2019 Spring Webinar Series
2 p.m. CST
Upcoming Webinars

• March 20 – One Potato, Two Potato, Three Potato, Four: Best Management Practices to Produce More
  – Susie Thompson, NDSU Associate Professor, Potato Breeding

• March 27 – How to Identify, Manage and Prevent Common Diseases in Your Garden
  – Jesse Ostrander, Plant Diagnostician/Director, NDSU Plant Diagnostic Laboratory
Zoom Controls

Meeting Topic: Field2Fork - Tom Kalb Growing Vegetables
Host: Extension FCW
Invitation URL: https://zoom.us/j/609371435
Participant ID: 22

Chat box

Question/Answer Controls

Mute/unmute
Open chat box
Please Complete the Survey

- Please complete the short online survey that will be emailed to you after today’s webinar. It will take just a couple minutes!

- Be sure to sign up for an opportunity to win a prize in the drawing. After submitting the survey, a form to fill out with your name/address will appear.

- Acknowledgement: This project was supported by the U.S. Department of Agriculture’s (USDA) Agricultural Marketing Service through grant 14-SCBGP-ND-0038.
Let’s Not Waste Food: Exploring Food Preservation and Composting

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Outline

• Food waste
• Strategies to Reduce Wasted Food
• Composting
• Food preservation
• Resources to Raise Awareness
Food Loss vs. Food Waste
Food Waste Breakdown

Total Municipal Solid Waste (MSW)

- Food: 21%
- Paper & paperboard: 15%
- Plastics: 18%
- Yard trimmings: 8%
- Rubber, leather & textiles: 12%
- Metals: 9%
- Wood: 8%
- Glass: 5%
- Other: 4%
- Total Municipal Solid Waste (MSW)
40% of food produced in the U.S. is wasted.
Where Does Wasted Food Occur?

U.S. Food Waste Disposal Data – Breakdown by sector
Total = 39.7 million tons

- Residential: 17,369,754 (45%)
- Full Service Restaurants: 7,501,380 (19%)
- Quick Service Restaurants: 5,100,724 (13%)
- Grocery Stores: 4,108,821 (11%)
- Institutional: 4,000,000 (10%)
- Industrial: 659,889 (2%)
Wasted Food has Widespread Consequences

- Economic
- Environmental
- Food Security
Economic Impact

160 billion lbs. = $166 billion & $1 billion to dispose of it
Environmental Impact

1/4

Water

Natural Resources

Greenhouse Gases
Food Security Impact

International Data Base
World Population: 1950-2050

Source: U.S. Census Bureau, International Data Base, July 2015 Update.
Food Insecurity is Widespread

1 in 7 Americans is Food Insecure

Feeding America, 2014
Agricultural Impact


- Agriculture: 9%
- Commercial & Residential: 12%
- Industry: 21%
- Transportation: 26%
- Electricity: 30%

EPA, Sources of Greenhouse Gas Emissions, 2014
STRATEGIES TO REDUCE WASTED FOOD: COMPOSTING
Benefits

• Enriches soil and helps maintain moisture
• Reduces need for chemical fertilizers
• Encourages production of beneficial bacteria and fungi
• Reduces waste
• Reduces methane emissions
### What Can I Compost?

<table>
<thead>
<tr>
<th><strong>Greens</strong></th>
<th><strong>Browns</strong></th>
<th><strong>Water</strong></th>
</tr>
</thead>
</table>
| • Food scraps  
  - Apple cores  
  - Leafy greens  
  - Onion skins  
  - Egg shells  
  - Banana peels  
  - Potatoes  
  - Coffee grounds  | • Trees  
  • Branches  
  • Leaves  
  • Shredded paper  
  • Newspaper  
  • Saw dust  
  • Wood chips  
  • Cardboard  | • Essential for the success of the living ecosystem  
• Damp is best  |

- **Water**
  - Essential for the success of the living ecosystem
  - Damp is best
What Can’t I Compost?

• Meat of fish bones and scraps
• Fats, grease, lard or oils
• Dairy products
• Pet waste
• Yard trimmings (treated with chemicals)
• Weeds with mature seed heads
• Charcoal
• Diseased or insect-ridden plants
Composting at Home

Backyard Composting

1. Select a dry, shady spot near a water source for your compost pile or bin.
2. Add brown and green materials as you collect them, making sure to chop or shred larger pieces.
3. Add water as needed.
4. Once your compost pile is established, mix grass clippings, fruit and vegetable waste, and green waste into the pile.
5. When the material at the bottom is a dark, rich color, your compost is ready to use.
How Long Does it Take?

• With frequent turning, compost can be ready in about three months.
  – Dependent on season
  – Size of compostable materials
  – Size of pile
How to Use

• Spread up to 3 inches on the top of soil and work it into the soil about 8 to 12 inches.

• For vegetable or flower gardens, apply a layer every year.
STRATEGIES TO REDUCE WASTED FOOD: FOOD PRESERVATION
Use Tested Resources

- Old church cookbooks often provide outdated and UNSAFE canning recipes.
- Research on food preservation began in the 1940s.
- USDA canning guidelines underwent a major overhaul in 1994, and in 2006 canning guidelines were reviewed and revised.
Food Preservation Methods

Avoid wasted food – and wasted efforts by using research-tested methods.

- Freezing
- Drying
- Jams, jellies
- Pickling
- Canning
Food Preservation

- Canning
- Drying
- Freezing
- Cure & Smoke
- Pickle & Ferment
- Equipment
- Game & Fish
Freezing Vegetables

For best quality, most vegetables should be heat-treated (or blanched) in boiling water for the recommended length of time.
Follow only current research-tested canning recipes, such as those from USDA/ Extension.
Process Jams and Jellies

- Process all jams and jellies in a water bath canner to inactivate molds, yeast and bacteria.
- Cool and remove screw bands after about 12 hours.
- Don’t seal with paraffin wax.
Pickling Rules

• Do not alter vinegar, food, or water proportions in a recipe or use a vinegar with unknown acidity.
• Use vinegar with 5% acetic acid.
• Use only recipes with tested proportions of ingredients.
Canning Vegetables and Mixtures

• Unless you can foods properly, you could put yourself at risk for botulism.
Botulism outbreak in North Dakota in 1931 eventually led to 13 deaths, including five people in one family. The source of the toxin was improperly home-canned vegetables.
Facts to Know about Botulism Food Poisoning

• 1 milligram of pure botulism toxin could kill 655 tons of mice.

• Food can contain toxin without showing signs.

• Antitoxin is available, but there is slow recovery. Permanent nerve damage possible.
Facts to Know about Botulism

Food Poisoning

• Symptoms usually appear within 12 to 72 hours:
  - Digestive upset (in some cases)
  - Blurred, double vision
  - Difficulty swallowing, speaking and breathing
  - Possible death from suffocation
Unsafe Methods

• Canning in an oven is NOT SAFE.

• Don’t use other appliances, either!
  – Microwave
  – Dishwasher

Learn to Preserve From the Experts

Do Not Can in Your Oven. EVER.

Processing food in the oven is dangerous. Dry heat does not penetrate jars quickly and temperature accuracy cannot be determined. Also, jars explode easily in the oven.

TO LEARN MORE VISIT: www.ag.ndsu.edu/food/food-preservation
Tomato varieties vary in the amount of acid they contain depending on variety and growing season.

For safety, tomatoes to be canned in a water bath canner OR a pressure canner should be acidified with one of the following:
- Add 2 tablespoons bottled lemon juice per quart
- Add ½ teaspoon citric acid per quart
Freezing

• Use freezer containers to avoid freezer burn, or dehydration.

• Freezer burn is a quality issue not a safety issue.
Look for These Properties in Packaging Materials

- Moisture-vapor resistant.
  - Prevents transfer of moisture and air in and out of the package.
- Durable and leak-proof.
- Does not become brittle and crack at low temperatures.
- Resistant to oil, grease or water.
- Protects foods from absorption of “off” flavors or odors.
- Easy to seal and label.
Store Frozen Foods at 0 Degrees or Lower

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Length of Storage</th>
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<tbody>
<tr>
<td>0° F.</td>
<td>1 year</td>
</tr>
<tr>
<td>5° F.</td>
<td>6 months</td>
</tr>
<tr>
<td>10° F.</td>
<td>3 months</td>
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<tr>
<td>15° F.</td>
<td>6 weeks</td>
</tr>
<tr>
<td>20° F.</td>
<td>3 weeks</td>
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<tr>
<td>25° F.</td>
<td>10 days</td>
</tr>
<tr>
<td>30° F.</td>
<td>5 days</td>
</tr>
</tbody>
</table>
“Food industry experts in the U.S. say that not a single food safety outbreak has been traced to eating past-date food.”
Consumer Opportunities to Reduce Wasted Food
Repurposing Wasted Food: Food Donation and Compost

7%
RESOURCES TO RAISE AWARENESS
U.S. Food Waste Challenge

Let’s talk trash.
Food Recovery Challenge

Goal to Reduce Wasted Food

50% by 2030
Healthy Food Bank Hub
The ‘Ugly Food’ Movement

“In America, one in five fruits and vegetable grown don’t fit grocery stores’ strict cosmetic standards – the crooked carrot, the curvy cucumber, the undersized apple – usually causing them to go to waste.” – Imperfect Produce
Provide food back to food system

Recover valuable nutrients back to the land base

Portion control
- Leftovers

Get good food to people who need it
Summary

• The United States wastes 40% of food produced, totaling $160 billion

• The food wasted contributes to environmental deterioration by expending unnecessary water, resources and greenhouse gases
Questions?
www.ag.ndsu.edu/fieldtofork