



Growing Tomatoes, Peppers & Eggplants From Seed

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Class Agenda and Miscellaneous

- Please keep talking to a minimum. Also let's do questions at the Q&A times to avoid the class going long.
- First we'll talk pepper and eggplants, then tomatoes.
- A bit of history, a bit of categories, and their care. Some care overlaps.
- There will be a short lunch break
- Then we'll sow our flats
- Then we'll discuss how to germinate the flat and ongoing care.

What we don't discuss today: Other summer vegetables or care AFTER the tomatoes go into the ground. We do discuss pepper and eggplant care after they are planted, but our 5 hour Tomato Masters class discusses care after planting.

Pepper Categories

Sweet bell peppers come in various sizes and colors, and their colors change as they mature. They grow best where summers are long and warm.

Specialty sweet peppers include pimentos, frying peppers, and other sizes, shapes and flavors. Small-fruited varieties are among the easiest peppers to grow.

Southwestern chile peppers have complex flavors with varying degrees of heat. Many varieties bear late and all at once, so they can be a challenge to grow in climates with short summers.

Specialty hot peppers range from moderately spicy jalapeños to hotter cayennes to hottest-of-all habanero crosses. Most are easy to grow, however have long germination times and fruit maturation times.

Ornamental peppers may feature spicy, brightly colored fruits, purple or variegated foliage, or both. These are still edible and interesting, but their show-stopping appearance is fantastic.

Scoville Units

- The **Scoville scale** is a measurement of the spicy heat of a pepper.
- Wilbur Scoville, in 1912, devised the test and is quite an accurate measurement of SHU (Scoville Heat Units).
- The number SHU indicates the amount of capsaicin present. Capsaicin is a chemical compound that stimulates chemoreceptor nerve endings in the skin, especially the mucous membrane.
 - Bhut Jolokia (Ghost Pepper) from India recorded at around 1,000,000 SHU
 - Naga Viper is around 1,359,000 SHU
 - Carolina Reaper is around 2,200,000 SHU
 - New one as of 2018: Pepper X at 3,180,000 SHU

EXAMPLE	SCOVILLE HEAT UNITS
Pure capsaicin	16,000,000
U.S.-grade police pepper spray	2,500,000 – 5,300,000
Carolina Reaper	1,000,000 – 2,200,000
Trinidad moruga scorpion	1,000,000 – 2,000,000
Bhut jolokia (ghost pepper)	855,000 – 1,041,472
Red Savina habanero	350,000 – 580,000
Habanero chile, Scotch bonnet	100,000 – 350,000
Chiltepin	50,000 – 100,000
Tabasco pepper	30,000 – 50,000
Manzano pepper, chile de árbol	12,000 – 30,000
Serrano pepper	6,000 – 23,000
Chipotle pepper, jalapeño	3,500 – 10,000
Tabasco brand Original Red Sauce	2,500 – 5,000
Poblano (ancho), pasilla	1,000 – 4,000
Paprika, pepperoncini, pimento	100 – 900
Bell pepper	0

When to Start Pepper & Eggplant Seeds

- Start seeds indoors in late winter, 12 to 16 weeks before your last spring frost date. Today's peppers & eggplants will be ready to plant out late April or early May. The tomatoes will be ready earlier than that.
- Provide bottom heat to keep the seed flat near 80 to 85 degrees Fahrenheit.
- Make sure the seeds stay slightly moist. Seeds should sprout within three weeks. Some will take longer. This is a lot longer than tomatoes!
- Transfer seedlings to larger containers between March 15 and April 1. Grow them in larger pots for another 4 to 8 weeks before planting out.
- Don't plant peppers or eggplants outside until the weather is consistently warm. Never plant during a period of cold weather.

Culture of Peppers & Eggplants

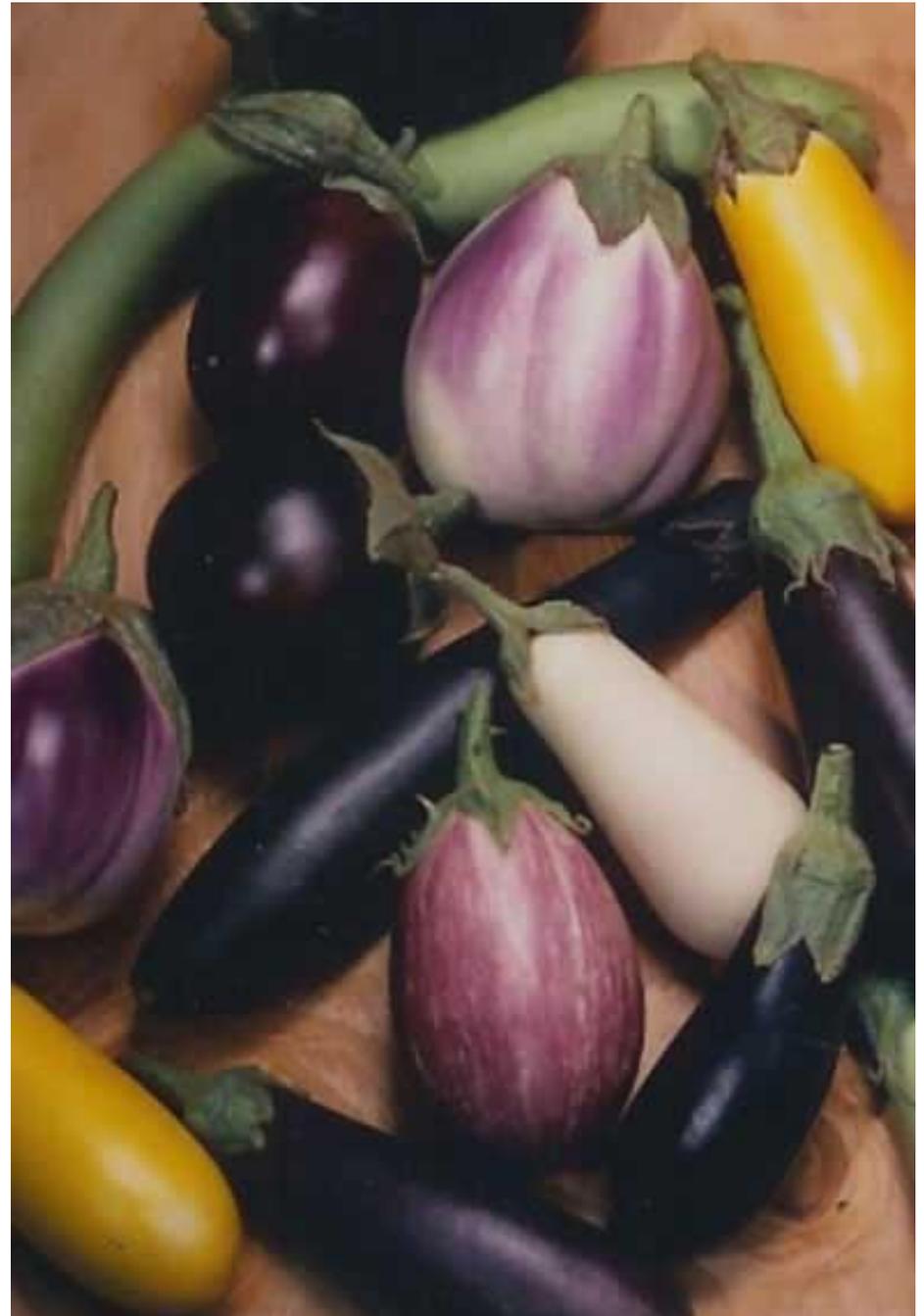
- All peppers and eggplants grow best under warm conditions, but gardeners in cool climates can keep peppers happy by using row covers their first month planted outside.
- Choose a sunny site that has fertile, well-drained soil with a pH between 6.0 and 6.5.
- Add fertilizers and compost to planting beds. We add one bag Harvest Supreme, four cups 4-6-3 fertilizer and four cups worm castings per 50 square feet bed. Also sprinkle one T of Mykos on rootball of each as you are planting and throw handful of Bone Meal into hole.
- Be careful with nitrogen when preparing your beds and planting holes, as overfed plants produce lush foliage but few fruits.
- Space peppers and eggplants about 18”
- Unlike tomatoes, do not sink them deeper in their planting hole than perhaps an inch or two.

Harvesting Peppers

- Both sweet and hot peppers can be eaten at all stages of growth but are most flavorful when mature and fully ripe.
- Hot peppers are typically green in early maturity but quickly turn colors including yellow, orange, purple, red, or chocolate brown depending on the cultivar. The different cultivars vary drastically in size and shape. Although they can be picked when green, their heat and flavor increases as they are allowed to mature and ripen to colors other than green.
- Sweet Bell type peppers are can be harvested when firm and full size (at least 3 1/2 to 4 inches) but still green. If left to ripen, they may also turn red, yellow, orange, purple or even chocolate-colored depending on the cultivar. The less green you see, the better the taste in both sweet and hot peppers.
- Once peppers begin to turn colors, they progress quickly so should be monitored carefully.
- Once they turn their final color, they deteriorate very fast and should be picked and refrigerated.

Eggplant 101

- Originated in India
- Hundreds of cultivars
- Colors: white, green, striated, light purple, dark purple, yellow, orange
- Shapes: small round, elongated, globe, pear
- Harvest when fruit is shiny
- Dull fruit is overripe and will be bitter
- When thumb pressed into flesh, it springs back. If not, eggplant is not ripe.



Staking Peppers & Eggplants

You must stake them, otherwise fruit will touch ground and become infested with worms and pillbugs.

First Method:

Horizontal netting
aka "Horti-Net"



Second Method:

Regular conical tomato cages
(not good for tomatoes, but
great for peppers & eggplants)



Pro-tip: Clear or Black Mulch

- Add to bed 3 weeks before planting along with Mustard Meal (for nematode control), compost, worm castings & fertilizer.
- Lay over irrigation lines.
- Make contact with soil.
- Cut an "X" into it, dig a hole and plant.
- Cover plastic with straw after weather turns hot in mid June.



Bed Covers and Row Covers

- In cool climates, use black or clear plastic mulch in addition to row covers to create warm conditions for peppers and eggplants. Tomatoes love this too.
- Row cover, aka “floating row cover” on hoops to keep young plants happier in early part of season.
- If you don’t use plastic, then cover surrounding soil with a mulch of clean straw or grass clippings so ripening fruit don’t come in contact with soil starting mid June.
- Don’t plant before May 1 unless on plastic and covered with FRC.
- In colder climates, like mountains, best to wait until May 15.
- Cover with FRC for first month for max results regardless of planting date.
- Put on plastic their whole season if you can swing it.



Troubleshooting and Tips

- Remove first few blooms in order to push plants' energy into green growth.
- Best to put peppers & eggplants in different bed than tomatoes, as the former need more frequent watering.
- Don't let dry out between watering
- If blossoms drop on their own, it means nights are too cold.
- Blossom end rot: calcium deficiency. Add handful of bone meal to planting holes.
- Peppers & eggplants actually like to be grown in pots, but they'll still need bone meal and lots of fertilizer during growing season and extra water.



LET'S TALK TOMATOES NOW!

Heirloom vs. Hybrid

- Saved seed will sow true
- 1 genetic parent
- Diversity in color, shape, taste
- Less prolific
- Green shoulders
- Mostly Indeterminate
- Cannot save seed
- 2+ genetic parents
- Disease-resistance & shelf life
- More prolific
- Perfect-looking
- Mostly Determinate



Fruit Size and Minimum Sunlight Hours

Cherry	3 hours min.	.5 ounce
Small	4 - 5 hours	1-3 ounces
Medium	5 - 6 hours	4-8 ounces
Large & XL	7 - 8 hours	>9 ounces

- Coastal fog reduces sunlight hours
- Shade from trees is a factor
- Beginning and end of season reduces sunlight hours

Indeterminate Growth Habit



- Undetermined as to how tall it will get
- Requires proper staking
- Will shade other plants
- Harvest over longer season
- Put larger fruited on south side of beds

Culinary Purposes of Different Shapes

Beefsteak - Slicers, salads, not great canners



Oxheart - Double duty, slicing and canning

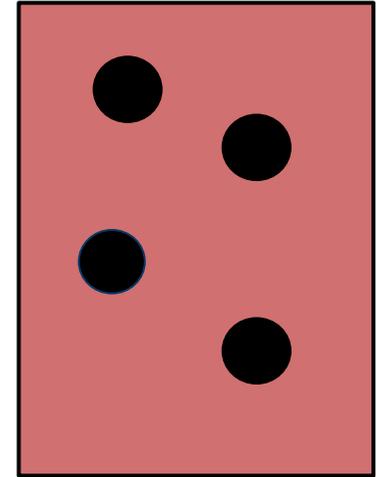
Plum, Pear, Roma-type - Use for canning and salsa making

Ruffled - great for stuffing (a bit hollow)



Sowing Flats

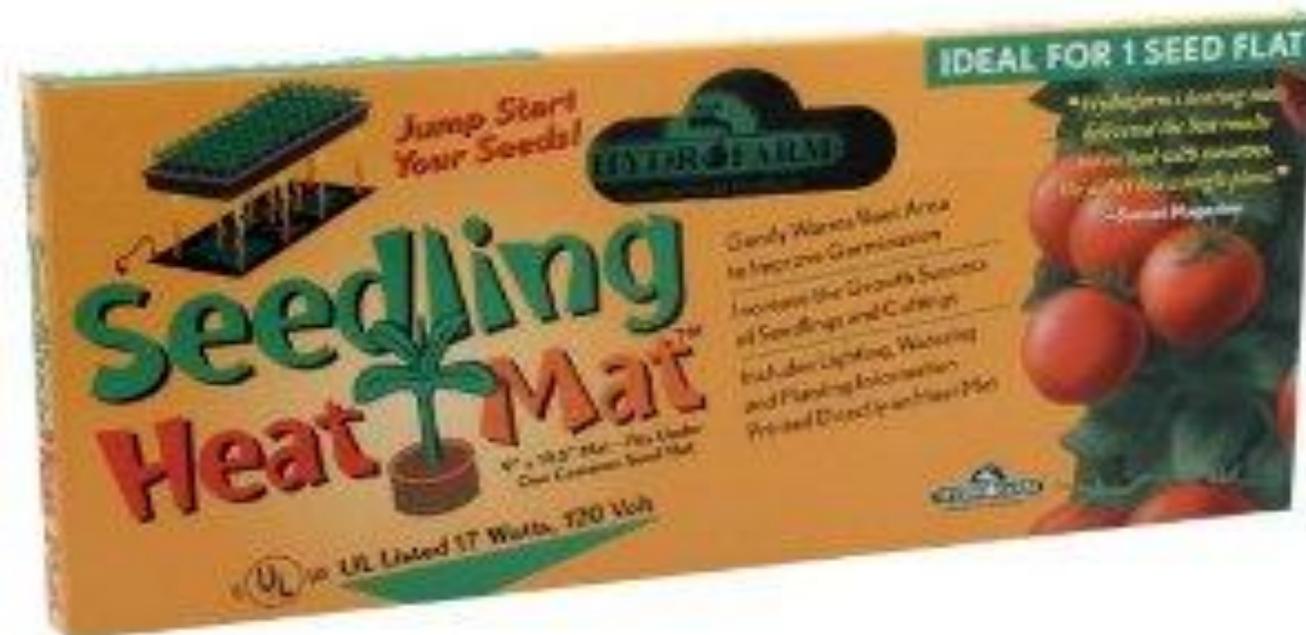
- Don't poke seeds into soil or make a divot (we will cover with soil afterwards)
- Only 4 seeds per cell
- Space seeds apart evenly > > > > > Example > > >



- Half labels, pencil only, push label in so it contacts bottom of flat
- Don't make labels until seed is in hand for that variety
- Pass in circle, clockwise. Seeds will go around several times
- Separate seeds stuck together by rolling in your palm.
- Seeds will flip around, so watch out!
- Put lids back on tight after selecting. Only have 1 container open at a time

Seedling Tray Care

- Water 3 times and cover with plastic
- Optimal temperature: 80 degrees
- Remove plastic cover once seeds sprout
- Immediately put them out in direct sun after first seed sprouts
- Then back inside on heat mat each night for another 3 weeks. Thereafter, they don't need heat mat, but still need to be inside at night and outside in sun during day.



Pricking Out (aka Potting Up)

- Transplant into small containers once tomatoes show several sets of leaves. Peppers and eggplants at least one set. Ensure pots have holes in bottom.
- Tomatoes get transplanted much deeper than they were before. Not peppers or eggplants (only one inch deeper).
- Use EB Stone Ultimate Recipe Potting Soil (buy here and we will load).
- These trays go outside in direct sun and then back inside at night until at least April 15. Exception is bad storm.
- Tomatoes may need potting up a second time around April `.
- Start fertilizing with half strength liquid organic all purpose fertilizer or worm casting tea after March 15.



Worst pest of young seedlings: Aphids

- Green, Black, Red, Grey
- Watch for curling leaves
- Organic pesticide: Pyrethrin or Neem oil
- Season-long preventative: Bayer Insect Control
- Washing off with water doesn't work



Tomato Planting Hole Recipe

- Dig 2 foot deep hole (if you are using a fish head)
- Put fish head in bottom of hole or ½ cup Fish Meal
- Add ½ cup Bone Meal
- Add ½ cup G&B 4-6-3 Fertilizer
- Add ½ cup worm castings
- 2 aspirin tablets
- 2-3 eggshells

Add soil until the hole is deep enough so that the transplant has half its stem underground.

- Add ⅓ pkg to 1pkg (about ¼ to 1 cup) Mykos (sprinkle on root ball)

Continue adding soil until the hole is filled. Push gently; do not crush. Water three times. Then back off watering, probably for at least a week. Check soil below soil level to see if getting dry before watering again.

TOMATO MASTERS CLASS: Takes care from this point onward, including fertilizing, pests, diseases, pruning, staking, harvesting, seed saving.

Upcoming Classes at Love Apple Farm

- Fruit Trees
- Designing the Perfect Vegetable Garden
- Summer Vegetable Gardening
- Bee Keeping
- Herb Gardening
- Tomato Masters
- Drip Irrigation
- Compost & Worm Bins
- Garden Mosaics

Annual Spring Vegetable Plant Sale
Open to the public: March 27 - June 27
Pre-Sale Pick-up: March 20
Pre-order online at LoveAppleFarms.com

