Successful Storage of Garden Produce

Lunch & Learn
12 noon to 1 pm
September 8, 2014
Resources

• How Do I...Store Foods  www.uga.edu/nchfp
  – Proper care and handling of fruits and vegetables
  – Storing home canned food
  – Storing vegetables at home
  – Cupboard storage charts

• A=Z Index P=Produce  www.foodsafety.wisc.edu
  – Safe handling of oranges, parsley, tomatoes, and other produce items (English and Spanish)
  – Storage guidelines for fruits and vegetables
  – Storing fruits and vegetables from the home garden
Delicious Taste of Summer

• Frozen fruits and vegetables
  – Store for 8-12 months. Vegetables not blanched or untreated fruits should be used within 3 months.

• Dried fruits and vegetables
  – Store for 6-12 months tightly sealed in a cool, dry cupboard.

• Canned fruits and vegetables
  – Properly canned foods should be safe indefinitely. For best quality, use within 1-2 years.
  – Remove screw bands on sealed jars. Wash the lid and jar, dry, label and store in a cool, dark location.
  – Don’t store above 95°F or food will lose quality and may spoil.
  – Jars that accidentally freeze are OK, as long as they remain sealed.
Harvesting for Storage Success

• Harvest fruits and vegetables at, or near, peak maturity
• Choose produce that is free from disease or insect damage
• Harvest and handle produce carefully so it is not to bruised or cut
• Leave a 1” stem on most vegetables to reduce water loss and spoilage
• Choose types of produce, and varieties, suited for storage
  ➢ Choose only the best for storage!
Post Harvest Care

• Store berries and cherries ‘as is’; rinse prior to eating, not before storage.

• Do not wash potatoes, onions, sweet potatoes, or garlic before storage. Leave a fine layer of soil on potatoes; leave skin on garlic and onion.

• For longer storage, dip tomatoes (red or green), winter squash, and pumpkin in a very dilute bleach solution, dry and store.
  – 1½ teaspoon bleach per gallon of water
In Garden Storage

• Root crops such as beets, carrots, rutabagas, parsnips and turnips can be left in the garden into late fall and early winter.
• Mulch heavily with straw to keep the ground from freezing and allow extended harvesting.
• Harvest prior to a hard freeze.
• Leave 1” of stem. Store at 32°-40°F in a sealed bag with a few holes to help retain moisture.
Curing Vegetables to Improve Storage

- Potatoes, onions, pumpkins, sweet potatoes and winter squash (except acorn) benefit from post-harvest curing.
- Curing heals injuries and thickens the skin, reducing moisture loss and guarding against decay.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Curing Temp</th>
<th>Humidity*</th>
<th>Storage after Curing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potato Onions</td>
<td>60-70°F</td>
<td>80-90%</td>
<td>35-45°F</td>
</tr>
<tr>
<td></td>
<td>60-80°F</td>
<td>40-50%</td>
<td>32°F</td>
</tr>
<tr>
<td>Pumpkin</td>
<td>80-85°F</td>
<td>90%</td>
<td>55-60°F</td>
</tr>
<tr>
<td>Sw. potato</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winter squash</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Watch for wilting or too much moisture loss.
Storing Produce: The Basics

Four categories of temperature and humidity (RH) define optimum storage conditions.

• **Warm and dry**: 50-60°F, 70% RH.
  – A basement corner can be excellent for storing pumpkins and winter squash.

• **Cold and dry**: 32-40°F, 65% RH.
  – An extra refrigerator for garlic and onions.

• **Cool and moist**: 40-50°F, 90% RH.
  – Sealed bags in a ‘warm’ refrigerator.

• **Cold and moist**: 32-40°F, 95% RH.
  – Sealed bags in a cold refrigerator.
Key Points

Harvested produce is still respiring and quality can be greatly influenced by the storage environment.

- Moisture, or lack of moisture is often key to a long storage life. Never allow standing water to form, this will quickly lead to rotting.
- Storage areas should be dark and well aerated.
- Produce should be protected from insects and rodents.
- Keep produce from freezing.
Chill Injury

• Chill injury is damage to plants and produce caused by temperatures above 32°F.

• Fruits and vegetables of tropical and subtropical origin are most susceptible:
  – Bananas, pineapple, tomatoes, sweet potatoes, avocado, cucumbers, summer squashes, peaches, and more

• Caused by breakdown of normal cellular processes

• Signs are surface pitting, discoloration, internal breakdown, loss of flavor, and decay
Warm and Dry

- A basement corner can be warm enough, and dry enough for storage of some crops.
  - 50°-60°F, 70% relative humidity

<table>
<thead>
<tr>
<th>Produce Item</th>
<th>Temp (°F)</th>
<th>Humidity (%)</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peppers, hot</td>
<td>50</td>
<td>60-65</td>
<td>6 months</td>
</tr>
<tr>
<td>Pumpkins</td>
<td>50-55</td>
<td>70-75</td>
<td>2-3 months</td>
</tr>
<tr>
<td>Sw. potato</td>
<td>50-55</td>
<td>50-60</td>
<td>2-6 months</td>
</tr>
<tr>
<td>Winter squash</td>
<td>55-60</td>
<td>80-85</td>
<td>4-6 months</td>
</tr>
</tbody>
</table>
Cold and Dry

- Garlic and onions prefer a cold environment, with refrigerator temperatures. Do not seal these items in plastic bags – it will be too wet and they will rot.
- 32°-40°F, 65-70% relative humidity
Cool and Moist

• A refrigerator that is set ‘warm’ can be ideal for extended storage of many crops.

• Placed in perforated plastic bags, and seal. Inspect frequently for excess moisture.

  – 40°-50°F, 90% relative humidity

<table>
<thead>
<tr>
<th>Produce Item</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans, snap</td>
<td>7-10 days</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>10-14 days</td>
</tr>
<tr>
<td>Eggplant</td>
<td>1 week</td>
</tr>
<tr>
<td>Melon</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Potatoes (white)</td>
<td>1-36 weeks</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>1-3 weeks</td>
</tr>
</tbody>
</table>
Cold and Moist

• Most crops should be stored cold and moist. Humidity is required to maintain quality.
• Store in a refrig in perforated plastic bags to allow for some air movement. Check for decay.
  – 32°-40°F, 95% relative humidity

<table>
<thead>
<tr>
<th>Produce Item</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples, Pears</td>
<td>2-6 months</td>
</tr>
<tr>
<td>Cabbage</td>
<td>4-5 months</td>
</tr>
<tr>
<td>Carrots</td>
<td>4-5 months</td>
</tr>
<tr>
<td>Corn</td>
<td>1 week</td>
</tr>
<tr>
<td>Leafy greens</td>
<td>2-3 weeks</td>
</tr>
<tr>
<td>Potatoes</td>
<td>2-9 months</td>
</tr>
<tr>
<td>Rutabaga</td>
<td>2-4 months</td>
</tr>
</tbody>
</table>
Stored Produce - Potatoes

• Early season potatoes with thin skins should be brushed off after harvest and stored in a bag in a refrigerator (35-40°) for up to 3 months.

• Check to make sure moisture doesn’t build up. Allow for air flow (don’t seal the bag tightly).

• Late-crop potatoes should be harvested, soil brushed off, and cured 1-2 weeks in moist, warm air (60-75°F). An empty refrigerator can work well.

• Once cured, place at 40-45°F for 2-9 months.
Stored Produce - Onions

• Harvest onions when tops have fallen over and they have begun to dry.
• Place in a well-ventilated (warm) garage and cure for 1-2 weeks until tops are dry.
• Trim top to 1”. Do not remove outer peel.
• Hang to store, or place in a shallow box.
• Store 32-35°F and 65% RH for 2-6 months – do not put in a sealed plastic bag.
• Store away from other produce that may absorb odors.
Stored Produce - Tomatoes

- **Mature** green tomatoes will ripen into the fall.
- Harvest fruit from still vigorous vines. Fruit from dead vines will more rapidly spoil.
- Harvest just before (or immediately after) frost for longer keeping.
- Rinse in a dilute bleach solution (1½ teaspoon per gallon of water) dry with a soft cloth, and store in a shallow layer in boxes 50° to 55°F.
- Enjoy tomatoes as they ripen.
Stored Produce – Winter Squash and Pumpkins

- Winter squashes – acorn, butternut, hubbard – and pumpkins are nutritional powerhouses.
- Harvest mature fruit with hard rinds before frost.
- Leave at least 1” of stem to prevent decay.
- Cure pumpkin and butternut (not acorn) at 80°-85°F for 7-10 days prior to storage to extend the shelf life.
- Store 50°- 60°F for 2-6 months.
Stored Produce - Apples

• Apples will continue to ripen and can be harvested before peak maturity for maximum storage. Late maturing varieties store best.
• After harvest, cool to remove field heat, and dry.
• Carefully sort and continue to cull. One bad apple **will** spoil the whole group!
• Store, 32° for up to 6 months. A plastic bag or bin works well to maintain humidity; add holes for air circulation.
‘Salvaging’ Stored Produce

• Sort and cull produce during storage, discarding (composting) visibly spoiled product.
  – Do not attempt to salvage spoiled produce by canning or dehydration.

• Trim and sort produce prior to serving or cooking.
  – Cut away damaged areas or those visibly spoiled.
  – Trim green areas from potatoes; discard growing potatoes.

• Restore limp celery to ‘life’ by placing stems in a glass of water. Wrap carrots or radishes in a damp paper towel to reintroduce moisture to tissue.