



Solanaceae aka Nightshade Family
Potatoes, Tomatoes,
Peppers, Eggplants, and Tomatillos

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Potatoes & Tomatoes
Presentation Created and Presented by
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Resources

The information contained in Growing Groceries presentations is based on WSU home gardening publications and other science and research based materials. Resource lists are provided on the King County Growing Groceries website and at the end of some presentations.

To enliven the learning experience, speakers may use examples from their own garden experience and draw from their personal gardening successes and failures.



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Join Us After Class Is Over Tonight

Immediately after tonight's presenter finishes, several Master Gardener Video Clinic specialists will remain on Zoom to help you with any gardening questions you may have, whether related to tonight's presentation or not.

Just stay with us on Zoom, we'll reconfigure our format then start immediately



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A Note About Our Class Tonight

We Master Gardeners are all volunteers, and while we have acquired basic Zoom skills, sometimes unforeseen technical issues arise.

Please bear with us, be patient and understanding if any technical glitches pop-up during tonight's presentation.



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"Ask a Master Gardener" Video Clinic starts April 6, 2021

- Reach us live and online to talk with our clinicians. Bring your questions, and even share images of problems from your garden.
- For instructions to access the Video Clinic, go to <http://www.mgfk.org/ask-a-mg>

Tuesdays from 7 p.m. to 8:30 p.m.

Saturdays from 11:30 a.m. to 1 p.m.



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"Ask a Master Gardener" Email Clinic is staffed daily

Send a messages with questions and photos to ask-a-mastergardener@live.com

Or, use the form you'll find online at <http://mgfk.org/e-clinic>



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37th Annual Spring Plant Sale

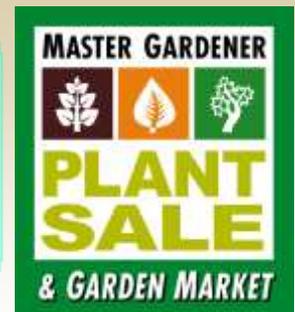
Online store this year--start browsing April 15.

Ordering open: April 21 through April 27

Thousands of veggie and herb starts, including heirloom and rare tomatoes grown by the Bellevue Demonstration Garden Master Gardeners

Specialty plant vendors - lots of surprises!

Details at <https://www.mgfk.org/events/plant-sale>



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Diverse Family of Plants

Common edibles:

- Tomato
- Eggplant
- Potato
- Pepper
- Tomatillo
- Tobacco

Less common edibles:

- Naranjilla
- Goji berry
- Tamarillo
- Ground cherry
- Pepino
- Garden huckleberry

Part I: Potatoes



Choosing Your Seed Potatoes

Certified potato seed considerations:

- Color/shape
- Maturity
- Storage
- Cage
- Yield
- Usage
- Firm, egg-sized, with at least two eyes



Seed Potato Sources

Best: certified potato seed

- Reputable nurseries
- Catalogs: Territorial Seed Company, West Coast Seeds, Wood Prairie Farm

Not likely to be successful:

- Grocery store potatoes (treated with sprouting inhibitors, may carry disease)

More challenging:

- Using true potato seed
- Saving your own tubers



Chitting and Dividing

Chitting is the practice of encouraging seed potatoes to sprout before planting

- Place potatoes in a tray or egg carton in a lighted, cool place
- Allow 2–3 sprouts to form and rub/cut off extra sprouts

Dividing is the practice of cutting up large whole seed potatoes

- Use a clean sharp knife, 1.5" minimum
- Leave at least two eyes per cut
- Harden off for a day or two



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Get Ready to Plant!

- Well-drained area
- Sunshine
- Add finished compost, aged manure, or organic fertilizer
- Till to a depth of 6–8 inches
- Create furrows or trenches
- Optimal pH 5.2–6.0



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Time Your Planting

- Wait until the soil is dry enough to be worked
- 4–6 weeks BEFORE the last frost date
- Mid-March to mid-April



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A Few Ground Rules...

- Plant seed potatoes in shallow trenches (4–8" deep)
- Space each one 10–14" apart in rows spaced 24–36" apart
- Cover with 3–4" of soil
- Be patient: growth will emerge in 2–4 weeks



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Watering

- Do not water until new growth emerges above ground
- Maintain regular watering during the growing period — uneven watering causes uneven tuber development
- Avoid wetting foliage
- Stop watering when vines begin to die back



Hilling

Definition: a technique that involves covering growing potato vines with soil while they grow

Guidelines: after the first 6–8" of growth, use a hoe to mound 2" soil from the surrounding area towards the stems; 2–3 weeks later add another 1–2" of soil and 2 weeks later add another 1–2"

Benefits: weed control, soil loosening, preventing greening of tubers



Harvesting New Potatoes



Harvest may begin after you see flowers.

Poke into the potato hill by hand and see if you can find a few while leaving other potatoes to mature.

Or you can harvest the entire plant, but you will sacrifice your yield if you do this.

New potatoes are immature potatoes. They have thin, wispy, edible skins and a crisp, waxy texture. Unlike mature potatoes, they keep their shape once cooked and cut. They are sweeter because their sugar has not yet converted into starch, and are particularly suited to salads.

Harvesting Mature Potatoes

- Wait **two weeks** after the vines die back to allow the potato skins to toughen up
- Harvest before it rains
- Harvest early in the morning while it is still cool
- Use a lifting fork
- Field grade the harvest — remove blemished, scabby, misshapen, injured or green tubers



Storage

All potatoes

- Dry off
- Brush off dirt
- Store in a cool dry place

New, blemished or damaged potatoes

- Use within a **few days**

Intact mature potatoes

- Store at 40–50 degrees
- Good ventilation, humidity
- Avoid plastic, apples, ethylene
- Inspect regularly

- Use within **3 to 4 months** — storage life varies among cultivars



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Green Potatoes — Do Not Eat!

- Potatoes exposed to sunlight while growing or during storage develop green areas
- The green (chlorophyll) indicates that a glycoalkaloid poison called solanine is present under the skin
- Solanine is toxic



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Diseases

- Late blight
- Scab
- Black scurf
- Verticillium wilt
- Viruses

- > **Crop rotation — 3 years**
- > **Plant resistant cultivars**
- > **Certified seed potatoes**



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Pests

- Flea beetles
- Colorado potato beetle
- Aphids
- Wireworms
- Leaf hoppers
- Voles/mice

- Physical barriers**
- Hardware cloth
- Row covers
- Growing in a “cage”

Crop rotation



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Cage-grown Potatoes

- Start with the right cultivar
- Construct cage with wire, wood, fencing, plastic, burlap or felt, large and well-draining
- Plant potatoes in several inches of dirt and then add soil, straw or compost continuously while vines grow
- Yields should be higher with this method of growing
- Watering is very important
- Angle as needed for sunlight



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True Potato Seed (TPS)

- Genetic experiment — seeds will produce highly variable offspring
- No guarantees
- Two-year process



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Saving Your Own Seed Potatoes

Process:

Brush dirt off freshly harvested potatoes that you plan to save
 Save the healthiest tubers
 Store in a dark, cool, dry area at 50 degrees
 3-4 weeks before planting, move to an area with brighter light and maintain high humidity

Risk/Benefit:

Risk of carrying on disease
 Benefit of low/no cost



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Recommended Varieties

Suggestions for beginners:

Yellow Finn
 Red Norland
 Viking Purple
 Red Pontiac
 Kennebec
 Red LaSoda
 Caribe
 Yukon Gold
 Norkotah

Suggestions for yield/flavor:

Russian Banana
 Ozette
 Kennebec
 German Butterball
 Chieftain
 Cherry Red
 Yukon Gem
 Caribe



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Questions



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Part II: Tomatoes



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In Search of a Good Tomato

- Store tomatoes are bred for appearance, durability
- Picked green
- "Vine ripened" means any shade beyond solid green



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The Challenge of a Short Season Climate

- Heat Units/Growing Degree Days are calculated as the mean temp minus 50
- Plants grow when temps over 50°
- Example: high 70°, low 50°
mean temp is 60°
subtract 50
10 GDD



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Growing Degree Days

Tomatoes need >**1300 GDD**
in order to mature and ripen



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Keys to Success

- Select appropriate varieties
- Make your summer more summery
- Avoid late season problems with proper plant care



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Varieties

- Days to Maturity
- Determinate vs Indeterminate
- Usage in the kitchen



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Planting Tomato Seeds



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Basics of Growing from Seed

- Sow indoors by early April
- Plant ¼" deep in seed starting mix
- New or sanitized containers
- Keep moist
- **Use heat mat to speed/improve germination**
- Keep under direct light
- Transplant to larger container at 2–3 weeks

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Strive for Sturdy Seedlings

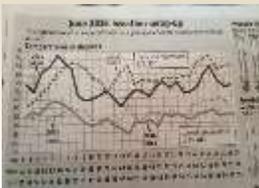
- Proper lighting keeps seedlings from becoming leggy
- This seedling is three weeks old



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Site Selection and Prep

- Choose warmest and sunniest spot; south or west facing if possible
- **Preheat soil** with plastic before planting out
- Be prepared to protect plants in cold snaps



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50 Is the Magic Number

- **Soil temp**
- Consistent **overnight** temps



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Planting Out — Mid-May

- **Harden off plants:** gradually introduce them to the real world
- Plant **deep or trenched**
- Give them space! **4 square feet** per plant



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Fertilizers

- Balanced fertilizer
- Avoid high nitrogen



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Planting Process



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Planting Process



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Proper Plant Care for Best Results

- Watering
- Plant maintenance, pruning
- Disease control, other problems
- Fruiting and ripening



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Watering

Avoid overhead watering!

Deep **even** watering helps promote root growth

Don't allow soil to completely dry out

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Maintenance

Stake/cage



Prune



Mulch



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Setting Fruit

- Tomatoes are self-pollinating and do not require insects
- Movement and wind, can be assisted
- Optimal temps **65–80°F**



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Dealing with Problems

- Early season issues
- Physiological disorders
- Diseases
- Nutrient deficiency
- Pests
- Ripening

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Flea Beetle

- Holes in lower leaves
- Small jumping bugs
- Cosmetic damage, can be ignored



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Physiological Leaf Roll

Looks bad, but no impact to health of plant or to fruiting

Response to heat, drought, pruning, and over-fertilization

Some varieties are more susceptible



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Blossom-end Rot

Calcium uptake disorder related to inconsistent watering

Roma-types are especially prone

Check soil pH and calcium level with soil test — tomatoes prefer a pH of 6.0–6.8



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Sunscald

South-facing and exposed fruit

Do not overprune foliage

Shield with lightweight shade cloth if needed



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Catfacing

More common in early season

Fruit set during cool, wet weather

Heirlooms more prone

Modern hybrids have bred this trait out



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Look-alike Problems

- Herbicide drift damage
- Beet Curly Top Virus—spread by beet leaf hoppers
- Twisted, deformed new growth



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Fungal Diseases

V-shaped yellow and brown lesions —
Verticillium Wilt

Target-board lesions —
Early Blight (Alternaria)

Small yellow-brown spots —
Septoria Leaf Spot

Remove affected leaves and preventively treat plant with **fungicide**



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Fungicidal Products

Products are used preventively

Copper-based products are easy to use and have low toxicity

Always read the directions: is it safe to use on tomatoes, how long before harvest, and is it effective for the disease?



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Late Blight

Cool, wet weather. Airborne fungal-like organism.

Highly contagious.

Remove plants, don't home compost.

Pruning helps, but doesn't eliminate risk.



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Practice Good Sanitation, Especially with Diseased Plants



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Nutrient Deficiencies

- Can be difficult to distinguish
- Pale Yellow – Nitrogen
- Purple — Phosphorus



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Diagnosing Problems and Diseases

hortsense.cahnrs.wsu.edu



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Pests of the 4-Legged Variety

Stolen tomatoes? Bites out of tomatoes?
Entire plant eaten?
Squirrels, rodents, and deer can be a challenge in the garden.

- Motion-detecting sprinklers
- **Harvest fruit before it's fully ripe**



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Encouraging Ripening



Remove flowers and small fruit, reduce watering. Harvest in advance of rain to minimize the chance of cracked fruit.

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Varieties



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Small Tomatoes

- **Cherry/grape types**
 - Sungold
 - Sweet Million
 - Juliet
- **Saladette/julienne**
 - Tiger series (shown)
 - Blush
- **Small/early**
 - Matina
 - Stupice



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Large and Paste Tomatoes

- **Roma (paste) types**
 - San Marzano
 - Speckled (Striped) Roman
- **Large (beefsteak) types**
 - Big Beef
 - Sweet Tangerine
 - Cherokee Purple
- **Oxheart types (pictured)**



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Black tomatoes

- **Purple/brown/black**
- **Cherry size to beefsteak**
 - Black Cherry
 - Chocolate Sprinkles
 - Black Krim
 - Black Sea Man
- **Unique sweet-savory quality**



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Green-When-Ripe (GWR)

- **Outstanding flavor**
- **Ripening signs—softening, slight yellow tinge in most**
- **Beefsteak types**
 - Aunt Ruby's German Green
 - Green Giant
- **Small to medium types**
 - Sungreen Garden
 - Green Zebra



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Blue (antho) Tomatoes

- Same pigments as blueberries
- Natural sunscreen for plant; extended shelf life on vine and off
- Ripe when bottom turns red
- Wide range of types:
Indigo Blueberries
Blue Beauty (shown)



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Be Bold — Try Something New!



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Questions



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