Microgreens
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April 25, 2016

Battle Between Sprouts and Microgreens

Sprouts

Microgreens
Alfalfa, Radish and Other Sprouts

- Frequently grown in the winter by home gardeners
- Fun to grow fresh vegetables in the winter
- Great nutrition
- Quick—less than 1 week
- Very little equipment

Are sprouts safe to eat?

<table>
<thead>
<tr>
<th>Year of Outbreak</th>
<th>Type of Sprouts</th>
<th>Kind of Bacteria</th>
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</thead>
<tbody>
<tr>
<td>2016</td>
<td>Alfalfa</td>
<td>E. coli</td>
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<tr>
<td>2016</td>
<td>Alfalfa</td>
<td>Salmonella</td>
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<tr>
<td>2014</td>
<td>Bean sprouts</td>
<td>Salmonella</td>
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<tr>
<td>2014</td>
<td>Soy sprouts</td>
<td>Listeriosis</td>
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<tr>
<td>2014</td>
<td>Clover sprouts</td>
<td>E. coli</td>
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<tr>
<td>2012</td>
<td>Clover sprouts</td>
<td>E. coli</td>
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<tr>
<td>2011</td>
<td>Alfalfa and spicy sprouts</td>
<td>E. coli</td>
</tr>
<tr>
<td>2010</td>
<td>Alfalfa</td>
<td>Salmonella</td>
</tr>
<tr>
<td>2010</td>
<td>Alfalfa</td>
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<td>Salmonella</td>
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</tbody>
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Over 30 reported outbreaks of foodborne illness related to raw sprouts since 1996, FoodSafety.gov
Problem with Sprouts

- Bacteria live on the seed surface
- Disinfesting the seeds with a bleach solution cannot guarantee that all bacteria are killed
- Seed coat not smooth--has microscopic nooks and crannies that harbor bacteria
- Even if only a few bacteria survive, the seeds are kept moist
- Conducive environment for bacteria to multiply

Warm, moist environment = rapid bacterial growth

Food Safety

- US Government has categorized sprouts as a “POTENTIALLY HAZARDOUS FOOD”
- Recommends that the following individuals avoid raw sprouts:
  - Children
  - Elderly
  - Pregnant women
  - People with immune-compromised conditions
- Cooking sprouts does kill harmful bacteria
Microgreens

- Trendy
- Served at fancier restaurants
- Very nutritious
- Easy to grow
- Lower risk of food-borne illnesses

Sprouts v. Microgreens

**Sprouts**
- Eating a germinated seed
- Eat whole sprout: seed, roots, stem, cotyledons (no true leaves)
- Grow in water; bacteria transfers from seeds to plant
- Potentially hazardous food

**Microgreens**
- Later maturity stage
- Eat stem and first true leaves (don’t eat the seed or roots)
- Grow in potting soil; seed buried
- Not labeled as a potentially hazardous food
**Microgreen Supplies**

- Disposable roasting pan, seed starting flat, or takeout container
  - Flat, open tray; don’t need individual cells; must be clean
  - Better if it has drainage holes; otherwise have to be more careful with water
- Brand new potting mix
  - Don’t use garden soil, compost or manure
- Seeds
  - Arugula, radish, peas, kale, mustard, beets, Swiss chard, basil
  - Lettuce is too delicate
  - Make sure seeds are not treated with fungicide
  - Seed
    - Cheaper to buy in bulk
    - Local garden centers
    - Johnny’s Selected Seeds—great variety

**Planting**

- Add moistened potting mix to container; about 1.5 inches deep
- Even out the potting mix but don’t compact it
- Spread seeds at a density recommended on seed packets
- Peas—a little less dense (1/4 inch apart)
  - Must soak them 8 hours before planting to speed germination
- Cover with a dusting of potting soil; 1/8 of an inch or less
- Moisten with spray bottle
- Cover with dome or plastic wrap only until germinates; then remove
- Check regularly to see if it needs water; will dry out faster once covering is removed
- Don’t waterlog them
Growing conditions

- Sunny window
- Or under fluorescent lights
- Minimum of 4 hours of light
- 65-75 deg. F

Timing

- 10-14 days from seeding
  - Kale
  - Mild Micro Mix
  - Mizuna
  - Mustard
  - Radish
- 12-18 days
  - Peas
**Harvesting**

- Harvest most microgreens when 2-3” tall
- Should have their first set of true leaves (not cotyledons)
- Harvest pea shoots when 3-6” tall
  - Very flavorful!

Kale (left); pea shoots (right)
Can seed more densely than this

**Harvesting**

- Harvest with clean scissors above the soil line; clip the shoots
- Leave the roots and seed in the soil
Preparing them

- Rinse and dry them
- Refrigerate if you don’t use them right away; can store for 2-3 days
- Usually eat them raw
- Can eat them alone with salad dressing
- Add to a lettuce salad
- Top a sandwich
- Add to a soup

Rinsing pea shoots

Taste and Nutrition

- Radish, mustard, kale are a little spicy!
- Pea shoots taste like peas
- USDA study: in general microgreens have 5 times the level of vitamins and carotenoids of a mature plant!
- Nutritional content depends upon individual species
- Research is ongoing!