Orange Conservation Commission: Flower Seed Program

Presented by:
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My Horticultural Background

- 60 years of trial and error starting age 6.
- Minimal advice from parents.
- Asked advice from successful gardeners.
- Saving seeds since 1976.
- Recently: Advice from internet sources:
  - Growit Buildit
  - Backyard Ecology
  - Bright Lane Gardens

Tonight's Agenda

- Learn a few special seed requirements.
- Talk about several specific flowering plants,
  and if any of those seed concepts apply to these plants.
- Send you home with seeds from these specific plants.

- PowerPoint and summary chart will be available at
  OCC website, so less note taking is needed.

#1 Indoor sowing

- Purpose: To get earlier germination. (My serrano peppers take almost 5 months from sow to fruit.)
- Use seed starter mix, not potting mix, soil, or compost.
- Pre-soak or spray starter mix before adding seeds.
- Artificial lighting: led or fluorescent. $50 minimum.
- Light 12 to 16 hours, not 24 hours so use a timer.
- Move from seed cells to red solo cups or other containers when true leaves are established, before plants become root bound.
- Some suggest a fan over seedlings. Avoids algae & mold.
- Harden off gradually.

#2a Cold (Moist) Stratification

Cold Moist Stratification

- Need to trick seed into thinking that winter has passed and spring has begun before germination can start.
- Most seeds native to Connecticut need (or benefit) from cold stratification.
- Best time to germinate is a wet spring with a warm summer ahead. Fall germination is inefficient and potentially fatal to the species.
- Stratification period ranges from 1 week to 4 months, depending on the plant. Most are 60 – 90 days.

Cold Moist Stratification Process

- Place seeds on paper towel or coffee filter.
- Fold up paper to secure seeds.
- Place in a labeled zip lock bag.
- Add some water, but squeeze out excess.
- Place in refrigerator (33-40 degrees) for 1 week to 4 months, depending upon the plant. Longer time is OK
- Most refrigerators are 42 degrees or more (too high). Lower the temperature on beer fridge or dorm room fridge.
- Bring zip lock out and plant when you are ready to sow.
- You control when winter begins, winter ends, and spring begins.

Cold Stratification Oddities

- Some seeds need cold, warm, cold, then warm before germinating (double dormancy). e.g. Eastern redbud.
- Pitch pines (dominant species in New Jersey Pine Barrens) needs fire then cold stratification before they can germinate. Several years of seeds can remain dormant.
- Saskatoon berries: warm soak 24 hours, then warm moist 1 month, then cold moist 4 months.
- American witch hazel needs:
  - Warm moist for 4+ months
  - Then cold moist for 3+ months
  - Then warm moist for up to 2 summers.

#2b Winter (Moist) Sowing

- Alternative to cold stratification.
- Began about 25 years ago. More popular in last 5 years.
- At least three Facebook groups on Winter Sowing.
- Uses mother nature to supply the coldness and the lighting.
- Nature will determine proper time of germination.
- Find a location with only part sun where they won't blow over and where they get rain/snow. Ground is preferred to decks or tables.

Winter Moist Sowing Process

- Clean gallon milk container or similar.
- Throw out the cap.
- Drill 5 drainage holes in bottom/lower side (5/16 inch).
- Mark 3-4 inches from bottom (below handle) then cut. Leave a hinge at the handle.
- Place 3-4 inches of potting soil (not moisture retaining) in container. This is about 2 quarts or 8 cups.
- Water and wait a bit as water drains.
- Place seeds on soil. Not too many seeds per container.
- Place potting soil on top of seeds (if needed).
- Spray water on top.

Winter Sowing Process

- Label (inside and out?).
- Sharpies fade outside. “Garden Marker” is reliable.
- Close the cut with duct tape. Not too much.
- Four one-gallon jugs fit in a milk crate.
- Place outside in partial sun where it can get rain or snow.
- Check weekly for moisture. Should have condensation.
- Open top if leaves hitting top of container.
- Need to cover if below 40 degrees and plants sprouted.
- Move into more sun when germination begins.
- Move to shade if outside temperature 70 or higher.

Winter Moist Sowing: When and What

- Not at winter solstice (as some suggest).
- Mid-January to mid-February. Make sure enough days for that species.
- Periodically check for adequate moisture.
- Wind can blow them over.
- Protect plants on cold nights once germination begins.
- Make sure they don't overheat once germination begins.
- Any plant that requires cold stratification or that is cold hearty.

Winter Moist Sowing vs. Cold Moist Stratify & Indoor Planting

- WS does not require artificial lighting.
- WS saves refrigerator space. No need for colder refrigerator than normal.
- WS automatically hardens off the plants.
- WS requires only minimal watering.
- WS saves a planting step.

- CS is better if freezing the seed is deadly. (Pawpaws, spicebush).
- CS can get more growth the first year.

Winter Moist Sowing or Cold Moist Stratify Indoor Planting vs Direct Sow Outside

- WS or CS / indoor planting is not subject to birds or rodents eating the seeds.
- WS or CS / indoor planting has better moisture control for the seeds.
- Can be difficult to tell intended plants from weeds if direct sow.
- Direct Sow Outside is more practical for a very large area.

#3 Scarification

- Sometimes the hard seed coat needs to be ground off to improve germination.
- Option of sandpaper or nail file.
- Option of mild acid or bleach. (Not recommended by me.)
- In nature, this task is performed by sandy soil or gravel rubbing against the seed, or by freeze and thaw of soil, or by acidic digestive juices, or by bird gizzards.

#4 Pre-soak

- Many larger hard seeds benefit from soaking from 8 to 24 hours in water.
- This process can speed up germination time and percent that germinate.
- Vegetable examples are corn, okra and beans.

End of Section on
Growing Methods

Beginning on the
Specific Flower Section

Flower Selection Criteria

- Deer and rabbit resistant (all but last one). Note that all plants may need deer and rabbit protection early on before they develop their resistance.
- Generally drought resistant (once established).
- Emphasis on orange flowers.
- Include seeds that I could harvest for free.
- Preference for plants native to Connecticut.
- Beneficial to pollinators.

Orange Cosmos
Cosmos sulphureus

- Flowers very popular with honey bees, bumble bees, and other wild bees.
- An annual that will somewhat re-seed next year.
- If planted dense enough, they will crowd out weeds.
- Grows 1 to 3 feet high (partial sun to full sun).

Orange Cosmos

Orange Cosmos

Growing Orange Cosmos

- Easy!
- Best if direct sown mid to late May.
- Turn over the soil.
- Sprinkle seeds on top of the soil.
- Sprinkle some soil on the seeds.
- Be careful not to snap the seeds.
- Water each day until plants appear (7 to 14 days).
- Water regularly until the plants are a few inches high.

Gather Orange Cosmos Seed

Gather Orange Cosmos Seeds

After cutting back

Cardinal Climber

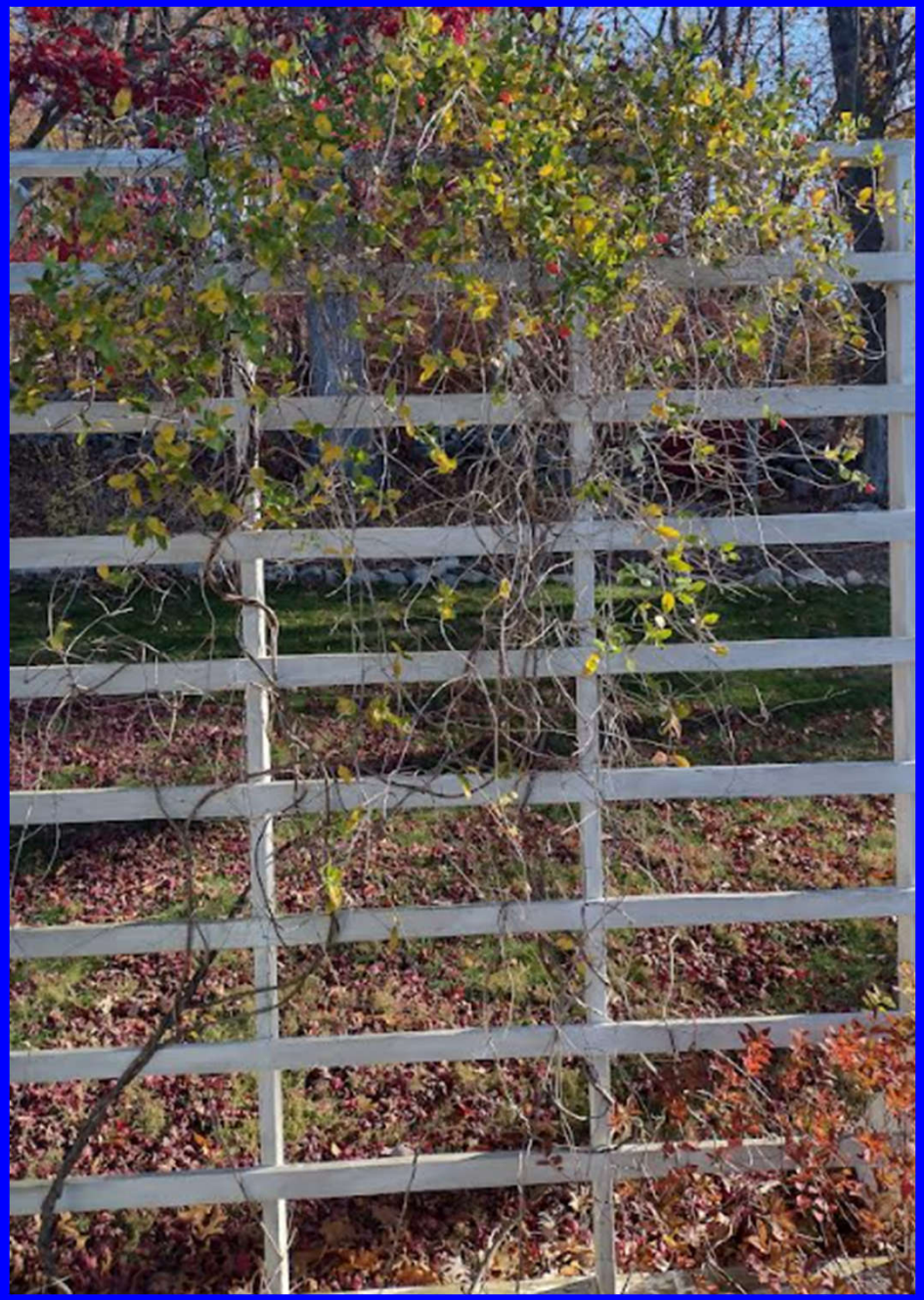
Ipomoea sloteri

- Common name often used for different species.
- Only feeds hummingbirds, so they have exclusive use to these flowers.
- Interesting shaped leaves.
- Needs twine or trellis to climb.
- Will not re-seed in New England.
- Scarify and pre-soak.

Coral Honeysuckle
Lonicera sempervirens

- Cold stratify or winter sow.
- Heavy bloom in spring when hummingbirds arrive, then continuing somewhat until November.
- My 10 year old plant is still well behaved.
- Needs a trellis.
- Hosts spring azure butterfly and clearwing moth caterpillars.
- Birds eat berries.
- Aphid damage only one year on 1 of 2. plants.
- Usually propagated by softwood cuttings in summer.

Coral Honeysuckle

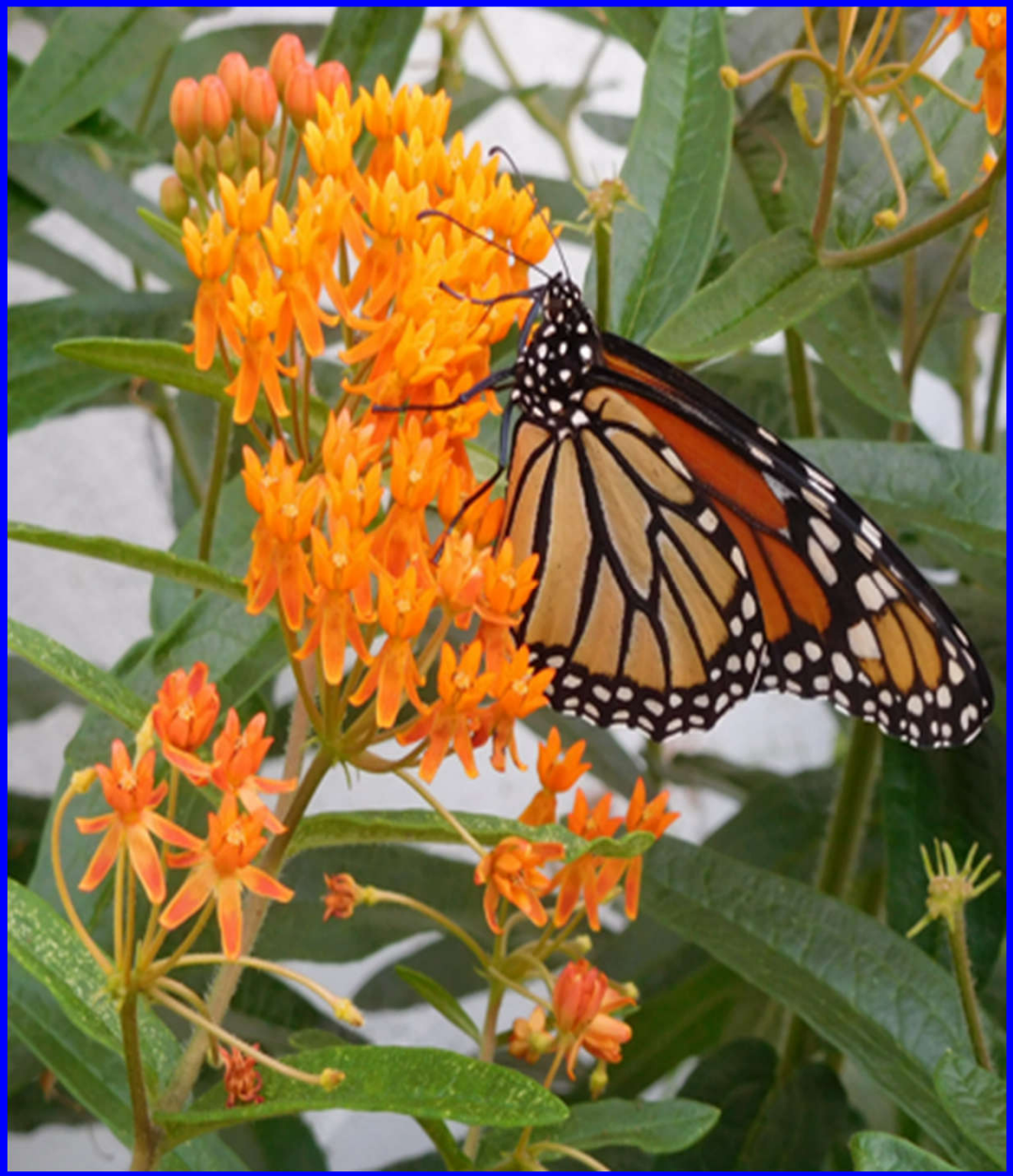


Butterfly Weed
Asclepias tuberosa

- Flowers very popular with honey bees, bumble bees, other wild bees, and butterflies.
- Monarch butterfly caterpillars will feed on the leaves.
- Drought tolerant once established due to tap root.
- Perennial whose seeds will spread plants a little.
- Needs well drained soil. Along driveway or sidewalk works best for me.
- Transplant when still very small.
- Grows 1 foot high and is a compact plant.
- Wait for seed pods to almost split before collecting seed.
- Kills 60-80% of spotted lantern flies within 24 hours.

Butterfly Weed Seed Pods

Monarch Feeding in Two Stages



Top view of butterfly weed in early season.

Purple Milkweed
Asclepias purpurascens

- Endangered species in Massachusetts.
- Species of special concern in Connecticut.
- Not an aggressive spreader like many milkweeds.
- Relatively compact size.
- Challenging to grow.
- Seeds not readily available.
- Cold stratify.
- Likes afternoon shade.
- Wait for seed pods to dry and almost split before collecting seed.

Goldenrod
Solidago sp.

- Fireworks and Showy are two varieties that don't take over an area.
- Hosts more caterpillar species than any other non-tree flower in Connecticut.
- Support greatest number of specialist bees in Connecticut. Connecticut has 91 (or more) specialist bee species.
- Important source of nectar and pollen for bees in late summer and early fall.
- Unjustly accused of causing allergies since it blooms the same time as ragweed.

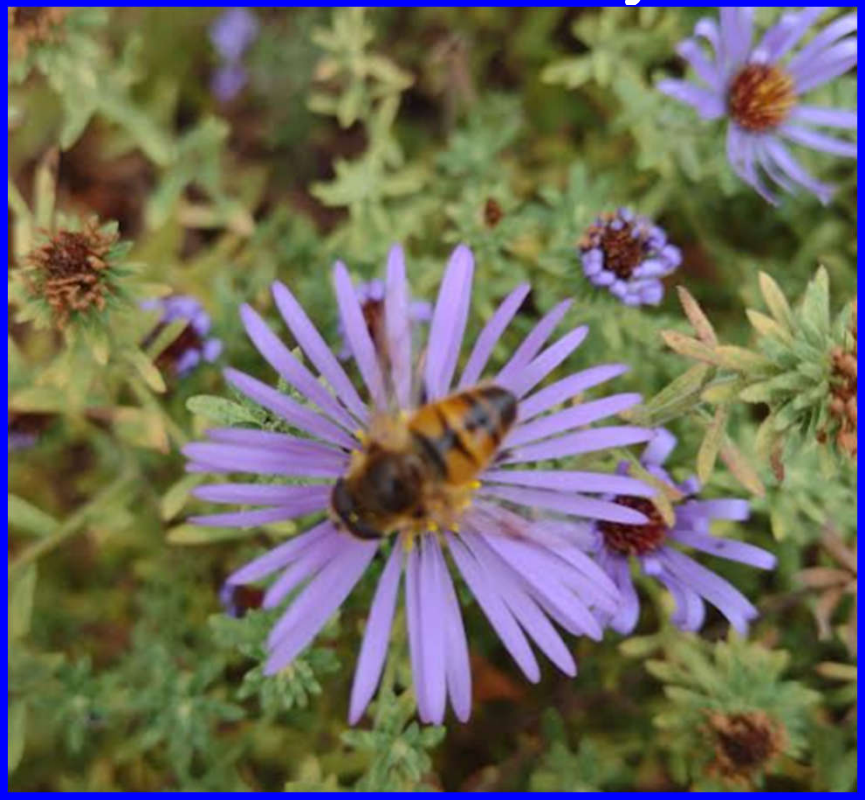
Showy Goldenrod

Fireworks Goldenrod when seeds can be harvested

Aromatic Aster

Symphyotrichum oblongifolium

- Latest flowers to bloom in Connecticut.
- Excellent for specialist and general caterpillars and bees.
- Spreads a bit my rhizomes.
- Aromatic aster with a drone fly:



Blunt Mountain Mint
Pycnanthemum multicum

- Can be winter sown.
- Most diverse array of insects. Insect observation is the main appeal. Some look like a sci-fi movie.
- Crushed leaves repel mosquitos.
- Spreads, but not as much as other mints.
- Can hold its own against weeds and invasives.
- Minimal visual appeal of flowers, but the “Fill” in “Spill”, “Thrill” and “Fill”.
- 2025 perennial of the year.
- Attracts blue winged wasps which attacks Japanese beetle larvae.

Blunt Mountain Mint

Pycnanthemum multicum

False Indigo (*Baptista*)

- Flowers only assessable to bumble bees.
- Extremely drought tolerant due to tap root (4+ foot).
- Flowers are blue or yellow.
- Puts nitrogen into the soil.
- Cold stratify.
- Some flowers in year two.

False Indigo Seed Pods

- Wait until pods are black and the seeds inside rattle.

New York Ironweed

Vernonia noveboracensis

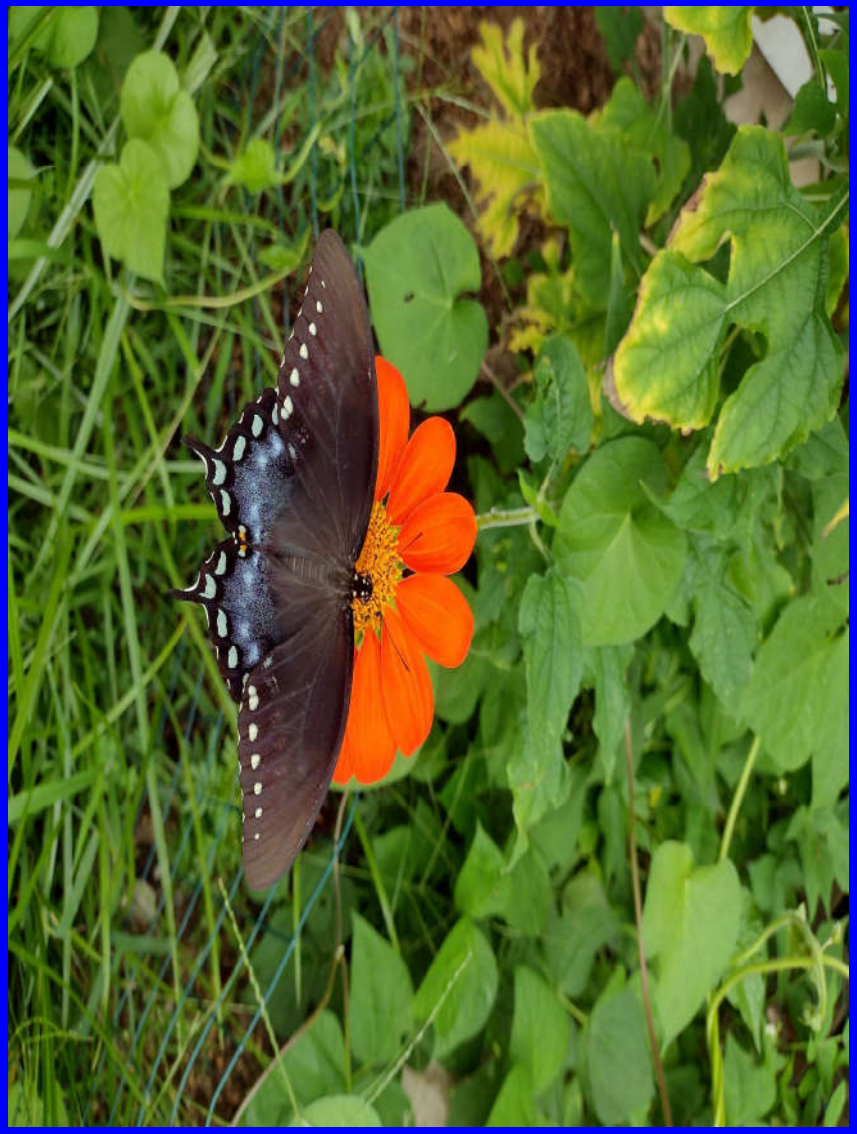
- Tall plant (5 to 8 feet).
- Flowers used by bees and butterflies.
- This species does not spread as much as others in its genus.
- Some bees only feed on this.
- Some caterpillars only feed on these leaves.
- Supports 22 different caterpillars.
- Needs some watering in full sun.
- Low germination rates.

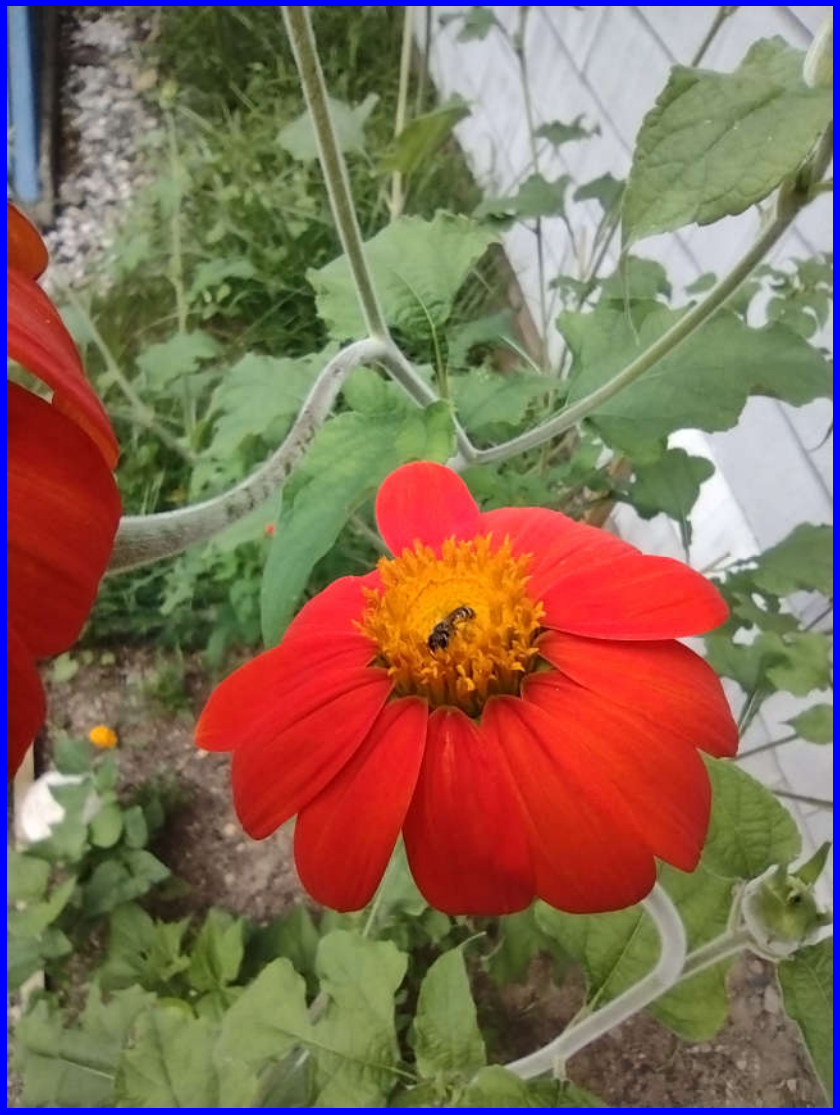
Mexican Sunflower
Tithonia rotundifolia

- Annual that should be started indoors.
- I start mine April 15.
- Flowers begin in 2 ½ months.
- Bees, butterflies, and hummingbirds will feed on it.
- Use seed starter mix and artificial lighting.
- Grows 3 high and wide.
- Extremely drought tolerant.
- Goldfinches love the seeds.

- Deer and groundhogs will eat, so locate in fenced in garden or area where they don't go.

Mexican Sunflower Pollinators





Mexican Sunflower

- Seeds on the right (arrowheads).
- Tap on table or pull out and get pinched.

Summary of Flowers

Common Name	Scientific Name	Native to Connecticut?	Life	Scarify	Pre-Soak Before Planting?	Cold Damp Stratify 33 to 40 degrees	Winter Sow	Germinate Temperature	Seed Depth
Orange Cosmos	*Cosmos sulphureus*	no	annual	no	no	no	no	70-75	barely cover
Cardinal Climber	*Ipomoea sloteri*	no	annual	lightly	12-24 hours	no	no !	night temp above 50	1/4 to 1/2 inch
Coral Honeysuckle	*Lonicera sempervirens*	yes	perennial	no	no	90 days	probably		1/4 inch
Butterfly Weed	*Asclepias tuberosa*	yes	perennial	no	no	6+ weeks	yes	68-75	1/8 to 1/4 inch
Purple Milkweed	*Asclepias purpurascens*	yes	perennial	no	no	4+ weeks	yes	70-82	1/8 inch
Goldenrod: Fireworks	*Solidago rugosa*	yes	perennial	no	no	60 days	yes	around 70	on surface
Goldenrod: Showy	*Solidago speciosa*	yes	perennial	no	no	60 days	yes	around 70	on surface
Aromatic Asters	*Symphyotrichum oblongifolium*	yes	perennial	no	no	benefit?	yes	65-75	on surface
Blunt Mountain Mint	*Pycnanthemum muticum*	yes	perennial	no	no	benefit?	yes	65-75	on surface
False Indigo	*Baptisia australis*	up to Pennsylvania	perennial	lightly	12-24 hours	6-12 weeks	yes	50+	1/8 to 1/4 inch
New York Ironweed	*Vernonia noveboracensis*	yes	perennial	no	no	60 days	yes	night temp above 50	barely cover
Mexican Sunflower	*Tithonia rotundifolia*	no	annual	no	no	no	no	70-85	barely cover

Saving Seeds

- Hybrids or F1 will not produce the same fruit or flower.
- Beware of cultivators with breed-out traits.
- Make sure the seed is fully mature before collecting.
- Make sure the seed is fully dry before storing.
- If removing seed from fleshy fruit, remove the fruit then soak 8 minutes in hydrogen peroxide before cold moist stratification.
- Dry seeds store well in envelopes in my basement. Label with seed type and year collected.

Separating Seedlings

- When 1 or 2 sets of true leaves (when in cells). Winter sowing can stay longer since more soil in first pot.
- Before the roots start to clump.

- Squeeze sides of cell to pop it out.
- Use plastic knife if needing help to remove from cell.

- Stab with plastic fork to remove from winter sowing.
- Prep the new pot with moist potting soil.

Other

- Prairie Moon Nursery is recommended source for wildflower seeds and seed information.
- Before buying a specific species, do some research for things like: deer resistance, sun requirements, benefit (or detriment) to local environment, if invasive, preference for wet or dry soil.
- Plants native to Connecticut are always preferred.
- Only cost is a bag of potting soil if you get collected seeds and winter sow. 25 Quart bag of Miracle Grow Potting Mix fills 12 one gallon jugs for $9.50 (plus tax).

Other

- Neonicotinoids on seed can stay with the plant.
- I use well water. Rain water / melted snow seems to be better than chlorinated water to me. Let water sit so that it gets to room temperature. Rain water adds nitrogen.
- 91+ bee species in Connecticut only feed on one genus of plant flowers. Flowers include goldenrod, ironweed, violets, blueberries, true sunflowers.
- Look for beauty and wildlife value.
- At least 70% of your trees, shrubs, and perennials should be native to Connecticut.
- Native plants are best adapted and support native insects.
- Native bees only travel ½ mile to 3 miles.