minutes) http://www.mango.org/sites/default/files/download/Foodservice/foodservice_downloads_spices_and_ripeness_0.pdf for the class activity or for students to use as a self-guided tasting.

Mango Spices & Ripeness Experience - Tasting Notes

UNRIPE MANGO	RIPE MANGO	VERY RIPE MANGO
Squeeze of one wedge of lime and pinch of kosher salt, stir to combine and taste	Squeeze of one wedge of lime and pinch of chili powder, stir to combine and taste	Squeeze of one wedge of lime and pinch of chili powder, stir to combine and taste
Tasting Notes:	Tasting Notes:	Tasting Notes:
Squeeze of one wedge of lime and pinch of chili powder, stir to combine and taste	Pinch of Garam Masala, stir to combine and taste	Pinch of Garam Masala, stir to combine and taste
Tasting Notes:	Tasting Notes:	Tasting Notes:
Pinch of Garam Masala, stir to combine and taste	Teaspoon each macadamia nuts, rasins and coconut, stir to combine and taste	Teaspoon each macadamia nuts, rasins and coconut, stir to combine and taste
Tasting Notes:	Tasting Notes:	Tasting Notes:

QUIZ/REVIEW QUESTIONS

1. Fresh mango can be ordered whole and fresh-cut.
TRUE or FALSE
2. Which mango variety is available the most months of the year?
 - a. Keitt
 - b. Haden
 - c. Tommy Atkins
3. Which mango variety has no fibers?
 - a. Ataulfo
 - b. Kent
 - c. Francis
4. Which country exports the most mangos to the U.S.?
 - a. Mexico
 - b. Brazil
 - c. Peru
5. All mango varieties are fibrous.
TRUE or FALSE
6. The flavor of a green mango is tart.
TRUE or FALSE
7. The texture of a ripe mango can be described as:
 - a. Crisp
 - b. Slightly soft, juicy
 - c. Soft, very juicy
8. The texture of a very ripe mango is crisp.
TRUE or FALSE.
9. Ripe mango is the most popular ripeness level used in foodservice.
TRUE or FALSE
10. Spices can enhance the mango's flavor at all stages of ripeness.
TRUE or FALSE



QUIZ/REVIEW ANSWERS

1. TRUE
2. c. Tommy Atkins
3. a. Atalupo
4. a. Mexico
5. FALSE
6. TRUE
7. b. Slightly soft, juicy
8. FALSE
9. TRUE
10. TRUE



mango.org/foodservice