



Preparing the Garden -- Vegetables



WSU COWLITZ COUNTY MASTER GARDENERS

GARY FREDRICKS: EXTENSION DIRECTOR/MG COORDINATOR

GARYF@WSU.EDU

(360) 577- 3014 EXT 3





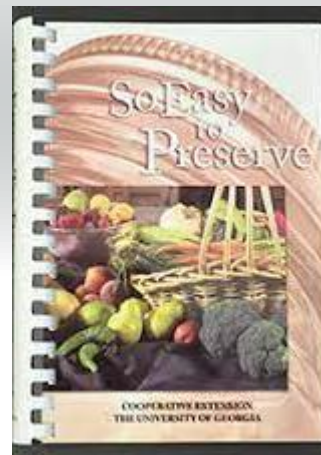
The Basics:

- Planning.
- Record keeping.
- Soil.
- Beds.
- Rototilling.
- Fertilizing.
- Weather.
- Seeds.



It starts with a plan . . .

- What do you intend to do with the produce?
- How many are you going to feed?
- What do you like to eat?
- How much work are you willing to put in?
- What about watering?





It starts with a plan . . .

- How much space do you intend to use?
- What kind of sun exposure do you have?
- What about your soil?
- What about deer, rabbits and other varmints?





Your garden shouldn't be more than you can manage!

A small well tended plot is **MORE** productive than a large weedy mess!





Things to consider when planning your garden:

- Sun exposure & warmth:
 - Need a minimum of 6 hrs.
 - Avoid low spots that collect water and trap cold air.
- Water:
 - How are you going to water?
- Protection from wind:
 - Will plants need to be staked?
 - More susceptible to cold.
- Growing:
 - What type of produce are you planning on growing?
- Type of growing:
 - Are you planning a single planting or succession of crops?
 - Are you growing from seed or transplanting?
- Plan for rotation for crop families:
 - Do you have the room for plant rotation to avoid crop related pests and diseases, to improve soil and control weeds?





Keep a record -

3/28 started Basil
Kale
Radishes
parsley
potted up tomatoes
tomatillo & jalapeno

3/24 planted onions
COPRA
ALISA CRAIG - *great*
WALLA WALLA *seed*
chipolini, leek, red torpedo
x went to seed

4/22 planted out Cabbage
& lettuce seedlings
low hoop & frost blanket.

4/22 planted peas
started harvest 7/8/11
Dakota 1st - small
Cargol - 7/12 - large
Adelman 2nd - heavy produce

4/26 started spinach -
cilantro

planted scallions in
box - sprouted 5/19
harvest 7-8

4/28 - planted (started)
inside Cukes, squash
pumpkins, gourds
*** 5/17 32° - freeze

5/19 started melons
inside
sugar baby
2015 yellow doll *6-20*
2017 Bangra *monk out*
ambrosia
honey dew
Helena
2017 Minnesota midget
yellow doll

6/5 planted corn
beans
wheat

replanted
6/24 some
corn & beans
staying cool & wet
6/27 - 48°

replanted sweet potato 5
6-10

2011

3/22/11 started tomato seeds
Burbank - D
Bills all purpose - D
Momotaro - 1D
3/27/11 High Caroten 1D
Legend D -
Fantastic - 1D
Super Marzano - D
tomatillo
Jalapeno - Felicity
tomatillo

2/24 started impatiens
Zinnia - pita p 3/28

3/4 - started lettuce
Cabbage family
bell peppers

Transplanted and fertilized all tomatoes into gallon pots and all peppers into 3 gallon pots. Planted 1 salad lettuce bowl. Kept all in greenhouse. Turned on lower property

4/8/2020 water supply.

4/15/2020 Rhodies bloomed.

4/27/2020 Lilacs bloomed.

4/30/2020 Desiduous Azalea bloomed.

Planted 75 Bodacious corn in 3.5" pots soil, compost and perlite. Brought 3 fuchsia up

5/4/2020 from greenhouse. Brought 1st lettuce bowl up and planted 2nd bowl.

5/7/2020 Lettuce bowl sprouted

5/8/2020 Pruned magnolia, red maple by porch and fir trees getting branches off the ground.

5/9/2020 Corn germinated.

Purchased 2 Hardy Fuchsias (Baby Blue Eyes), 1 Nikko Blue Hydrangea, 2 Orange Rocket Barberry, 2 Minuet Weigela, 2 Miniature Snowflake Mock Orange (Philadelphus x

5/9/2020 vierginalis), 2 Java Red Weigela and various annuals.

5/10/2020 Planted ornamentals

Planted 36 blue lake green beans and fertilized and weeded 5 blueberries with 2/3 cup

5/11/2020 per plant of Lilly Miller Rhododendron Evergreen & Azalea Food 10 5 4 (NPK).

5/14/2020 Planted 16 more seeds of Bodacious Corn

5/19/2020 8 of 16 Bodacious and 2 of 36 green beans germinated

Uncovered garden beds and rototilled. The best soil I have ever had. Set-up irrigation

5/24/2020 manifold.

Planted 2 Super Sweet 100s, 2 Early Girls, 3 Big Boys and 3 Beefmasters. Each hole got 1/2 cup bone meal and 2 TBSP of Jobes Organic Heirloom Tomato fertilizer mixed with

5/25/2020 soil. Watered deeply with hose.

5/27/2020 Set up drip irrigation and covered tomato open areas with mulch from grass clippings
Set up soaker hoses for each 25 foot row of corn. Planted 75 Bodacious corn stalks 3 rows 1 foot apart next to soaker hoses. Covered corn open areas with mulch from grass

5/28/2020 clippings.

Planted and fenced in 2 blue lake green bean teepees and planted 4 established from

6/8/2020 greenhouse and 28 directly sowed Ed Hume seeds.

Tomatoes are starting to look better after transplant and had to re-stabilize corn after

6/10/2020 rains.





First a little about soil!



Cowlitz and Lewis County clay soils8 months of slime & 3 months of cement – leaves about a 2 week window of workable soil on either end of the spectrum

So what's a gardener to do?????





A great garden starts with great soil!

- Compost - Compost - Compost!
- Organic matter - Worked in early & often ...
 - Improves soil structure.
 - Improves drainage as well as water retention.
 - Improves soil tilth.
 - Reduces fertilizer requirements up to 50%.
 - Enhances microbial activity & suppresses pathogens.
 - Accelerates the breakdown of pesticides & other synthetic compounds.





Preparing a new Garden Area:

- Compost, topsoil, manure, and fertilizer should be worked into the top 4 - 6 inches before planting, followed by a layer of mulch. This amends soil by improving aeration, nutrients and minerals available to plants, and drainage providing an improved soil for planting in. If you import garden soil, it should be blended with roughly 1/3 native soil.
- Conduct a soil test.
- Maintain slightly acidic soil (pH 6.5 - 6.8).
- Other elements may need to be added as identified in the soil test results. Use chemicals and fertilizers sparingly and only after careful analysis to ensure correct application.
- *To maintain ... each year add 3 - 4" compost, re-test, & amend as needed. If manure is added, do so at least 3 months before planting.*





Soil Amendments:

- While annual soil amendments may be necessary, they are not a substitute for healthy soil ...
Compost - Compost - Compost!
- Manure - Must be well composted and must be vegetarian, do not use meat eater manure!
- Cover Crops:
 - Weed suppression, erosion control, reduce surface crusting, break up hardpan.
 - Green manure, nitrogen fixing: Red Clover, Annual Ryegrass, etc.
- Fertilizer – Inorganic (Synthetic feeds plants immediately) and Organic (feeds plants after soil organisms break the fertilizer down):
 - Test your soil about every 2 - 3 years (understand the test results) and do not over fertilize. simplysoiltesting.com or you can use a DIY soil test (Rapitest).
 - Excess nitrogen can lead to big plants with few fruit and can tie up calcium in the soil.
- Lime:
 - Provides calcium over the long term, neutralizes acidic soils.
 - Alternative: Bone Meal.





The better your soil . . . The better your garden!



- This is the goal –
 - Dark, rich loose soil.
 - You can grow anything in it.

*Great soil
makes
happy
tomatoes!*





What does a Perfect Garden look like?





Lots of benefits to raised beds – *very few negatives!*



- Soil warms earlier in the spring.
- Can be moved if not satisfied with the location.
- Better drainage.
- Can adjust the soil according to needs of the plants.
- Helps prevent soil compaction.





Raised bed variety is only limited by your budget and creativity:



Using straw bales.



Some ideas!





A big garden is work, but there are lots of manageable options!



Raised beds come in all sizes and shapes.



Start small - you can grow as you build skill.





Raised beds without the box simple soil mounds!

Better drainage - soil warms earlier - easy to weed.





My raised bed!





To Till or not to Till is your Decision:

You can find just as much information that recommends to till as you can not to till.

<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/em9027.pdf>

- Tilling the garden performs a number of necessary functions. It mixes organic matter and fertilizer into garden soil and temporarily loosens the soil and helps control weeds that compete with crops for moisture and nutrients.
- Frequent tilling, however, may do more harm than good. Too much tilling tends to destroy the structural qualities of soil and eventually may leave you with soil that is better suited to making bricks than garden produce.
- **Till garden soil only when it will accomplish some useful purpose, such as turning under organic matter, controlling weeds, breaking crusted soil for water penetration, or loosening a small amount of soil for planting seeds.**





Rototilled Garden: 24 May 2020





Fertilizers:

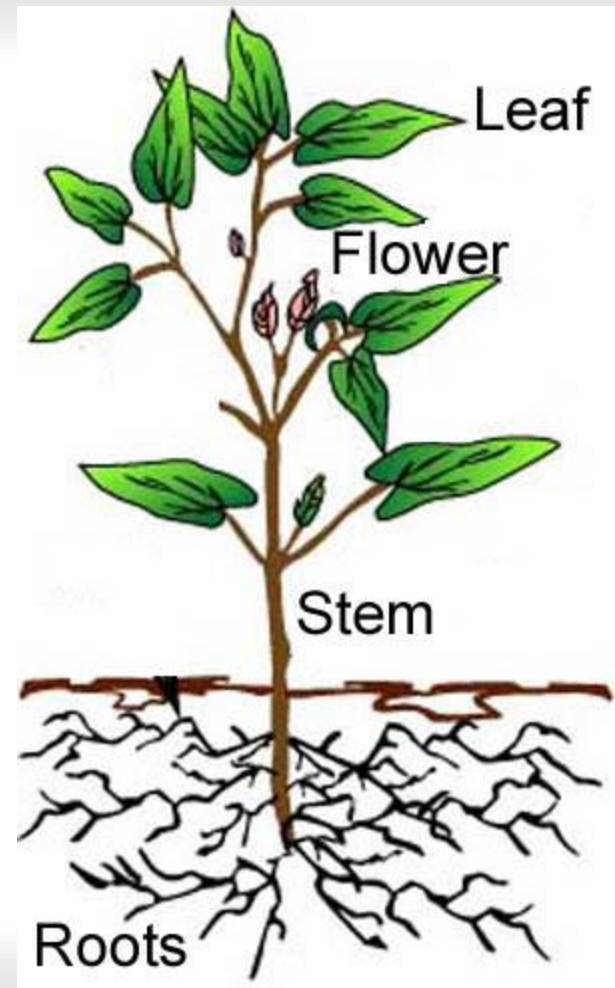
Easiest way to explain the difference between organic and inorganic fertilizers are:

- Organic fertilizers are natural and breakdown to feed the micro-organisms in the soil and finally feed the plants.
Examples of organic fertilizers include manure (poultry, cow or horse), bone meal, cottonseed, or other naturally occurring materials.
- Inorganic fertilizers are man made products and feed the plant directly. They usually have a higher nutrient content.





Importance of NPK:



HEALTHY FOLIAGE	N	
STRONG ROOTS	P	
HEARTY GROWTH	K	

What do the numbers on fertilizer mean?

N	P	K
NITROGEN	PHOSPHORUS	POTASSIUM
greens up plants	reaches down to the roots and helps produce blooms	promotes all around wellbeing
JUST THINK: ↑ UP ↑	↓ DOWN ↓	← ALL AROUND →
NITROGEN	PHOSPHORUS	POTASSIUM

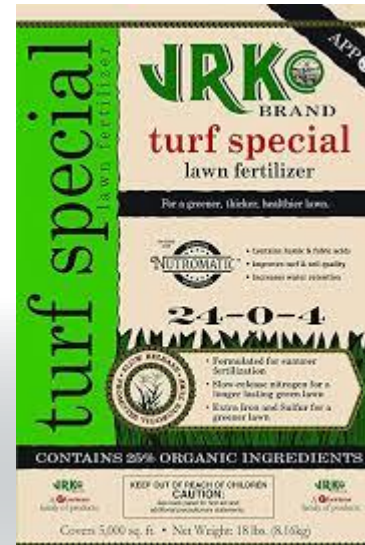




Common Fertilizers Available in Landscape, Garden and Farm Stores:

Type:

- Single nutrient fertilizers.
- Multi-nutrient fertilizers/Complete fertilizers.
- Balanced fertilizers
- Special purpose fertilizers.
- Common name.





Fertilizing:

Most gardeners should use a complete fertilizer with twice as much phosphorus as nitrogen or potassium. An example would be 10-20-10 or 12-24-12. These fertilizers usually are easy to find.

If the garden soil has not been tested, use 2 to 3 pounds of fertilizer such as 10-20-10 for every 100 square feet of garden area. A plot 10 x 10 feet (5 x 20 feet or 4 x 25 feet) would be 100 square feet. If a garden is 30 feet long and the rows are 3 feet apart, each row is almost 100 square feet. Use 2 pounds of fertilizer if the garden is sandy and 3 pounds if the soil is mostly clay.

The below hyperlink lets you know about fertilizing vegetable gardens, fruit trees, flowers, and lawns.

<https://today.oregonstate.edu/news/know-what-your-plants-need-fertilizing>





Fertilizing:

Regular fertilizer applications keep plants vigorous and productive. When plants grow reluctantly or start turning yellow, fertilizer may help. If plants are vigorous and green, you can wait a little bit before applying more fertilizer. Too much fertilizer can burn plants. Tomatoes and beans given too much fertilizer grow lots of foliage but little fruit.

Vegetables growing in porous, well-drained soil should be fed a balanced fertilizer every **three to four weeks** throughout the growing season. Don't stop applications when fruit appears - continue to apply fertilizer as needed to ensure continued production.

Vegetables growing in clay soils will need less fertilizer than those in sandy soils usually every **four to six** weeks after planting is typically enough. Crops growing in organic soils may need little additional fertilizer – again pay attention to foliage color and plant vigor as guides. In gardens where the soil is sand enriched with organic matter, one or two additional applications at intervals of three to four weeks is usually enough.





Fertilizing:

Heavy feeders: Beets, cabbage family crops (broccoli, Brussels sprout, cabbage, cauliflower, kale, kohlrabi, radish), celery, corn, cucumber, endive, lettuce, parsley, pumpkin, rhubarb, spinach, squashes, sunflower, tomatoes.

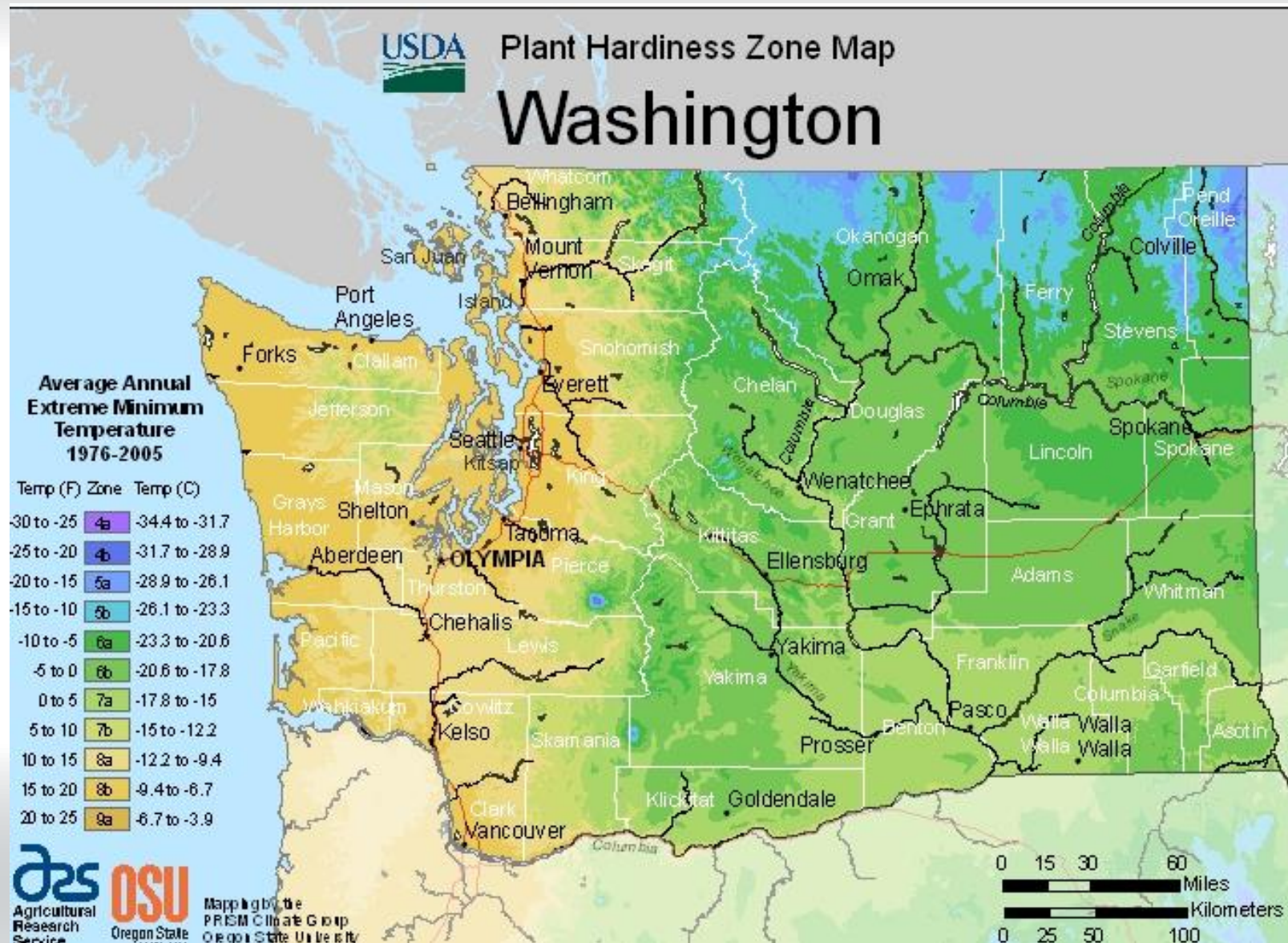
Light feeders: Bulbs, chard, herbs, mustard, pepper, root crops (carrot, garlic, leeks, onion, parsnip, potato, rutabaga, shallot, turnip).

Soil builders: alfalfa, beans, clover, peas.





It's all about timing - *no matter what you decide to plant!*



Average last killing frost:

MAY 15

Average 1st killing frost:

OCTOBER 15

KNOW YOUR ZONE!

Average Annual Extreme Minimum Temperature 1976-2005

Temp (F)	Zone	Temp (F)	Zone
-60 to -55	1a	10 to 15	8a
-55 to -50	1b	15 to 20	8b
-50 to -45	2a	20 to 25	9a
-45 to -40	2b	25 to 30	9b
-40 to -35	3a	30 to 35	10a
-35 to -30	3b	35 to 40	10b
-30 to -25	4a	40 to 45	11a
-25 to -20	4b	45 to 50	11b
-20 to -15	5a	50 to 55	12a
-15 to -10	5b	55 to 60	12b
-10 to -5	6a	60 to 65	13a
-5 to 0	6b	65 to 70	13b
0 to 5	7a		
5 to 10	7b		



Western Washington:

- Coastal maritime climate.
- Mild, wet winters.
- Wet springs.
- Micro-climates.

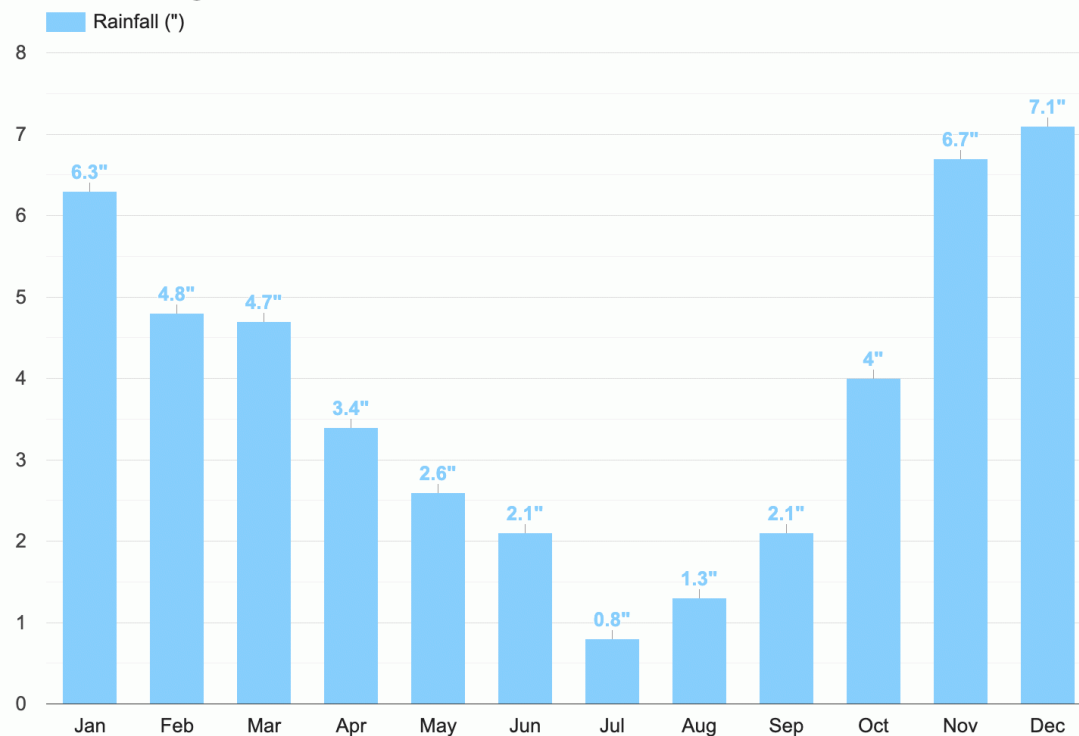




Weather:

- Water availability (July - Sept).
- Ensure you have access to water.

Rainfall - Longview, WA





Just because it's available . . .

**. . . Doesn't mean you
should plant it!**

Know your seed . . .

Know what your particular plant needs . . .

Know your weather . . .





What's the difference? Organic - Heirloom

- **Organic** - No artificial chemicals (fertilizers or insecticides) used for seed or plant production.

They must be raised and processed IAW USDA National Organic Program [ams.usda.gov](https://www.ams.usda.gov).

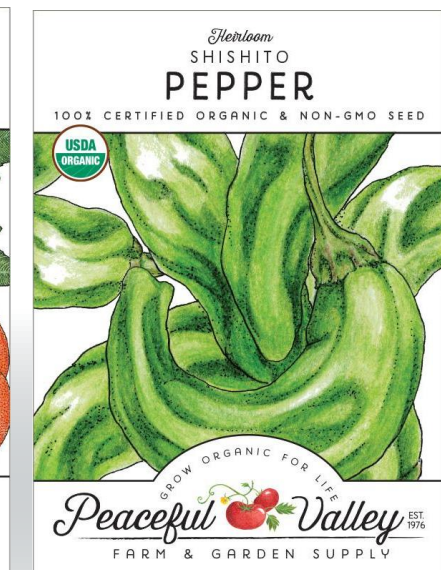
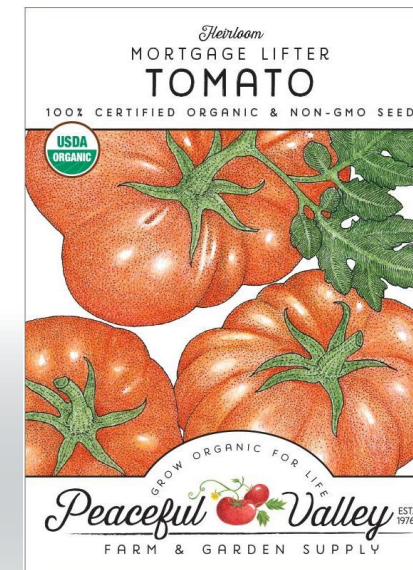
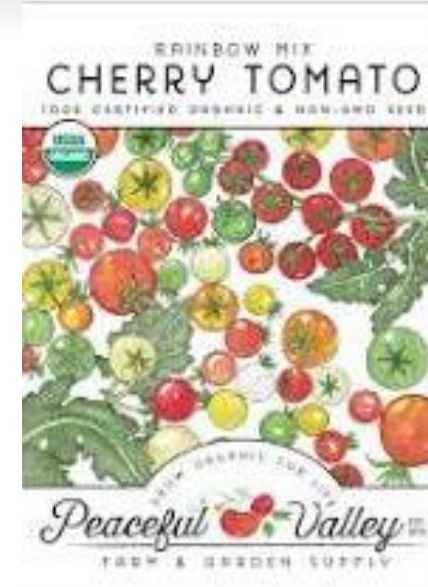
The label prohibits the use of synthetic fertilizers and pesticides, genetically engineered seeds and materials, sewage sludge (biosolids), and fresh manure.

Organic growers and processors, as well as the plants and seeds they produce, must also be certified by an inspection agency accredited by the USDA.

- **Heirloom** - refers to the plant's heritage. With seed-grown plants, only open-pollinated varieties are considered heirlooms.

Unlike hybrids, open-pollinated seeds will reproduce "true to type," meaning the offspring will display the same characteristics as the parent plant, and seeds can be saved from season to season.

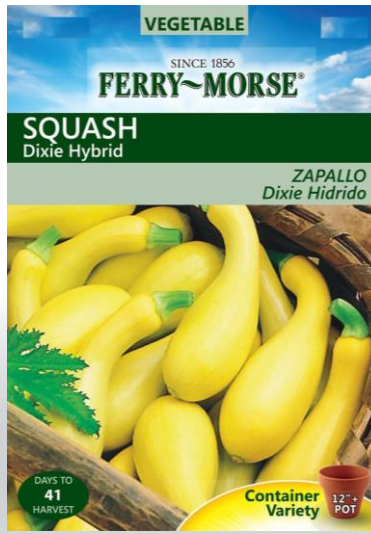
Seeds are generally considered heirlooms if they were introduced into cultivation at least 40 years prior to the current date, though some experts consider seeds heirlooms only if they were introduced before World War II.





What's the difference? Hybrid – GMO:

- Hybrid - plants that have been cross bred by traditional methods to have desirable qualities - seed will NOT be true to parent plant.
 - GMO - genetically modified in a laboratory by crossing one species with another species for specific characteristics - usually insect resistance or tolerates chemical herbicide spray.
- Seeds are only sold to large commercial farmers.





If you are concerned that you have good quality seed - look for this - this will tell you who sells, safe seed.

HOW DO YOU KNOW IF YOU'RE BUYING GMO-FREE SEEDS?



BUY FROM A COMPANY THAT HAS TAKEN THE SAFE SEED PLEDGE!

Is your favorite company on the list?

Find safe seeds here: <http://bit.ly/1dAQAC4>



www.gmofreeusa.org
www.facebook.com/gmofreeusa
www.facebook.com/gmofreecanadagroup





Vegetable Planting:

Vegetables that germinate in 35° F soil temperature include: lettuce, onion, parsnip, and spinach.

Vegetables that germinate in 40° F soil temperature include: fava bean, beet, broccoli, Brussel sprouts, Chinese cabbage, cabbage, carrot, cauliflower, kale, collard, kohlrabi, leek, parsley, radish, rutabaga, pea, Swiss chard, celery, and turnip.

- Carrot, pea, lettuce, kohlrabi, greens, beet, and radish grow easily from seeds can be sown directly into the soil.

Hardy Vegetables - asparagus, broccoli, brussels sprouts, cabbage, collards, onions, rutabaga (can be started indoors and transplanted) while kale, kohlrabi, leek, peas, radishes, spinach, turnips (can be direct sown).

Semi-Hardy Vegetables - artichoke, cauliflower, celery (can be started indoors and transplanted) while arugula, Asian greens, beets, carrots, endive, lettuce, potatoes, salsify, swiss chard (can be direct sown).

Warm Weather Crops - cantaloupe, cucumber, pumpkin, tomato, pepper, sweet potato, squash, sweet corn, lima beans, watermelon, eggplant, snap bean plant after the last frost day (many in our area suggest first week of June to be safe!).

When to Plant a couple of great sites:

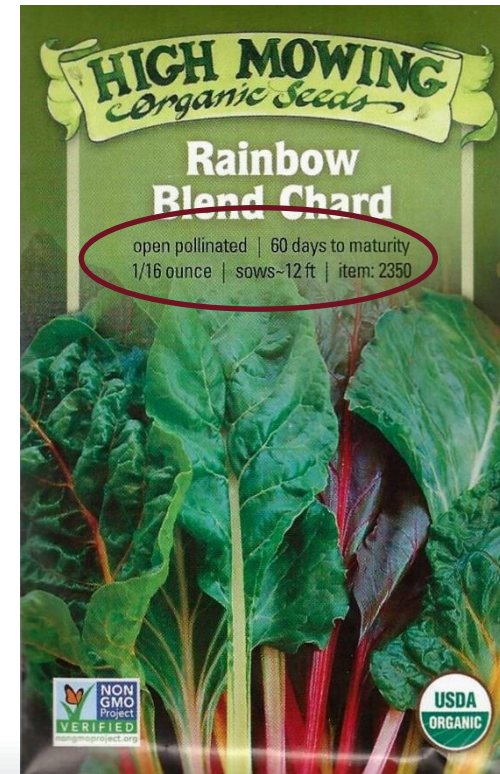
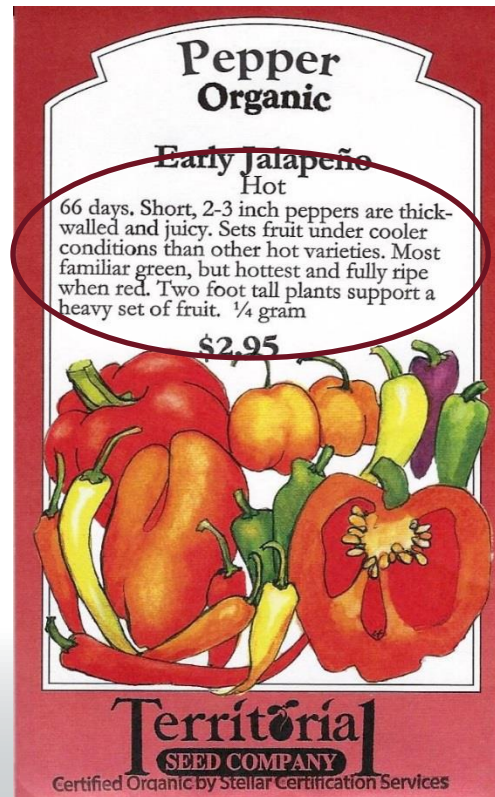
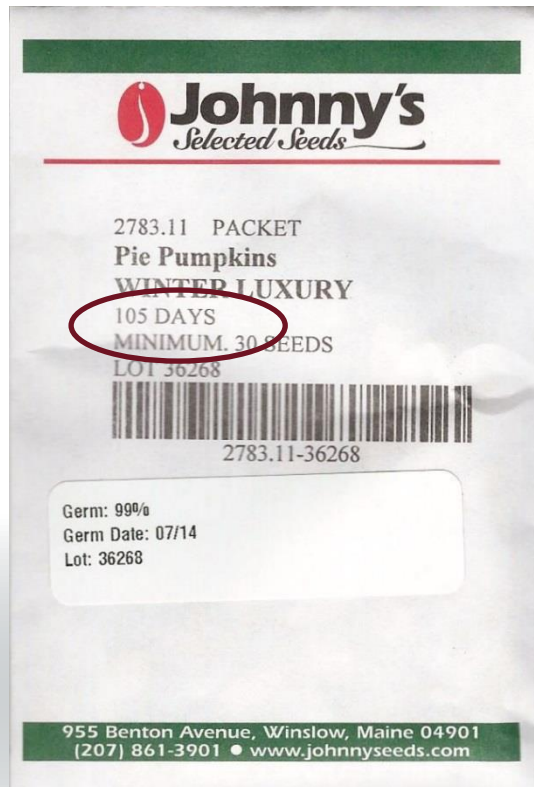
- <https://territorialseed.com/blogs/spring-growing-guides>
- <https://s3.wp.wsu.edu/uploads/sites/2073/2014/09/Home-Vegetable-Gardening-in-Washington.pdf>





A successful garden begins with making the right variety choices:

- If buying seed read the package.





Seed packets contain helpful information...



Aroma II Packed for 2015

HR1042/L 8 4 8 6 7 2 10 3 9 0 7 8

Seed Depth	Seed Spacing	Soil Temp for Germ.	Days to Germ	Thin Plants to
1/4"	See Below	70-85°F	5-14	12-18"

Sowing Indoors-Start seeds 3-4 weeks before your last spring frost. Sow into sterile seedling mix and lightly cover the seed with fine vermiculite. Strong light is necessary to keep the seedlings from getting leggy. Fertilize lightly and grow at 62-65°F until planting outside.

Sowing Outdoors-Not recommended, but you may direct sow when nighttime temperatures are consistently above 50°F.

Growing Tips-As basil grows, pinch off the tips to promote a bushier plant. Remove the flower heads to prolong the harvest period.

Fertilization Tips-Apply 1 cup of our complete fertilizer per 10 row feet to provide the nutrition necessary for optimum production.

Harvesting Tips-Cut off the top few inches of the stem every 2-3 weeks. Basil can be used fresh, dried, or frozen. If you can't use all of your freshly harvested basil, place the stem in water for a day or two as basil does not refrigerate well.

Seed Specs-Min. germ. standard: 75%. Usual seed life: 3 years.

Please read our seed guarantee before opening this envelope.

PO Box 158, Cottage Grove, OR 97424
Phone Orders: 800-626-0866
Web: www.TerritorialSeed.com

Lake Valley Seed Company, Inc.
5717 Annapole Ave.
Boulder, CO 80303

Recycling Pledge:
100% Post-Consumer Content
100% Post-Consumer Content

511781821150503

Bodacious CORN
Zea mays

A vigorous sweet corn with plump, sugary kernels on slender 8" ears. High disease resistance and cool weather tolerance. An excellent choice for freezing and canning, or eating fresh off the cob.

SEED DEPTH
1" (3cm)

PLANT SPACE
12" (30cm)

ROW SPACE
36" (91cm)

SPROUTS IN
7-10 days

MATURES IN
75 days

SEED COUNT
approx. 60

PLANTING
Corn prefers fertile soil and regular moisture. Sow outdoors in late spring after soil is completely warm (at least 65°F). For best pollination and well-filled ears, plant in blocks of at least four rows.

HARVEST
Ears are ready to pick about 20 days after silks appear, and when silk at the tip of the ear is brown and dry.

Packed for 2021 Sell by 12/21 Lot A

8 72724 00054 9

Chard
Beta vulgaris var. vulgaris

Rainbow Blend: Brilliant shades of red, orange, pink, yellow, and white stalks are spectacular. Colors range from bold to streaked. For best color grow to full-size plants.

Planting Tips: Chard is a tender biennial (producing seed in its second year). Direct seed as soon as soil can be worked mid-spring throughout mid-summer. Transplants can be started 4-6 weeks before planting date. Cut stems three inches above ground, leaving center growing tip intact.

• Store seeds in a cool, dry place •

QR code and logos: NON GMO Project Verified, VERMONT ORGANIC

Scan QR code for our latest news and information.

High Mowing Organic Seeds
76 Quarry Road | Wolcott, Vermont 05680 | 802-472-6174
www.highmowingseeds.com

Certified Organic by Vermont Organic Farmers, LLC

High Mowing Organic Seeds is an independently-owned, farm-based seed company committed to sustainable agriculture since 1996.

Seed Planting Depth	1/2 inch
Seed Spacing	2 inches
Days to Germination	5-10 days
Plant Spacing After Thinning	4-6 inches
Row Spacing	22 inches
Plant Height	18 inches





Find a good resource!





Local suppliers tend to have more crops that are suited to our area:

Peas *Pisum sativum*

Peas nourish our bodies with phytonutrients and, surprisingly, with omega-3 fatty acids. A hard-working crop, they improve the soil, fixing nitrogen that will feed future crops. Especially easy to grow in cool seasons.

Seed Spacing	Soil Temp. for Germ.	Days to Germ.	Thin Plants To	Approximately 90-165 seeds per ounce.
1"	40-75°F	8-25	Not Required	

CULTURE: A cool-season crop, peas will grow in a variety of soils provided the soil is well drained, in full sun, and contains a sufficient amount of organic matter to allow for good moisture retention. Peas may be sown as soon as the soil can be worked in the spring. They may be planted without rototilling by scratching a shallow furrow and covering the seed. Sow seeds in rows 18-24 inches apart. Coat the seeds with an insecticide to increase yield. **Harvest** (see page 74) enhances early harvest by pinching axillary nodes on the main stem. Side dress plants with 1 cup of our complete fertilizer and ½ cup bone meal per 5 row feet to produce healthy plants for a bountiful harvest. Climbing varieties must be trellised or planted by a fence. Most bush-type vines can be supported on a short trellis or allowed to grow as a mound. Stress, such as prolonged weather or lack of moisture, will cause a higher percentage of off-type plants and reduced yields. We recommend mulching the roots and frequent ground watering (vs. overhead watering) to help keep the roots cool and productive.

DISEASES: Fusarium wilt (also called pea root rot) causes plant foliage to turn brown from the ground up. It is generally controlled by crop rotation and sowing on well-drained ground. Choosing resistant varieties and frequent ground watering can control powdery and downy mildews. Areas in the Northwest and Northeast are prone to attacks of pea enation mosaic virus, which is spread by the peach aphids that hatch each summer. The virus causes 'windowing' or a mosaic appearance in the leaves, distortion of the pods, and reduced yield. If pea enation is a problem in your garden, we advise sowing enation-resistant varieties. The best control measures are using disease-free seed, selecting disease-resistant cultivars, and practicing crop rotation.

PESTS: The pea aphid can be a destructive pea insect pest throughout the summer. Applications of insecticide should be started at the seedling stage if leaf scalloping is observed.

HARVEST: Start checking for maturity as soon as the pods begin to swell. If left on the vine too long, the peas become starchy and the pods become tough. Most bush varieties are bred to mature all at the same time for a concentrated, once-over picking. Extend your harvest through multiple sowings. Store peas at 32°F and 95% relative humidity. Pea vine tendrils are an important ingredient in stir-fries, Asian salads, and garnishes. Market gardeners pick the top 6-8 inches of pea vines (tendrils) and sell them in bunches. Cascadia Grow Start and Oregon Sugar Pod II are favorite pea tendrils varieties.

SPECS: Minimum germination standard: 50%. Days to maturity are calculated from the date of sowing. Note: In areas with mild winters such as the maritime Northwest, where peas can be planted earlier, add 35-40 days. Usual seed life: 2 years.

Snow Peas Tasty flat pods.

PE625 OREGON GIANT (OP) 70 days. This snow pea has unusually large, broad pods growing to 5 inches long. They are thick, very sweet and tender, and remain so longer than others. The plant is 30-36 inches tall, similar to that of Oregon Sugar Pod II. Developed by Dr. Jim Baggett at Oregon State University. F, PEMV, PM.

1 ounce: \$2.05	3 ounces: \$3.00
½ lb: \$5.85	2 ½ lbs: \$17.00
5 lbs: \$28.60	

PE622 GOLDEN SWEET (OP) 60-70 days. Discover a rare treasure in our pea patch with this tempting variety from standard snow peas. Golden Sweet produces loads of buttery yellow pods that are tender and sweet. The 6 foot plants are striking with healthy, green foliage, purple flowers and the sunny yellow pods. This unusual pea was found in a market in India.

1 ounce: \$2.75	3 ounces: \$4.75
½ lb: \$8.95	2 ½ lbs: \$29.40

PE622 Organic 1 ounce: \$3.25 3 ounces: \$5.75 ½ lb: \$10.95

Key to Pea Disease Resistance/Tolerance
 HR indicates high resistance.
 IR indicates intermediate resistance.

AF	Ascochyta	1 ounce: \$2.05	3 ounces: \$3.00
DM	Downy Mildew	½ lb: \$5.85	2 ½ lbs: \$16.05
E	Enation Mosaic Virus	5 lbs: \$28.20	25 lbs: \$115.00
F*	Fusarium Wilt	50 lbs: \$207.25	
PEMV	Pea Enation Mosaic Virus		
PLR	Pea Leaf Roll Virus	PE624 Organic	
PM	Powdery Mildew	1 ounce: \$2.75	3 ounces: \$4.35
	*Numbers indicate specific disease race.	½ lb: \$8.45	

PE635 SWEET HORIZON (OP) 60-70 days. This gourmet quality snow pea was bred in the European style, developing beautiful laser-straight flat pods in double sets. The sugary, dark green pods are very easy-to-harvest and grow to 3-4 inches long without a hint of curling. Wonderful presentation in salads, fantastic steamed or stir fried. Vigorous upright plants are mid-maturing and grow to 26-32 inches tall. AF, F, 1, PM.

1 ounce: \$2.35	3 ounces: \$3.85
½ lb: \$6.85	2 ½ lbs: \$23.80
5 lbs: \$39.40	25 lbs: \$152.00

PE635 Organic 1 ounce: \$3.85 3 ounces: \$8.75 ½ lb: \$17.95

Oregon Giant

Oregon Sugar Pod II

Territorial SEED COMPANY

100% NON GMO

215 New items for Spring 2015

Art of the Garden

Top performing seed, plants, & supplies





Beans - direct seed in Jun.:

Beans are easy to plant & easy to grow & that includes all types of beans - snap bean, French fillet & dry beans.

Beans are self fertile so if they are past their prime let them ripen on the bush, dry them & plant the seed next year.

Bush beans are fine on their own - pole beans need a trellis for fence of some sort to grow on.



Blue Lake



French Fillet Cupidon



Yin Yang - dry bean





Beets - direct seed May - Aug.:

Beets like loose soil.

Spacing with beets is more important because you don't want deformed beets.

You can space them by carefully planting each seed - or sprinkling down the row & then thinning - and no rocks.

If you wait until the tops are 4-5 inches tall you can eat the greens - cooked or in a salad.

Beets are another crop that you can grow in light shade.



Chioggia



Boldor



Pacemaker III





Carrots - direct seed Apr. - Aug.:

Carrots like loose soil with lots of room for roots to grow.

Carrots should be thinned (2 - 3 inches apart).

Carrots don't like fertilizer you get multi-rooted crops.

Carrots will also tolerate a little shade.



Merida



White Satin



Can be Grown in Containers





Corn - direct seed or transplant after 1 June:

Plant in blocks of at least 4 rows by 4 rows.

Corn is wind pollinated - 1 skinny row won't provide more than 1 or 2 ears.

Don't plant too early - corn is a heat lover & soil temp needs to be a minimum of about 68° F.

Pick a short season variety no more than about 80 - 90 days and side dress fertilize when about 1' tall.

Don't intermix types of corn - they will all taste bad:

Corn Varieties (70 - 90 day corn):

- heirloom - Golden Bantam, Hooker Sweet Indian.
- hybrid (SE) sugar enhanced - Sugar Buns, Kandy Corn, Silver Queen, Bodacious.
- hybrid (SH2) super sweet – American Dream, Supersweet Jubilee, Strong Start.
- synergistic (SY) sweeter still & holds longer in the field and on the shelf - Big n Tender, Temptress.
- popcorn - Early Pink.



Golden Bantam



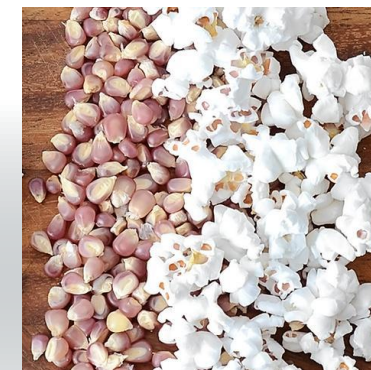
Kandy Korn SE



Strong Start SH2



Temptress SY



Pink Lady





Kale & Swiss Chard - direct seed May - July:

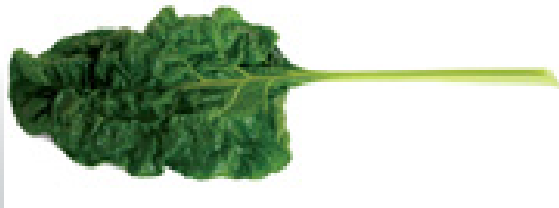
Kale & Swiss Chard are another easy to grow green and both are considered a cool weather crop.

Both can tolerate a little shade as well.

Both greens can be harvested all at once or the outside leaves can be harvested to keep the plants going over a longer period.

If we have a light frost Kale actually gets sweeter.

Swiss chard stems can be softened by cooking. Kale cannot and should be discarded.



Fordhook Giant (Swiss Chard)



Nero di Toscana (Kale)



Wild Garden Kales (Kale)



Bright Lights (Swiss Chard)





Lettuce - direct seed or transplant Apr. - Sep.:

This area is lettuce heaven - almost any type will grow here without much effort.

Lettuce will germinate with soil temps as low as forty but, it does best when the air is around 60 - 70° F.

You can direct sow lettuce & thin or transplant.

Lettuce tends to be at it's prime for about 3 weeks then it begins to get bitter & tough.

You can cut the whole plant or harvest the outside leaves to extend the season just a bit.



Valmaine (Romaine)



Red sails (Looseleaf)



Canasta (French Crisp/Batavia)



Drunken Woman Fizzy Headed (Butterhead)



Superior 1 (Iceberg)



Onions, Garlic & Shallots:

Onion sets or plants Mar. - Apr. Seeds are planted out in the garden in the fall.

Shallots & garlic are planted in the fall about mid October. Use the largest cloves. Do not use grocery store garlic, use certified seed garlic from a reliable source.

A couple of key points onions with long day varieties do well in the summer with the long days.

Ailsa Craig, Copra, Red Zeppelin & Walla Walla

They need to go in early enough to get established before they begin to bulb up around 21 June.

When tops begin to brow & fall over, stop watering & allow to dry out 7-10 days.

Then dig and allow to dry completely before storage.

Drying onions is as important as planting them. Storing them damp they'll rot.

Sweet onions (low Sulphur) require more care in storage – avoid bruising and provide lots of air circulation



Onion Plants



Onion Sets



French Shallots



Garlic





Peas - direct seed when soil about 45° F:

Peas are nitrogen fixers and leave a little nitrogen behind for the next plant to use.

They are considered a cool season crop. And they will be ready to eat in about 65 days.

Shelling peas are the ones that are what you buy frozen in the grocery store.

The only problem is it takes a lot of peas to make a meal.

One Master Gardener (a family of 2) generally plants 60 - 80 foot row and eat about ¼ fresh and the rest go in the freezer around 18-20 quarts.

Snow pea or sugar peas are flat & eaten pod & all.

Snap pea is a combination of both.



Sugar Snap Peas



Maestro (Shelling Pea)



Sweet Horizon (Snow Pea)



Oregon Sugar Pod (Snow Pea)





Pumpkins - direct seed, but better to start inside then transplant out around 1 Jun.:

Pumpkins are one of the few things that you can grow outside of the garden fence that the deer leave alone.

Pumpkins need 5 things:

Space.

Lots of compost/manure.

Fertilizer.

Water.

Full sun.



Fairytale



Baby Boo



Howden





Squash - start them inside and move out around 1 June depending on the weather:

Easy to grow.

Some take a lot of space while some, like zucchini, are more bush like in habit.

They like plenty of sun, room to grow and rich soil.

With the right conditions squash can be very productive and will give you plenty of little squashes.

No saving seed - even from the heirlooms unless it is the only variety you plant you'll get PUMPKINS.



“Hunter” Butternut



“Delicata” Bush Type



“Cube of Butter” Yellow Summer Squash



“Emerald Delight” Zucchini





Warning: Squash can be very prolific!





Spinach - direct sow late Apr. - late Jul.:

Cool weather crop.

It will tolerate some shade and even a light frost.

Can harvest whole plant or pick only leaves as plant grows.

Bloomsdale Savoy type is more cold hardy.

Olympia



Bloomsdale Savoy





Tomato - plant late May or early Jun.:

Tomatoes are perhaps the most popular garden plant, and have been described as the “Gateway Drug to Gardening”

Starting with the right choice of tomatoes, we can grow nice, juicy, flavorful tomatoes here.

There are very early varieties, cherry, paste or roma and big slicers, heirloom, & hybrids.

The key is to choose tomatoes that have **SHORT days to maturity**. A general rule of thumb is **85** days or less.

After that plenty of sunshine is the most important thing you can provide for your tomatoes.





Determinate (3 - 4 feet tall) vs Indeterminate (up to 10 feet tall):

Difference Between Determinate and Indeterminate Tomatoes

Determinate (known limits)

- Buds form on the tip of the stem which naturally stop stem growth.
- These tomatoes grow in a more compact fashion and don't need strong supports.
- Many times labeled as "patio" or "container" style.
- Can be grown in containers and pots.
- Blossoms and fruit grow at about the same time.
- Harvest lasts 7-10 days.
- After the tomato plant bears fruit, it starts to die.

Indeterminate (unknown limits)

- Buds form on side branches and the tips of the stems keep growing like a vine.
- These tomatoes can grow up to 10 feet high and need support.
- Blossoms and fruit grow at different times. Tomatoes in all stages of development can be seen on the plant at the same time.
- Harvests last several months.
- Vine can grow through the fall season if not killed by frost.

Check the label on tomato plants. It will tell you if it is Determinate or Indeterminate. If that information is missing, research the name of the tomato and find out.





Determinate vs Indeterminate:





Tomatoes:



“Gills” all purpose
Indeterminate



“Stupice”
Indeterminate



“Legend” slicing
Determinate, hybrid



“San Marzano” paste
Indeterminate



“Sungold” cherry
Indeterminate



“Taxi” lunchbox and salsa
Determinate hybrid





Planting Tomatoes:

Don't get too excited to get them in the ground. Tomatoes are heat lovers.

Trim off the bottom branches.

Dig a deep hole.

Plant tomatoes with $\frac{1}{2}$ of stem height underground for root development.

Some gardeners use a trenching method to gain additional roots while avoiding deeper planting.

Fertilize.

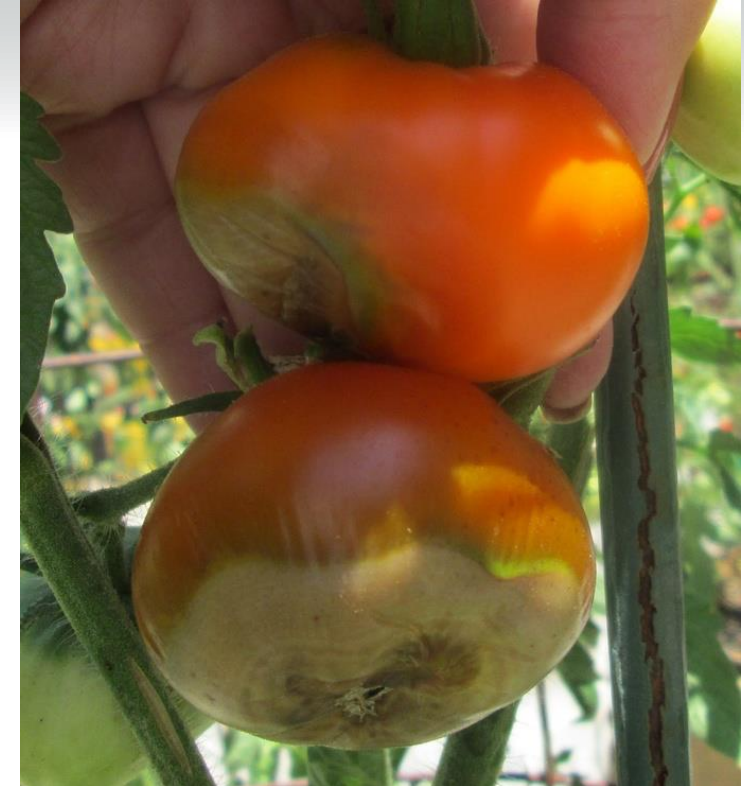
Plant & water well.

Protect from freeze/frost.





Blossom End Rot:



Blossom end rot is caused by insufficient calcium in the end of the fruit. Inconsistent soil moisture and high temperatures are often factors involved in this problem. It can be caused by several factors including drought, overwatering, root damage, insufficient soil calcium levels, or high concentrations of salts in the soil. Varieties differ greatly in their susceptibility to this problem.

<http://hortsense.cahnrs.wsu.edu/Search/MainMenuWithFactSheet.aspx?CategoryId=5&PlantDefId=56&ProblemId=281>





Herbs:

... all very easy to grow

Runs Rampant garden thug:

- ▶ Mint - plant in large bottomless pot.
- ▶ Oregano - self seeds freely.
- ▶ Chives - self seeds freely.
- ▶ Dill - self seeds freely.

Well Behaved woody herbs:

- ▶ Sage.
- ▶ Thyme.
- ▶ Arp Rosemary - cold hardy good to 5°F.
- ▶ Garlic and chives.
- ▶ Marjoram.
- ▶ Tarragon - only grown from a plant can't be grown from seed.

Keep them handy to use fresh or plant enough to harvest & dry.



Dill (A)



Thyme (P)



Sage (P)



Tarragon (P)



Rosemary (P)



Oregano (P)



Summer Savory (A)



Parsley (B)



Basil (A)

A = Annual
B - Biennial
P = Perennial





Vegetable Garden:



Sometimes - you want to do a little more - lots of tools available to help you . . .



Early spring or fall protection & drip irrigation set up (avoid overhead watering).





Summary:

- Planning.
- Record keeping.
- Soil.
- Beds.
- Rototilling.
- Fertilizing.
- Weather.
- Seeds.





References:

Tremendous amounts of information on Raised Beds, Amending Soil, Pest Management, Growing Seasons, and Gardening in general can be found on the internet. Regrettably, much of is of limited quality or value. To help refine your search, try adding the term site:edu to your search to focus on Extension publications and other research based information. A slightly broader range of material (yet still filtered of much of the undesired results) can be found by using the alternate “Google Scholar” site at www.scholar.google.com .

WSU Sites:

<http://gardening.wsu.edu>

<https://pubs.extension.wsu.edu/general-gardening>

<https://s3.wp.wsu.edu/uploads/sites/2073/2014/09/Home-Vegetable-Gardening-in-Washington.pdf>

<http://hortsense.cahnrs.wsu.edu/Search/MainMenuWithFactSheet.aspx?CategoryId=5&PlantDefId=56&ProblemId=281>

OSU Sites:

<http://extension.oregonstate.edu>

<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/em9027.pdf>

Seed Companies:

www.territorialseed.com & <https://territorialseed.com/blogs/spring-growing-guides>

www.Johnnyseeds.com

National Organic Program:

ams.usda.gov

Soil Testing:

simplysoiltesting.com





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304 Cowlitz Way

Kelso, WA 98626

Gary Fredricks

garyf@wsu.edu

(360) 577- 3014 ext 3

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