

ORGANIC GARDENING IN COLD CLIMATES

By Jaya Penugonda - July 15th, 2023



**BACK TO
WELLNESS**

Organic Food & Gardening Series
Organized by Get Back To Wellness & Prakruthi
Online Yoga



Prakruthi
A Fusion of Nature & Soul

ORGANIC

Organic produce and other ingredients are grown without the use of pesticides, synthetic fertilizers, sewage sludge, genetically modified organisms, or ionizing radiation. Animals that produce meat, poultry, eggs, and dairy products do not take antibiotics or growth hormones.



United States Department of Agriculture
Agricultural Marketing Service

WHAT ARE ALL I NEED?

- Seeds
- Soil
- Find your US Hardiness zone - <https://planthardiness.ars.usda.gov/>
- Find the First frost date and Last frost date for your zone
- Find garden location - Light, water, access, air drainage
- Inground garden beds or Raised Garden beds, or Containers or Growbags
- Plant food
- Fertilizers
- Pest control methods
- Weed control methods
- Plant supporters as and when needed

SEED TYPES

- ***Open-pollinated Seeds:***
 - ***Pollination*** by natural mechanisms (insects, birds, wind, humans).
- ***Heirloom seed***
 - Seeds from being passed down within a family / community, similar to the generational sharing of heirloom jewelry or furniture.
- ***Hybrid seeds:***
 - ***Seeds from*** controlled method of pollination in which the pollen of two different species or varieties is crossed by human intervention.



Save true-to-type seeds from open-pollinated and heirloom varieties

SOWING

Sowing types:

- Starting Indoors & trans planting
- Outdoor winter sowing (late winter/early spring)
- Direct sowing

Factors

- Last and First frost days
- Days to maturity
- When do you want produce or blooms?

Share your garden and obtain free gardening info @migardener   

oxheart carrot

about
From France, this stout culinary favorite is the best variety for heavy soil types but does do best in loose soils. It can grow up to five inches wide in some cases and grows shorter than more traditional carrots — an ideal variety for small space gardeners and long term storing. The Oxheart carrot can grow roots up to 1 pound a piece.

direct sow	3-5 weeks before last frost		
days to germinate	14-21 days	germination temperature	55-75°F 12-23°C
days til maturity	90 days	plant spacing	2-4 inches
		root size	5-6 inch long

harvest
Begin by loosening the soil around your roots. Grasp the base of the carrot greens and pull straight up doing your best to keep the greens intact. Though carrots mature roughly at the same time you do not need to harvest all of them at once. You can use the Earth as a storage option prior to heavy freeze



Give a good start to your plants

Germination and Growing

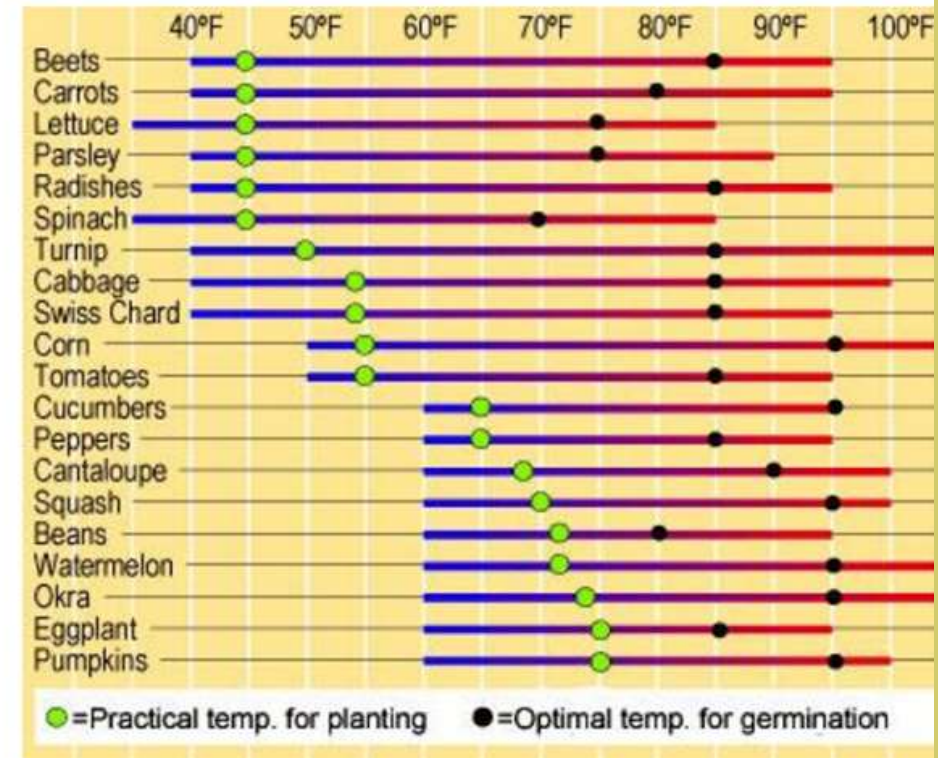


Germination % - Percentage of seeds tested that germinate – check seed packet

Germination Temperature

- Optimum and range
- Regulating temperature for germination
 - Heat mat – Lighting – Dome – When in doubt use a thermometer

Growing Temperature – not the same



Planning When to Start Plants Indoors

- When can the plant variety survive outdoors
- Optimal number of weeks from start to transplant
- Continuous harvest – continuous seed starting
- Consider creating a chart for starting plants



1	Type	Status	Vendor	Order	Plant	Variety	Years Viable	Germ Temp/ Opt Temp	Grow Temp	Opt Grow Temp	Days to Mature	Actual Start/ Plant	Indoor Start	Weeks	Outdoor Plant	Date Mature	Actual Outdoor Plant
7	Veg	Excel	Fed	x	Bean	Blue Lake 274 Bush	3	70-90/80	50-80	60-70	57				5/15/15	7/11/15	
8	Veg		Terr		Bean	Maxibel	3	70-90/80	50-80	60-70	60				5/15/15	7/14/15	
9	Veg	Excel	Fed	x	Bean	Masai Haricots Verts	3	70-90/80	50-80	60-70	58				5/15/15	7/12/15	
10	Veg	Excel	Fed		Bean	Roma II	3	70-90/80	50-80	60-70	59				5/15/15	7/13/15	
11	Veg	Excel	Fed		Bean	Scarlet Runner	3	70-90/80	50-80	60-70	70				5/15/15	7/24/15	
12	Veg		Terr		Beet	Merlin	4	50-85/85	40-75	60-75	48	3/21/15	3/20/15	6	5/1/15	6/18/15	4/17/15
13	Veg	OOF	Fed		Beet	Red Ace	4	50-85/85	40-75	60-75	50	3/21/15	3/20/15	6	5/1/15	6/20/15	4/17/15
14	Veg		Fed		Broccoli	Arcadia	3	45-86/77	40-75	60-65	94	3/14/15	3/11/15	5	4/15/15	7/18/15	died
15	Veg		Terr		Broccoli	Blue Wing	3	45-86/77	40-75	3/14/15	60	3/14/15	4/15/15	5	4/15/15	6/14/15	4/24/15

Growing Medium check out the mixes

Standard Mixes – Organic and Organic Certified [OMRI]

- Fafard [n/o], Espoma, Purple Cow, Happy Frog, etc.

Seed starting mixes versus Growing mixes/potting soils

- Weight & Nutrition – NPK [Nitrogen – Phosphorus – Potassium]
- Leaf/stem growth | Roots/bloom/fruit | Health

Homemade Mixes

- Seed Starter MG Recipe – equal parts Perlite, Peat, Potting Soil
- Seed starter and growing mix – equal parts Compost and Coir/Coco Pith – [PH 5.8-7]
- Soil blocking mix
- Renewable resources

Striving for healthy stocky plant with good root system



Light and Heat - Indoors

Daylight – Bright Window with tray rotation

Lamp Lighting

- Full spectrum
- Shop lights - daylight - LED
- Move with plant growth 1 inch from plant

Timers – 17-18 hours per day

Heat mat for germination [if desired]



Watering and Amending Nutrients

System dependent

- Starts - Bottom Watering | Hardened off – Top Watering [drainage]

Need continuous moisture for germination – spray bottle

No swimming roots!! - No green moss!!

Check daily - Fans and Touch

Amendments if needed

- NPK [Nitrogen – Phosphorus – Potassium]
 - Leaf/stem growth | Roots/bloom/fruit | Health

Soluble - Teas





Hardening Off Plants Before Final Planting

- Harden off gradually – direct sunlight, cool nights, less-frequent watering over a 7–10-day period.
- start with 2-3 hours of sun in a sheltered location.
- Protect seedlings from strong sun, wind, hard rain and cool temperatures.
- Increase exposure to sunlight a few hours at a time/shade cloth, trees, or other stationary objects
- If below plant's min. temp, bring indoors or cover with blanket or other insulation.
- Know Relative Hardiness - Hardy [40° F and above] Warm-season [warm nights, at least 60° F].

 Adjustable cold frame with thermometer.

PREPARING & IMPROVING SOIL

- New raised beds
 - Cardboard
 - Deep mulch
 - Good Soil (NPP, Ph)
- Hugelkultur Bed
- Soil improvements (increase organic matter; NPP)
 - Composts (Manure, Leaf Mold, Home made)
 - Compost Tea
 - LAB (Lactic Acid Bacteria)
 - IMO (Indigenous Micro Organisms)



RAISED BEDS



CONTAINERS FOR GROWING



VEGETABLES PRODUCTION AND MANAGEMENT

Sequential or Succession Planting

- Spread the planting dates to spread the harvesting
- Early season (ex: Lettuce), Mid season (vegetables like beans) and late season (like kale or cool season plants)

Crop rotation

- Reduces Insects/disease organisms building up in the soil
- Reduces nutrient demand on a given area
- Rotating short season crops over the growing season helps keep the soil healthy

Cover crops

Nutrition (Fertilizers: Home made, IMO and etc.)

Pest Management (Organic/Jadam)

Physiological disorders(Forking, sunscald, Cat facing and etc.)

Harvesting

- Pick at right stage of maturity to preserve quality, flavor, tenderness and texture
- Remove non-edible portions (e.g. carrot tops) to prevent excessive water loss) before storing

HOMEMADE SPRAYS

Garlic Spray

- 2-3 whole garlic bulbs
- 1 quart of water
- 4-5 drops dish soap

Separate bulbs into cloves. Put in blender with 1 cup of water. Chop. Add rest of water and dish soap. Blend to liquify. Put through cheese cloth to strain. Store in refrigerator. To use mix 1 part garlic mixture to 10 parts water.

Pepper Spray

- 5-10 hot peppers
- 1 tsp dish soap
- 1 Tbsp vegetable oil
- 5-6 garlic cloves [optional]
- 2 quarts of water

Put in blender with 1 cup of water. Chop. Add rest of water, oil and dish soap. Blend to liquify. Put through cheese cloth to strain. Store in refrigerator. To use mix 1 Tbsp to 8 oz. **USE GLOVES**

Calculators and Growing Techniques

Johnny's Seeds www.johnnyseeds.com

Top Menu last item "Learn" Choose "Growers Library"

Seed Quantity Calculator

http://www.johnnyseeds.com/seedcalculator.aspx?source=W_InteractiveTools_122014

Seed Starting Date Calculator

http://www.johnnyseeds.com/e-pdgseedstart.aspx?source=W_InteractiveTools_122014

Growers Library

http://www.johnnyseeds.com/t-growers-library-index.aspx?source=W_InteractiveTools_122014

Southeastern Wisconsin Master Gardeners Website

www.milwaukee.uwex.edu Choose "Horticulture" from top menu bar

SOME SEED COMPANY NAMES

- Botanical Interests (organic seeds, non GMO seeds, heirloom seeds)
<https://www.botanicalinterests.com/category/Organic-Vegetables>
- High Mowing Seeds - organic, heirloom seeds
<https://www.highmowingseeds.com/vegetables.html>
- Renee's Garden
<https://www.reneesgarden.com/pages/catalog>
- Baker Creek Seeds
<https://www.rareseeds.com/>
- Seed Savers Exchange
<https://www.seedsavers.org/department/vegetable-seeds>

Get involved with community gardening groups

A collection of fresh vegetables is arranged on a rustic wooden surface. The assortment includes a large yellow squash, a purple eggplant, a pink eggplant, a white onion, several green beans, a purple bell pepper, and a green cucumber. A dark grey rectangular box is superimposed over the center of the image, containing the text "QUESTIONS???" in white, bold, sans-serif font.

QUESTIONS???

APPENDICES

Winter Sowing with Transplantation (No Hardening required)

WINTER SEED SOWING IN JUGS

FEB → APRIL



COLLECT & WASH JUGS.
DISCARD CAP

MAKE 5 OR 6
1/2" HOLES IN
BOTTOM OF JUG



DRILL

OR

HOT GLUE GUN
WILL MELT
HOLES



SLICE JUG IN HALF
LEAVING THE HANDLE
ATTACHED

PACK 2-3" OF **WET**
SOIL IN BOTTOM OF JUG



SOW SEEDS ACCORDING
TO PACKET INSTRUCTIONS

TAPE JUG BACK TOGETHER
WITH DUCT TAPE

LABEL WITH
SHARPIE



SET JUGS IN A SUNNY SPOT.
SNOW & RAIN WILL ENTER THROUGH
CAP HOLE CREATING CONDENSATION.
SPRAY WITH WATER IF DRY.



JUG BECOMES
A GREENHOUSE!



OPEN JUG
IN SPRING!

* ONCE SEEDS HAVE SPROUTED
PROTECT FROM LATE FROST
BY COVERING WITH BLANKETS,

How To Build A H \ddot{u} gelkultur Bed

Add compost, topsoil, and mulch that you have on hand. Use spray-free grass, straw, or other mulch materials.

TOP
LAYER



Manure, compost, and subsoil (the soil found 6-12 inches below the topsoil). It's typically higher in clay or sand and has less nutrients than topsoil. These materials fill in the gaps of your hill or trench.

FOURTH
LAYER



Twigs, leaves, and garden debris.

THIRD
LAYER



Smaller branches and untreated lumber (this is a great way to use half-rotten lumber).

SECOND
LAYER



Large stumps, tree trunks, or large branches.

BOTTOM
LAYER



BROCCOLI | CABBAGE | CAULIFLOWER BRUSSELS SPROUTS

- Start indoors [5 wks] or purchase plants
- Cool weather crops
- Heavy feeders
- Brussels Sprouts mid-June | top plants | frost
- When to pick
- Number of days to maturity



[Mountain Valley Growers](#)

BEANS & PEAS

- Bush | Pole | Filet | String | Wax | Purple
- Taste and use | Trellis vines
- Soak before planting | Inoculant* | Picking

Varieties:

- Blue Lake 274 | Provider | Maxibel | Masai | Velour | Roma II
- Snap | Shelling | Snow
- Scarlet Runner | Fava | Shelling beans
- Cover crop

*Nitrogen fixing bacteria that promotes plant health



[Fedco Seeds](#)

BEETS & SWISS CHARD

- Multi plant seed
- Direct seed or transplant
- Hard seed coat - soak seed or water row before planting
- Transplant or thin
- Eat greens and roots – Stems and leaves

Varieties

- Merlin | Red Ace | Early Wonder | Bulls Blood
- Bright lights | Rhubarb | Argentata | Perpetual spinach

Gardeners Path





[Merriam Webster](#)



KALE & COLLARDS

- Super easy to grow
- Direct seed or transplants [5wks]
- Beautiful in landscapes
- Lots of varieties and leaf interest

Varieties

- Scarlet | Lacinato | Dwarf blue vates |



CABBAGE MOTH

- Row cover | Pick larvae | BT
- Soak broccoli in salt water
- Red varieties
- Phenology – Lilac Bloom

Varieties

- Blue wind | Fiesta | Green king | Gypsy | Tendergreen
- Early Jersey Wakefield | Ruby perfection | Storage #4 | Gunma
- Diablo | Gustus

SQUASH

- Winter squash | Summer squash | Zucchini
- Enormous number of varieties
- Manure and Compost
- Consider trellising

Pests

- Squash vine borer | Squash bugs

Varieties

Butternut | Guatemalan Blue | Spaghetti | Tromboncino | Costata | Rouge Vif d'Étampes



Fooducate



Mattias Blom



Sutton



SQUASH VINE BORER

- Monitor for appearance of moths
- Phenology – roadside chicory bloom
- Pull out larvae Crochet hook
- Re-root stem
- Garlic spray





SQUASH BUGS

- Monitor and remove eggs
- Remove adults
- Boards on ground
- Garlic spray
- Neem oil

- Sow in ground after Memorial Day or start in pots [2 wks]
- Need lots of heat
- Consider growing on raised mound or trellising
- Add good amount of organic matter – compost/manure
 - Disease/Pests
- Cucumber beetles; Powdery Mildew

Varieties

Sarah, Alvaro, Savor,
Jenny Lind, Yellow Honey



MELONS & CUCUMBERS



TOMATOES

- Start indoors 7 – 8 wks
- Transplant target Memorial Day
- Choose plants for health and good root structure
- Nice companions French Marigolds, basil, onions
- Open Pollinated - seed saving
- Self pollinating

Varieties

- Sun Sugar, Black Cherry, Big Beef, KBX, Cherokee Purple



[Fedco Seeds](#)

TOMATOES

- Prune, support and mulch!!!
- Water the roots NOT the leaves
- Disease – many are soil born, remove leaves from garden
- Support systems
- Tobacco Hornworm

Pruning Demo



High Mowing



Fedco Seeds

PEPPERS & EGGPLANT

- Start 8 wks
- Transplant Memorial Day
- Need heat
- Pepper Hybrids
- Sunscald
- Hot pepper spray

Varieties

- Carmen, Early Sunsation, Escamilo, Lively, Peacework, New Ace, WI Lakes
- Diamond, Galine, Nadia, Swallow

Longevity Under Proper Seed Storage Conditions

Seed Viability

Artichokes	5 years	Corn	2 years	Parsnips	1 year
Arugula	3 years	Cress	5 years	Peas	3 years
Beans	3 years	Cucumbers	5 years	Peppers	2 years
Beets	4 years	Eggplant	4 years	Pumpkins	4 years
Broccoli	3 years	Endive/Escarole	5 years	Radish	5 years
Brussels Sprouts	4 years	Fennel	4 years	Rutabagas	4 years
Cabbage	4 years	Kale	4 years	Spinach	2-3 years
Carrots	3 years	Kohlrabi	4 years	Summer Squash	4 years
Cauliflower	4 years	Leeks	1 year	Tomatoes	4 years
Celery/Celeriac	5 years	Lettuce	5 years	Turnips	5 years
Chard	4 years	Melons	5 years	Watermelon	4 years
Collards	5 years	Mustard	4 years	Winter Squash	4 years
		Okra	2 years		
		Onions	1 year		



ROOT CROPS

- Carrots | Onions | Rutabaga | Parsnip | Turnip | Radish
- Thinning Important
- Damp soil for germination
- Soil temp

Varieties

Storage radish

Long day onions

ASPARAGUS



[Gardeners.com](https://www.gardeners.com)

- Pick for 4-6 weeks
- Water throughout the summer
- Add compost spring & fall
- Cut down and burn ferns late fall
- Weeding & planting [12" deep 18" apart]

Varieties

- Purple & Jersey varieties | Mary Washington



**USING ROW COVER
TO CONTROL PESTS**