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

<table>
<thead>
<tr>
<th>Topic</th>
<th>Suggested Activity</th>
<th>Suggested Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mango Varieties &amp; Ordering</td>
<td>Lecture/Discussion</td>
<td>5 minutes</td>
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<tr>
<td>Mango Availability</td>
<td>Lecture/Discussion</td>
<td>5 minutes</td>
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<tr>
<td>Mango Ripeness &amp; Sensory Characteristics</td>
<td>Lecture/Discussion, Class Activity: Mango Spices &amp; Ripeness tasting and clean up</td>
<td>5 minutes 45 minutes</td>
</tr>
</tbody>
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* 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.

<table>
<thead>
<tr>
<th>Availability</th>
<th>January</th>
<th>February</th>
<th>March</th>
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<th>June</th>
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<td>Tommy Atkins</td>
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Peak Availability | Some Availability
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](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

<table>
<thead>
<tr>
<th>UNRIPE MANGO</th>
<th>RIPE MANGO</th>
<th>VERY RIPE MANGO</th>
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</thead>
<tbody>
<tr>
<td>Squeeze of one wedge of lime and pinch of kosher salt, stir to combine and taste</td>
<td>Squeeze of one wedge of lime and pinch of chili powder, stir to combine and taste</td>
<td>Squeeze of one wedge of lime and pinch of chili powder, stir to combine and taste</td>
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<tr>
<td><strong>Tasting Notes:</strong></td>
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<tr>
<td>Squeeze of one wedge of lime and pinch of chili powder, stir to combine and taste</td>
<td>Pinch of Garam Masala, stir to combine and taste</td>
<td>Pinch of Garam Masala, stir to combine and taste</td>
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<td><strong>Tasting Notes:</strong></td>
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<td><strong>Tasting Notes:</strong></td>
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<tr>
<td>Pinch of Garam Masala, stir to combine and taste</td>
<td>Teaspoon each macadamia nuts, rasins and coconut, stir to combine and taste</td>
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<td><strong>Tasting Notes:</strong></td>
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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. Ataluo
4. a. Mexico
5. FALSE
6. TRUE
7. b. Slightly soft, juicy
8. FALSE
9. TRUE
10. TRUE