Module 18: Vegetables – Everything Else

LSU AgCenter Home Gardening Certificate Course

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Other Plant Family Vegetables

- Amarylidaceae
- Asparagaceae
- Apiaceae
- Malvaceae
- Convolvulaceae
- Poaceae
- Asteraceae
- Chenopodiaceae
Amaryllidaceae

- Amaryllidaceae (formerly Alliaceae) Characteristics:
- Perennial
- Monocots
- Produces bulbs
- **Flowers**: parts in 3’s, flowers usually clustered in a ball
- **Fruit**: Dry capsule with black seeds
Growing Onions, etc.

Includes: onions, shallots, garlic, chives and leeks

• Cool Season: Fall/Winter/Early Spring
• Full Sun
• Grown from seeds, transplants or bulbs – Leeks (seeds or transplants), Onions (seeds, transplants or bulbs), Chives (seeds or transplants), Shallots (seeds or bulbs)

• Germination: Optimum 68-78
• Well-drained loam or sandy loam, pH 5.5-6.5.
• Soil test for fertilization recommendations
• Generally, 1 lb. 8-24-24/75 ft² at planting, sidedress every 4-6 weeks with high N fertilizer
Amaryllidaceae

Somewhat Variety Dependent, but in general:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Spacing</th>
<th>Days to Harvest</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chives</td>
<td>4-6”</td>
<td>75-85</td>
<td></td>
</tr>
<tr>
<td>Garlic</td>
<td>4-6”</td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>Leek</td>
<td>6-8”</td>
<td>110-125</td>
<td></td>
</tr>
<tr>
<td>Onion</td>
<td>4-6”</td>
<td>60-160</td>
<td>Green/Scallions 60 Mature 100-160</td>
</tr>
<tr>
<td>Shallot</td>
<td>4-6”</td>
<td>105-110</td>
<td></td>
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</tbody>
</table>
## Best Harvest

<table>
<thead>
<tr>
<th>Crop</th>
<th>Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chives</td>
<td>Clip leaves as soon as they reach 4” or more.</td>
</tr>
<tr>
<td>Garlic</td>
<td>In summer when bottom leaves begin to yellow and turn brown</td>
</tr>
<tr>
<td>Leek</td>
<td>When plants reached desired size, leaves are still green</td>
</tr>
<tr>
<td>Onion</td>
<td>As green onions as soon as they reach desired size.</td>
</tr>
<tr>
<td></td>
<td>As mature when neck becomes soft and tops are falling over.</td>
</tr>
<tr>
<td>Shallot</td>
<td>In summer when tops fall over and begin to brown.</td>
</tr>
</tbody>
</table>
Amarylidae

Common Pests:

• **Thrips** (Onion thrips (*Thrips tabaci*), Western flower thrips (*Frankliniella occidentalis*)) - Silvery scarring of leaves. **Control**: Natural enemies, Spinosad

• **Leafminers** (*Lyriomyza* spp.) – Thin, white winding trails on leaves. **Control**: Usually no control needed.
Amaryllidaceae

Common Diseases:

- **Black mold** (*Aspergillus niger*) – Post-harvest black discoloration and lesions. **Control**: use treated seed, store <59°F

- **Botrytis leaf blight** (*Botrytis squamosa*) - Small white lesions with light green halos. **Control**: Sanitation, Avoid OH watering, Good Air Circ., chlorothalonil

- **Downy mildew** (*Peronospora destructor, P. parasitica*) - Pale spots or elongated patches on leaves; gray-purple fuzzy growth on leaf surface; leaves turning pale then yellow; leaf tips collapsing. **Control**: Remove debris, good air circ., chlorothalonil

- **Purple blotch** (*Alternaria porri*) - Small water-soaked lesions on leaves or stalk with white centers; which enlarge to become zonate and brown to purple in color with red or purple margin surrounded by yellow zone. **Control**: Avoid OH watering, chlorothalonil.

- **White rot** (*Sclerotinia cepivorum*) - Older leaves yellowing; stunted growth; death of all leaves; fluffy white growth on base of bulb which spreads up bulb to storage leaves. Can survive in soil 20 yrs. **Control**: Sanitation to prevent soil infestation.
Apiaceae

(Apiaceae (formerly Umbelliferae)

Characteristics:
• **Leaves**: alternate with sheathing bases; internodes usually hollow
• **Plants** aromatic
• **Flowers**: small, inconspicuous. Parts in 5’s
• **Flowers in an Umbel** - a number of short flower stalks which spread from a common point like umbrella ribs.
Growing Carrots, etc.

Includes: carrots, celery, parsley, dill, parsnip, fennel, cilantro

- Cool Season: Fall/Winter
- Full Sun
- Well-drained, sandy soil. pH 5.5-7.0
- Germination: 61-74°F
- Planting: Carrot, parsnip (seed), celery, fennel, cilantro, parsley, dill (seed or transplants)
- Soil test for fertilization recommendations
- Generally, 2 lbs. 8-8-8/100ft² 3-4 weeks after planting
## Apiaceae

Somewhat Variety Dependent, but in general:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Spacing</th>
<th>Days to Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrot</td>
<td>2-3”</td>
<td>60-75</td>
</tr>
<tr>
<td>Celery</td>
<td>6-8”</td>
<td>80</td>
</tr>
<tr>
<td>Cilantro</td>
<td>2-4”</td>
<td>50-55</td>
</tr>
<tr>
<td>Dill</td>
<td>2-4”</td>
<td>40-115</td>
</tr>
<tr>
<td>Fennel</td>
<td>4-6”</td>
<td>50-60</td>
</tr>
<tr>
<td>Parsley</td>
<td>8-12”</td>
<td>75</td>
</tr>
<tr>
<td>Parsnip</td>
<td>2-3”</td>
<td>110-120</td>
</tr>
</tbody>
</table>
# Best Harvest

<table>
<thead>
<tr>
<th>Crop</th>
<th>Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrot</td>
<td>Any time when they reached desired size</td>
</tr>
<tr>
<td>Celery</td>
<td>When stalks are edible size, usu. 3-5” diameter bundle</td>
</tr>
<tr>
<td>Cilantro</td>
<td>When plant has enough leaves to harvest</td>
</tr>
<tr>
<td>Dill</td>
<td>Leaves – when plant has enough to harvest.</td>
</tr>
<tr>
<td></td>
<td>Seed heads – once seeds are set while they are green and tender.</td>
</tr>
<tr>
<td></td>
<td>Seeds – after seed head is dry and seeds drop easily</td>
</tr>
<tr>
<td>Fennel</td>
<td>Leaf – when plant has sufficient foliage to harvest.</td>
</tr>
<tr>
<td>Parsley</td>
<td>When plant has enough leaves to harvest</td>
</tr>
<tr>
<td>Parsnip</td>
<td>When roots reach full size.</td>
</tr>
</tbody>
</table>
Apiaceae

Common Pests:

- **Aphids** (*Cavariella aegopodii*) – necrotic spots on leaves, sooty mold. **Control**: Natural predators, reflective mulch, malathion

- **Carrot weevil** (*Listronotus oregonensis*) - Irregular dark grooves in zig-zag pattern on roots. Adults overwinter in crop debris. **Control**: Remove crop debris, Crop rotation.

- **Nematodes**
  - **Root-knot** (*Meloidogyne* spp.)
  - **Stubby root** (*Paratrichodorus* spp.)
  - **Needle** (*Longidorus africanus*)
    - **Symptoms**: Forked, distorted or stunted taproots
    - **Control**: Soil solarization
Apiaceae

Common Diseases:

- **Black rot** (*Alternaria radicina*) - Damping-off of seedlings; root and crown necrosis; blighted foliage; lower portion of petioles black and necrotic; black, sunken lesions on taproot. **Control**: Resistant varieties, certified seed, crop rotation

- **Cottony rot (Sclerotinia rot)** (*Sclerotinia sclerotiorum*) - Small, water-soaked, soft lesions on crown and roots; white fluffy fungal growth all over affected tissues. Can survive in soil for years. **Control**: Sanitation (keep it out).

- **Bacterial Soft rots** (*Erwinia carotovora, Erwinia chrysanthemi, Pseudomonas marginalis*) - Sunken dull orange lesions on taproot which causes tissue to collapse and become soft. Odor. **Control**: Well-drained soil, sanitation.
Asparagaceae

Asparagaceae Characteristics:
• Morphologically diverse. One species that we eat is *Asparagus officianalis*.
• Tall plant with stout stems and feathery foliage.
• The flowers are bell-shaped and occur alone or in pairs. They are green-white to yellow in color. After flowering, a round red berry is formed with 1 to 6 black seeds. Asparagus can live for 20 or more years.
Growing Asparagus

- Perennial, Full Sun
- Well-drained, deep sandy or clay loam soil. pH 6.0-7.5
- Most often planted as 1-2 year old crowns.
- Planting: Furrow 10” deep. Crown the area and place crowns 12-24” apart.
- Soil test for fertilization recommendations
- Generally, ¼ lb. 10-20-10/60 ft² prior to planting. Annually – 2 lbs. in late winter, then 1-2 lbs. 21-0-0 after last harvest.
- Do not harvest first 2 years after planting.
- Most varieties require a dormant period.
- Harvest tender shoots 4-10” long for about 8 weeks by cutting spears 1-2” below ground level.
Common Pests:
**Asparagus beetle** (*Crioceris asparagi*)
**Spotted asparagus beetle** (*Crioceris duodecimpunctata*) - Chewed spear tips; brown stains; **Control**: Remove asparagus berries, Spinosad, carbaryl.
Asparagaceae

Common Diseases:

- **Asparagus rust** (*Puccinia asparagi*) - Orange pustules on spears and ferns; yellowing ferns and dieback. **Control**: Manage irrigation and ensure plants are not under or over-watered; cut and destroy diseased ferns; dust plants in sulphur.

- **Cercospora Blight of Asparagus** (*Cercospora asparagi*) - small, oval spots with gray or tan color with reddish brown borders on the needles and small branches. **Control**: Avoid OH watering, remove crop debris. Chlorothalonil.

- **Phytophthora crown and spear rot** (*Phytophthora* spp.) - Soft, watery lesions on stem near soil; brown lesions. **Control**: Plant in well-drained soil. Avoid over-watering.
**Asteraceae** (formerly Compositae) characteristics:

- **Flowers**: Flower head is a composite of many individual flowers, usually both ray and disc florets.
- **Fruit**: Achene - a small, dry one-seeded fruit that does not open to release the seed.

**Includes**: Lettuce, Endive, Artichoke
Growing Lettuces, etc.

- Cool Season
- Germination: 59-69°F
- Well-drained soil rich in organic matter. pH 6.0-7.0.
- Full sun.
- Planting: Direct seed or transplants,
- Soil test for fertilization recommendations
- Generally, 2 lbs. 5-10-15/100 ft² monthly.
Growing Artichokes

• Perennial – Herbaceous thistle.
• Deep, well-drained soil. pH 6.0-8.0
• The optimum daytime temperature is 20–22°C (68–71.6°F) and optimum nighttime temperature is 12–14°C (53.6–57.2°F). Temp. extremes reduce tenderness.
• Planting: Usually as transplants or vegetatively from underground shoots.
• Soil test for fertilization recommendations
• Generally, ¼ lb. 8-8-8 per plant per month.
Asteraceae

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<thead>
<tr>
<th>Crop</th>
<th>Spacing</th>
<th>Days to Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artichoke</td>
<td>2-3’</td>
<td>75-85 from transplant</td>
</tr>
<tr>
<td>Lettuce</td>
<td>6-12”</td>
<td>28-58</td>
</tr>
<tr>
<td>Belgian Endive</td>
<td>2-4”</td>
<td>21-28 after forcing</td>
</tr>
<tr>
<td>Crop</td>
<td>Harvest</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Artichoke</td>
<td>When flower bud is young and tight, before it starts to open</td>
<td></td>
</tr>
<tr>
<td>Lettuce</td>
<td>Leaf – as soon as desired size.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loose head and head – as soon as desired size.</td>
<td></td>
</tr>
<tr>
<td>Belgian Endive</td>
<td>When new buds are 2-4” long after forcing.</td>
<td></td>
</tr>
</tbody>
</table>
Asteraceae

Common Pests:
• **Aphids** – As you’ve already seen. Insecticidal soaps.
• **Lepidopteran caterpillars** – As already seen, use Bt.
• **Snails and slugs** – Damage: Irregularly shaped holes in leaves and stems; slime trails present; Frass. **Control**: Iron phosphate.
Asteraceae

Common Diseases:

- **Lettuce drop** (*Sclerotinia minor, Sclerotinia sclerotiorum*) – Survives 8-10 yrs. in soil. **Symptoms**: Wilting of outside leaves spreads inwards until whole plant is affected; soft watery lesions; leaves collapse and lie on soil surface; black fungal structures on infected leaf tissue and soil surface. **Control**: Avoid OH watering. Sanitation.

- **Bottom rot** (*Rhizoctonia solani*) – **Symptoms**: Small red to brown spots on lower leaves, usually on underside of midrib which may expand rapidly causing the leaves to rot. As stems rot, head of lettuce becomes slimy and brown and collapses. **Control**: Avoid excessive irrigation. Mulch.

- **Lettuce Mosaic Virus (LMV)** - Seedborne. Aphid vectored. **Symptoms**: Leaves of plants that are infected at a young stage are stunted, deformed, and (in some varieties) show a mosaic or mottling pattern. **Control**: Resistant varieties. Cert. seed.
Chenopodiaceae

• **Includes**: Beets, Spinach, Chard
• **Leaves**: Simple
• **Flowers**: Minute and inconspicuous, greenish. The calyx usually consists of 1-5 sepals (usually 5). There are no petals. There are 2 (rarely 3 to 5) styles or stigmas.
• **Fruit**: Achene
• **Biennial**
Growing Beets, Spinach & Chard

- Cool Season: Fall/Winter/Early Spring
- Full Sun
- Well-drained soil high in organic matter; pH 6.3-6.8.
- Germination: 59-69°F
- Planting: Direct seed; Chard and Spinach can be transplants.
- Soil test for fertilization recommendations
- Generally, 2-2.5 lbs. 8-8-8/100 ft² prior to planting and again when 4-6” tall.
Chenopodiaceae

Somewhat Variety Dependent, but in general:

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<thead>
<tr>
<th>Crop</th>
<th>Spacing</th>
<th>Days to Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beet</td>
<td>2-4’</td>
<td>55-60</td>
</tr>
<tr>
<td>Chard</td>
<td>6-8”</td>
<td>25-55</td>
</tr>
<tr>
<td>Spinach</td>
<td>3-6”</td>
<td>35-45</td>
</tr>
<tr>
<td>Crop</td>
<td>Harvest</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Beet</td>
<td>Young beets when roots are 1-2” diameter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mature beets when roots are sized, usually, 3-5” diameter</td>
<td></td>
</tr>
<tr>
<td>Chard</td>
<td>As soon as leaves reached desired size but are still tender</td>
<td></td>
</tr>
<tr>
<td>Spinach</td>
<td>Leaves or whole plants when dark green, young and tender</td>
<td></td>
</tr>
</tbody>
</table>
Chenopodiaceae

Common pests:
- Aphids
- Flea beetle
- Leafminers
- Armyworms
- Loopers
- Root-knot nematode
- **Beet cyst nematode** (*Heterodera schachtii*) - seedling exhibit stunting and reduced leaf growth. Roots stunted with lots of secondary roots and yellow-brown cysts. **Control**: Resistant var., Sanitation, Soil Solarization.
Chenopodiaceae

Common diseases:

- **Anthracnose** (*Colletotrichum* spp.) – **Symptoms**: Small water-soaked spots which enlarge and turn tan or brown with a papery texture. **Control**: Avoid OH watering, Cert. seed, Copper.
- **Downy mildew** (*Peronospora farinosa*) – **Symptoms**: Yellow spots on cotyledons and leaves which enlarge over time and become tan in color with a dry texture; purple fungal growth is present on the underside of leaves; **Control**: Resistant var., Copper
- **Cercospora leaf spot** *Cercospora beticola* – **Symptoms**: Brown to gray spots surrounded by red-purple halos; yellow or brown necrotic leaves. **Control**: Remove debris, Avoid OH watering, tetraconazole
- **Bacterial blight** (*Pseudomonas syringae pv. aptata*) – **Symptoms**: Leaves show irregular to circular shaped spots with tan to dark brown centers and dark black borders. **Control**: Cert. seed, avoid OH watering
- **Mosaic and other viruses** Cucumber mosaic virus (CMV) Beet curly top virus (BCTV); Tobacco rattle virus (TRV); Tomato spotted wilt virus (TSWV) – aphid, leafhopper and thrips vectored. **Symptoms**: Chlorotic leaves which may have necrotic spots, mosaic patterns or ringspots; leaves may be puckered. **Control**: Resistant var., Weed control.
Malvaceae

Malvaceae Characteristics:

- Vegetative parts with mucilage (slimy protein).
- **Leaves**: often palmately veined and lobed with star-shaped hairs.
- **Flowers**: 5 petals & sepals; 5 to many stamens, often fused.
- **Fruit**: usually a capsule (simple, dry fruit that splits at maturity) with locules (chambers)
- Okra and hibiscus
Growing Okra

- Warm Season – Summer, okra is a heat lover; Full Sun
- Well-drained sandy loam soil high in organic matter. pH 5.8-6.8
- Germination: 75-90°F, pre-soaking seed improves results
- Space plants 12-18” apart
- 50-60 Days to Harvest
- Harvest: Young tender pods 3-6” long. Become fibrous as they mature.
- Soil test for fertilization recommendations
- Generally, 1 lb. 8-8-8/100 ft2 after first pod set and every 3-4 weeks thereafter.
Malvaceae

Common Pests:

- **Aphids** – Vector viruses
- **Thrips** – Vector viruses
- **Two-spotted Spider Mite**
- **Whitefly** – Vector viruses
- **Fire Ants**: fire ants eat the base of developing blooms, which causes misshapen pods, aborted flowers and the plant to may stop producing. **Control**: Fire ant insecticides outside of growing area.
Malvaceae

• **Common Diseases:**
  - **Southern blight** (*Sclerotium rolfsii*)
  - **White mold** (*Sclerotinia sclerotium*)
  - **Root-knot nematode** *Meloidogyne* spp.
  - **Powdery mildew** (*Oidium asteris-punicei*) – Fungus overwinters in plant debris. **Symptoms:** Powdery white covering on leaves. **Control:** Remove plant debris, Neem, sulfur, copper, chlorothalonil

• **Yellow Vein Mosaic Disease** *Bhendi Yellow Vein Mosaic Virus* (*BYVMV*) - Whitefly transmitted. **Symptoms:** Infected leaves show alternate patches of green and yellow. Veins become clear and chlorotic. Fruits are yellowish green in color and small in size. **Control:** Resistant varieties, remove debris
Poaceae Characteristics:
Monocots
• **Flower**: One to many florets are aggregated into spikelets;
• **Fruit**: a caryopsis (specialized type of dry, one-seeded fruit characteristic of grasses, in which the ovary wall is united with the seed coat).
• **Includes**: Corn, Rice, Wheat, Barley, Oats, Sugarcane, Millet, Sorghum
• **Worldwide**, 70% of all crops grown; corn, rice & wheat provide more than 50% of all calories consumed by humans.
• Sweet corn primary one in home gardens
Growing Corn

• Warm Season
• Well-drained soil rich in organic matter. pH 6.0-6.8
• Germination: 68-95°F
• Direct Seed
• Space plants 10-12” apart; must be planted in blocks
• Days to Harvest: 65-95
• Soil test for fertilization recommendations. Corn is a heavy feeder, especially of nitrogen
• Generally, 2-2.5 lbs. 8-8-8/100ft² at 1’ tall and at 3’ tall.
• Harvest when kernels are plumb and milky – usually when silks turn brown
Poaceae

Common Diseases:
- Anthracnose
- Cercospora
- Rust
- Downy Mildew
- Charcoal rot (*Macrophomina phaseolina*) - plant stalks become shredded and pith is completely rotted. Control: no resistant varieties or fungicides. Avoid plant stress with good fertilization and water management.
- **Common smut** (*Ustilago zeae*) – Overwinters on debris, long-lived. Symptoms: Tumor-like galls on plant tissues. Control: Resistant varieties, remove debris. Fungus is edible.
- **Viruses** - Maize dwarf mosaic virus (MDMV); Maize Lethal Necrosis Disease (MLND); Corn Lethal Necrosis (CLN); Maize Chlorotic Mottle Virus (MCMoV); Sugarcane Mosaic Virus (SCMV); Wheat Streak Mosaic Virus (WSMV)
Common Pests:
• Aphids
• Corn earworm (Control with Bt)
• Armyworm (Control with Bt)
• Flea Beetle
• Thrips – Vector Viruses
• Spider mites
This Can Come From YOUR Garden!
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