Spring Webinar Series
2 P.M. CST

EXTENDING KNOWLEDGE ➤ CHANGING LIVES

NDSU EXTENSION
Upcoming Webinars

• Feb. 12 – Growing Flowers for Fun or Profit
  – Don Kinzler, Extension agent – Horticulture, Cass County

• Feb. 19 – Growing Tomatoes in North Dakota
  – Tom Kalb, 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

- Mute/unmute
- Open chat box

- Question/Answer Controls
- 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.
Starting Vegetables from Seed at Home

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Introduction

• Containers
• Potting soil
• Light
• Watering and fertilizing
• Seed starting dates
• Hardening off seedlings
Containers

- Limitless possibilities
  - Need drainage
  - Large enough to support plant
    - Root system
    - Keep plant upright
Containers

• Repurposed
Containers

• Repurposed

Chris Feser, www.flickr.com/photos/feserc/4558036939
Containers

• Repurposed

NewBee Gardener, www.flickr.com/people/25775233@N06

Sandra, www.flickr.com/photos/begotka/5726817578
Containers

• Standard

Containers

• Standard


J.B. Friday, www.flickr.com/photos/jbfriday/5919507052
Containers

- Standard

https://www.greenhousemegastore.com/containers-trays/trays-flats/1020-trays-heavy-duty?returnurl=%2fsearch%3fq%3d1020
Containers

• Standard
Containers

• Standard

Ariel dona, www.flickr.com/photos/ariel_dona/7731330470
Potting soil

https://grist.files.wordpress.com/2009/08/soil_2.jpg
Potting soil

• Functions
  – Reservoir for plant nutrients
  – Hold water
  – Gas exchange
  – Anchorage for the plant

• Soil based mix
  – 2 parts loam soil, 1 part sand, 1 part organic matter
Potting soil

• Soil-less mix
  – Peat (sphagnum)
    • Hold up to 60% of volume in water
    • Slow to decompose
    • Acidic; pH 3.0-4.0
  – Vermiculite (mineral)
    • Good watering holding
    • Aeration
  – Perlite (volcanic rock)
    • Aeration
Potting soil

Doug Beckers, www.flickr.com/photos/dougbeckers/6589995129

www.urbanturnup.org, https://www.flickr.com/photos/127368628@N08/31460509534

Potting soil

• Fill containers
  – Dry mix
  – level to the top
  – Tap container to settle mix

Elke Sisco, www.flickr.com/photos/elklt/3998977326
Potting soil

• Water
• Make seeding hole
  – Proper depth
  – Use seed package as a guide
  – Plant four times as deep as seed is wide
Potting soil

- Plant seed
- Cover seed with soil
- Carefully water again
- Cover with plastic
Potting soil
Light

Light

- Photosynthesis
  - $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{Light} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$

- Respiration
  - Maintenance
  - Growth
Light

- Photosynthates produced in photosynthesis
- Growth Potential
- Photosynthates used in respiration

Rate of life processes vs. Temperature

40°F - 96°F
Light

• Usually need supplemental light
  – Cool white fluorescent
  – LED

• Fluorescent
  – 12-16 hours per day
  – 4 inches or less from canopy
Light
Light
Light
Light
Light
Light
Watering and fertilizing

https://acadiavegetables.files.wordpress.com/2015/06/img_1062.jpg
Watering and fertilizing

- Keep potting soil moist during germination
- Drain excess water from trays
- Do not fertilize until true leaves form

https://acadiavegetables.files.wordpress.com/2015/06/img_1062.jpg
Watering and fertilizing

- Fertilize weekly
- Use general purpose water-soluble fertilizer
  - 10-10-10
  - Mixed $\frac{1}{2}$ strength
Watering and fertilizing

• Biodegradable pots will dry faster than plastic pots

• Water enough to leach pots
  – City or well water
## Seed starting dates

<table>
<thead>
<tr>
<th>Month</th>
<th>Weeks of growth indoors</th>
<th>Vegetable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early February</td>
<td>14</td>
<td>onion</td>
</tr>
<tr>
<td>Early March</td>
<td>10</td>
<td>broccoli, cabbage, Brussels sprouts, cauliflower, head lettuce</td>
</tr>
<tr>
<td>Mid-March</td>
<td>9</td>
<td>pepper, eggplant, kohlrabi</td>
</tr>
<tr>
<td>Mid-April</td>
<td>5-6</td>
<td>tomato</td>
</tr>
<tr>
<td>Late April to early May</td>
<td>3-4</td>
<td>cucumber, cantaloupe, winter squash</td>
</tr>
</tbody>
</table>
Hardening off seedlings

• Two weeks before planting outdoors
  – Place seedlings in shade for an hour or two
  – Gradually increase time and sun exposure
  – Try to protect from wind

https://www.flickr.com/photos/chiotsrun/3459936116
Hardening off seedlings

• Watering
  – May need to water daily
  – Biodegradable pots will dry out fast
  • Bury pots when planting or remove them

Questions?
www.ag.ndsu.edu/fieldtofork