General Vegetable Gardening Practices
Level 2 Master Gardener Volunteer Training - February 19, 2013

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Consider the Location

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First Location
New Site

Black Walnut Toxicity
Raised Beds

Open Raised Bed Gardening
Growing More Food in Less Space
By Noel Valdes
4 Year Crop Rotation is Recommended
Why:
- Insect & disease management
- Weed management
- Nutrient demands
  - Increased soil nitrogen
- Benefits of the preceding crops
  - Improved physical condition of the soil
  - Increased microbial activity
  - Increased release of CO₂
  - Excretion of beneficial substances

Group By Plant Families
- Potatoes, tomatoes, peppers, and eggplant are all members of the solanaceous family.
- Beans and peas are legumes.
- Cucumbers, melons, pumpkins, and squash are all cucurbits.
- Radishes, rutabagas, and turnips are all cole crops just like cabbage, broccoli, cauliflower, and Brussels sprouts.
- Onions, garlic, leeks, shallots, chives are alliums.

Succession Planting
- Provides extended crop availability.
- Look at days to harvest.
- Three types:
  - Planting late-season crops after early season ones have been harvested - peas followed by beans.
  - Multiple plantings of a single crop.
  - Planting different cultivars with different maturity dates - cabbage & corn.
### Early Season
- Early Beets
- Early Cabbage
- Lettuce
- Onions
- Peas
- Radishes
- Early Spinach
- Mustard
- Turnips

### Long Season
- Beans
- Cabbage
- Celery
- Sweet Corn
- Cucumbers
- Eggplant
- Muskmelons
- Peppers
- Potatoes
- Pumpkin
- Squash
- Swiss Chard
- Tomatoes
- Watermelon

### Late Season
- Bush Beans
- Beets
- Broccoli
- Chinese Cabbage
- Carrots
- Cauliflower
- Endive
- Kale
- Kohlrabi
- Lettuce
- Radishes
- Spinach
- Turnips

### Garden Fertilization
- Use sterilized manure
- Use properly composted manure for same-year applications
- Apply non-composted cow manure in the fall of the preceding harvest year; the winter weather will destroy pathogens that may be present in the fresh manure

### Recommended Timing of Nitrogen Applications for Corn

<table>
<thead>
<tr>
<th>Soil Texture</th>
<th>Fall</th>
<th>Preplant</th>
<th>Sidedress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium/Fine</td>
<td>OK*</td>
<td>Optimum</td>
<td>OK</td>
</tr>
<tr>
<td>Well-Drained</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium/Fine</td>
<td>No</td>
<td>OK</td>
<td>Optimum</td>
</tr>
<tr>
<td>Poorly Drained</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coarse</td>
<td>No</td>
<td>No</td>
<td>Optimum</td>
</tr>
</tbody>
</table>

*Includes use of BMPs for fall-applied N.

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### Timing of Nitrogen Uptake by Corn

<table>
<thead>
<tr>
<th>Time during growing season</th>
<th>N uptake, lb N/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr.</td>
<td>0</td>
</tr>
<tr>
<td>May</td>
<td>30</td>
</tr>
<tr>
<td>June</td>
<td>60</td>
</tr>
<tr>
<td>July</td>
<td>90</td>
</tr>
<tr>
<td>Aug.</td>
<td>120</td>
</tr>
<tr>
<td>Sept.</td>
<td>150</td>
</tr>
<tr>
<td>Oct.</td>
<td>180</td>
</tr>
<tr>
<td>Nov.</td>
<td>210</td>
</tr>
<tr>
<td>Dec.</td>
<td>240</td>
</tr>
</tbody>
</table>

L Bundy
Effect of N timing on the relationship between N rate and corn grain yield, Hancock 2002.

\begin{align*}
\text{y} &= 46 + 0.82x - 0.0009x^2 \\
R^2 &= 0.9973
\end{align*}

\begin{align*}
\text{y} &= 50 + 0.069x + 0.0004x^2 \\
R^2 &= 0.9923
\end{align*}

Garden Tillage and Soil Compaction

Hardpans or traffic pans caused by tillage equipment in a sandy, Coastal Plain soil in South Alabama.

Garden Tillage Effects on Sweet Corn Yields (Auburn Experiment, 3-yr average)

-锄耕
-前耕
-前耕
-耕作

\begin{tabular}{|c|c|c|c|}
\hline
Silk tilled & Subsoiled & Front-dirt & Row type \\
\hline
40 & 50 & 60 & 70 \\
\hline
\end{tabular}
Garden Tillage and Soil Compaction

Watering
- Match application to plant needs.
- Based on:
  - Soil type
  - Rainfall
  - Crop requirements
  - Growth stage
- Experience and soil examination are best measures.
- Rain gauge

Water Wisely
- One inch of water per week
- Wet the top 6-8 inches each time
- Wait until the soil has dried 2 inches
- Water plants 6-8 inches down twice per week

Hand Watering
- Often applied too rapidly resulting in run-off
- Often, not enough is applied...calculate the need per surface area (1 inch/100 sq. ft. is 60 gallons)
- Time consuming

Overhead Sprinkler Systems

Drip/Trickle Irrigation
- Porous pipe - perforated pipe
- Soaker hose - woven fabric hose
- Emitter tubes
- Drip irrigation, T-tape, double walled emitter tubing
Drip irrigation is the application of supplemental water at a slow, controlled rate through an **emitter**. An **emitter** is a small device with very small openings designed to meter the water out of a supply line. Suited for orchard crops, vegetables, brambles, nursery stock, landscaped ornamentals.

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**Drip Irrigation Design**

- Valve
- Backflow Preventer
- Pressure Regulator
- Filter
- Tubing Adapter
- Drip Tubing
- 18” Minimum Between Emitters
- Emitters
- End Cap

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**Micro Sprinklers**

- Micro sprinklers and sprayers are available in a variety of styles and configurations and like drip emitters they operate at a low-pressure range of 15 to 30 PSI. Micro sprinklers and sprayers are rated by flow rate, wetting diameter, or radius, and the spray method.

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**Mechanical Weed Control**
Comparing Tools

- Garden hoe
- Stirrup hoe
- Diamond hoe

Keep Tools:

- Sharp,
- Clean,
- Well
- Lubricated

Tool Selection

Advantages of Mulches

- Controls weeds
- Conserves moisture
- Aids in disease control
- Cleaner fruit to harvest
- Prevents erosion
- Increases organic matter

Disadvantages of Mulches

- Cost of mulching material
- Lower soil temperature may delay harvest
- May create weed problems
- Organic mulches may use nitrogen
- Some do not degrade

Mulching Materials

- Sawdust
- Wood Chips
- Wood Shavings
- Oat/Wheat Straw
- Marsh Hay
- Old Hay
- Leaves
- Pine Needles
- Plastic
- Grass Clippings
- Newspaper
Photos taken the spring after the mulch was applied.

Why did this mulch not work?
Why did this mulch not work?

Season Extension: Floating Row Covers

- Frost protection
- Warmer microclimate
- Wind protection
- Excludes insect pests
- Reduced evapotranspiration
- Good for beans, beets, carrot, cole crops, corn, lettuce, parsley, potato, radish and scallions

Floating Row Covers

Floating Row Covers

Floating Row Covers
Season Extension: Plastic Mulch

- Polyethylene plastic
  - Retains moisture
  - Warms the soil
  - Weed suppression
  - Clear, colored, black, or infrared-transmitting
  - UV light will break down
  - Disposal issue
- Good for cucumber, eggplant, melons, pepper, summer squash, tomato

Plastic Mulch

Bio-degradable Plastic
Mistakes in Plasticulture

- Lack of firm uniform bed
- Loose plastic
- Poorly placed irrigation tape
- Failure to start with a moist seedbed
- Not monitoring temperatures
- Not calibrating fertilizer rates
- Not removing row cover during pollination

Community Garden Tips

Based upon my experiences

Reflect On The Design

Water Is It Needed?

Community Tools

Have A Plan To Handle Refuse
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