WHAT WE ARE GOING TO DISCUSS

- Having the Correct Mindset
- Structures Used for Season Extension
THE CORRECT MINDSET

× As a vegetable grower:
  + We can produce healthy and tasteful fruits and vegetables throughout the growing season
  + Our purpose today, is discuss simple, low costs external inputs that will allow us to achieve the same results “on the back side of the calendar”
The correct mindset

- We can achieve this by picking select vegetables and root crops that are “cold hardy”
- You will not be able to produce tomatoes in February without external heat and supplemental light!
THE CORRECT MINDSET

✗ Three key Elements need to be present when approaching four season gardening:
  + Cold-Hardy Vegetables
  + Succession Planting
  + Protected Cultivation
Cold Hardy Veggies:

+ These are simply vegetables that tolerate cold temperatures.
+ These vegetables often have lower light requirements than traditional warm season crops.
+ We will discuss these vegetables in details later in the presentation.
THE CORRECT MINDSET

✗ Succession Planting
  + This refers to sowing vegetables more than once during a season so that you can continually harvest throughout the winter
  + It helps if you begin to think about this time of year as the ‘second spring’
THE CORRECT MINDSET

✗ Two types of plantings on this side of the calendar year:
  + Winter Harvest Crops
  + Overwinter Crops
THE CORRECT MINDSET

✗ Winter Harvest Crops
  + These are crops that are planted in late summer or early fall. Generally, these crops are planted in a protected structure that makes it more enjoyable to harvest.
  + The sowing time allows the plants to mature before the winter season arrives
  + Because of the cold temperatures and lack of light, these crops essentially “sit” in the soil until they are harvested
THE CORRECT MINDSET

✗ Overwintered Crops
  + These are crops planted outside
  + Generally, these crops are planted in late fall or early winter
  + Their purpose, to provide a very early spring harvest
  + This ensures fresh produce on a year round basis for the grower
THE CORRECT MINDSET

✗ Planting Dates are important in the fall!!
  + If you miss the planting date of a crop in the spring... not going to hurt you
  + If you do not sow vegetables at the correct time in the fall, you might not harvest that particular crop!
<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
| Sunrise: 7:09am  
Sunset: 5:00pm  
Day length: 9h 51m | Sunrise: 7:10am  
Sunset: 5:00pm  
Day length: 9h 50m | Sunrise: 7:11am  
Sunset: 5:00pm  
Day length: 9h 49m | Sunrise: 7:12am  
Sunset: 5:00pm  
Day length: 9h 48m | Sunrise: 7:13am  
Sunset: 5:00pm  
Day length: 9h 47m | Sunrise: 7:14am  
Sunset: 5:00pm  
Full Moon: 6:28am |          |
| 7      | 8      | 9       | 10        | 11       | 12     | 13       |
| Sunrise: 7:14am  
Sunset: 5:00pm  
Day length: 9h 45m | Sunrise: 7:15am  
Sunset: 5:00pm  
Day length: 9h 44m | Sunrise: 7:16am  
Sunset: 5:00pm  
Day length: 9h 43m | Sunrise: 7:17am  
Sunset: 5:00pm  
Day length: 9h 42m | Sunrise: 7:18am  
Sunset: 5:00pm  
Day length: 9h 42m | Sunrise: 7:19am  
Sunset: 5:00pm  
Day length: 9h 41m |          |
| 14     | 15     | 16      | 17        | 18       | 19     | 20       |
| Sunrise: 7:20am  
Sunset: 5:01pm  
Last Qtr: 6:52am  
Day length: 9h 40m | Sunrise: 7:20am  
Sunset: 5:01pm  
Day length: 9h 40m | Sunrise: 7:21am  
Sunset: 5:01pm  
Day length: 9h 40m | Sunrise: 7:22am  
Sunset: 5:01pm  
Day length: 9h 40m | Sunrise: 7:22am  
Sunset: 5:02pm  
Day length: 9h 39m | Sunrise: 7:23am  
Sunset: 5:03pm  
Day length: 9h 39m |          |
| 21     | 22     | 23      | 24        | 25       | 26     | 27       |
| Sunrise: 7:24am  
Sunset: 5:03pm  
New Moon: 7:37pm  
Day length: 9h 39m | Sunrise: 7:25am  
Sunset: 5:04pm  
Day length: 9h 39m | Sunrise: 7:25am  
Sunset: 5:04pm  
Day length: 9h 39m | Sunrise: 7:26am  
Sunset: 5:05pm  
Day length: 9h 39m | Sunrise: 7:26am  
Sunset: 5:05pm  
Day length: 9h 39m | Sunrise: 7:26am  
Sunset: 5:06pm  
Day length: 9h 39m |          |
| 28     | 29     | 30      | 31        |          |        |          |
| Sunrise: 7:27am  
Sunset: 5:07pm  
First Qtr: 12:33pm  
Day length: 9h 40m | Sunrise: 7:27am  
Sunset: 5:08pm  
Day length: 9h 41m | Sunrise: 7:28am  
Sunset: 5:09pm  
Day length: 9h 41m | Sunrise: 7:28am  
Sunset: 5:09pm  
Day length: 9h 41m |          |        |          |
THE CORRECT MINDSET

✗ Protected Cultivation:
  + This refers to vegetables growing under cover
  + Traditionally, winter vegetables can survive outdoors under a blanket of snow
  + You cannot depend on snow
  + Honestly, who wants to work in the snow?

Thanks Polar Vortex!!
WHAT WE ARE GOING TO DISCUSS

- Having the Correct Mindset
- Structures Used for Season Extension
Structures Used for Season Extension

- **Season Extension**
  + Having an area covered by a sheet or sheets of plastic will produce a warmer environment that is easier for the owner to harvest and work in.
  + This will keep plants “growing” longer and allow an individual to transplant or direct seeder earlier in the spring.
STRUCTURES USED FOR SEASON EXTENSION

✗ High Tunnels

- A structure used to produce editable goods that is un-heated
- You can have power to the structure
- We have several individuals who have supplemental heating to produce certain crops
WHEN YOU FINALLY GET THE HIGH TUNNEL!
3, 4, 5 Rule

\[
\begin{align*}
30 \times 45 &= 54.08 \\
30 \times 60 &= 67.08 \\
30 \times 72 &= 78 \\
30 \times 96 &= 100.58
\end{align*}
\]
HIGH TUNNELS
Go Juice
HIGH TUNNELS
HIGH TUNNELS
HIGH TUNNELS

- Know what you are going to grow
- “W” vs. “V” vs. “Standard Truss”
- Length
- Orientation
- Talk to others in your area!
MOVEABLE HIGH TUNNELS
OTHER STRUCTURES USED FOR SEASON EXTENSION
LOW TUNNEL/CATERPILLAR
SEASON EXTENSION STRUCTURES AND COSTS

✗ Zimmerman- 30x96 between $9-$10,000
  + Roughly $3.58 per square foot

✗ Caterpillar Tunnels
  + Roughly $0.90 per square foot
  + Locally sourced materials
  + Need a bender
STRUCTURES USED FOR SEASON EXTENSION

✗ Row Cover

+ The general term “row cover” refers to spun bonded fabrics made out of polypropylene or polyester.
+ The lightest of these can be loosely laid on top of plants to help with pest pressure or protect young transplants.
+ The heavier row covers offer additional benefits by adding as much as 8 degrees to the ambient air beneath the cover itself (where your plants are).
MATERIALS USED FOR SEASON EXTENSION

- Floating Row Cover
MATERIALS USED FOR SEASON EXTENSION
STRUCTURES USED FOR SEASON EXTENSION
MATERIALS USED FOR SEASON EXTENSION

- Row Covers
  - There are row covers made out of plastic
  - These covers are generally split down the sides to allow air exchange
  - Careful management is needed when using this type of row cover
  - Temperatures can quickly reach 20-30°F higher than the surrounding air!
<table>
<thead>
<tr>
<th>Leafy Greens:</th>
<th>Vegetables:</th>
<th>Flowers:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arugula</td>
<td>Beet</td>
<td>Calendula</td>
</tr>
<tr>
<td>Chard</td>
<td>Bok Choi</td>
<td>Linaria</td>
</tr>
<tr>
<td>Cilantro</td>
<td>Broccoli</td>
<td>Pansy</td>
</tr>
<tr>
<td>Collards</td>
<td>Cabbage</td>
<td>Johnny jump-up</td>
</tr>
<tr>
<td>Cornsalad</td>
<td>Carrot</td>
<td></td>
</tr>
<tr>
<td>Cress</td>
<td>Kale</td>
<td></td>
</tr>
<tr>
<td>Dandelion</td>
<td>Leek</td>
<td></td>
</tr>
<tr>
<td>Endive</td>
<td>Onion</td>
<td></td>
</tr>
<tr>
<td>Escarole</td>
<td>Pak choi</td>
<td></td>
</tr>
<tr>
<td>Lettuce</td>
<td>Pea</td>
<td></td>
</tr>
<tr>
<td>Mizuna</td>
<td></td>
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</tr>
<tr>
<td>Mustard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purslane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spinach</td>
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</tr>
</tbody>
</table>
POPULAR VEGETABLES THAT ARE COLD TOLERANT

✗ Carrots
  + Carrots actually taste “sweet” when harvested in the winter time
  + Sugars are actually released within the plant to avoid cellular destruction in cold weather
POPULAR VEGETABLES THAT ARE COLD TOLERANT

✗ Spinach
  + Wonderful to enjoy on its own, or in a salad mix
  + This crop is a cut-and-come-again plant
  + Will survive a big portion of the winter months (if not all winter)!
POPULAR VEGETABLES THAT ARE COLD TOLERANT

✗ Leeks
  + A wonderful crop to spice up the mid-winter blues
  + You can either hill-up dirt on either side of the leek or bury the plant (if transplanted) deeper into the soil
POPULAR VEGETABLES THAT ARE COLD TOLERANT

✗ Radish
  + Something crisp to add to the salad
  + Will not put on new growth in freezing temperatures
RESOURCES

- Succession Planting Interval Charts

- Recommended Crops for Succession Planting

- Finding day length Time for your area
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