Pepper

- *Capsicum annuum* ("annual" growing plant)
  - Most commercially important peppers belong to this species
- *Capsicum chinense* ("from China" – misnomer)
  - Habanero pepper
- *Capsicum frutescens* ("bushy" or "shrubby" plant growth)
  - Tabasco pepper
- *Capsicum pubescens* ("hairy-like")
  - Distinct form; will not readily cross with other Capsicum species
  - Rocoto peppers

**Pepper**

- Not related to black pepper (*Piper nigrum*)
  - But that’s how it got its name
- Center of Origin:
  - Pungent types: South America (Southern Brazil to Bolivia)
  - Non-pungent types: Central America to Southern Mexico
- Warm season, self-pollinated, perennial

**Pepper**

- Types:
  - Bell group
    - Most are non-pungent
    - Includes Pimientos as sub-group
  - Anaheim group
    - Most are mild pungent, but some are non-pungent
    - Includes Ancho & Paprika
  - Jalapeño group
    - Pungent (new varieties are mild-pungent)
  - Cherry group
    - Pungent or non-pungent
  - Wax group
    - Yellow mature color; Pungent or non-pungent
  - Tabasco group
    - Very pungent; most are processed
  - Habanero group
    - Most pungent commercial pepper
Pepper Industry

- **Bell Peppers**
  - Most common form in US
  - ~2/3 of total US production
- **Anaheim peppers**
  - ~15% of total US production
- **Pimiento peppers**
  - ~5% of total US production
- **Jalapeño peppers**
  - ~4% of total US production
- **Others considered “specialty” types**

Scoville Units

- Named after Wilbur Scoville
- Method to measure the heat level of a chile pepper
- A dilution-taste procedure:
  - Scoville blended pure ground chilies with a sugar-water solution and a panel of testers then sipped the concoctions, in increasingly diluted concentrations, until they reached the point at which the liquid no longer burned the mouth
  - A number was then assigned to each pepper based on how much it needed to be diluted before you could taste no heat (parts of sugar water to parts of pepper)

<table>
<thead>
<tr>
<th>Chile Pepper</th>
<th>Heat Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet Bell</td>
<td>0</td>
</tr>
<tr>
<td>Peppersicum</td>
<td>10 – 500</td>
</tr>
<tr>
<td>Habanero</td>
<td>1,000 – 2,000</td>
</tr>
<tr>
<td>Serrano</td>
<td>1,000 – 2,000</td>
</tr>
<tr>
<td>Mexican</td>
<td>500 – 2,500</td>
</tr>
<tr>
<td>Jalapeno</td>
<td>2,500 – 4,000</td>
</tr>
<tr>
<td>Chipotle</td>
<td>5,000 – 8,000</td>
</tr>
<tr>
<td>Hot Wax</td>
<td>5,000 – 10,000</td>
</tr>
<tr>
<td>Arbol</td>
<td>8,000 – 22,000</td>
</tr>
<tr>
<td>Tabasco</td>
<td>50,000 – 50,000</td>
</tr>
<tr>
<td>Cayenne</td>
<td>50,000 – 50,000</td>
</tr>
<tr>
<td>habanero</td>
<td>40,000 – 50,000</td>
</tr>
<tr>
<td>Su</td>
<td>10,000 – 100,000</td>
</tr>
<tr>
<td>Carolina Requena</td>
<td>100,000 – 1,000,000</td>
</tr>
<tr>
<td>Habanero</td>
<td>100,000 – 300,000</td>
</tr>
<tr>
<td>Hot Sauce Red Chile</td>
<td>50,000 – 280,000</td>
</tr>
<tr>
<td>Pure Capsaicin</td>
<td>15,500,000 – 16,000,000</td>
</tr>
</tbody>
</table>
Bell Peppers

- Large, blocky & blunt
- Green immature, can be red, yellow, orange, brown or purple when mature
- Nutrient content usually greater in mature (colored) fruit
- Uses: Mostly fresh (salads, cooking ingredients), but also mild salsa
Pablano Peppers

- Pablano (Fresh) & Ancho (Dried)
- Most popular pepper in Mexico
- Heat Index: Mild to Medium
- Scoville Units: 2,500-3,000
- Uses
  - Fresh: Chili Relleno
  - Dried: Sauces & Powders

Jalapeño Peppers

- Round, cylindrical, tapering shape
- Green immature, mature usually red, but can be yellow or orange.
- Heat Index: 2,500 - 5,000 Scoville Units
- Uses: Salsa, preserves, multiple dishes
- Chipotle: Dried, smoked, red Jalapeño
- Name comes from Jalapa, Mexico

Serrano Peppers

- Round, cylindrical, tapering shape, smaller than Jalapeño
- Green immature, mature usually can be red, yellow, orange or brown
- Heat Index: 10,000 - 25,000 Scoville Units
- Uses: Salsa, preserves, multiple dishes
- Name comes from ‘foothills’ of Puebla, Mexico
Tabasco pepper
*Capsicum frutescens*
Tabasco Peppers

- Small, round, cylindrical shape
- Light green immature, maturing to yellow, then orange and finally red
- Heat Index: 30,000 - 50,000 Scoville Units
- Uses: Tabasco Sauce
- A soldier fighting in the Mexican War in the mid-1800's returned to Louisiana with some seeds from the Mexican state of Tabasco
Habanero Peppers

- Lantern-shaped, round or oblong, with a pointed apex
- Green maturing to yellow-orange, orange or bright red
- Hottest commercially available pepper
  - Scoville units: 100,000 – 300,000
- Uses: Sauces, salsas, preserves
Capsicum pubescens – Rocoto type
Will not readily cross with other species
Note large black seeds

Major disease problem: Bacteria, especially on fruit

Harvest & Postharvest Handling

- Fresh market types always hand harvested
  - Increased yield, thin skin susceptible to bruising
  - Sometimes treated with hot water/chlorine bath to control bacterial rot
  - Often sprayed with wax coating to reduce moisture loss during storage
- Processing types can be machine harvested
- Optimum storage: 45-50°F, 90-95% Relative Humidity (subject to chilling injury < 45°F)
- Sensitive to ethylene – sometimes used to change color of mature green peppers
Peppers & Capsaicin

- Capsaicin is not water soluble
  - Drinking water will spread capsaicin (same goes for beer)
- Recommended first-aid:
  - Drink milk or eat dairy products
- Capsaicin will penetrate skin
- The intense burning sensation one experiences when eating hot peppers can trigger the body into releasing morphine-like endorphins, often resulting in mild euphoria