2019 Spring Webinar Series
2 p.m. CST

Field to Fork
EXTENDING KNOWLEDGE CHANGING LIVES
NDSU EXTENSION
Upcoming Webinars

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

• April 3 – Pollinator Gardens
  – Janet Knodel, Professor, Plant Pathology
  – Esther McGinnis, Assistant Professor, NDSU Extension Horticulturist
Zoom Controls

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

- Join Audio
- Share Screen
- Invite Others

Controls
- Mute/unmute
- Open chat box

Chat box
- Question/Answer Controls
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.
One Potato, Two Potato, Three Potato, Four: Best Management Practices to Produce More

Asunta (Susie) Thompson, PhD.
Associate Professor/Potato Breeder
Plant Sciences
Botany

- Nightshade family, Solanaceae
  - 2000 species
  - 160 tuber bearing
  - 20 cultivated species
  - *Solanum tuberosum* L.
• Relative of tomato, eggplant, pepper, tobacco, petunia, and nightshade
• Grown for underground tubers
• Herbaceous dicot
• Annual
Origin

- Potato has its origins in the South American Andean region, stretching northward to the southern Rocky Mountains.
### Leading States (NASS, USDA, 2018)

<table>
<thead>
<tr>
<th>State</th>
<th>Harvested Acres</th>
<th>Yield/Acre (cwt./acre)</th>
<th>Production (million cwt.)</th>
<th>Value (Millions of dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho</td>
<td>310,000</td>
<td>435</td>
<td>132.8</td>
<td>974.9</td>
</tr>
<tr>
<td>Washington</td>
<td>164,000</td>
<td>605</td>
<td>99.2</td>
<td>686.6</td>
</tr>
<tr>
<td>North Dakota</td>
<td>74,000</td>
<td>330</td>
<td>24.4</td>
<td>222.9</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>67,000</td>
<td>425</td>
<td>28.4</td>
<td>310.3</td>
</tr>
<tr>
<td>Colorado</td>
<td>55,600</td>
<td>382</td>
<td>21.2</td>
<td>198.4</td>
</tr>
</tbody>
</table>
Cultivars (NPC Potato Statistical Yearbook, 2018)

- Russet Burbank
- Frito-Lay Varieties
- Ranger Russet
- Umatilla Russet
- Miscellaneous*
- Dark Red Norland
- Russet Norkotah 296
- Russet Norkotah 278
- Atlantic
- Lamoka
Market Classes

• Round whites for chipping
• Long russet and whites for processing & tablestock
• Reds for tablestock
• Heirloom/specialty
Utilization

- About 88% is used for human consumption
  - 61% processing
  - 26% fresh
  - 7% seed potatoes
  - 6% shrink
  - Less than 1% livestock feed

Potato Statistical Yearbook 2018
<table>
<thead>
<tr>
<th>Nutritional Attributes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average potato</strong></td>
<td>5 ounces</td>
</tr>
<tr>
<td><strong>Calories</strong></td>
<td>100</td>
</tr>
<tr>
<td><strong>Calories from fat</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Cholesterol</strong></td>
<td>0 mg</td>
</tr>
<tr>
<td><strong>Sodium</strong></td>
<td>0 mg</td>
</tr>
<tr>
<td><strong>Potassium</strong></td>
<td>720 mg</td>
</tr>
<tr>
<td><strong>Total carbohydrates</strong></td>
<td>26 grams</td>
</tr>
<tr>
<td><strong>Dietary fiber</strong></td>
<td>3 grams</td>
</tr>
<tr>
<td><strong>Protein</strong></td>
<td>4 grams</td>
</tr>
<tr>
<td><strong>Vitamin C</strong></td>
<td>45%</td>
</tr>
</tbody>
</table>
Potato Breeding at NDSU

• More than 85 year history
• Twenty six releases
• Goal of releasing exceptional, multi-purpose cultivars that meet the needs of potato producers and the industry in ND, MN, the Northern Plains and beyond
### Cultivar Releases

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nordak</td>
<td>Russet Norkotah</td>
</tr>
<tr>
<td>Norgleam</td>
<td>Goldrush</td>
</tr>
<tr>
<td>Norland</td>
<td>Norqueen Russet</td>
</tr>
<tr>
<td>Red Norland</td>
<td>NorDonna</td>
</tr>
<tr>
<td>Viking</td>
<td>NorValley</td>
</tr>
<tr>
<td>Norgold Russet</td>
<td>Dakota Pearl</td>
</tr>
<tr>
<td>Norchip</td>
<td>Dakota Rose</td>
</tr>
<tr>
<td>Norchief</td>
<td>Dakota Jewel</td>
</tr>
<tr>
<td>Bison</td>
<td>Dakota Crisp</td>
</tr>
<tr>
<td>Dakchip</td>
<td>Dakota Diamond</td>
</tr>
<tr>
<td>Crystal</td>
<td>Dakota Trailblazer</td>
</tr>
<tr>
<td>Redsen</td>
<td>Dakota Russet</td>
</tr>
<tr>
<td>NorKing Russet</td>
<td>Dakota Ruby</td>
</tr>
</tbody>
</table>
Climate and Soil

• Cool season crop
  • optimum temperature
  • high temperature
• High water requirement
  • Shallow root system
• Well drained, slightly acid soil preferred
• Day length
Propagation

- Asexual reproduction
  - tuber
  - clonal propagation
- Sexual reproduction
  - True Potato Seed (TPS)
Planting

- Spacing
  - Rows 30-36 inches apart
  - Beds
  - Within-row spacing of 8-12 inches
  - 4 inches deep

- Fertilization
  - Soil test
  - Commercial fertilizer
  - Manure
Culture

- Hilling
- Irrigation
  - Shallow rooted
  - Water stress
  - Late season watering
- Pest Control
  - Weeds
  - Insects
  - Pathogens
Weed Control

- Foxtail
- Wild Oat
- Volunteer Cereals
- Wild Mustard
- Pigweed
- Common Lambsquarters
- Buckwheat
- Nightshades
- Canada Thistle
- Kochia
Insect pests

- Colorado Potato Beetle
- Aphids
- Leafhoppers
- Flea Beetles
- Wireworms
- Grubs
Diseases

- Common scab
- Early blight
- Late blight
- Pink rot
- Scurfs
Physiological Disorders

- Growth cracks
- Secondary growth
- Hollow heart and brown center
- Misshapen tubers
- Bruising
Harvest

- ‘New’ potatoes
- Digging to store
  - Moist soil
  - Temperature
Storage

- Curing
  - 90-95% humidity
  - 50-60F

- Storage
  - Tablestock 38-40F
  - Light
Questions?
www.ag.ndsu.edu/fieldtofork