



---

# **NUTTATIELLO GUIDE TO SELF SUFFICIENCY**

---

Food



JANUARY 20, 2018

WRITTEN BY: A CONCERNED CITIZEN OF THE UNITED STATES  
This Book is not meant for profit, it should be available to all. For Free



---

Many of us have dreamt of a self-sufficient lifestyle where we need no one and nothing outside of ourselves. Though this is a beautiful idea, it is very impractical, and nearly impossible.

The only way for true self-sufficiency to be possible is with a combination of giving some things up and creating a community that works together. This way, the many tasks for self-sufficiency are spread out among multiple people.

When it comes to food, all plants and animals will most likely need tended to at least once a day. If you only want to be self-sufficient with your food, you may be able to do this on your own. Otherwise you'll likely need help in other areas of self-sufficiency.

You can reach me at [nuttatielloguides@gmail.com](mailto:nuttatielloguides@gmail.com)

---



# Table of Contents

Plants.....	11
Ground and Vine Fruits and Vegetables.....	15
Arugula.....	15
Artichoke.....	16
Asparagus.....	17
Asparagus Peas.....	18
Bamboo.....	19
Bean – Black.....	20
Bean – Fava.....	21
Bean – Green.....	22
Bean – Kidney.....	23
Bean – Lima.....	24
Bean – Pinto.....	25
Bean – Soy.....	26
Beet/Swiss Chard.....	27
Broccoli.....	28
Brussel’s Sprouts.....	29
Cabbage.....	30
Carrot.....	31
Cauliflower.....	32
Celeriac.....	33
Celery.....	34
Celtuce.....	35
Chinese Artichoke.....	36

Chinese Cabbage.....	37
Collard Greens.....	38
Corn.....	39
Cucumber.....	40
Eggplant.....	41
Endive.....	42
Fennel.....	43
Garlic.....	44
Grape.....	45
Hamburg Parsley.....	46
Kale.....	47
Kiwi.....	48
Leek.....	49
Lentil.....	50
Lettuce – Head.....	51
Lettuce – Loose Leaf.....	52
Melon – Summer.....	53
Melon – Winter.....	54
Mushroom.....	55
Okra.....	56
Onion – Bunching.....	57
Onion – Sweet.....	58
Onion – Tree.....	59
Parsnip.....	60
Peas – Black Eyed.....	61
Pea – Garden.....	62

Peanut.....	63
Pepper.....	64
Pineapple.....	65
Potato.....	66
Pumpkin.....	67
Radish.....	68
Rhubarb.....	69
Rutabaga.....	70
Salsify.....	71
Sea Kale.....	72
Spinach.....	73
Squash – Summer.....	74
Squash – Winter.....	75
Sugar Cane.....	76
Sweet Potato.....	77
Tomatillo.....	78
Tomato.....	79
Turnip.....	80
<b>Edible Flowers.....</b>	<b>81</b>
Begonia – Tuberous and Waxed.....	81
Carnation.....	82
Chrysanthemum.....	83
Clover.....	84
Cornflower.....	85
Dame’s Rocket.....	86
Dandelion.....	87

Day Lily.....	88
English Daisy.....	89
Fuchsia.....	90
Garden Sorrel.....	91
Gladiolus.....	92
Hibiscus.....	93
Hollyhock.....	94
Honeysuckle.....	95
Impatiens.....	96
Lavender.....	97
Lilac.....	98
Marigold.....	99
Nasturtium.....	100
Pansy.....	101
Peony.....	102
Phlox – Perennial.....	103
Prim Rose.....	104
Rose.....	105
Scented Geranium.....	106
Snap Dragon.....	107
Sunflower.....	108
Sweet Woodruff.....	109
Tulip Petals.....	110
Violet.....	111
Yucca Petal.....	112

<b>Bush and Tree.....</b>	<b>113</b>
Almond.....	113
Apple.....	114
Apricot.....	115
Avocado.....	116
Banana.....	117
Blueberry.....	118
Bramble.....	119
Cashew.....	120
Cherry.....	121
Chestnut.....	122
Chocolate.....	123
Cinnamon.....	124
Citrus.....	125
Coffee.....	126
Cranberry.....	127
Currant.....	128
Date.....	129
Dragon Fruit.....	130
Fig.....	131
Goji Berry.....	132
Loquat.....	133
Macadamia nut.....	134
Mango.....	135
Olive.....	136
Peach, Nectarine.....	137

Pear.....	138
Pecan.....	139
Pistachio.....	140
Plum.....	141
Pomegranate.....	142
Quince.....	143
Starfruit.....	144
Strawberry.....	145
Tea Bushes.....	146
Walnut.....	147
<b>Herbs and Seasonings.....</b>	<b>148</b>
Agave.....	148
Anise.....	149
Basil.....	150
Bay.....	151
Cilantro/Coriander.....	152
Clove.....	153
Cumin.....	154
Dill.....	155
Ginger.....	156
Horseradish.....	157
Oregano/Marjoram.....	158
Parsley.....	159
Saffron.....	160
Sage.....	161
Stevia.....	162



Tarragon.....	163
Thyme.....	164
Turmeric.....	165
Vanilla.....	166
<b>Grains and Grasses.....</b>	<b>167</b>
Alfalfa.....	167
Amaranth.....	168
Barley.....	169
Buckwheat.....	170
Linseed/Flax.....	171
Millet.....	172
Oat.....	173
Orchard Grass.....	174
Rice.....	175
Rye.....	176
Sorghum.....	177
Spelt.....	178
Timothy Grass.....	179
Triticale.....	180
Wheat.....	181
<b>Sprouts and Microgreens.....</b>	<b>182</b>
<b>Information.....</b>	<b>182</b>
<b>Animals.....</b>	<b>183</b>
<b>Fowl.....</b>	<b>183</b>
Chicken.....	183
Duck.....	200

Goose.....	208
Guinea Fowl.....	215
Partridge.....	219
Peacock.....	221
Pheasant/Quail.....	223
Pigeon.....	229
Swan.....	233
Turkey.....	236
<b>Small Mammals.....</b>	<b>240</b>
Goat.....	240
Pig.....	254
Rabbit.....	266
Sheep.....	271
<b>Large Mammals.....</b>	<b>287</b>
Bison.....	287
Cow.....	290
<b>Fish and Crustaceans.....</b>	<b>302</b>
Bass.....	302
Carp.....	303
Catfish.....	304
Crab.....	305
Crawfish.....	306
Koi.....	307
Lobster.....	308
Mussels.....	309
Oyster.....	310

Prawn.....	311
Scallop.....	312
Shrimp.....	313
Sunfish.....	314
Tilapia.....	315
Trout.....	316
Bugs.....	317
Information.....	317
Butcher Charts.....	318
How Much to Grow.....	328
Lists.....	330
Glossary.....	367
Index.....	371

# Plants

There are hundreds of planting guides out there. Some are broad with little detail, while others narrow, even pinpointing a specific region. Here I want to give you the basics so you can apply them to your situation.

The first thing to consider when growing anything is your soil. Soil pH is a hot topic for many gardening books, but if you cannot access tests that tell you what your soil is doing, you need another option. If your soil is too acidic your plants will develop yellowing on the foliage. If it is too alkaline, they will develop dark green foliage and even reddish hues. Adding aged manure when you see yellow, and wood ash when you see dark green or red, should balance out your pH.

Your soil will separate into its main components if you shake it in a jar with water. After sitting for a while they will be stacked, from top to bottom, as clay, silt, and sand. You want a ratio of 20% clay, 40% silt, and 40% sand. You can add whatever you are lacking.

Next, you should consider what individual plants need. In general, you want to give the plants the nutrients to grow the parts you want to eat. For roots add phosphorus, for fruits add potassium, and for leaves add nitrogen. There are exceptions but this is the trend most plants follow. For phosphorus add bone meals. For potassium use wood ash, but mix it with compost if you don't want to change the soil pH. For nitrogen use well-rotted manure.

Once you have your soil balanced the way you like it, you need to keep it that way. If you have limited space you may want to use the same garden space every year. For this to work you should amend the soil every year with compost, and use crop rotations so you deplete the soil less. In general, you want to plant from fruit to root and root to leaf. An exception would be nitrogen fixing plants, such as legumes. You can insert nitrogen fixing plants between root and leaf plantings. If you have plenty of space you can rotate between 4 garden plots, allowing each to rest 3 years in turn. This will allow the microorganisms to repopulate the soil and make compost less necessary. This makes planting each garden less complicated since you can plant anywhere you like.

After you get everything growing nicely in your garden you need to guard against other creatures who will eat your food first. To keep large animals, such as deer, away you will need deer fencing, daily sprinklings of human hair clippings,

or a good dog. For smaller underground animals you can put strong metal mesh beneath your garden, or get a dog. With above ground rodents you can plant mint around your garden, or get a dog or cat. Basically, a dog is a good idea. Then we come to bugs. Coffee grounds ward off slugs and add nitrogen to your soil. Marigolds planted around your garden will keep most bugs at bay. Soap water spray will kill most everything else.

There are a few things that you will encounter in these planting guides that should be addressed ahead of time. First off, when you see the phrase “root cellar conditions” it refers to a high humidity, low temperature, low lit space, such as a crawl space, unfinished basement, or an actual root cellar. You can learn to make your own root cellar in *Nuttatiello Guide to Self Sufficiency Shelter* once it is written.

When this book says something about propagating from cuttings you need to follow a few basic rules. First, cut a decent amount of the plant. Don't cut one leaf, cut at least a portion with two inches of stem. Then you can stick it in water, or into moist soil. To help the rooting process you can dip a dampened end in cinnamon or honey which are natural rooting agents. When you propagate from cuttings your days to harvest will be shorter.

Another thing you will find is that many plants can cross pollinate. When this is the case, I suggest bagging flowers to prevent cross pollination. In the squash, melon and cucurbit families you get seeds from the fruits, which come from female flowers. You can put a paper bag with a lightly tightened twist tie over 2 or 3 of the flower buds with a swelling behind them. The swelling means they are female. You don't have to bag every flower. When the other flowers are in full bloom, check the bagged flowers, they should be too. Then stick a q-tip or paintbrush into a male flower with no swelling and wiggle it around. Then wiggle the same thing in your bagged flowers, and re-bag them. This is called “hand pollinating”. When the flowers start to wither you can remove the bags, but mark which ones you had bagged somehow so you know to get seeds from those.

The carrot family produces umbels, or round clusters of flowers. When they start to flower cover them with paper bags and tighten lightly with a twist tie. When the flowers are in full bloom uncover them, bounce the umbels against each other, and recover them. When the flowers start to wither you can remove the bags.

The brassica family tends to have numerous tiny flowers that are impossible to keep track of. Because of this I suggest throwing a fine mosquito netting over the plants and alternating the breed that doesn't have a net day by day. This way insects will only pollinate one group of plants at a time. If you are growing indoors or have few insects you should hand pollinate the flowers by twirling a q-tip or paintbrush over several flowers. Wash off the paint brush or change q-tips when you switch breeds.

You also must bag corn if you have more than one breed, or anyone within a mile is growing corn. Put paper bags over the tops of the unformed cobs. Then when they are about 4" long detassel the tops and beat the tops against the silks of all your cobs and recover them. This should cause a fully kernelled cob of corn.

Next you will find that peppers, tomatillos, and tomatoes, all do better when their seeds are fermented. After you dig the seeds out of the fruit leave whatever slime they have on them. Put the gooey mess of seeds into a cup of water. Cover it with cloth or a coffee filter. Let it sit out of the way for a couple days until it smells slightly like vinegar, and/or it has small bubbles. Throw out any floating seeds because they aren't viable.

When pruning a tree or a bush, unless a guide says otherwise, you should always follow a few basic things. Always make clean cuts with a sharp tool. This will help prevent rot. Also cut at an angle so that water drains off of the cut, otherwise it promotes mold. You should cut above a new outward facing bud so that the tree continues to grow. You should keep branches uncluttered otherwise they can trap moisture and promote mold.

Now, when it comes to aeroponics, hydroponics, and aquaponics there could be entire books written about them. I'm only giving you the basics. You can use your own creativity from there to figure the rest out, or get a book on it.

Aeroponics makes use of high pressure misting of the roots of plants. This requires specialized nozzles and pumps. The water, with minerals or plant food added to it, is misted over the plants roots at intervals based on the types of plants.

Hydroponics is when you plant your plants either in a coarse substrate or directly over water. The water also has added nutrients for the plants. The water is pumped over the plants' substrate, or transferred by hand and gravity fed. If the plants are directly in the water then it must be moving at all times, or changed regularly so that mold or algae doesn't form.

Aquaponics is when fish are added to provide nutrients to the plants. They can be kept in the containers with the plants' roots and they will feed on the plants' roots, or they can be kept separate and fed other things. The rest of the operation is very similar to hydroponics.

Square foot gardening is a type of gardening. When the book says Sqft space, it is talking about how much space you will need in a square foot garden. A square foot garden is usually a raised bed dug extra deep into the ground. Usually there is about 12 inches from the top of the soil down to the depth it is dug to. This allows for a plants roots to grow straight down, and therefore allows for more plants per square foot, hence the name, square foot gardening.

# Ground and Vine Fruits and Vegetables

## Arugula

**Days to Harvest:** 40

**About:** Arugula is a spicy green plant used in salads and cooking. It can also be described as tangy or mustard like. This cool season crop needs consistently moist soil to germinate.

**Grow Zone:** 1-12

**Where to Plant:** Full sun – Partial shade

**Companion Plants:** Bush beans, beets, carrots, celery, cucumber, dill, lettuce, mint nasturtium, onion, potato, rosemary, spinach, thyme NOT strawberries

**When to Plant:** As soon as soil can be worked

**Planting:** ½" deep 3-4" apart

**Germination Time:** 10-14 days

**Germination Temp:** 40°-55° F 4°-13° C

**When to Thin:** Unnecessary

**Regular Space:** 16 per sqft

**Square Foot Space:** 36 per sqft

**Fertilizer:** Grows well without it but a little nitrogen doesn't hurt

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** You can harvest the leaves when they are 4-6" long. Don't harvest more than 1/3 of the plant unless you are clearing it out of the bed.

**Seed Saving:** Arugula bolts when it gets warm. They are related to brassicas so you will want to bag the flowers or use mosquito netting. Once pods form you can remove that and let them dry. When the pods are almost dry bag them to catch the seeds.

**Storage:** Frozen or dehydrated

**Crop Rotation:** Fruiting plant next





## Artichoke

**Days to Harvest:** 150-180

**About:** An artichoke is actually an edible lower, but it is treated like a vegetable so it is in this section. People tend to steam or boil the flower and eat the inside of the petals with a dip. The base of the flower is the heart and can be eaten as is or mixed into a dip.

**Grow Zone:** 4-11

**Where to Plant:** Full sun to partial shade

**Companion Plants:** Cucumber, peas, sunflower, tarragon

**When to Plant:** After soil is warm

**Planting:** ½" deep 5' apart

**Germination Time:** 14-21 days

**Germination Temp:** 70°-75° F 20° C

**When to Thin:** Best if planted at needed spacing

**Regular Space:** 1 per 25sqft

**Square Foot Space:** 1 per 10sqft

**Fertilizer:** Using a side dressing of compost every 4 weeks can increase bud size

**(Aero, Hydro, Aqua)ponics:** Too large to be practical

**Harvest:** Cut 3" of stem with the bud once the flower is larger than your fist, but before the petals start to open.

**Seed Saving:** Allow the flower to fully mature and dry out. When it looks brown and dead put it in a paper bag upside down to let it finish drying. Then shake the seeds out of the flower.

**Storage:** Usually pickled, can be frozen

**Crop Rotation:** Root plant next



## Asparagus

**Days to Harvest:** 1,095

**About:** If you want to grow asparagus you have to be in it for the long haul. It takes 2-3 years to get an asparagus crop. If you get it going though, it can last up to 40 years.

**Grow Zone:** 3-8

**Where to Plant:** Full Sun

**Companion Plants:** Basil, beets, lettuce, parsley, spinach, tomato

**When to Plant:** If planting crowns, as soon as the soil is workable. Seedlings don't tolerate frost so plant seeds or transplants when the soil is warm, then mulch the sprouts heavily.

**Planting:** ½" deep 18-24" apart

**Germination Time:** 7-31 days

**Germination Temp:** 65°-80° F 18°-26° C

**When to Thin:** Never

**Regular Space:** 1 per 4sqft

**Square Foot Space:** 1 per 2sqft

**Fertilizer:** Use lots of compost and manure when you first plant

**(Aero, Hydro, Aqua)ponics:** Aquaponics and Hydroponics

**Harvest:** A good rule of thumb in order not to stress your plants is to only harvest spears that are as thick as a pencil

**Seed Saving:** You must have male and female plants. At the end of the season they will grow ferns, and the females will make berries with seeds in them.

**Storage:** Pickled, canned, frozen

**Next Year:** If you want your asparagus to come back next year make sure you don't transplant it too deep. At the end of the season the ferns will turn yellow; cut them down about 2" from the ground. Mulch them with compost. Every 4-6 years dig up and split the crown and replant.



## Asparagus Peas

**Days to Harvest:** 60-80

**About:** This interesting winged bean is setting itself up to save dry countries from malnutrition. It is dense in nutrition and all but the stems are edible. Even the discarded bean pods can be used as animal feed. The beans can be roasted and ground for a coffee substitute

**Grow Zone:** 6-11

**Where to Plant:** Full Sun

**Companion Plants:** Corn, strawberry

**When to Plant:** When soil is warm

**Planting:** ½" deep 3" apart

**Germination Time:** 7-14 days

**Germination Temp:** 65°-70° F 19°-21° C

**When to Thin:** When they start to fall over thin to 5" apart or trellis

**Regular Space:** 8 per sqft

**Square Foot Space:** 16 per sqft

**Fertilizer:** Unnecessary and harmful

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** You can harvest any part of the plant after it flowers except for the stems.

**Seed Saving:** Allow the pods to dry completely on the plant, then break them open to get the seeds. Then let them dry out on a flat surface.

**Storage:** pickled, canned, frozen, dehydrated

**Crop Rotation:** leaf plant next



## Bamboo

**Days to Harvest:** 1,095

**About:** Many Asian countries have bamboo shoots as a staple in their diet. If you want to grow this grass crop for food, make sure you get a breed that has edible shoots. Also make sure you have enough space above the bamboo.

**Grow Zone:** 6-10 special breeds down to zone 4

**Where to Plant:** Full sun

**Companion Plants:** Beans, peas, clover

**When to Plant:** When soil is warm

**Planting:** 1/8" deep 2" apart, for shoots bury everything that isn't green

**Germination Time:** 15-20 days

**Germination Temp:** 85° F 30° C

**When to Thin:** Don't

**Regular Space:** 36 per sqft

**Square Foot Space:** no benefit



**Fertilizer:** A nitrogen rich fertilizer is beneficial yearly

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** 3 or so years after planting cut shoots below the soil line. Allow some of the shoots to continue growing so the plant survives until next year.

**Seed Saving:** Propagating using shoots is more logical since bamboo only produces seed once every 50 years or so.

**Storage:** Pickled or canned

**Crop Rotation:** You may need to trim your bamboo and cut away any dead stalks.

## Bean – Black

**Days to Harvest:** 90

**About:** This bean is extremely versatile for cooking; you can even make burgers with it. Black beans are high in antioxidants and can diversify the color in your dishes. Like most beans it needs a flood of water to germinate.

**Grow Zone:** 4-9

**Where to Plant:** Full sun

**Companion Plants:** Broccoli, cabbage, carrots, cauliflower, corn, cucumber, celery, eggplant, peas, potato, radish, squash, strawberry, tomato

**When to Plant:** When the ground is warm

**Planting:** 1-2” deep 2-4” apart

**Germination Time:** 10-14 days

**Germination Temp:** 65°-95° F 18°-35° C

**When to Thin:** When 3-6” tall thin to 4-6” apart

**Regular Space:** 2 per sqft

**Square Foot Space:** 4 per sqft

**Fertilizer:** Use compost or compost tea when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** You can pick this bean at any time, but most people wait for it to dry on the plant before harvesting.

**Seed Saving:** Allow the pods to dry on the plant, then collect the seeds and lay them out on a hard surface until they finish drying.

**Storage:** Canned, frozen, or dehydrated

**Crop Rotation:** Leaf plant next



## Bean – Fava

**Days to Harvest:** 80-100

**About:** This ancient bean has been in human diets since the 4<sup>th</sup> century. Many people choose not to grow this bean because it is time consuming to prepare. You should boil them, peel the skins off, then boil them again.

**Grow Zone:** 4-10

**Where to Plant:** Full sun

**Companion Plants:** Cabbage, carrot, celery, eggplant, lettuce, parsley, parsnip, peas, potato NOT beet, onion, garlic, kohlrabi, sunflowers, Jerusalem artichoke

**When to Plant:** When the soil is warm

**Planting:** 1" deep 4-5" apart

**Germination Time:** 7-14 days

**Germination Temp:** 50°-65° F 10°-18° C

**When to Thin:** When 3-4" tall thin to 8-10" apart

**Regular Space:** 2 per 3 sqft

**Square Foot Space:** 2 per sqft

**Fertilizer:** Unnecessary

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** You can pick the beans any time you see them. The pods are edible in early stages, but most people wait until they are plump in the pod before picking them.

**Seed Saving:** Once the beans dry out on the plant remove the seeds and let them dry out completely on a flat surface.

**Storage:** Canned, frozen, or dehydrated

**Crop Rotation:** Leaf plant next



## Bean – Green

**Days to Harvest:** 50-60

**About:** Green beans are one of the most common beans grown in home gardens in America. So popular in fact, if you try to search them online, nothing but recipes come up.

**Grow Zone:** 3-9

**Where to Plant:** Full sun

**Companion Plants:** Broccoli, Cabbage, carrot, cauliflower, celery, corn, cucumber, eggplant, peas, potato, radish, squash, strawberry, tomato NOT onion, garlic, pepper, sunflower

**When to Plant:** When soil is warm

**Planting:** 2" deep 5-6" apart

**Germination Time:** 10-14 days

**Germination Temp:** 65°-95° F 18°-35° C

**When to Thin:** When 3-6" tall thin to 10-12" apart

**Regular Space:** 1 per sqft

**Square Foot Space:** 2 per sqft

**Fertilizer:** You can use compost when planting.

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** They can be picked at any point, but traditional green beans are picked young before you can feel the beans in the pod.

**Seed Saving:** Allow the beans to dry on the plant then collect the seeds and let them dry the rest of the way on a flat surface.

**Storage:** Canned, frozen, dehydrated

**Crop Rotation:** Leaf plant next



## Bean – Kidney

**Days to Harvest:** 90-150

**About:** Kidney beans are the most commonly consumed red bean. It is particularly popular in American chilis. It also has a longer growing season than most beans, which can be difficult for colder climates.

**Grow Zone:** 5-10

**Where to Plant:** Full sun

**Companion Plants:** Broccoli, cabbage, carrot, cauliflower, celery, corn, cucumber, eggplant, peas, potato, radish, squash, strawberry, tomato NOT garlic, onion, pepper, sunflower

**When to Plant:** When soil is warm

**Planting:** ½" deep 4" apart

**Germination Time:** 10-14 days

**Germination Temp:** 65°-95° F 18°-35° C

**When to Thin:** When 3-6" tall thin to 8" apart

**Regular Space:** 3 per 2 sqft

**Square Foot Space:** 3 per sqft

**Fertilizer:** Use compost when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** You can harvest these at any time, but generally you wait for them to dry on the plant.

**Seed Saving:** After the beans dry on the plant collect them and let them finish drying on a flat surface

**Storage:** Canned, frozen, dehydrated

**Crop Rotation:** Leaf plant next





## Bean – Lima

**Days to Harvest:** 60-80

**About:** Children dread its bland flavor, while many adults appreciate its gentle flavor. Unlike most beans, lima beans will mold if you water them too much trying to germinate them.

**Grow Zone:** 3-14

**Where to Plant:** Full sun

**Companion Plants:** Cucumber, celery, corn, potato

**When to Plant:** When the soil is warm

**Planting:** 1 ½" deep 3" apart

**Germination Time:** 8-16 days

**Germination Temp:** 65°-95° F 18°-35° C

**When to Thin:** When 3" tall thin to 6" apart

**Regular Space:** 4-6 per sqft

**Square Foot Space:** 8-10 per sqft

**Fertilizer:** Use compost when planting

**(Aero, Hydro, Aqua)ponics:** Good for all, but be careful of molding

**Harvest:** Most people pick the pods just after the beans start to firm up.

**Seed Saving:** Allow the pods to dry on the plant, then collect the seeds and let them finish drying on a flat surface.

**Storage:** Canned, frozen, dehydrated

**Crop Rotation:** leaf plant next



## Bean – Pinto

**Days to Harvest:** 90

**About:** Pinto beans are a good basic dry bean. They are common in many dishes. My favorite use for them is refried beans. If you only want to grow one dry bean, this is a good choice.

**Grow Zone:** 3-9

**Where to Plant:** Full sun

**Companion Plants:** Broccoli, cabbage, carrot, celery, cauliflower, corn, cucumber, eggplant, pea, potato, radish, squash, strawberry, tomato NOT garlic, onion, pepper, sunflower

**When to Plant:** When soil is warm

**Planting:** 1" deep 2" apart

**Germination Time:** 4-5 days

**Germination Temp:** 65°-95° F 18°-35° C

**When to Thin:** When 2-4" tall thin to 4-6" apart

**Regular Space:** 2-3 per sqft

**Square Foot Space:** 4-6 per sqft

**Fertilizer:** Use compost when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Though you can technically eat them sooner, you should wait for them to dry on the plant then pick them.

**Seed Saving:** Allow the beans to dry completely on the plant, then collect the seeds and let them finish drying on a flat surface.

**Storage:** Frozen, canned, or dehydrated

**Crop Rotation:** Leaf plant next



## Bean – Soy

**Days to Harvest:** 45-65

**About:** Soy beans are heavily touted as a health food, but they have high levels of an estrogen copycat. To avoid this issue, and the health problems that come with it, you should ferment your soy beans.

**Grow Zone:** 3-10

**Where to Plant:** Full sun

**Companion Plants:** Catnip, corn, potato, nasturtium, rosemary,

**When to Plant:** When soil is warm

**Planting:** 1" deep 2" apart

**Germination Time:** 3-5 days

**Germination Temp:** 60°-80° F 15°-26° C

**When to Thin:** When 3" tall thin to 4" apart

**Regular Space:** 4 per sqft

**Square Foot Space:** 6 per sqft

**Fertilizer:** Unnecessary

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** It is best to pick them when the pods are plump and firm

**Seed Saving:** Allow the pods to dry out completely on the plant, then collect the seeds and let them finish drying on a flat surface.

**Storage:** Fermented

**Crop Rotation:** Leaf plant next



## Beet/Swiss Chard

**Days to Harvest:** 45-65

**About:** Beets tend to have delicious leaves and nice juicy bulbs. A beet seed is actually a pod with multiple seeds in it so you only have to plant one in each spot. You can toss the thinnings into a salad as well.

**Grow Zone:** 1-11

**Where to Plant:** Full sun

**Companion Plants:** Asparagus, broccoli, cauliflower, lettuce, onion NOT mustard or pole beans

**When to Plant:** As soon as the soil is workable

**Planting:** 1" deep 1" apart

**Germination Time:** 5-10 days

**Germination Temp:** 45°-95° F 7°-35° C

**When to Thin:** When 1" tall thin to 4" apart

**Regular Space:** 16 per sqft

**Square Foot Space:** no benefit

**Fertilizer:** Unlike most root crops beets need nitrogen rich fertilizer when planting.

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** Once the heads come above soil level you can harvest them, but catch them before the leaves turn yellow

**Seed Saving:** Beets are biennial. If you live in zone 6 or warmer you can keep them in the ground until next year. If you live in zone 5 or colder you need to dig them up and store them in root cellar conditions. Then bury them outside next year as soon as the soil is workable. Once they go to seed and start to dry you may want to bag them to catch the seed.

**Storage:** Root cellar, canned, frozen

**Crop Rotation:** Leaf or nitrogen fixing plant next



## Broccoli

**Days to Harvest:** 55-80

**About:** Broccoli is actually an edible flower but it is treated like a vegetable so it is in this section. Broccoli is well known as a healthy food and is even better for you fresh from the garden.

**Grow Zone:** 3-10

**Where to Plant:** Shade- partial sun

**Companion Plants:** Beet, potato, celery, onion NOT strawberry, pole bean, tomato

**When to Plant:** When the soil has warmed a little

**Planting:** ½" deep 7" apart

**Germination Time:** 10-14 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 3" tall thin to 14" apart

**Regular Space:** About 1 per 4 sqft

**Square Foot Space:** 3 per 4 sqft

**Fertilizer:** Don't, it causes the plant to bolt

**(Aero, Hydro, Aqua)ponics:** Good for all, but stunts growth

**Harvest:** You will have to see how big your breed gets then harvest it when it hits that size. If you wait too long it will flower

**Seed Saving:** If you have almost no winter you can treat broccoli as an annual, but since the root won't survive a hard frost it is generally treated as a biennial. If you live in zone 7 or colder you should bring the plant into root cellar conditions until you plant it back out next year when the soil is starting to warm. If you don't want it crossing with the other brassicas you should bag the flowers or use mosquito netting. Then bag the pods to catch the seed.

**Storage:** Pickled, frozen, dehydrated

**Crop Rotation:** Root plant next



## Brussel's Sprouts

**Days to Harvest:** 100-110

**About:** Brussel's sprouts are a vegetable that some people dread and others happily await. In order to get any actual sprouts, you have to cut off all of the lower leaves leaving five rows of leaves on the plant. Sprouts will pop out around the cut parts of the plant

**Grow Zone:** 4-8

**Where to Plant:** Full sun-partial shade

**Companion Plants:** Beet, celery, cucumber, dill, garlic, hyssop, lettuce, mint, nasturtium, onion, potato, rosemary, sage, spinach, swiss chard

**When to Plant:** As soon as the soil is workable

**Planting:** ½" deep 1' apart

**Germination Time:** 7-14 days

**Germination Temp:** 30°-60° F 0°-15° C

**When to Thin:** When 1-2" tall thin to 2' apart

**Regular Space:** 1 per 4 sqft

**Square Foot Space:** 1 per 2 sqft

**Fertilizer:** Don't

**(Aero, Hydro, Aqua)ponics:** Generally, too large for any

**Harvest:** Harvest when the sprouts are an inch in diameter, but before they unfurl

**Seed Saving:** Brussel's sprouts are biennial. If you live in zone 6 or warmer you will be able to keep them in the ground. If you live in zone 5 or colder you should dig them up and store them in root cellar conditions, then plant them as soon as the soil is workable next year. Brussel's sprouts are part of the brassica family so you should bag the flowers to prevent cross pollination. Then when the pods are about to dry bag them to prevent seed loss.

**Storage:** Keep the sprouts on the plant until you are ready to use them

**Crop Rotation:** Fruiting plant next



## Cabbage

**Days to Harvest:** 70

**About:** Though there are giant breeds of cabbage, here we focus on the more commonly eaten 1-3lb head breeds. This dense leafy plant is generally boiled and used in many recipes. It can also be fermented to make coleslaw.

**Grow Zone:** 3-8

**Where to Plant:** Full sun

**Companion Plants:** Beans, celery, cucumber, dill, kale, lettuce, onion, potato, sage, spinach, thyme NOT broccoli, cauliflower, strawberry, tomato

**When to Plant:** As soon as the soil is workable

**Planting:** ¼-½" deep 1' apart

**Germination Time:** 5-10 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 1-2" tall thin to 2' apart

**Regular Space:** 1 per 4 sqft

**Square Foot Space:** 1 per 2 sqft

**Fertilizer:** Use high nitrogen fertilizer every 2 weeks.

**(Aero, Hydro, Aqua)ponics:** Gets too heavy to be practical

**Harvest:** Once the head is firm you can harvest it, you can also eat the outer leaves but they taste different.

**Seed Saving:** cabbages are biennial. If you live in zone 6 or warmer you can leave them in the ground. If you live in zone 5 or colder you should dig them up and store them in root cellar conditions, then plant them as soon as the soil is workable next year. Cabbage is also part of the brassica family so you should bag the flowers and subsequently the pods.

**Storage:** Canned, frozen, fermented, pickled

**Crop Rotation:** Fruiting plant next



## Carrot

**Days to Harvest:** 70-80

**About:** Carrots are one of the easiest crops you can plant. They just need a lot of water and loose soil as deep as the carrot will grow.

**Grow Zone:** 3-9

**Where to Plant:** Full sun

**Companion Plants:** Bean, lettuce, onion, pea, radish, rosemary, sage, tomato, NOT dill or parsley

**When to Plant:** As soon as the soil can be worked

**Planting:** Just under the soil surface 1" apart

**Germination Time:** 21-30 days

**Germination Temp:** 45°-95° F 7°-35° C

**When to Thin:** When 1-2" tall thin to 3" apart

**Regular Space:** 16 per sqft

**Square Foot Space:** No benefit

**Fertilizer:** Fertilize with phosphorus when planting

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** When the top of the carrot pokes out of the ground dig them up

**Seed Saving:** Carrots are biennial. Like usual if they are in zone 6 or warmer leave them and if they are in zone 5 or colder store them in root cellar conditions. Then, when the soil is workable next year, plant them back out. If you are growing parsnips, parsley, or dill you should bag the umbels and hand pollinate to prevent cross pollination. You should bag them toward the end either way to catch seeds.

**Storage:** canned, frozen, pickled, root cellar

**Crop Rotation:** Leaf or nitrogen fixing plant next





## Cauliflower

**Days to Harvest:** 80-120

**About:** Cauliflower is one of the most finicky of the brassicas. This is because it does not tolerate frost or drought. Keep it well watered and warm.

**Grow Zone:** 4-9

**Where to Plant:** Full-partial sun

**Companion Plants:** Herbs, beet, potato, celery, onion NOT strawberry, pole bean, tomato

**When to Plant:** When the soil has warmed

**Planting:** ½" deep 7" apart

**Germination Time:** 10-15 days

**Germination Temp:** 65°-85° F 16°-30° C

**When to Thin:** When 3" tall thin to 14" apart

**Regular Space:** About 3 per 4 sqft

**Square Foot Space:** About 3 per 2 sqft

**Fertilizer:** Very little potassium at planting

**(Aero, Hydro, Aqua)ponics:** Good for all, but stunts growth

**Harvest:** Once the head is about the size of your face it should be harvested.

**Seed Saving:** Cauliflower is biennial. Dig them up before the first frost and store them in root cellar conditions. Then, as soon as the soil is workable next year, plant them back out. Since cauliflower is part of the brassica family you will want to bag the flowers then subsequently the pods.

**Storage:** Frozen, dehydrated, pickled

**Crop Rotation:** Root plant next



## Celeriac

**Days to Harvest:** 120-140

**About:** This relative of celery can be used like an artichoke. The stalks are like hard, stronger flavored celery, and the root has a muted celery flavor. Celeriac is disease resistant and has few pests. Just weed and water them.

**Grow Zone:** 4-8

**Where to Plant:** Full sun- partial shade

**Companion Plants:** Lettuce, spinach, pea NOT pumpkin, cucumber, squash

**When to Plant:** When soil is starting to warm

**Planting:** 1/8" deep 3-4" apart

**Germination Time:** 14-21 days

**Germination Temp:** 60°-75° F 15°-24° C

**When to Thin:** When 3-4" tall thin to 6-8" apart

**Regular Space:** About 2 per sqft

**Square Foot Space:** About 3 per sqft

**Fertilizer:** Don't

**(Aero, Hydro, Aqua)ponics:** Not good for any

**Harvest:** When celeriac root is about 4" in diameter you can harvest it. Try to time it so you harvest after a light frost, it'll taste better. You can harvest the stalks when they are an inch thick, but don't take more than 1/3 of the plant.

**Seed Saving:** Celeriac is biennial. In zones 7 and warmer you can leave it out. In zones 6 and colder dig them up and store them in root cellar conditions. Then plant them out when the soil is workable. Celeriac can cross with carrots, parsnips, celery, and dill, so bag and hand pollinate the flowers. Then you can keep the flowers bagged to catch the seeds.

**Storage:** Root cellar, canned, pickled, frozen, dehydrated

**Crop Rotation:** Leaf or nitrogen fixing plant next



## Celery

**Days to Harvest:** 100-120

**About:** Celery is another one of those more finicky plants. It likes things to be moist, and it does not like to be crowded. It has to have a narrow temperature range to grow best, but celery is so multipurposed people grow it anyway.

**Grow Zone:** 5-10

**Where to Plant:** Full sun

**Companion Plants:** Leek, tomato, bush bean, cauliflower, cabbage

**When to Plant:** Once the soil is warm

**Planting:** On the surface of the soil 5-6" apart

**Germination Time:** 10-20 days

**Germination Temp:** 60°-70° F 10°-20° C

**When to Thin:** When 2-3" tall thin to 10-12" apart

**Regular Space:** 1 per sqft

**Square Foot Space:** 3 per sqft

**Fertilizer:** Celery is a heavy feeder, fertilize every 2-4 weeks with high nitrogen

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** You can start harvesting when the plant is about 3" in diameter, but don't harvest more than 1/3 of the plant

**Seed Saving:** Celery is biennial. In zones 7 and warmer you can leave it out. In zones 6 and colder dig them up and store them in root cellar conditions. Then plant them out when the soil is workable. Celery can cross with carrots, parsnips, celeriac, and dill, so bag and hand pollinate the flowers. Then you can keep the flowers bagged to catch the seeds.

**Storage:** Canned, frozen, dehydrated

**Crop Rotation:** If you fertilized properly you can plant a fruiting crop here next, otherwise plant a nitrogen fixing plant



## Celtuce

**Days to Harvest:** 100

**About:** Celtuce is a long season, cool weather crop. It comes in dozens of varieties with different shapes and flavors. It grows well in small spaces and needs less fertilizer than other lettuces. Celtuce leaf is usually used in salads, and the stem is used in stir-fries and Chinese soups.

**Grow Zone:** 2-7

**Where to Plant:** Full sun-partial shade

**Companion Plants:** Tends to do well whatever it's planted with, but be aware that potent plants like onion, garlic, or mint may change the flavor of what they are planted next to

**When to Plant:** As soon as the soil is workable

**Planting:** ¼" deep 4" apart

**Germination Time:** 8-10 days

**Germination Temp:** 50°-60° F 10°-16° C

**When to Thin:** When 3" tall thin to 8" apart

**Regular Space:** 3 per 4 sqft

**Square Foot Space:** 3 per 2 sqft

**Fertilizer:** Nitrogen fertilizer once when planting, then ½ way through the season

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When leaves are 3-4" long you can harvest them for salads. Once the base of the stem is about 3" thick in diameter you can cut it away from the ground. Throw out any leaves that are not on top because the rest are bitter by now.

**Seed Saving:** If you leave the plant be it should bolt in the summer heat. Bag the flowers to prevent cross pollination. Once the flowers are dry, knock the seed into bags and let them finish drying.

**Storage:** Canned, pickled, frozen

**Crop Rotation:** Fruiting plant next



## Chinese Artichoke

**Days to Harvest:** 200-220

**About:** These are not artichokes and are commonly called crosnes. They take a very long time to grow, and you have to keep the mint like foliage trimmed down to 6" the entire time. If you don't, they will flower and become tough and nearly inedible. They have a mild water chestnut flavor and very little nutrients.

**Grow Zone:** 5-10

**Where to Plant:** Full sun-partial shade

**Companion Plants:** They will take over anything you plant them near

**When to Plant:** When there is no danger of frost

**Planting:** Plant tubers 2-3" deep and 3" apart

**Germination Time:** 7-10 days

**Germination Temp:** 50°-70° F 10°-21° C

**When to Thin:** Don't

**Regular Space:** 16 per sqft

**Square Foot Space:** no benefit



**Fertilizer:** Fertilize with compost tea every 2-4 weeks

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** When the foliage has died back dig up the tubers. If you don't get every last one, they will come back next year.

**Seed Saving:** Save the smallest tubers and store them in root cellar conditions for next year.

**Storage:** root cellar, canned, pickled

**Crop Rotation:** Leaf plant next

## Chinese Cabbage

**Days to Harvest:** 70-80

**About:** Chinese cabbage is the second most nutrient dense leafy green known on our planet. The heads can be eaten in a salad, or you can chop them up for stir-fry.

**Grow Zone:** 4-7

**Where to Plant:** Full sun-partial shade

**Companion Plants:** Cabbage, cauliflower, Brussel's sprouts NOT tomato, pepper, okra, potato

**When to Plant:** When the soil is barely warming

**Planting:** ¼" deep 7" apart

**Germination Time:** 4-7 days

**Germination Temp:** 45°-75° F 7°-24° C

**When to Thin:** When 2" tall thin to 14" apart

**Regular Space:** About 1 per sqft

**Square Foot Space:** About 3 per 2 sqft

**Fertilizer:** Unlike most leafy greens, Chinese cabbage does good with a pit of phosphorus at planting, then nitrogen every 2-4 weeks

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Once the head is firm you can harvest it.

**Seed Saving:** If you leave the plant be it will easily bolt in the summer heat. You should bag the flowers to prevent cross pollination, then bag the seed pods to catch the seeds.

**Storage:** Canned, fermented, frozen

**Crop Rotation:** Fruiting plant next



## Collard Greens

**Days to Harvest:** 60-75

**About:** This specific version of kale is a favorite in the south. You can eat it raw, but it is usually chopped and cooked in oil. This green is very easy to grow.

**Grow Zone:** 2-11

**Where to Plant:** Full sun

**Companion Plants:** Mint, chamomile, garlic, dill

**When to Plant:** As soon as the soil is workable

**Planting:** ½" deep 12" apart

**Germination Time:** 4-10 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 2-3" tall thin to 24" apart

**Regular Space:** 1 per 4 sqft

**Square Foot Space:** 1 per 2 sqft

**Fertilizer:** Use high nitrogen fertilizer every 2 weeks.

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the plant is a foot tall you can harvest the bottom leaves, leave at least 5 layers of leaves on top at all times.

**Seed Saving:** Collard Greens are biennial. If you live in zone 6 or hotter you can leave them outside, and if you live in zone 5 or colder dig them up and store them in root cellar conditions. Collards are also part of the brassica family so you should bag the flowers, then bag the pods to catch the seeds.

**Storage:** Collards don't keep well off the plant so you should leave them on the plant as long as possible.

**Crop Rotation:** Fruiting plant next



## Corn

**Days to Harvest:** 60-100

**About:** Corn is not only a staple of the American diet, but it's what we feed our live stock. The information here also applies to varieties of corn used to make popcorn, or for decoration.

**Grow Zone:** 4-11

**Where to Plant:** Full sun

**Companion Plants:** Potato, pea, bean, cucumber, pumpkin, squash, melon, marigold, sunflower

**When to Plant:** When the soil warms

**Planting:** 2" deep 2" apart

**Germination Time:** 10-12 days

**Germination Temp:** 50°-70° F 10°-20° C

**When to Thin:** When 3-4" tall thin to 4" apart

**Regular Space:** 5 per sqft

**Square Foot Space:** no benefit

**Fertilizer:** Corn is a heavy feeder so you should fertilize with a high nitrogen fertilizer every two weeks then potassium when the cobs start to form

**(Aero, Hydro, Aqua)ponics:** Gets too tall to be practical

**Harvest:** When the silks die off and the husk tip feels full you can harvest it, but leave the corn in the husk until you're ready to use it.

**Seed Saving:** Corn can cross breed with corn up to a mile away. To prevent this bag the tops and silks and hand pollinate. Let the seed dry on the plant then knock it off the cob.

**Storage:** Canned, frozen, pickled, fermented

**Crop Rotation:** If you fertilized properly you can plant a fruiting crop next, otherwise plant a nitrogen fixing plant next.





## Cucumber

**Days to Harvest:** 50-70

**About:** There are two main groups of cucumbers: pickling and salad. Luckily, they have the same needs. They are very easy to grow but have a shallow root system, so keep them well watered.

**Grow Zone:** 4-12

**Where to Plant:** Full sun

**Companion Plants:** Bean, corn, pea, radish, sunflower, okra NOT potato or herbs

**When to Plant:** When the soil is warm

**Planting:** 1-1 ½" deep 7" apart

**Germination Time:** 7-14 days

**Germination Temp:** 65°-80° F 18°-26° C

**When to Thin:** When 1-2" tall thin to 14" apart

**Regular Space:** 3 per 4 sqft

**Square Foot Space:** no benefit unless trellised

**Fertilizer:** Fertilize with compost and potassium when planting

**(Aero, Hydro, Aqua)ponics:** May take over if you try

**Harvest:** For pickling cucumbers harvest them when they are 2-3" long. For salad cucumbers pick them when they are 4-6" long but still shiny.

**Seed Saving:** These are in the cucurbit family so they can cross with other cucumbers and some squash and melons. Bag and hand pollinate the flowers to prevent cross pollination. Allow the cucumber to turn yellow on the vine, then dig the seeds out of the fruit. Wash them and let them dry on a flat surface

**Storage:** Pickling, canning, freezing

**Crop Rotation:** Root plant next



## Eggplant

**Days to Harvest:** 120-180

**About:** Eggplants are a delicate addition to your garden. They like heat, if you have cold nights cover them at night. They tend to do better staked. Water them deeply

**Grow Zone:** 5-11

**Where to Plant:** Full sun

**Companion Plants:** Basil, beans, lettuce, pea, potato, spinach

**When to Plant:** When the soil is warm

**Planting:** ¼" deep 12-18" apart

**Germination Time:** 8-10 days

**Germination Temp:** 65°-85° F 18°-35° C

**When to Thin:** When 2-3" tall thin to 24-36" apart

**Regular Space:** 1 per 9 sqft

**Square Foot Space:** 1 per 3 sqft

**Fertilizer:** Once every 2 months fertilize with high potassium fertilizer

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When they have full color harvest them before they lose their shine and become over ripe. With white eggplant harvest them before they start to turn yellow.

**Seed Saving:** Once the skin does lose its shine you know the seeds are viable. Simply dig them out of the fruit, wash them, and let them dry on a flat surface.

**Storage:** They don't keep well, but can last about 2 weeks in a root cellar

**Crop Rotation:** Root plant next



## Endive

**Days to Harvest:** 65-100

**About:** Endives are grown for two parts of the plant. Some people focus on one or the other, while others try to use both parts. The easiest part to grow is the bitter leaves for salads. The other part it's the heart, which should be blanched in order for it to taste sweeter.

**Grow Zone:** 4-9

**Where to Plant:** Full sun-partial shade

**Companion Plants:** other leaf lettuces

**When to Plant:** When soil is warm

**Planting:** ¼-½" deep 2" apart

**Germination Time:** 7-14 days

**Germination Temp:** 55°-70° F 13°-21° C

**When to Thin:** when 1-2" tall thin to 6" apart

**Regular Space:** 2 per sqft

**Square Foot Space:** 3 per sqft

**Fertilizer:** High nitrogen fertilizer every 2-4 weeks

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the plant is about 6" in diameter you can harvest the whole thing.

**Seed Saving:** If you leave the plant be it should bolt towards the end of the summer. Bag the flowers to prevent cross pollination. Once the flowers close cut the plant down at the base and hang it upside down to dry. Once dry pick the seeds out of the dry flowers.

**Storage:** Freezing

**Crop Rotation:** Fruiting plant next



## Fennel

**Days to Harvest:** 60-115

**About:** This strange relative of the carrot is generally grown for its “bulb”. The leaves share the licorice flavor of the bulb and the seeds can be used to season things with a licorice flavor.

**Grow Zone:** 5-10

**Where to Plant:** Full sun

**Companion Plants:** Most plants don't do well near it

**When to Plant:** When soil is just starting to warm

**Planting:** ¼-½” deep 6” apart

**Germination Time:** 7-10 days

**Germination Temp:** 60°-90° F 16°-32° C

**When to Thin:** When 1-2” tall thin to 12” apart

**Regular Space:** 1 per sqft

**Square Foot Space:** 3 per 2 sqft

**Fertilizer:** Compost is usually all it needs at planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** You can harvest the leaves once they are 4” long. You should harvest the bulb when it's about 3” in diameter. You will have to wait until next year to harvest any seeds.

**Seed Saving:** Fennel is biennial. Like usual if they are in zone 6 or warmer leave them and if they are in zone 5 or colder store them in root cellar conditions. Then, when the soil is workable next year, plant them back out. If you are growing parsnips, parsley, or dill you should bag the umbels and hand pollinate to prevent cross pollination. You should bag them toward the end either way to catch seeds.

**Storage:** Canned, frozen, dehydrated, root cellar

**Crop Rotation:** Fruiting plant next



## Garlic

**Days to Harvest:** 80-220 depending on if you plant in the fall

**About:** This vampire repellent goes well in almost any savory dish. You can plant them in the fall or spring. They are low maintenance and prolific.

**Grow Zone:** 3-10

**Where to Plant:** Full sun

**Companion Plants:** Rose, apple, peach NOT pea, bean, cabbages, strawberry

**When to Plant:** In the fall or when the soil is workable

**Planting:** 1" below surface 4" apart

**Germination Time:** 7-14 days

**Germination Temp:** 32°-50° F 0°-10°

**When to Thin:** Best to plant at needed spacing (4")

**Regular Space:** 3 per sqft

**Square Foot Space:** 6 per sqft

**Fertilizer:** Garlic needs a high nitrogen fertilizer at the beginning of the season

**(Aero, Hydro, Aqua)ponics:** Not practical for any

**Harvest:** When the stalks fall over dig them up and let them dry before storing them

**Seed Saving:** Save the bulbs and break the cloves off to plant them next year.

**Storage:** Root cellar, canned, pickled, dehydrated

**Crop Rotation:** Fruiting plant next



## Grape

**Days to Harvest:** 1,095

**About:** If you plant grapes from seed it will take 3 years for you to get a good harvest out of them. You will have to trellis your grapes no matter what kind you grow. They can be trained up anything they can hold onto. If you prune heavily you will harvest heavily.

**Grow Zone:** 4-8

**Where to Plant:** Full sun

**Companion Plants:** Clover and Hyssop

**When to Plant:** When the soil is warm

**Planting:** 1" deep 8-9' apart

**Germination Time:** 10-15 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 1" tall thin only extra sprouts, keep spacing

**Regular Space:** 1 per 64 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Fertilize with potassium when planting

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** Once the grapes have their full color and size you can harvest them.

**Seed Saving:** Allow the grapes to fully mature on the vine and even get a bit wrinkly, then pick the seeds out of the fruit. Wash them and let them dry on a flat surface.

**Storage:** Canned, fermented

**Next Year:** At the end of the season cut away all but the main thick vines on the trellis. Fertilize in the spring each year.



## Hamburg Parsley

**Days to Harvest:** 85-95

**About:** This carrot relative isn't that common in America, but is very useful. It is usually grown for its root, but the leaves can be used as a more potent version of parsley. Hamburg parsley can help regulate blood sugar. It needs lots of water, but keep the leaves dry; mulching helps.

**Grow Zone:** 3-9

**Where to Plant:** Full sun

**Companion Plants:** Tomato, corn, asparagus, rose

**When to Plant:** When soil is warm

**Planting:** ¼" deep 3" apart

**Germination Time:** 21-35 days

**Germination Temp:** 65°-70° F 18°-21° C

**When to Thin:** When 2-3" tall thin to 6" apart

**Regular Space:** 2 per sqft

**Square Foot Space:** 3 per sqft

**Fertilizer:** Hamburg Parsley needs a good balance of nitrogen and phosphorus when planting

**(Aero, Hydro, Aqua)ponics:** Aquaponics and hydroponics

**Harvest:** You can harvest the leaves once the stem is longer than 10". Once the root is poking above the ground you can harvest it, but you can also leave it there through the winter.

**Seed Saving:** Hamburg parsley is biennial. Like usual if they are in zone 6 or warmer leave them and if they are in zone 5 or colder store them in root cellar conditions. Then, when the soil is workable next year, plant them back out. If you are growing parsnips, parsley, or dill you should bag the umbels and hand pollinate to prevent cross pollination. You should bag them toward the end either way to catch seeds.

**Storage:** Root cellar, canned, pickled, frozen

**Crop Rotation:** Leaf or nitrogen fixing plant next



## Kale

**Days to Harvest:** 70-80

**About:** Kale is one of those plants that health nuts rave about. It truly is a very nutrient dense plant, so if you want to grow it, it's very easy to grow.

**Grow Zone:** 3-11

**Where to Plant:** Full sun

**Companion Plants:** Mint, chamomile, garlic, dill

**When to Plant:** As soon as the soil is workable

**Planting:** ½-1" deep 9-12" apart

**Germination Time:** 4-10 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 2-3" tall thin to 18-24" apart

**Regular Space:** 1 per 2 sqft

**Square Foot Space:** 1 per sqft

**Fertilizer:** Use high nitrogen fertilizer every 2 weeks

**(Aero, Hydro, Aqua)ponics:** Good for all, but grows smaller

**Harvest:** You can harvest the lower leaves once the plant is 1' in diameter. Always leave 5 layers of leaves on top.

**Seed Saving:** Kale is biennial. If you live in zone 6 or hotter you can leave them outside, and if you live in zone 5 or colder dig them up and store them in root cellar conditions. Kale is also part of the brassica family so you should bag the flowers, then bag the pods to catch the seeds.

**Storage:** Canned, or you can leave them in the ground

**Crop Rotation:** Fruiting plant next





## Kiwi

**Days to Harvest:** 1,095-1,825

**About:** Most people think that kiwis are a tropical plant that grows on trees. In reality they are a vine native to Russia. They are easy to grow and similar to grapes. They take 3-5 years to fruit.

**Grow Zone:** 4-9

**Where to Plant:** Full sun

**Companion Plants:** Clover and hyssop

**When to Plant:** When soil is warm

**Planting:** 1" deep 8-9' apart

**Germination Time:** 10-15 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** 1" tall only thin extra plants, leave spacing

**Regular Space:** 1 per 9 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Fertilize with compost when planting.

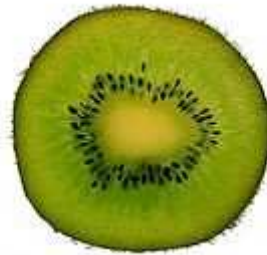
**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** When the flesh gives slightly when you squeeze the fruit it is ready to harvest.

**Seed Saving:** Let the kiwi fully mature on the vine, you can even let it get really squishy. Then dig the seeds out of the fruit, wash them, and let them dry.

**Storage:** Canned, frozen

**Next Year:** At the end of the season cut away everything other than the main vine. Fertilize with potassium once a year in the spring.



## Leek

**Days to Harvest:** 100-120

**About:** Leeks are a relative of onion grown for the dense cluster of leaves at the base. They taste best if you hill dirt at the base of the plant to blanch it.

**Grow Zone:** 2-9

**Where to Plant:** Full sun

**Companion Plants:** Onion, celery, carrot

**When to Plant:** As soon as the soil can be worked

**Planting:** ½" deep ½" apart

**Germination Time:** 5-7 days

**Germination Temp:** 45°-65° F 7°-18° C

**When to Thin:** When 1" tall thin to 2" apart

**Regular Space:** 12 per sqft

**Square Foot Space:** 18 per sqft

**Fertilizer:** High nitrogen fertilizer every 2-4 weeks

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the base of the plant is an inch thick you can harvest it by pulling it out of the ground.

**Seed Saving:** Leave a few leeks unmolested and wait until next year. They will flower and you'll want to bag the flowers to prevent cross pollination. Once the flower heads start to dry out you may want to bag them to catch the seed.

**Storage:** Canned, root cellar, dehydrated, or leave them in the ground

**Crop Rotation:** Fruiting plant next



## Lentil

**Days to Harvest:** 80-110

**About:** Lentils are one of the smaller legumes. They are also a cool season crop like peas. They are easy to grow and very nutritious.

**Grow Zone:** 2-11

**Where to Plant:** Full sun

**Companion Plants:** Potato, cucumber, summer savory

**When to Plant:** When the soil is workable

**Planting:** ½-1" deep 1" apart

**Germination Time:** 5-10 days

**Germination Temp:** 45°-70° F 7°-21° C

**When to Thin:** When 1" tall thin to 4-5" apart

**Regular Space:** 2 per sqft

**Square Foot Space:** 4 per sqft

**Fertilizer:** Fertilize with compost at planting and every 2-4 weeks

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** You can let them dry on the plant or you can pick them when the pods are plump and firm.

**Seed Saving:** Allow the pods to dry on the plant, then let the seed finish drying on a flat surface.

**Storage:** Canned, frozen, dehydrated

**Crop Rotation:** Leaf plant next



## Lettuce – Head

**Days to Harvest:** 60-70

**About:** There are two shapes of head lettuce, round varieties such as ice burg lettuce, and tall varieties such as Cos lettuce. They both have the same needs, but they taste different. Round lettuces are more commonly used in restaurant salads and has a delicate almost watery flavor. Tall lettuces have a stronger flavor more akin to loose leaf lettuces, but not as strong.

**Grow Zone:** 3-11

**Where to Plant:** Full sun- Partial shade

**Companion Plants:** Carrot, radish, strawberry, cucumber NOT celery, cabbage, cress, parsley

**When to Plant:** When soil is warm

**Planting:** just under soil surface 5” apart

**Germination Time:** 7-14 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 1-2” tall thin to 10” apart

**Regular Space:** 1 per sqft

**Square Foot Space:** 3 per 2 sqft

**Fertilizer:** Nitrogen rich fertilizer every 2-4 weeks

**(Aero, Hydro, Aqua)ponics:** Aquaponics, Hydroponics

**Harvest:** When the head is large and firm you can harvest it, compost the outer leaves; they will be bitter.

**Seed Saving:** Lettuce bolts when it gets warm. Bag the flowers to prevent cross pollination. Then bag the pods when they are almost dry to catch the seed.

**Storage:** Frozen

**Crop Rotation:** Fruit plant next



## Lettuce – Loose Leaf

**Days to Harvest:** 45-55

**About:** Loose leaf lettuce is gaining popularity in recent years. You tend to see them in packages labeled “spring mix” or “mixed greens”. You will have to do your own research on which kinds you want to grow because there are hundreds of varieties with different shapes, colors, and flavors.

**Grow Zone:** 2-10

**Where to Plant:** Full sun

**Companion Plants:** Carrot, radish, strawberry, cucumber NOT celery, cabbage, cress, parsley

**When to Plant:** As soon as the soil is workable

**Planting:** ½” deep 2-3” apart

**Germination Time:** 7-14 days

**Germination Temp:** 40°-55° F 4°-13° C

**When to Thin:** When 1-2” tall thin to 4-6” apart

**Regular Space:** 4 per sqft

**Square Foot Space:** 8 per sqft

**Fertilizer:** Grows well without it, but a little nitrogen doesn't hurt

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Lettuce bolts when it gets warm. You should harvest the whole plant before this happens. Once the plant has 5-6 true leaves you can harvest the lower leaves, but never take more than 1/3 of the plant.

**Seed Saving:** Once lettuce bolts and forms flowers you should bag them to prevent cross pollination. Then bag the pods to catch the seeds.

**Storage:** Frozen

**Crop Rotation:** Fruiting plant next



## Melon – Summer

**Days to Harvest:** 90-120

**About:** there are a couple dozen varieties of summer melons and all of them add a bit of sweetness to your summer pantry. The only differences in care for the different melon varieties are slightly different days until harvest, and large differences in space required.

**Grow Zone:** 4-11

**Where to Plant:** Full sun

**Companion Plants:** Corn, nasturtiums, pea, radish, sunflower, tomato NOT cucumber or potato

**When to Plant:** When the soil has warmed completely

**Planting:** 2" deep 24-48" apart

**Germination Time:** 3-5 days

**Germination Temp:** 50°-70° F 10°-20° C

**When to Thin:** Best to plant at needed spacing

**Regular Space:** 1 per 4-16 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Use potassium when planting

**(Aero, Hydro, Aqua)ponics:** Too large to be practical

**Harvest:** When you thump the melon and it sounds hollow, and has a blemish on the ground side, it is ready to harvest.

**Seed Saving:** Melons cross pollinate very easily, so bag and hand pollinate the flowers. Allow the fruit to become over ripe on the plant. Then dig the seeds out. Wash them and let them dry on a flat surface.

**Storage:** Canned, frozen, root cellar for a couple weeks

**Crop Rotation:** Root crop next



## Melon – Winter

**Days to Harvest:** 110-130

**About:** Winter melons take longer to ripen than summer melons, but keep much better in winter months due to their hard rinds. These are one of the few fruits that won't have to be canned to make it to your Christmas (or another holiday) feast.

**Grow Zone:** 3-8

**Where to Plant:** Full sun- Partial shade

**Companion Plants:** Corn, nasturtium, pea, radish, sunflower, tomato  
NOT cucumber or potato

**When to Plant:** When the soil has warmed

**Planting:** ½" deep 24-48" apart

**Germination Time:** 7-10 days

**Germination Temp:** 50°-70° F 10°-20° C

**When to Thin:** Best to plant at needed spacing

**Regular Space:** 1 per 4-16 sqft

**Square Foot Space:** no benefit

**Fertilizer:** High potassium fertilizer at planting

**(Aero, Hydro, Aqua)ponics:** Too large to be practical

**Harvest:** Once the vines die off let the melons sit out for about a week to finish hardening. Then you can take them in.

**Seed Saving:** Melons cross pollinate very easily, so you will want to bag the flowers and hand pollinate. After the melons harden you can break the seed out and wash it, then let them dry on a flat surface.

**Storage:** Root cellar, canned, pickled

**Crop Rotation:** Root plant next



## Mushroom

**Days to Harvest:** 30-60

**About:** Mushrooms are actually a fungus but they are treated as a vegetable so they are in this section. There are many varieties of mushrooms with different purposes and used. The main differences in mushroom care are days until harvest, humidity levels, and type of substrate needed.

**Grow Zone:** 3-11

**Where to Plant:** In root cellar conditions, if your variety needs more humidity cover the grow area with elevated plastic.

**Companion Plants:** They do better alone

**When to Plant:** As soon as the ground is workable

**Planting:** Whether you have spores or mushroom spawn put it into your substrate and lay that over your soil and keep it moist.

**Germination Time:** 7-10 days

**Germination Temp:** 45°-50° F 7°-10° C

**When to Thin:** Don't

**Regular Space:** about 20 per sqft on average

**Square Foot Space:** no benefit



**Fertilizer:** The substrate is the fertilizer, but mushrooms also do well with compost and nitrogen

**(Aero, Hydro, Aqua)ponics:** Not cold enough

**Harvest:** Pluck the mushrooms when they are full sized

**Seed Saving:** Mushrooms will keep coming pack if you don't damage the large organism growing in the substrate, and it doesn't run out of substrate to take over. You can also tap the heads of the mushrooms onto paper to collect the spores.

**Storage:** Canned, frozen

**Next Year:** If the substrate looks taken over by fuzz, add more



## Okra

**Days to Harvest:** 50-65

**About:** This pepper is a very easy to grow. It is a hot weather plant that tolerates drought well. The main reason so many people are turned off of okra because it tends to get slimy when cooked. The best way to avoid the slime is to soak them in vinegar, or fry or roast them before adding them to your recipe.

**Grow Zone:** 6-11

**Where to Plant:** Full sun

**Companion Plants:** Melon, cucumber, sweet pepper, eggplant

**When to Plant:** When the soil is warm

**Planting:** ½-1" deep 6-9" apart

**Germination Time:** 2-12 days

**Germination Temp:** 60°-100° F 15°-38° C

**When to Thin:** When 1-2" tall thin to 12-18" apart

**Regular Space:** 3 per 4 sqft

**Square Foot Space:** 5 per 4 sqft

**Fertilizer:** Fertilize when planting with compost

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** They taste best if you harvest them when they are 2-4" long. Any larger and they get tough and stringy.

**Seed Saving:** Wait for the pepper to dry out on the plant, then break it open and take the seeds out. Let the seeds finish drying on a flat surface.

**Storage:** Canned, pickled, frozen

**Crop Rotation:** Root plant next



## Onion – Bunching

**Days to Harvest:** 60-90

**About:** Bunching onions include chives. They are used commonly in stir-fries and soups. This plant is probably the easiest thing you'll ever grow. Just water it.

**Grow Zone:** 3-10

**Where to Plant:** Full sun

**Companion Plants:** You won't be able to plant anything with bunching onions because they grow so closely together.

**When to Plant:** As soon as the soil is workable

**Planting:** ¼" deep, no real spacing just sprinkle them

**Germination Time:** 7-14 days

**Germination Temp:** 30°-60° F 0°-15° C

**When to Thin:** Don't

**Regular Space:** Depends on how thickly you planted them

**Square Foot Space:** no benefit

**Fertilizer:** Unnecessary

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When they are 4-6" tall you can harvest them by pulling the whole plant up.

**Seed Saving:** Although bunching onions are biennial, they can be treated as a perennial because of how well it reseeds itself. If you live in zone 3 or colder you may want to grow them indoors to get seed. The second year they will make self-fertile flowers and drop seed in the same general area.

**Storage:** Canned, frozen, pickled

**Next Year:** If you live in zone 6 or colder you should mulch the onions after chopping them down. Then fertilize with a balance of phosphorus and nitrogen.



## Onion – Sweet

**Days to Harvest:** 100-140

**About:** Onions are one of those things that seem to go well in every meal. They also store well so they are essential for your self-sufficiency. You can plant from starts or seeds. Use this guide for shallots as well.

**Grow Zone:** 3-10

**Where to Plant:** Full sun

**Companion Plants:** Cabbage, lettuce, tomato NOT pea or bean

**When to Plant:** When soil is workable

**Planting:** ¼” deep 1-2” apart

**Germination Time:** 7-14 days

**Germination Temp:** 30°-60° F 0°-15° C

**When to Thin:** When 2-3” tall thin to 3-6” apart

**Regular Space:** 9 per sqft

**Square Foot Space:** no benefit

**Fertilizer:** No need

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** When the bulbs are 3-6” in diameter you can harvest them for immediate use. Otherwise let the tops die off then dig them up. Let the onions sit out for a couple of days to let the outside dry. Then you can store them.

**Seed Saving:** Onions are biennial. If you have any small undeveloped bulbs you can store them like the others and plant them next year. If you’re in zone 6 or warmer you can leave them in the ground. If you’re in zone 5 or colder store them in root cellar conditions, then plant them out when the soil is workable next year. When they flower wait for them to dry and start to bend over, then pluck the seeds out of the flowers.

**Storage:** Canned, root cellar, pickled

**Crop Rotation:** Leaf or nitrogen fixing plant next



## Onion – Tree

**Days to Harvest:** 100-175

**About:** Tree onions are Egyptian in origin and are also known as walking onions. They grow their tasty bulbs at the top of the stalk instead of in the ground. When the plant falls over, they replant those bulbs wherever they fell, usually 3-4 feet away.

**Grow Zone:** 3-9

**Where to Plant:** Full sun

**Companion Plants:** Beet, strawberry, tomato, lettuce, summer savory, chamomile, rose

**When to Plant:** When the soil is workable

**Planting:** You usually plant sets ½” deep 1” apart

**Germination Time:** 6-10 days

**Germination Temp:** 30°-60° F 0°-15° C

**When to Thin:** Don't

**Regular Space:** 144 per sqft

**Square Foot Space:** no benefit

**Fertilizer:** High phosphorus fertilizer at planting

**(Aero, Hydro, Aqua)ponics:** Aquaponics

**Harvest:** When shoots are 6” tall you can harvest them like chives, or you can wait until the sets grow and are 1” in diameter and harvest those

**Seed Saving:** Save the sets like you would onions and either replant them at the end of the season, or next year as soon as the soil is workable.

**Storage:** Root cellar, canned, pickled

**Next Year:** In zones 5 or colder mulch heavily after chopping the onions down at the end of the season. Fertilize with phosphorus in the spring.



## Parsnip

**Days to Harvest:** 100-120

**About:** Parsnips are one of those plants that are excellent for self-sufficiency. They are larger and hardier than carrots and have a gentle nutty flavor.

**Grow Zone:** 1-11

**Where to Plant:** Full sun

**Companion Plants:** Bean, lettuce, onion, pea, radish, rosemary, sage, tomato  
NOT dill or parsley

**When to Plant:** As soon as the soil is workable

**Planting:** ¼" deep 3" apart

**Germination Time:** 7-40 days

**Germination Temp:** 30°-60° F 0°-15° C

**When to Thin:** When 1-2" tall thin to 6" apart

**Regular Space:** 4 per sqft

**Square Foot Space:** 8 per sqft

**Fertilizer:** Don't

**(Aero, Hydro, Aqua)ponics:** Not good for any

**Harvest:** You should dig them up when the top of the root pokes out of the ground

**Seed Saving:** Parsnips are biennial. You simply leave them in the ground until next year. When they flower you should bag and hand pollinate if you're growing anything else in the carrot family. When the flowers are almost dry bag them to catch the seed.

**Storage:** Root cellar, canned, frozen, pickled

**Crop Rotation:** Leaf or nitrogen fixing plant next



## Pea – Black Eyed

**Days to Harvest:** 60-90

**About:** Black eyed peas are called peas because of their green picked flavor, but these days they are more likely to be treated like a bean and allowed to dry on the plant. They are also a warm season crop unlike peas.

**Grow Zone:** 3-9

**Where to Plant:** Full sun

**Companion Plants:** Broccoli, cabbage, carrot, cauliflower, celery, corn, cucumber, eggplant, pea, tomato, radish, squash, strawberry, tomato NOT garlic, onion, pepper, sunflower

**When to Plant:** When the soil is warm

**Planting:** 1" deep 2" apart

**Germination Time:** 8-10 days

**Germination Temp:** 65°-95° F 18°-35° C

**When to Thin:** When 2-4" tall thin to 4-6" apart

**Regular Space:** 3 per sqft

**Square Foot Space:** 5 per sqft

**Fertilizer:** Fertilize with compost when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** The pods are edible as soon as they appear, but most wait for them to dry on the plant.

**Seed Saving:** Allow the pods to dry on the plant. Get the seeds out and let them dry completely on a flat surface.

**Storage:** Canned, pickled, dehydrated

**Crop Rotation:** Leaf plant next



## Pea – Garden

**Days to Harvest:** 50-70

**About:** Peas are a lot hardier than people tend to assume. They just need a lot more water than most plants because they don't make many roots.

**Grow Zone:** 2-11

**Where to Plant:** Full sun

**Companion Plants:** Bean, cabbage, carrot, celery, corn, cucumber, lettuce, marjoram, parsnip, potato, sage NOT onion, shallot, chive, garlic

**When to Plant:** As soon as the soil is workable

**Planting:** 2" deep 9-12" apart

**Germination Time:** 7-14 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 2-3" tall thin to 18-24" apart

**Regular Space:** 1 per 4 sqft

**Square Foot Space:** 1 per 2 sqft

**Fertilizer:** Unnecessary

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the pod is plump and firm you can harvest them, then pop open the pod and scoop the peas out.

**Seed Saving:** Wait until the pods dry out on the plant, then collect the seed from them. Allow the seed to dry completely on a flat surface.

**Storage:** Canned, frozen, dehydrated

**Crop Rotation:** Leaf plant next



## Peanut

**Days to Harvest:** 120-150

**About:** Peanuts are high in protein and easier to grow than you think. The plant will shoot out little flowers and you will have to mound up soil around the plant for the flowers to burrow into. That's where the peanuts will form.

**Grow Zone:** 6-11

**Where to Plant:** Full sun

**Companion Plants:** Beet, cabbage, carrot, celeriac, celery, corn, cucumber, eggplant, lettuce, marigold, pea, potato, radish, rosemary, strawberry, savory, tansy

**When to Plant:** When the soil is warm

**Planting:** 2" deep 9" apart

**Germination Time:** 21-40 days

**Germination Temp:** 65°-95° F 18°-35° C

**When to Thin:** When 2" tall thin to 18" apart

**Regular Space:** 3 per 4 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Unnecessary

**(Aero, Hydro, Aqua)ponics:** Doesn't work well because of the flowers borrowing

**Harvest:** When the foliage starts to turn yellow dig the entire plant up and let it dry hanging upside down. Once dry, cut away the peanuts and store them in their shells.

**Seed Saving:** The nuts in the shell are the seeds, just set some of those aside for planting next year.

**Storage:** Root cellar

**Crop Rotation:** Leaf plant next





## Pepper

**Days to Harvest:** Sweet 80-90 hot 100-120

**About:** Peppers each have their own unique shape, color, and flavor. They range from red, green, to yellow and from sweet to spicy. Although all peppers are different from each other, their care is virtually the same. The major differences are that hot peppers take longer to germinate and mature. Bell peppers also tend to need more space.

**Grow Zone:** 4-12

**Where to Plant:** Full sun

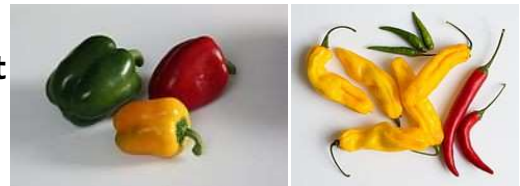
**Companion Plants:** Basil, coriander, onion, spinach, tomato NOT bean

**When to Plant:** When the soil is warm

**Planting:** ¼" deep 9-12" apart Bell: 12-18" apart

**Germination Time:** 4-12 days

**Germination Temp:** 65°-95° F 18°-35° C



**When to Thin:** When 1-2" tall thin to 18-24" apart Bell: 24-36" apart

**Regular Space:** 1 per 4 sqft

**Square Foot Space:** 1 per 2 sqft

**Fertilizer:** Fertilize with potassium at planting and then every 2-4 weeks

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Pick your peppers when they are plump, shiny, and in full color.

**Seed Saving:** Leave the pepper on the plant until it loses its shine and starts to wrinkle up. Then dig the seeds out and ferment them, then clean them and let them dry on a flat surface.

**Storage:** Canned, pickled, frozen

**Crop Rotation:** Root plant next

## Pineapple

**Days to Harvest:** 724-1,095

**About:** You probably never thought you could grow your own pineapple, but you can, if you have a warm enough environment, like a green house. They take a long time to grow though.

**Grow Zone:** 9-11

**Where to Plant:** Full sun

**Companion Plants:** Generally grown alone

**When to Plant:** The soil should always be warm

**Planting:** ½" deep 4-5' apart

**Germination Time:** Up to 6 months

**Germination Temp:** 65°-95° F 18°-35°

**When to Thin:** Don't

**Regular Space:** 1 every 25 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Fertilize every month with compost

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** When the fruit turns golden you can cut it away from the plant. After 3 fruitings replace the plant.

**Seed Saving:** There are two ways to propagate pineapples. You can take a pineapple top and strip away all but the top 10 leaves, then put it in water to grow roots, then plant it. You can also cut open a pineapple and dig the seeds out of the edges of the fruit.

**Storage:** Canned, frozen

**Next Year:** It takes 3 years to fruit from seed and 2 years from a top. Keep up on fertilizing monthly.



## Potato

**Days to Harvest:** 60-100

**About:** Potatoes are definitely a staple crop. They can be grown virtually anywhere. Potatoes can be put into three categories: early season, medium season, and late season. The difference between these groups is how long they take to grow. If you have a short growing season you can grow early season potatoes.

**Grow Zone:** 1-12

**Where to Plant:** Full sun

**Companion Plants:** Bean, broccoli, cabbage, corn, eggplant, garlic, kale, lettuce, onion, pea, radish, NOT cucumber, melon, squash, sunflower, tomato, turnip

**When to Plant:** As soon as the soil is workable.

**Planting:** 6" deep 8-10" apart

**Germination Time:** 7-21 days

**Germination Temp:** 30°-60° F 0°-15° C

**When to Thin:** Don't

**Regular Space:** 3 per 4 sqft

**Square Foot Space:** 1 per 2 sqft

**Fertilizer:** Fertilize with a high phosphorus fertilizer once a month

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** Once the foliage turns yellow and starts to die off you can dig them up. Allow the potatoes to completely dry before storing.

**Seed Saving:** though potatoes from seed exist, they make a poor crop. You can save the small undeveloped potatoes to plant next year, or you can let some larger potatoes sprout and plant at least one eye in each spot next year. Either way store them in root cellar conditions.

**Storage:** Root cellar, canned, pickled, frozen, dehydrated

**Crop Rotation:** Leaf or nitrogen fixing plant next



## Pumpkin

**Days to Harvest:** 85-125

**About:** There are hundreds of varieties of pumpkin. If you want your pumpkins to be for food, be careful what type you pick. Many pumpkin breeds are grown solely for decorative purposes.

**Grow Zone:** 3-11

**Where to Plant:** Full sun

**Companion Plants:** Corn, pole bean NOT potato

**When to Plant:** When the soil is warm

**Planting:** 2" deep 4-6' apart

**Germination Time:** 7-14 days

**Germination Temp:** 50°-70° F 10°-20° C

**When to Thin:** When it has 2 true leaves thin any extras, but keep spacing

**Regular Space:** 1 per 16 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Fertilize with potassium when planting, giant breeds need potassium every 2-4 weeks

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** When you press your nail into the skin and it doesn't give, it is ready to harvest. Keep 3-4" of the stem when cutting away the fruit. This will make it keep longer.

**Seed Saving:** Since pumpkins tend to be part of the cucurbit family you will want to bag and hand pollinate the flowers. Let the fruit sit until the vines die off then cut it open and dig out the seeds. Wash them and let them dry out in a flat surface.

**Storage:** Canned, frozen, pickled, root cellar for a couple months

**Crop Rotation:** Root plant next



## Radish

**Days to Harvest:** 22-70

**About:** Radishes are very easy to grow. They germinate and mature quickly. Many gardeners plant them as row markers for things that take much longer to germinate, such as parsnips.

**Grow Zone:** 1-12

**Where to Plant:** Full sun

**Companion Plants:** They do well with anything

**When to Plant:** As soon as the ground can be worked

**Planting:** ½" deep 1" apart

**Germination Time:** 2-6 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 2" tall thin to 2" apart

**Regular Space:** 36 per sqft

**Square Foot Space:** no benefit

**Fertilizer:** Unnecessary but fertilizers for other plants won't hurt it

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** Whenever you want them out of that space you can harvest them, but they are mature when 2" in diameter

**Seed Saving:** If you leave a couple radishes in the ground they will bolt and go to seed when it gets hot. Radishes are a part of the brassica family, so you will want to bag the flowers to prevent cross pollination. Then it will form pods that you can break open and get the seeds once they are dry. You may want to bag the pods to prevent seed loss.

**Storage:** Root cellar, canned, pickled

**Crop Rotation:** Leaf or nitrogen fixing plant next



## Rhubarb

**Days to Harvest:** 730-1,095

**About:** Rhubarb may take a long time to get going, but once you have it, it almost never dies. It will take 3 years to grow it from seed, and about two years to grow it from a crown.

**Grow Zone:** 1-9

**Where to Plant:** Full sun

**Companion Plants:** Columbines

**When to Plant:** As soon as the soil is workable

**Planting:** ½" deep 36-48" apart

**Germination Time:** 5-10 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** Best if planted at needed spacing

**Regular Space:** 1 per 16 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Use lots of compost and nitrogen rich fertilizer when planting

**(Aero, Hydro, Aqua)ponics:** Gets too large to be practical

**Harvest:** When the stems are 1" thick you can harvest the outside ones. Don't take more than 1/3 of the plant, and don't eat the leaves, they are poisonous.

**Seed Saving:** Every now and then, depending on your breed, rhubarb will send up a flower. Once it does flower the stalks are no longer good to eat. You can bag the flower once it starts producing seeds because they can blow away. Collect them when they fall off easily.

**Storage:** Rhubarb stores best if left on the plant, but you could can or pickle them

**Next Year:** At the end of the season cut down your rhubarb and mulch it with compost, add nitrogen fertilizer in the spring.



## Rutabaga

**Days to Harvest:** 80-100

**About:** This root crop is so popular in Sweden that they are commonly called swedes. They have a taste that could be a cross between cabbage and turnip. They need to stay wet, mulching helps, but keep the mulch away from the stems because that's how the plant breathes.

**Grow Zone:** 3-11

**Where to Plant:** Full sun

**Companion Plants:** Bean, celery, cucumber, dill, kale, lettuce, onion, potato, sage, salsify, spinach, thyme NOT broccoli, cauliflower, strawberry, tomato

**When to Plant:** As soon as the soil is workable

**Planting:** ½" deep 4" apart

**Germination Time:** 5-10 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 2" tall thin to 8" apart

**Regular Space:** About 3 per 4 sqft

**Square Foot Space:** 2 per 2 sqft

**Fertilizer:** Fertilize with phosphorus half way through the growing season

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** When they are about 6" in diameter dig them up and allow them to dry before storing.

**Seed Saving:** Rutabagas are biennial. In zones 4 and warmer leave them in the ground. In zones 3 and colder dig them up and store them in root cellar conditions. Then plant them as soon as the soil is workable next year. They are in the brassica family so bag the flowers and subsequently the pods to catch the seed.

**Storage:** Foot cellar, canned, pickled, frozen

**Crop Rotation:** Leaf or nitrogen fixing plant next



## Salsify

**Days to Harvest:** 100-120

**About:** This often-forgotten plant has a delicate oyster like flavor that fans rave about. The root looks like a hairy parsnip, but the tops are a beautiful display of ornamental grass. Every other year purple daisy like flowers appear. All but the flowers are edible.

**Grow Zone:** 3-9

**Where to Plant:** Full sun- Partial shade

**Companion Plants:** Carrot, turnip, rutabaga, potato, sweet potato

**When to Plant:** As soon as the soil is workable

**Planting:** ½" deep 2" apart

**Germination Time:** 14-21 days

**Germination Temp:** 30°-60° F 0°-15° C

**When to Thin:** Best if planted at needed spacing

**Regular Space:** 18 per sqft

**Square Foot Space:** 24 per sqft

**Fertilizer:** Fertilize with compost when planting

**(Aero, Hydro, Aqua)ponics:** None

**Harvest:** Once the foliage has died off and there has been a frost you can harvest them. You may want to leave a few in the ground to come up next year.

**Seed Saving:** Salsify is biennial, but you can treat it as a perennial because it reseeds itself prolifically. If you live in zone 5 or colder you may want to mulch them even though they are hardy. If you want to collect seed pluck them out of the flower once it has dried out.

**Storage:** Salsify does not keep well once it is out of the ground so leave it there until you are ready to use it.

**Next Year:** Fertilize with a little phosphorus in the spring





## Sea Kale

**Days to Harvest:** 365-1,095

**About:** Sea Kale is highly regarded for its delicate flavor, but is extremely hard to grow. The soil must always be wet during the growing season. If your plant dries out it could easily die. Thongs take 1 year to produce a harvest, while seeds take 3 years.

**Grow Zone:** 4-8

**Where to Plant:** Partial shade

**Companion Plants:** Most plants don't grow well with it

**When to Plant:** When the soil is starting to warm

**Planting:** ¼" deep 3-4" apart

**Germination Time:** 14-21 days

**Germination Temp:** 40°-60° F 4°-16° C

**When to Thin:** Best to plant at needed spacing

**Regular Space:** 1 per 16 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Fertilize with nitrogen at planting

**(Aero, Hydro, Aqua)ponics:** good for all

**Harvest:** After the plant has had its 1-3 years to mature you can harvest the outer leaves when they are the size of your hand. Don't take more than 1/3 of the plant.

**Seed Saving:** They will develop seed pods once a year. Crack the seed pods open when they are dry to get the seed.

**Storage:** Canned, pickled, frozen

**Next Year:** In the fall mulch with nitrogen rich fertilizer after cutting away the dead foliage. Once the pods form you can stop watering until spring.



## Spinach

**Days to Harvest:** 40-60

**About:** For those who don't want main stream lettuces in their salads, spinach is a wonderful replacement. Spinach is also used in many baked goods, soups, and sandwiches.

**Grow Zone:** 1-12

**Where to Plant:** Full sun- Partial shade

**Companion Plants:** Bush bean, beet, carrot, celery, cucumber, dill, lettuce, mint, nasturtium, onion, potato, rosemary, thyme NOT strawberries

**When to Plant:** As soon as the soil can be worked

**Planting:** ½" deep 2" apart

**Germination Time:** 10-14 days

**Germination Temp:** 40°-55° F 4°-13°

**When to Thin:** When they have 4 true leaves thin to 6" apart



**Regular Space:** 4 per sqft

**Square Foot Space:** 9 per sqft

**Fertilizer:** Generally, doesn't need any, but a little nitrogen doesn't hurt

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Once the plant is about 5" in diameter you can harvest the outer leaves. Don't harvest more than 1/3 of the plant.

**Seed Saving:** Spinach is biennial. If you live in zones 7 or warmer you can leave it in the ground. If you live in zone 6 or colder you should dig the whole plant up and store it in root cellar conditions. Then plant it back out next year as soon as the soil is workable. It will flower and form pods. Spinach is a brassica so you will want to bag the flowers and hand pollinate. When the pods are almost dry you can bag them to catch the seed.

**Storage:** Canned, frozen

**Crop Rotation:** Fruiting plant next

## Squash – Summer

**Days to Harvest:** 60-80

**About:** There are hundreds of kinds of summer squash, including: gourds, zucchini, straight neck, and several decorative squashes. Make sure you check whether or not you are planting an edible squash.

**Grow Zone:** 3-12

**Where to Plant:** Full sun

**Companion Plants:** Corn NOT potato

**When to Plant:** When the soil has warmed

**Planting:** ½” deep 18-24” apart

**Germination Time:** 7-10 days

**Germination Temp:** 60°-95° F 15°-35° C

**When to Thin:** When it has 2 true leaves thin extras but keep spacing

**Regular Space:** 1 per 4 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Fertilize with potassium when the flowers form

**(Aero, Hydro, Aqua)ponics:** may take over if you try

**Harvest:** When the fruit reaches full size and color, and is shiny, you can cut it away from the vine, leaving 2-3” of stem.

**Seed Saving:** Summer squash will readily cross breed so you will want to bag and hand pollinate the flowers. Let the vines die off, then cut open the fruits and dig the seeds out. Wash them and let them dry on a flat surface.

**Storage:** Canned, pickled, frozen, root cellar

**Crop Rotation:** Root plant next



## Squash – Winter

**Days to Harvest:** 80-110

**About:** There are hundreds of different kinds of winter squash. Pumpkin is even a winter squash, but it has its own section. Other winter squashes are: acorn, turban, and butternut. Make sure you double check if you have an edible winter squash.

**Grow Zone:** 3-12

**Where to Plant:** Full sun

**Companion Plants:** Corn NOT potato

**When to Plant:** When the soil has warmed

**Planting:** ½” deep 24-36” apart

**Germination Time:** 7-10 days

**Germination Temp:** 60°-95° F 15°-35° C

**When to Thin:** When it has 2 true leaves thin the extras but keep the spacing

**Regular Space:** 1 per 9 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Fertilize with potassium when the flowers form

**(Aero, Hydro, Aqua)ponics:** Too large to be practical

**Harvest:** Allow the vines to die off then let the fruit sit for 1-2 weeks to let the skin finish hardening. Then you can store them.

**Seed Saving:** Winter squash will readily cross with each other, so bag and hand pollinate the flowers. Once the squash has hardened for storage you can cut them open and dig the seeds out. Wash them and let them dry on a flat surface.

**Storage:** Root cellar, canned, frozen, dehydrated

**Crop Rotation:** Root plant next



## Sugar Cane

**Days to Harvest:** 365-547

**About:** Sugar cane is actually quite easy to grow as long as you can keep it warm. They may take a long time to fully mature, but you can virtually forget about them other than watering.

**Grow Zone:** 8-11

**Where to Plant:** Full sun

**Companion Plants:** Legumes

**When to Plant:** Soil should always be warm

**Planting:** Plant rooted buds 1" deep and 3" apart

**Germination Time:** 15-30 days

**Germination Temp:** 60°-65° F 15°-35° C

**When to Thin:** Don't

**Regular Space:** 16 per sqft

**Square Foot Space:** no benefit

**Fertilizer:** Plant your buds in nitrogen rich soil.

**(Aero, Hydro, Aqua)ponics:** Hydroponics and Aquaponics

**Harvest:** When the cane is about 2 ½" thick you can cut it down. To learn how to process sugar cane see *Nuttatiello Guide to Self Sufficiency Making Ingredients* once it is written.

**Seed Saving:** When you harvest your sugar cane, set aside some buds to plant immediately. Put them in a cup of water until they grow several roots. Then plant them in nitrogen rich soil.

**Storage:** Canned, processed

**Next Year:** Sugar cane can continue producing well for 3 years. Once a year add nitrogen fertilizer.



## Sweet Potato

**Days to Harvest:** 90-120

**About:** Sweet potatoes are easy to grow but take a bit of effort to cure so they taste good. You have to keep them at about 80° F and 80% humidity for a week after digging them up. Then keep them cool and dry for about 5 weeks. Make sure they are separated during curing so they don't mold.

**Grow Zone:** 7-11

**Where to Plant:** Full sun

**Companion Plants:** Peppers, basil, okra, salsify

**When to Plant:** When the soil is warm

**Planting:** Plant rooted slips 12-18" apart

**Germination Time:** Slips form in 8-10 days

**Germination Temp:** 60°-95° F 15°-35° C

**When to Thin:** Best if planted at needed spacing

**Regular Space:** 2 per 3 sqft

**Square Foot Space:** no benefit

**Fertilizer:** Fertilize with phosphorus every 2-4 weeks

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** About 4 weeks after flowers appear or when the foliage starts to yellow you can dig them up and cure them.

**Seed Saving:** Sweet potato seeds are rare and unreliable. Instead store some of your cured sweet potatoes in root cellar conditions. Then about 4 weeks before you want them to start growing put them into some dirt and keep it moist and warm. Sprouts will appear. When they are 4-5" tall pluck them and put them in a jar of water. Once they have several roots you can plant them.

**Storage:** Root cellar, canned, pickled, frozen

**Crop Rotation:** Leaf or nitrogen fixing plant next



## Tomatillo

**Days to Harvest:** 80-100

**About:** Tomatillos are a tangy version of the tomato. They are a common ingredient in salsas. The only edible part is the fruit. The rest of the plant is poisonous, including the husk that the fruit is in, so wash it well.

**Grow Zone:** 4-11

**Where to Plant:** Full sun

**Companion Plants:** Tomato, pepper, eggplant

**When to Plant:** When the soil is warm

**Planting:** 1-2" deep 12-18" apart

**Germination Time:** 4-8 days

**Germination Temp:** 65°-85° F 18°-30° C

**When to Thin:** When 1-2" tall thin to 24-36" apart

**Regular Space:** 1 per 9 sqft

**Square Foot Space:** 2 per 9 sqft

**Fertilizer:** Fertilize with potassium when flowers form

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the fruit fills the entire flower, it is ready to be harvested

**Seed Saving:** Tomatillos are self-infertile, so you have to have more than one plant to get good sized fruit and seed. Wait until the fruit feels squishy, then dig the seeds out and ferment them. Wash them and let them dry on a flat surface.

**Storage:** Canned, pickled

**Crop Rotation:** Root plant next



## Tomato

**Days to Harvest:** 45-85

**About:** There are two main groups of tomatoes: determinate and indeterminate. Determinate take less time to grow and only need a cage or stake for support, but they only have one harvest, then they die. Indeterminate take longer to fruit, but they will keep fruiting until frost kills them.

**Grow Zone:** 4-11

**Where to Plant:** Full sun

**Companion Plants:** Tomatillo, pepper, chive, marigold, basil, calendula, carrot, eggplant

**When to Plant:** When soil is warm

**Planting:** 1-2" deep 9-18" apart

**Germination Time:** 5-10 days

**Germination Temp:** 65°-85° F 18°-30° C

**When to Thin:** When 1-2" tall thin to 18-36" apart

**Regular Space:** 1 per 3 sqft

**Square Foot Space:** 2 per 3 sqft

**Fertilizer:** When the flowers form fertilize with potassium

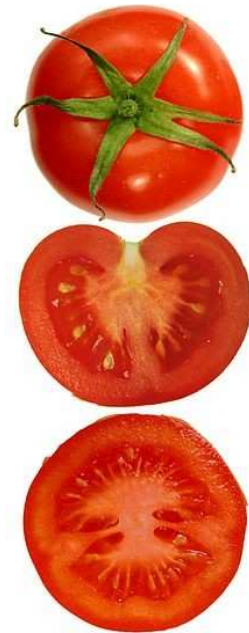
**(Aero, Hydro, Aqua)ponics:** Food for all

**Harvest:** When the fruit is in full color and shiny it is ready to harvest.

**Seed Saving:** When the fruit feels squishy it is good for seed. Dig the seeds out of the fruit and ferment them. Then wash them and let them dry on a flat surface.

**Storage:** Canned, pickled

**Crop Rotation:** Root plant next





## Turnip

**Days to Harvest:** 30-60

**About:** Turnips can be used for their roots and their greens. Most people who like collard greens like turnip greens, but the root can be an acquired taste. They taste similar to rutabagas.

**Grow Zone:** 3-11

**Where to Plant:** Full sun

**Companion Plants:** Onion, leek, chive, garlic, pea

**When to Plant:** As soon as the soil is workable

**Planting:** ¼" deep 2-3" apart

**Germination Time:** 4-10 days

**Germination Temp:** 40°-85° F 4°-30° C

**When to Thin:** When 2-3" tall thin to 4-6" apart

**Regular Space:** 4 per sqft

**Square Foot Space:** 8 per sqft

**Fertilizer:** Use a phosphorus fertilizer when planting

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** When the leaves are 3" long you can harvest them. When the root is 3-4" in diameter you can harvest it. Let the root dry before storing it.

**Seed Saving:** Turnips are biennial. If you live in zone 6 or warmer you can leave them in the ground. If you live in zone 5 or colder you should store them in root cellar conditions, then replant them next year as soon as the soil is workable. Turnips are in the brassica family, so you should bag the flowers and subsequently the pods to catch the seeds.

**Storage:** Root cellar, canned, pickled, frozen

**Crop Rotation:** Leaf or nitrogen fixing plant next



# Edible Flowers

## Begonia – Tuberous and Waxed

**Days to Bloom:** 90-100

**About:** There are two kinds of edible begonias: Tuberous and Waxed. Tuberous begonias have edible leaves, stems, and flowers that have a lemony flavor. The stems are often used in place of rhubarb. The flowers and stems contain oxalic acid and shouldn't be eaten by people suffering gout, kidney stones, or rheumatism. Wax begonias have fleshy edible leaves and flowers. They have a bitter after taste and a swampy taste when cooked in water.

**Grow Zone:** 2-11 annual 8-11 perennial

**Where to plant:** Partial – Full shade

**When to plant:** When soil is warm

**Planting:** On surface of soil, needs light to germinate

**Space Consumed:** 1' wide 1 ½' tall

**Germination time:** 30-60 days

**Germination temp:** 55°-75° F 13°-24° C

**Fertilizer:** Fertilize with potassium when planting

**Seed Saving:** Wax begonias have male and female flowers, and the females will turn into dried seed pods at the end of the season. Save the seed pod whole because the seeds are as fine as dust. Tuberous begonias have tubers. Dig up the roots of the plant before the first frost and store them in root cellar conditions for next year. Then plant them face up 3" below the soil surface.



## Carnation

**Days to Bloom:** 90-120

**About:** Carnation flowers have delightfully sweet petals that can be used in candies and desserts, or even as cake decorations. There are many kinds of carnations, and flowers that look like carnations, so make sure you have *Dianthus Caryophyllus*. This way you get the best flavor, and you know it's edible. These are pretty easy to grow you just keep them watered.

**Grow Zone:** 5-8 annual

**Where to plant:** Full sun- Partial shade

**When to plant:** When the soil is warm

**Planting:** ½" deep

**Space Consumed:** 18" wide 18" tall

**Germination time:** 14-21 days

**Germination temp:** 60°-85° F 16°-30° C

**Fertilizer:** Fertilize with potassium when planting

**Seed Saving:** The flowers will dry up leaving seed heads. You can break these open and let the seeds finish drying on a flat surface. You can also easily propagate them with cuttings by putting the cutting in a cup of water until it has roots. Then plant it in the ground.



## Chrysanthemum

**Days to Bloom:** 100-120

**About:** Chrysanthemums, also known as mums, have a tangy flavor akin to peppery cauliflower. You should blanch the petals before eating them. The leaves are commonly used to flavor vinegar and in oriental stir-fries. The plants will attempt to bloom early in cool spring weather, but this will stunt the plant. When buds appear cut them off at a leaf. Once the days are longer and hotter, they should stop trying, then you can let them bloom in the fall. You can usually get blooms the first year if you plant them early enough.

**Grow Zone:** 5-9 perennial

**Where to plant:** Full sun

**When to plant:** When the soil is warm

**Planting:** sprinkle on the surface of the soil

**Space Consumed:** 2-3' wide 1-3' tall

**Germination time:** 7-28 days

**Germination temp:** 60°-85° F 16° 30° C

**Fertilizer:** Fertilize with nitrogen every 2-4 weeks until ½ way through the growing season

**Seed Saving:** when the flowers dry up there will be seeds inside. Don't break them open until you're ready to plant because the seed is very fine. Your mums will come back every year if you mulch them well at the end of the season, and fertilize them properly during the season.



## Clover

**Days to Bloom:** Spring planting 90-100

**About:** If you only grow one edible flower, I would suggest this sweet little bloom. Not only is it sweet tasting, it's very high in protein, easy to grow, and therapeutic for your land. In survival situations this flower could save your life due to its high protein content. Clover has a deep penetrating root system that pulls nutrients up to the surface of the soil, thus repairing damage done to the soil. It's also nitrogen fixing.

**Grow Zone:** 3-10 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** In fall or spring

**Planting:** You can broadcast the seed and rake it into the soil

**Space Consumed:** Clover spreads everywhere, but it tends to help the plants it grows under

**Germination time:** 3-5 days

**Germination temp:** 45°-70° F 7°-21° C

**Fertilizer:** Don't

**Seed Saving:** if you leave your clover alone it will reseed itself and spread everywhere. If you still want to collect seed to have more control of where it spreads or to share with friends leave some of the flowers unpicked. Let them turn brown and then pluck the heads. The seeds are inside the flower. They are fine so you may just want to keep them in the flower head.



## Cornflower

**Days to Bloom:** 90-100

**About:** This pretty blue flower has a sweet to spicy flavor. It is a natural blue food dye, and can be used to dye fiber as well. It once grew as a weed in corn fields, hence the name cornflower. This plant seems to be used mainly to add color as a garnish or in herbal teas. There aren't many true-blue foods out there, but this is one of them.

**Grow Zone:** 3-10

**Where to plant:** Full sun

**When to plant:** Fall or spring

**Planting:** ½" deep

**Space Consumed:** 6-12" wide 2' tall

**Germination time:** 7-10 days

**Germination temp:** 55°-80° F 13°-27° C

**Fertilizer:** Unnecessary

**Seed Saving:** If you want your cornflowers to grow in the same spot next year, knock the dead flower heads to the ground and leave them there. If you want to save the seed and replant next year, pick the dead flower heads. Crush them to get the seeds out.



## Dame's Rocket

**Days to Bloom:** 70-90

**About:** This mustard relative looks similar to phlox, but it has 4 petals to phlox's 5. The flowers are rather bitter, but make an attractive addition to salad. The young leaves can also be picked before it flowers for salads. This flower was introduced to America in the 1600's and is considered an invasive species. In many states it is banned, so check with local laws before you grow it.

**Grow Zone:** 3-9 perennial/biennial

**Where to plant:** Full sun- Partial shade

**When to plant:** As soon as the soil is workable, or in the fall

**Planting:** 1" deep

**Space Consumed:** Spreads everywhere 1-4' tall

**Germination time:** 21-30 days

**Germination temp:** 45°-60° F 7°-15° C

**Fertilizer:** Unnecessary



**Seed Saving:** Dame's Rocket is a biennial, but will reseed itself so prolifically it can be treated as a perennial. It will spread and take over entire fields if you don't pull most of the flowers off before they make seed. Once the flowers fall off on their own the seeds will be in the remaining pods, which will break open as soon as they are dry. They are in the brassica family so you will want to bag the flowers to prevent cross pollination.

## Dandelion

**Days to Bloom:** 60-80

**About:** This little weed has risen drastically in popularity over the last several years. The young blooms and flower buds have a deliciously sweet flavor. They are great as fritters or in salads. They can be used to make tea and wine. The young leaves have a spinach like flavor. You can make a tea out of roasted dandelion root that tastes like a less bitter form of coffee.

**Grow Zone:** 3-10 annual/perennial

**Where to plant:** Full sun

**When to plant:** Fall or spring

**Planting:** Press into the surface of the soil

**Space Consumed:** 6" wide 4-10" tall

**Germination time:** 14-21 days

**Germination temp:** 45°-85° F 7°-32° C

**Fertilizer:** Unnecessary

**Seed Saving:** though dandelions are annual they reseed so well you can treat them as a perennial. Most Americans know to help reseed dandelions you simply make a wish and blow the seeds away. Once the flower head closes then reopens as the puffy white blowable flower you can collect the seeds.





## Day Lily

**Days to Bloom:** 100-120

**About:** Day lilies have big beautiful blooms that come in hundreds of patterns, colors, and shapes. Each beautiful bloom will die by the end of the day so pick them early! They are sweet with a mild vegetable flavor. You can use the petals in salads or desserts. They make for lovely cake decorations.

**Grow Zone:** 4-9 perennial

**Where to plant:** Full sun

**When to plant:** Fall or spring

**Planting:** seeds ½" deep bulbs 4-5" deep

**Space Consumed:** 12-18" wide 1-3' tall

**Germination time:** 7-10 days

**Germination temp:** 55°-70° F 13°-21° C

**Fertilizer:** Fertilize with compost once a year



**Seed Saving:** Day lilies will come back every year on their own. They will get bigger every year and on the third year you should dig them up and chop the crown into 3 or 4 pieces. Then you can replant them or give some away. If you want to collect seeds you must understand that seeds hardly ever grow to look like the parent plant. In the fall you will see seed pods where the flowers used to be. Once those are dry you can break them open and get the seed.

## English Daisy

**Days to Bloom:** 80-100

**About:** English daisies are a relatively bitter flower. When they are used in food it is usually as a garnish. They are relatively easy to grow, but can become invasive. To prevent this, you could grow them in containers. Daisies have many look alikes, so make sure you have *Bellas Perennis*, so you know it's edible.

**Grow Zone:** 4-9 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** Fall or spring

**Planting:** On the surface of the soil, they need light to germinate

**Space Consumed:** Will spread everywhere 8" tall

**Germination time:** 10-25 days

**Germination temp:** 45°-80° F 7°-30° C

**Fertilizer:** Unnecessary

**Seed Saving:** English daisies will come back every year on their own, but they are really easy to get seeds from. Let the flowers die and the center of the flower turn brown. When the seeds are easy to brush off of the center, they are ready to be collected.



## Fuchsia

**Days to Bloom:** 100-120

**About:** This is a very unique flower. They come in different sizes and colors, but have the same interesting shape. They have a spicy flavor and are usually used as a garnish. Fuchsia berries are edible as well, they taste similar to figs. Many people train them as vines, while other people let them sprawl out. They have very shallow root systems and can't survive being dried out. They also burn easily, so don't let them get too much direct sunlight.

**Grow Zone:** 4-11 annual 10-11 perennial

**Where to plant:** Partial shade

**When to plant:** When soil is warm

**Planting:** Spread seeds onto the surface of the soil

**Space Consumed:** Up to 10' wide and 1' tall

**Germination time:** 21-28 days

**Germination temp:** 65°-95° F 18°-35° C

**Fertilizer:** Fertilize with nitrogen when planting then phosphorus when the buds start to form

**Seed Saving:** Fuchsias produce berries after the flowers start to die off. Once the berry feels soft and squishy the seeds are ready. Scoop them out and wash them. Then let them dry completely on a flat surface.



## Garden Sorrel

**Days to Bloom:** 80-100

**About:** Garden sorrel is usually grown for its sour leaves, which can be harvested about 60 days after planting, but it also produces lovely lemon-flavored little flowers. You can use the flowers for anything you want to add a lemon flavor to, like desserts or fish. Garden sorrel reseeds prolifically so you will want to eat the flowers to prevent it from spreading everywhere. The flowers open, close, and fall off within 24hrs, so pick them quickly. People suffering from kidney stones should not eat these.

**Grow Zone:** 3-11 annual 5-11 perennial

**Where to plant:** Full sun

**When to plant:** When soil has warmed

**Planting:** 1/8" deep

**Space Consumed:** 6" wide 1-2'

**Germination time:** 7-10 days

**Germination temp:** 55°-80° F 13°-30°

**Fertilizer:** Fertilize with compost when planting and every spring after that

**Seed Saving:** A sorrel flower will bloom in the morning, close in the afternoon, and fall off overnight. There will be a seed pod where the flower used to be. When the pod is brown and becoming brittle you can bag it to catch the seeds.



## Gladiolus

**Days to Bloom:** 60-80

**About:** This tall beautiful flower is also known as a sword lily. The flowers have almost no flavor, but take well to any dish. You can add them to salads or embed them in candies. They bloom for such a short period of time you may want to succession plant them.

**Grow Zone:** 5-11 tender perennial

**Where to plant:** Full sun

**When to plant:** When soil is warm

**Planting:** 1/8" deep corms 6" deep

**Space Consumed:** 6" wide 3-5' tall

**Germination time:** 10-14 days

**Germination temp:** 65°-95° F 18°-35° C



**Fertilizer:** Fertilize with compost at planting and every 2-4 weeks after that

**Seed Saving:** If you want your gladiolus to come back next year you will have to dig up the corms after the foliage dies off. Then let them dry out for a week or so, and store them in root cellar conditions. When the flowers die off, they will form seed pods. Once the seams of the pods start to separate you can open them and get the seeds out. Then let them finish drying on a flat surface.

## Hibiscus

**Days to Bloom:** 100-120

**About:** The hibiscus is mainly tropical, but there are hardy breeds out there. The blooms have a tart citrus flavor. You can add them sparingly to salads or use them as a garnish. Dried flowers are commonly used for hibiscus tea. Hibiscus tea has many medicinal uses and is high in antioxidants.

**Grow Zone:** 9-11 perennial (Hardy breeds 5-8 perennial) 5-11 annual

**Where to plant:** Full sun

**When to plant:** When soil is warm

**Planting:** 1" deep, Cut starts form green branches in the fall. Remove all leaves and cut the base at a 45° angle. Use honey or cinnamon as a rooting medium and place it in the soil.

**Space Consumed:** 2-3' wide 3-6' tall

**Germination time:** 7-28 days cuttings take 4-6 weeks

**Germination temp:** 65°-95° F 18°-35° C

**Fertilizer:** Fertilize with nitrogen when planting an in the spring then phosphorus when the buds form.

**Seed Saving:** After the flowers die off, they will leave behind seed pods. The seed pods will dry out and turn brown. Once the seams start to split you can break them open and collect the seeds.



## Hollyhock

**Days to Bloom:** 70-90

**About:** Hollyhock is an impressive flower. As long as you give them adequate sun and water, they can get to be a story tall. They need to stay moist but the stem and leaves can be fungus sensitive. They also spread every year so cut the sprouts back to keep them under control. The blooms have virtually no taste.

**Grow Zone:** 3-8 perennial

**Where to plant:** Full sun

**When to plant:** Spring or Fall

**Planting:** ¼" deep

**Space Consumed:** 2' wide 9' tall

**Germination time:** 10-14 days

**Germination temp:** 40°-80° F 4°-30° C

**Fertilizer:** Fertilize with nitrogen when planting and in the spring. When the buds form fertilize with phosphorus

**Seed Saving:** Hollyhocks are a short perennial, which means they will only come back for 3-5 years. They reseed themselves so prolifically you don't really have to worry about planting new ones. If you do want to collect seeds just wait for the flowers to die off and the resulting seed pods to start opening. Then break them open and pick the seeds out and let them finish drying on a flat surface.



## Honeysuckle

**Days to Bloom:** 90-100

**About:** There are two kinds of honeysuckle, vining and bush varieties. Both have honey flavored flowers and poisonous berries. I can remember eating the flowers straight off the vine in the alley way on my way to school. They will grow anywhere that has enough water, and come back every year. They spread quite quickly so you will want to prune them.

**Grow Zone:** 4-9 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** Fall or spring

**Planting:** Press into surface of soil

**Space Consumed:** They spread everywhere up to 20' tall

**Germination time:** 10-15 days

**Germination temp:** 40°-80° F 4°-30° C

**Fertilizer:** Unnecessary

**Seed Saving:** Collect the berries and let them dry. The seeds are inside, but they are very fine, so you may want to leave them in the dried berry. The honeysuckle will come back every year on its own, plus reseeding itself.





## Impatiens

**Days to Bloom:** 40-60

**About:** This flower blooms all season and rarely gets pests. It has a sweet flavor and does well floated in sweet drinks. It doesn't like sun so you can grow it in your shady areas. It has to stay moist or it will shrivel up. They come in dozens of colors and patterns.

**Grow Zone:** 2-11 annual

**Where to plant:** Partial- full shade

**When to plant:** When soil is warm

**Planting:** ½" deep

**Space Consumed:** 8-12" wide 6-30" tall

**Germination time:** 14-21 days

**Germination temp:** 65°-80° F 10°-30° C

**Fertilizer:** Fertilize with compost every 2-4 weeks

**Seed Saving:** Impatiens flowers close into little seed pods. When pressure is applied to the pods, they pop open flinging seeds everywhere. If you smack your impatiens bushes it will reseed them. To collect the seeds carefully pick the pods and place them in a bag and pop them. Then let the seeds finish drying on a flat surface.



## Lavender

**Days to Bloom:** 100-120

**About:** Lavender has a taste that could be described as a cross between mint and rosemary. Though all lavender flowers are edible, French lavender is the most flavorful. Lavender takes a long time to get established, but if you start them early enough you will get blooms the first year. They also have a low germination rate so plant more seeds than you think you need. At least the first year, mulch your lavender in the fall. Prune your lavender in early spring.

**Grow Zone:** 5-9 perennial

**Where to plant:** Full sun

**When to plant:** When soil is warm

**Planting:** Press seeds into the surface of the soil

**Space Consumed:** 3-4' wide 3-4' tall

**Germination time:** 14-28 days

**Germination temp:** 40°-80° F 4°-30° C

**Fertilizer:** Don't

**Seed Saving:** Allow the flowers to dry completely then crush them to get the seed. Lavender should come back every year, but it will not reseed. So, if you want more plants you will have to collect seed or propagate cuttings. Just cut some branches before it flowers and strip off most of the leaves. Then use cinnamon or honey for rooting and stick them in the soil.



## Lilac

**Days to Bloom:** 60-80

**About:** This large floral bush has lemony flowers with floral overtones. These bushes require very little maintenance once they are established. You either need to give them tons of space or prune them just as the blooms face. If you start lilacs from seed, they need time to establish themselves in a frost-free environment for the first 6mo of life. Then they can take a couple years to bloom.



**Grow Zone:** 4-8 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** When soil is warm

**Planting:** ¼" deep, Get starts from offshoots with roots in the fall

**Space Consumed:** up to 10' wide 20' tall

**Germination time:** 10-30 days

**Germination temp:** 60°-80° F 15°-30° C

**Fertilizer:** Fertilize with phosphorus when planting and every spring after that

**Seed Saving:** Allow the flowers to dry on the plant then pick the flowers and pick the seeds out of them. Unless you have an heirloom variety the seeds won't grow to look like the parent plant. Once you have seeds you should keep them damp refrigerated for at least a couple months.

## Marigold

**Days to Bloom:** 60-80

**About:** Marigolds are a famous companion plant. They keep away most pests from your vegetables. They have a citrusy flavor and are good for salads. Marigold tea is high in antioxidants. These flowers are easy to grow with almost no maintenance.

**Grow Zone:** 2-11 annual

**Where to plant:** Full sun

**When to plant:** When soil is warm

**Planting:** ¼" deep

**Space Consumed:** 6" wide 8" tall

**Germination time:** 5-10 days

**Germination temp:** 65°-95° F 18°-35° C

**Fertilizer:** Unnecessary

**Seed Saving:** Wait for all the petals to dry up and fall off the flower. Then pull the seeds out of the remaining flower head.



## Nasturtiums

**Days to Bloom:** 90-110

**About:** Nasturtiums are one of the most common edible flowers people grow. They have a peppery almost cinnamon flavor. Nasturtiums come in vining and upright versions. The leaves are also edible and can be used to spice up a salad. Both petals and leaves are very high in lutein, which helps eye issues.

**Grow Zone:** 4-12 annual 10-12 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** When the soil is warm

**Planting:** ½" deep

**Space Consumed:** Vining will spread as far as you let it Upright 6" wide 6-8" tall

**Germination time:** 5-10 days

**Germination temp:** 60°-80° F 15°-30° C

**Fertilizer:** Unnecessary

**Seed Saving:** Nasturtiums reseed so readily that you will have to look on the ground beneath the plant in order to find the mature seed. The seeds are large and ribbed so they are easy to spot.



## Pansy

**Days to Bloom:** 100-110

**About:** These little flowers seem to have fat little faces. Pansies have a grassy flavor with evergreen overtones. Some would call it piney. In warmer climates they grow through the winter. In colder climates you have to time them so they bloom in cool weather. You should mulch them heavily before the first frost.

**Grow Zone:** 4-9 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** As soon as the soil is workable

**Planting:** ½" deep

**Space Consumed:** 9-12" wide 6-9" tall

**Germination time:** 5-7 days

**Germination temp:** 40°-65° F 4°-18° C



**Fertilizer:** Fertilize pansies with nitrogen and phosphorus every 2-4 weeks

**Seed Saving:** The flowers will die and fall off leaving a seed pod behind. The pod will eventually open up revealing seeds. You can collect them and let them finish drying on a flat surface. Pansies do not reliably come back every year so you may want to collect seed even though they are perennial.

## Peony

**Days to Bloom:** 60-80

**About:** Peony bushes look almost like large rose bushes. The petals have a slightly tart floral flavor. In China they are brewed into a tea and considered a delicacy. You can also float them in drinks or turn them into jelly. Usually peonies are grown from tubers. When the blooms are done prune them back, but not the foliage.

**Grow Zone:** 3-8 perennial

**Where to plant:** Full sun

**When to plant:** Spring or fall

**Planting:** ½" deep tubers 2" deep

**Space Consumed:** 3-4' wide 3-7'



**Germination time:** 14-28 days Some take up to 2 years

**Germination temp:** 40°-70° F 4°-21° C

**Fertilizer:** Fertilize with nitrogen and phosphorus when planting and every 2-4 weeks

**Seed Saving:** Peonies come back every year once they are established. They tend not to reseed successfully so you may want to gather seed for new plants. Let the flowers die off and the resulting seed pods dry out. Then break open the pods and let the seeds finish drying on a flat surface.

## Phlox – Perennial

**Days to Bloom:** 80-100

**About:** Take note that perennial phlox is specified here. Creeping phlox is an annual and is not edible. To be safe make sure you have Phlox Paniculata which is taller and edible. The flowers have a spicy flavor and go great in fruit salad. Every fall you will want to cut the stalks 6” above the ground. Every 3-5 years out should dig your phlox up and chop the crown into 3 or 4 pieces and replant it or give some away.

**Grow Zone:** 3-9 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** Fall or spring

**Planting:** 1/8” deep bury crowns just below the soil surface

**Space Consumed:** 1-2’ wide 3-4’ tall

**Germination time:** 10-28 days

**Germination temp:** 45°-70° F 7°-21° C

**Fertilizer:** Fertilize with compost when planting and every spring

**Seed Saving:** Phlox reseeds itself readily, but rarely grows into anything other than a magenta phlox flower. When the flowers die off, they will leave behind seed pods. The only seed pods that have viable seeds are the swollen ones. The seeds are tiny so you may want to save them in the dried pod.





## Prim Rose

**Days to Bloom:** 40-60

**About:** This delightful little flower comes in hundreds of colors. It has a bland sweet flavor and can be used to make wine. Many people pickle the buds or use them like a vegetable. Prim Roses are easy to grow, very hardy, and deer resistant.

**Grow Zone:** 4-8 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** As soon as the soil is workable

**Planting:** 1/8" deep

**Space Consumed:** 1-2' wide but will spread year to year 1' tall

**Germination time:** 10-15 days

**Germination temp:** 50°-65° F 4°-18° C

**Fertilizer:** Fertilize with compost when planting and every spring.

**Seed Saving:** Once the flowers die off the resulting seed pod will dry out. When the seams of the pod start to split, they are ready to collect.



## Rose

**Days to Bloom:** 60-80

**About:** Many gardeners are intimidated by roses because it is easy to miss a step in their care. Both vining and bush roses need to be pruned heavily in early spring just as the leaf buds are forming. You should cut away almost everything other than the main stalks. With bush varieties the lower you cut the less flowers you'll have, but the bigger your blooms will be. You also need to unbury where all the branches meet at the base. Flower flavors depend on the type and color, but can range from strawberries, to green apple, to mint.

**Grow Zone:** 3-11 depending on the variety

**Where to plant:** Full sun- Partial shade

**When to plant:** When the soil is warm

**Planting:** ¼" deep Bury starts up past the roots

**Space Consumed:** vines will grow as much as you let them, bush 3' wide 3-5' tall

**Germination time:** 14-28 days

**Germination temp:** 65°-80° F 18°-30° C

**Fertilizer:** Fertilize with nitrogen when planting and every 2-4 weeks until flower buds start to form, then fertilize with phosphorus every 2-4 weeks until 2 weeks before the first frost.

**Seed Saving:** Roses rarely get pollinated, but when they do it will be obvious. They produce a large berry where the flower used to be. Once it starts to get squishy you can tear it open and dig the seeds out. Wash them and let them dry on a flat surface.



## Scented Geranium

**Days to Bloom:** 80-100

**About:** The Citronelle variety of scented geranium may not be edible. Scented geraniums are an interesting edible flower in that you get to pick your flavor. There have been dozens of scents bred and the flavor of the flower tends to match the scent. Geraniums are relatively easy to grow, but they will not tolerate any frost at all.

**Grow Zone:** 4-12 annual

**Where to plant:** Full sun- Partial shade

**When to plant:** When the soil is warm



**Planting:** 1/8" deep, Get starts from a flowerless geranium

**Space Consumed:** 1-2' wide 2-3' tall

**Germination time:** 28-40 days

**Germination temp:** 65°-95° F 18°-35° C

**Fertilizer:** Fertilize with compost when planting

**Seed Saving:** Let the flowers dry on the plant and the seeds will reveal themselves by their white puffy tops. Just pull them off. You can also grow them from cuttings using honey or cinnamon as a rooting hormone.

## Snap Dragon

**Days to Bloom:** 90-110

**About:** Snap dragons are highly amusing. You can use them to teach small children to love the garden. The flowers are bland to bitter so they aren't the best to eat. They are rather simple to grow though. If you cut away the flower stalks after they die off, they will flower again.

**Grow Zone:** 4-10 annual 8-10 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** Fall or spring

**Planting:** Press into soil surface

**Space Consumed:** 6-18" wide 1-3' tall

**Germination time:** 10-20 days

**Germination temp:** 50°-80° F 10°-28° C

**Fertilizer:** Unnecessary

**Seed Saving:** Once it gets warm the flowers will stop blooming and form seed pods. When they dry out you can dump the seed out of the skull like holes on top. Then store them in root cellar conditions until you are ready to plant them.



## Sunflower

**Days to Bloom:** 90-100

**About:** Most people know you can grow sunflowers for their seed, but the buds can be eaten like artichokes and the petals like chrysanthemums. Sunflowers can handle light frosts but nothing too harsh. Sunflowers are easy to grow and can be tall and showy.

**Grow Zone:** 2-11 annual

**Where to plant:** Full sun

**When to plant:** as the soil is just warming

**Planting:** 1" deep

**Space Consumed:** 6" wide 3-10' tall

**Germination time:** 5-10 days

**Germination temp:** 55°-90° F 13°-32°

**Fertilizer:** Fertilize with nitrogen at planting

**Seed Saving:** When the petals brown and the seeds are easy to knock off, they are ready, but get to them before the birds and small rodents.



## Sweet Woodruff

**Days to Bloom:** 60-80

**About:** Sweet woodruff flowers have a vanilla nutty flavor and the leaves can be used as a tea substitute. It is one of the few ground covers that likes it dry. You really don't have to do anything other than plant it. Eating large amounts can cause blood thinning.

**Grow Zone:** 4-8 perennial

**Where to plant:** Full sun- Partial shade

**When to plant:** As soon as the soil is workable

**Planting:** Broadcast seed and rake it into the soil



**Space Consumed:** Spreads everywhere that isn't too moist 2-5" tall

**Germination time:** 10-14 days

**Germination temp:** 40°-65° F 4°-18° C

**Fertilizer:** Unnecessary

**Seed Saving:** Sweet woodruff is extremely hard to collect seeds from, but it comes back every year and spreads. Gather as many flowers as you can and crush them. Then pick through and hope you find some seed. You can use the crushed flowers for potpourri afterwards.

## Tulip Petals

**Days to Bloom:** 60-110

**About:** Never eat tulip bulbs. They may look like onions but they aren't. Only eat the petals, unless they give you a rash after touching them, then don't eat those either. They tend to taste like sweet lettuce or cucumbers. You can pack tulips tightly together as long as you water them enough. When your tulips bloom depends on if you get early, mid, or late season tulips.

**Grow Zone:** 4-9 perennial

**Where to plant:** Full sun

**When to plant:** Spring or fall

**Planting:** ¼" deep bury bulbs just below soil surface

**Space Consumed:** 3" wide 6-8" tall

**Germination time:** 28-40 days

**Germination temp:** 40°-80° F 4°-27° C

**Fertilizer:** Mulch tulips in the fall with compost

**Seed Saving:** If you decide to grow tulips from seed be aware that they rarely look like the parent plant and can take 4-6 years to bloom. Let the flowers die and fall off. Then let the seed head dry completely and break it open to get seed. Then store them outside till spring.



## Violet

**Days to Bloom:** 100-110

**About:** There is a flower called African violet that is not edible. Only the common violet, or *Viola Sororia*, is edible. Violets are very sweet and are lovely in ice cream or dessert drinks. The leaves taste like spinach and go very well on sandwiches and in salads. Violets very easily become invasive so you may want to grow them in containers.

**Grow Zone:** 3-9 perennial

**Where to plant:** Partial- Full shade

**When to plant:** Spring or Fall

**Planting:** Press into the soil surface

**Space Consumed:** Will spread everywhere 3-7" tall

**Germination time:** 5-10 days

**Germination temp:** 40°-65° F 4°-18° C

**Fertilizer:** Unnecessary



**Seed Saving:** Violets reseed themselves readily and come back every year. If you still want to collect seeds let the flowers die off. Wait for the seed pod to go from upright to drooping then bag them to catch the seed.



## Yucca Petals

**Days to Bloom:** 60-120

**About:** Yucca flowers and Yucca root, or cassava, are not the same thing. Only eat the petals of your yucca flower unless you know for sure that your breed has other edible parts. The yucca petals are a crunchy sweet addition to salads. Yucca plants have odd blooming habits. No one really knows why, but they bloom whenever they feel like it. Some theorize that there are yucca moths that pollinate the flowers and if the moth isn't present it won't bloom.

**Grow Zone:** 3-10 perennial

**Where to plant:** Full sun

**When to plant:** Spring or fall

**Planting:** 1" deep

**Space Consumed:** 2-3' wide 3-5' tall

**Germination time:** 21-28 days

**Germination temp:** 40°-65° F 4°-18° C

**Fertilizer:** Unnecessary

**Seed Saving:** Allow the flowers to die off and the resulting seed pods to dry. When the seed pod seams start to split you can harvest them and let them finish drying on a flat surface.



# Bush and Tree

## Almond

**Fruiting Age:** 5 years

**About:** Almonds are one of the most profitable nuts commercially grown because they are used so often and are relatively easy to grow. Young seedlings and saplings can sunburn until they put on bark, so you will want to cover the trunks. The trees themselves are generally frost hardy, but the early spring blooms can be damaged by frost.

**Grow Zone:** 5-9

**Space Consumed:** 18-22' wide 13-33' tall

**Fertilizer:** Mulch with compost in the fall



**Pruning:** First pick 3-4 larger branches that are not in the center and radiate away from the tree. Cut away all other branches and any secondary branches down to 2/3 of the trunk length.

**Harvest:** In the fall harvest the nuts by shaking the tree and gathering what falls

**Propagation:** Most of the almond trees you can buy will be a sweet almond grafted onto a bitter almond root stock. If you plant an almond seed it won't be as hardy and may not produce the same sweet almonds. You can graft a secondary branch from a mature almond tree in the spring. Bitter almond and peach root stock will work.

**Storage:** If you shell them, they will store for a year, otherwise you have to freeze them to kill possible larva and they will store for about 8 months.

## Apple

**Fruiting Age:** 4-6 Years

**About:** Many gardeners worry over complicate apple tree care, but the main thing to consider is that they have slow root development. To be more careful you can prune the blossoms until the apple tree is 4-6 years old so it has plenty of energy to store in its roots.

**Grow Zone:** 3-9

**Space Consumed:** 10-30' wide 10-30' tall

**Fertilizer:** Mulch with compost in the fall, over fertilizing will decrease root growth and kill the tree

**Pruning:** First cut away any dead or diseased wood. When branches are crossing cut the less developed or more poorly positioned branch away. Cut away any branches going toward the center of the tree at the top of your upward growing branches cut away 3-6" at an outward facing bud to stimulate new growth.

**Harvest:** Pick your apples when they are in full color.

**Propagation:** Apple seeds will likely grow into a small bitter apple so propagate your trees by grafting a spring cutting onto a hardy apple root stock.

**Storage:** Apples release gasses that rot other fruits and vegetables so store them in a separate fruit section in root cellar conditions or can, dry, or freeze them.



## Apricot

**Fruiting Age:** 3-5 years

**About:** Apricots look similar to peaches but are tangier. Apricot trees tend to be on the smaller side when it comes to fruit trees. They don't like heat too well so keep them in partial shade if you can. The blossoms are not frost hardy and apricots flower pretty early.

**Grow Zone:** 5-8

**Space Consumed:** 15-20' wide 15-20' tall

**Fertilizer:** Once the tree is fruiting fertilize with compost

**Pruning:** Cut away any dead or diseased wood. Cut away branches with lots of sap coming out. Cut away any branches growing inwards. There are three different fruiting habits of apricots: end of branch, mid branch, and base of branch. This refers to the location of fruiting on last year's growth. After cutting away any crossing branches you will want to cut back the new growth to wherever it will fruit. This will reduce risk of breakage due to weight.

**Harvest:** Once the fruit gives slightly when you press on it, it is ready to harvest

**Propagation:** Stone fruits are far more likely to grow true to seed. Break open the hull of the seed carefully and soak the seed for 24 hours then plant it and keep it moist. You can also graft spring shoots to other stone fruit root stock.

**Storage:** Apricots keep quite well in root cellar conditions but they also release gasses that will rot other roots and vegetables so this should be in your fruit section. You can also dehydrate, can, or freeze them.



## Avocado

**Fruiting Age:** 5-15 years

**About:** Even if you live in a climate where avocado trees can survive outdoors, they are very difficult to grow. They are prone to rot but need lots of moisture so use a sandier soil and water often. They sun burn easily so keep them in partial shade and cover the trunk and branches in something white. They can grow to enormous heights but still take up to 15 years from seed to fruit.

**Grow Zone:** 8-12

**Space Consumed:** 8-10' wide 20-40' tall

**Fertilizer:** Fertilize every 2 months with a nitrogen and phosphorus mix.

**Pruning:** You have to prune an avocado tree as soon as you get the fruit off. Avocado pruning is only for size control so cut it back to the size you want to keep it.

**Harvest:** When your avocado's skin is dark and it gives slightly when you squeeze it, it is ready to harvest

**Propagation:** Peel the skin off your avocado seed and use tooth picks to float it at least ½ way deep in water until the sprout is 1' tall then plant it. Or you can graft avocado spring branches to an older avocado root stock.

**Storage:** Avocados don't tend to keep well, but you can try canning it for 3-5 months



## Banana

**Fruiting Age:** 18 months

**About:** Many people think it takes years to get a banana tree to fruit, but the reality is that they take 10 months to mature and 8 months to fruit. The mistake people make is that even though a banana tree may be hardy down to 50° F it is only fruiting hardy down to 68° F. If at any time the temperature drops below 68° F it will drastically slow or halt the maturing and fruiting process. Young trees and dwarf trees need partial shade.

**Grow Zone:** 9-12

**Space Consumed:** 3-10' wide 3-30' tall

**Fertilizer:** Fertilize every 2 weeks with nitrogen until the purple flower starts to show, then fertilize every 2 weeks with potassium.

**Pruning:** Cut away dead leaves and if the tip of the leaves brown cut off the part of the leaf from the center so that all the brown is removed. If you are growing a dwarf variety cut away any shoots and replant them. If you are growing a large variety outdoors let 3 trees grow in a group then cut away anything else and replant it.

**Harvest:** When the bananas are mostly yellow you can harvest them, but green bananas can cause diarrhea

**Propagation:** Banana seeds do exist, but they produce seed filled, nearly inedible bananas. The best way to propagate bananas is to replant the shoots mature bananas produce

**Storage:** Do not refrigerate bananas, they do best at room temperature. They last at most a month. It is best to have several banana trees in different states of flowering. You can dry them.



## Blueberry

**Fruiting Age:** 3-4 Years

**About:** Blueberries are an odd plant in that it likes acidic soil. For this you can use coffee as a nitrogen fertilizer and wood ash for potassium. Blueberries also need a bit of moisture so you can mulch with wood to increase the acidity. Blueberries will usually have some sort of fruit the first year it's planted, if you let it, but you should pinch off flowers for the first 3-4 years to allow the bush to mature.

**Grow Zone:** 2-10 depending on type

**Space Consumed:** 3-5' wide 2-6' tall

**Fertilizer:** Fertilize with nitrogen in the spring, potassium when the flowers form, and phosphorus in the fall.

**Pruning:** In the winter cut off dead, damaged, or diseased branches. Remove low hanging branches and weak shoots. Remove old canes that don't have mainly new branches, which don't have bark. Leave about 3 new shoots each year and prune the rest. Then go around and cut off the side shoots that only have pointy leaf buds and only a couple plump fruiting buds.

**Harvest:** Once most of the blueberries are plump and in full color you can pick them all at once.

**Propagation:** You can get seeds from the inside of blueberries and freeze them for at least 2 weeks. Then plant them. You can also cut the top of a leafing branch in the spring. Strip all but the top few leaves, and dip a leaf node in cinnamon or honey and stick it in soil and it will eventually make a new bush.

**Storage:** Blueberries keep in the refrigerator for about 2 weeks. You can also can, dry, or freeze them.



## Brambles

**Fruiting Age:** 2-3 years

**About:** Brambles are a family of bushes that all have virtually the same care and include: blackberries, raspberries, and loganberries. They have very little soil requirements other than moisture. So, it is a good idea to mulch them. If you have a variety that is at risk of being harmed by low temperatures where you live, you can bend the flexible canes to the ground, weigh them down, and cover them with hay or leaves. Then uncover them after the danger has passed.

**Grow Zone:** 3-9 depending on type

**Space Consumed:** Can spread everywhere and up to 10' tall

**Fertilizer:** Fertilize with compost in the fall

**Harvest:** When the berries are in full color you can pick them.

**Pruning:** Brambles need to be pruned twice a year. This is because the branches that grow one year are what produce fruit the next year. So, after you harvest your berries cut away all the canes that bore the fruit. Then cut back your new canes to 3-4' tall to promote lateral growth and prevent it from falling over when it fruits. Then in late winter cut away any damaged and low laying branches. Then thin out your new canes to the strongest ones leaving about 6 canes per foot.

**Propagation:** You can get seeds out of the berries and freeze them for at least 2 weeks then plant them. You can also use your summer cuttings to start a new plant with honey or cinnamon for rooting.

**Storage:** Bramble berries store for about 2 weeks in the refrigerator or you can freeze, dry, or can them.





## Cashew

**Fruiting Age:** 2-3 years

**About:** Cashews are actually related to poison ivy. They have a toxic acid inside the shell that has to be roasted or steamed away. The cashew nut actually grows on the end of the cashew apple that has a stringy flesh and tastes similar to mangoes. They need constantly warm temperatures and grow quite large. They are mildly drought tolerant once established.

**Grow Zone:** 10-11

**Space Consumed:** 20-30' wide 20-40' tall

**Fertilizer:** Mulch with compost in the fall

**Harvest:** When the fruit is full and firm you can harvest it and roast the nut in its shell

**Pruning:** Cut away dead and diseased wood and cut the plant back for height control.

**Propagation:** Cashew trees are generally grown from seed. If the seed is fresh plant it immediately flat in the soil. If it is old soak it overnight and then plant it. Fresh seed germinates in 4-6 days, but old seed can take up to a month.

**Storage:** Nuts store up to 6 months at room temperature.



## Cherry

**Fruiting Age:** 3 years

**About:** Cherries are a lovely, high yielding tree. They do not need multiple trees to produce, though they will produce more per tree with more trees. If you are planting a started tree be sure to have a large hole and fill in with compost. Cherries enjoy slightly acidic soil.

**Grow Zone:** 4-8

**Space Consumed:** 5-30' wide 5-30' tall

**Fertilizer:** Early in the spring when they set flowers, and in the fall, fertilize with high nitrogen and phosphorus fertilizer.

**Pruning:** In the late summer cut away small shoots from the trunk. Cut away any dead or diseased wood. When branches are crossing cut the less developed or more poorly positioned branch away. Cut away any branches going toward the center of the tree at the top of your upward growing branches. Cut off the tips of your new branches that you've decided to keep to encourage lateral growth.

**Propagation:** You can grow cherries from cuttings or seeds. Store seeds inside of the cherry stones. To get to a cherry seed it takes a bit of work. You have to crack open the stone and get the seed out of the inside. Then soak the seed in cold water for 2-3 days. This should crack the outer skin. Peel that off and plant the seed ½" deep. You can also plant the unpeeled seed in the fall outdoors.

**Storage:** Frozen, dried, or canned



## Chestnut

**Fruiting Age:** 3-5 years

**About:** Chestnut trees are very easy to grow when compared to other fruiting trees. When they are young keep them protected and they'll do fine. Deer love chestnuts so you can plant them in an area separate from your garden to distract them from your food. Chestnuts produce so well you will probably have plenty, even sharing them with the deer.

**Grow Zone:** 4-9

**Space Consumed:** 20-40' wide 30-40' tall

**Fertilizer:** Fertilize heavily with compost when planting and mulch with compost in the fall.

**Harvest:** Collect the chestnuts when they fall off of the tree.

**Pruning:** Cut away dead and diseased wood and cut away low hanging branches to promote top growth.

**Propagation:** Chestnuts have to freeze for at least 2 months before planting. Then press them into the soil and water well. Protect seedlings from harsh wind and sun.

**Storage:** If you let chestnuts dry in the sun for 2-3 days, they can last a year at room temperature. If not, they last 2-3 weeks in root cellar conditions.



## Chocolate

**Fruiting Age:** 6-8 years

**About:** Cocoa trees produce pods that contain cocoa beans. If you want to know how to process cocoa beans to make chocolate look into *Nuttatiello Guide to Self Sufficiency Making Ingredients* once it is written.

**Grow Zone:** 10-11

**Space Consumed:** 4-6' wide 10-20' tall

**Fertilizer:** Fertilize every 2 months with compost tea

**Harvest:** When the pod is plump and in full color you can harvest it.

**Pruning:** Prune the top for height control

**Propagation:** In commercial production cocoa trees are started from cuttings, but they do remain true to seed. Immediately after removing seeds from the pods soak them in water for a couple hours. Then peel the white outer covering off of the seeds, throwing out floating seeds. Then plant them just under the soil with the white root tip facing down.

**Storage:** Leave the beans in the pod until you are ready to process or plant them.



## Cinnamon

**Fruiting Age:** 2-3 years

**About:** Cinnamon trees have bark that can be used to make cinnamon. To learn how to process the bark for cinnamon look into *Nuttatiello Guide to Self Sufficiency Making Ingredients* once it is written. Cinnamon trees enjoy dry, somewhat acidic soil.

**Grow Zone:** 8-11

**Space Consumed:** 3-5' wide 4-30' tall

**Fertilizer:** After harvesting fertilize with compost tea to improve sprouting.

**Pruning:** once the tree is about 3" in diameter cut it down just above ground level.

**Propagation:** Cinnamon has to be propagated from a root. Once you have it established divide up and replant the roots every 5-6 years.

**Storage:** Dry the bark, grind it if you wish



## Citrus

**Fruiting Age:** 3-5 years

**About:** Citrus fruits include grapefruit, oranges, lemons, limes, and more. I created this one group for them because their care is basically identical. There is a difference in plant size though. The larger the fruit, usually the larger the tree, though you can train any citrus down to 5 feet at least.

**Grow Zone:** 9-11

**Space Consumed:** 4-30' wide 3-30' tall

**Fertilizer:** Use high nitrogen and high phosphorus fertilizer once a year.

**Pruning:** First cut away any dead or diseased wood. When branches are crossing cut the less developed or more poorly positioned branch away. Cut away any branches going toward the center of the tree at the top of your upward growing branches cut away 3-6" at an outward facing bud to stimulate new growth.

**Propagation:** Citrus trees grow true to seed, so you can grow from cuttings or seeds. Seeds can be removed from the fruit and dried for storage. When ready to plant soak the seeds overnight. Then plant them ½" deep.

**Storage:** Citrus does not keep long once it is picked, so freeze, dry, or can them quickly.



## Coffee

**Fruiting Age:** 5-6 years

**About:** Every coffee tree grows enough beans to make around 400 cups of coffee. You can use that to see how many trees you might want to grow. The trees need a high humidity, warm, moist environment. If you want to know how to process coffee cherries to make coffee look into *Nuttatiello Guide to Self Sufficiency Making Ingredients* once it is written.

**Grow Zone:** 9-11

**Space Consumed:** 3-5' wide 3-5' tall

**Fertilizer:** Coffee trees need a lot of nitrogen. Add manure every 3 months or so.

**Pruning:** Cut the top off of the tree so that it is about 3' tall. Cut away the branches low on the trunk. Remove small thin branches growing out of the trunk. Cut away thin branches growing off of branches close to the trunk.

**Propagation:** After removing the bean from the cherry soak it for 24 hours. Then press the seed into the soil so it is just covered.

**Storage:** Keep the beans in the cherry until you are ready to plant or process. Do this soon because they do not keep more than a month.



## Cranberry

**Fruiting Age:** 3-4 years

**About:** Cranberries are a creeping vine that is relatively easy to grow once established. Though it is a vine, it's in this section because it is cared for like a bush. Some plants live up to 100 years. They need low pH soil and lots of compost in order to grow well. They also need a lot of water, as they grow along river and lake banks in the wild.

**Grow Zone:** 2-5

**Space Consumed:** 2' wide 5" tall

**Fertilizer:** The soil for cranberries is so unique that you may want to replace the soil in a specific place with a mixture of compost and wood ash.

**Pruning:** Lightly rake the plant in the spring just before growth begins to remove the dead organic material. Lift the vines and cut away downward facing shoots. Remove any dead or damaged shoots or vines.

**Propagation:** Plants can be started from shoots or seeds. Scarify your seeds by rubbing them between two pieces of sandpaper. Then soak them for 24 hours. Seeds then need to freeze for at least three months. You can also plant them directly outdoors in the fall just before the first freeze.

**Storage:** Dried, frozen, or canned.





## **Currant**

**Fruiting Age:** 1-3 years

**About:** There are a lot of varieties of currants, but they are all grown in basically the same way. They are easy to grow, and enjoy full sun.

**Grow Zone:** 3-8

**Space Consumed:** 3' wide 3' tall

**Fertilizer:** Compost every fall, may need nitrogen periodically if yellowing

**Pruning:** In late winter before new growth shows up cut away damaged or dead wood, branches facing in, and any wood that is 4 years old.

**Propagation:** You can plant shoots or seeds. Plant seeds just below the soil surface.

**Storage:** Dried, frozen, or canned



## Date

**Fruiting Age:** 4-8 years

**About:** Date palms are a little difficult to grow if you don't live in a warm climate, but there are pygmy date palms that you could grow in a year-round greenhouse. These trees make for beautiful landscaping. If you want fruit you will need a male and female plant.

**Grow Zone:** 9-11

**Space Consumed:** 6-15' wide 6-100' tall

**Fertilizer:** Compost once a year

**Pruning:** Depending on the size of the tree, cut away fruiting shoots so that there are only 8-15 evenly spaced shoots.

**Propagation:** You can propagate dates from the shoots that grow at the base or from seed. Remove the seed from the fruit and wash it. Then soak it in a dark place for 48 hours. Then plant the seed ½" deep so that the flat part is facing up.

**Storage:** Dates are generally dried on the tree but can be canned or frozen.



## Dragon Fruit

**Fruiting Age:** 6 years

**About:** Dragon fruit comes from a cactus. Unlike other cacti, dragon fruit likes more nutrient rich soil and less sun than your average cactus. These plants also do well with a support pole to tie them to. You can plant multiple dragon fruit cacti around one pole. Water about an inch per week

**Grow Zone:** 10-11

**Space Consumed:** 3' wide 3-5' tall

**Fertilizer:** When the cactus enters its budding phase fertilize with potassium.

**Pruning:** It depends on how many fruits you want. If you let them go you will have more fruit, but it will also be a larger heavier plant with more tying necessary.

**Propagation:** They grow best from cuttings put directly into soil. You have to cut it at the stem that connects it to the next part. You can also grow from seed by putting the seeds just on the soil surface.

**Storage:** Dragon fruit does not store more than a few days once they are picked. You can try freezing it.



## Fig

**Fruiting Age:** 2-6 years

**About:** Figs are a very interesting fruit. In order to grow fruit a fig wasp must fly into the bud and lay its eggs. Then a male fig wasp fertilizes the eggs and the flowers at the same time. From this the fruit grows. Figs trees can grow in almost any soil, but they prefer well composted soil and lime.

**Grow Zone:** 5-8

**Space Consumed:** 5-20' wide 5-20' tall

**Fertilizer:** compost in the fall

**Pruning:** Just as winter is ending but before there is new growth cut away limbs facing inward and dead or damaged limbs. Cut out any new shoots that are in the center of the tree, or just pull them straight out of the ground.

**Propagation:** Figs can be propagated from cuttings or seeds. Remove the seeds from the fruit and place them in water. Stir it well and wait for the seeds to sink. Dump off the floating seeds as they are not viable. Plant the seeds on the soil surface.

**Storage:** Dried, frozen, or canned



## Goji Berry

**Fruiting Age:** 4-6 years

**About:** Goji berries are actually related to the tomato, but they are treated more like bushes, so they are in this section. Gojis are known as a super food but eating too many of them can cause upset stomach and diarrhea. They are easy to grow and prefer full sun.

**Grow Zone:** 3-10

**Space Consumed:** 3-6' wide 3-12' tall

**Fertilizer:** Compost in the fall

**Pruning:** In the winter cut away horizontal shoots within 2' of the ground. Choose three main trunks and remove any other sprouting trunks. Remove dead or damaged wood. Cut out any inward facing branches and crossing branches. In the summer cut off the tips that are growing to cause branching growth. You can also prune to the height you desire.

**Propagation:** Goji berries can reproduce by cuttings or seed. You can store the seeds in the dried fruits. When you are ready to plant rehydrate the fruit. Then take it and roll it in your fingers and the seeds will come right out. Throw out any floating seeds. Allow the seeds to dry then plant the viable seeds ¼" deep.

**Storage:** Dried, frozen, or canned.



## Loquat

**Fruiting Age:** 10-15 years

**About:** This interesting fruit is also known as a Japanese plum, but it is not cared for like a plum. It also takes a very long time for the tree to mature. Many people graft it onto other trees so they don't have to wait as long for it.

**Grow Zone:** 8-10

**Space Consumed:** 15-20' wide 25' tall

**Fertilizer:** Compost yearly

**Pruning:** It grows so slowly it doesn't need pruning.

**Propagation:** Loquats do not grow true to seed so you'll have to grow from cuttings.

**Storage:** Frozen, dried, or canned



## Macadamia nut

**Fruiting Age:** 4-6 years

**About:** Macadamia nuts are another tree that would be hard to grow if you aren't in a warm climate, though there are dwarf varieties. While macadamia trees tolerate almost any soil type, they are brittle and must be protected from the wind. When they start to produce nuts water them three times a week.

**Grow Zone:** 9-11

**Space Consumed:** 3-50' wide 3-60' tall

**Fertilizer:** High phosphorus fertilizer in the spring and mid-summer.

**Pruning:** Remove branches low to the ground. Cut away any dead or diseased wood. When branches are crossing cut the less developed or more poorly positioned branch away. Cut away any branches going toward the center of the tree at the top of your upward growing branches cut away 3-6" at an outward facing bud to stimulate new growth.

**Propagation:** You can propagate a macadamia tree from cuttings or seeds. For a seed, crack open the nut and plant the seed just under the surface of the soil and water well.

**Storage:** Keep the nuts in their shell until ready to use or plant.



## Mango

**Fruiting Age:** 3-5 years

**About:** Mangoes are an extremely tropical tree. If you live in a colder climate you should grow it in a year-round greenhouse. It will not fruit unless it gets around 90° F 40° C. If you grow it in a pot, make sure you grow it so that it is root bound. If you give it too large of a pot the roots will rot. When you see roots coming out of the drainage holes it's time to repot. They need about 4-6 hours of sunlight. Allow the plant to dry out to two inches down between watering. The tree needs a very sandy soil. The sap of a mango tree will burn your skin and the fruit.

**Grow Zone:** 10-12

**Space Consumed:** 6-30' wide 6-100' tall

**Fertilizer:** High nitrogen fertilizer every two months and compost once a year

**Pruning:** Since mangos grow so slowly that you won't have to prune for many years. If the tree gets large enough that the branches droop you can trim off some branches to alleviate the stress.

**Propagation:** You can grow mangos from cuttings or seeds. You take a mango seed out of the fruit and clean it. Then put the pointy end down into water and have the fat end upright. Leave it there, watering and cleaning the container regularly, for about 3 months. Then plant it root down in the soil.

**Storage:** Pickled, canned, dried, or frozen.





## Olive

**Fruiting Age:** 3 years

**About:** Olives are relatively easy to grow. They need a sandy soil and full sun. You should water it once every two weeks, but it is drought tolerant. If you want to know how to process olives to make olive oil look into *Nuttatiello Guide to Self Sufficiency Making Ingredients* once it is written.

**Grow Zone:** 8-10

**Space Consumed:** 3-20' wide 6-30' tall

**Fertilizer:** Compost with a little nitrogen once a year

**Pruning:** In the late summer cut away small shoots from the trunk. Cut away any dead or diseased wood. When branches are crossing cut the less developed or more poorly positioned branch away. Cut away any branches going toward the center of the tree at the top of your upward growing branches. Cut of the tips of your new branches that you've decided to keep to encourage lateral growth.

**Propagation:** Olive trees can be propagated from cuttings or seeds. Take a pit out of an olive and allow it to dry. Remove the seed from the pit and plant it 1" deep. It will take around 40 days to germinate.

**Storage:** Pickled, canned, pressed



## Peach, Nectarine

**Fruiting Age:** 3-4 years

**About:** Peaches and Nectarines may taste different, but they are grown the same way. These trees are self-fertile so you only need one. Peaches do tend to overheat so don't be surprised by a lot of top die off.

**Grow Zone:** 4-8

**Space Consumed:** 8-20' wide 8-20' tall

**Fertilizer:** In the fall fertilize with high phosphorus fertilizer.

**Pruning:** Cut away any dead or diseased wood. Cut away branches with lots of sap coming out. Cut away any branches growing inwards, though try to keep upper branches to protect the tree from too much sun. After cutting away any crossing branches you will want to cut back the new growth to wherever it will fruit. This will reduce risk of breakage due to weight. Remove branches that are 3 years old.

**Propagation:** Peaches can be grown from cuttings or seeds. Crack open a dried pit to get to the seed. Freeze the seed for 2-3 days then keep it cold for the 4 or so months. Then plant it point down 1" deep.

**Storage:** Frozen, canned, dried.



## Pear

**Fruiting Age:** 4-6 years

**About:** Pears are one of the highest producing fruit trees. You will need two pear breeds in order to get any fruit. The longer the winter, the more fruit you will get. They do not do well with hot weather; you should water once a week. If leaves start dropping before fall, water the tree. The first several years of growth you should pinch off the flowers to prevent fruiting so the tree doesn't damage itself.

**Grow Zone:** 3-8

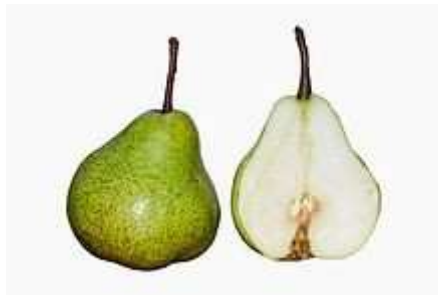
**Space Consumed:** 6-13' wide 8-20' tall

**Fertilizer:** In the fall fertilize with high phosphorus fertilizer.

**Pruning:** First cut away any dead or diseased wood. When branches are crossing cut the less developed or more poorly positioned branch away. Cut away any branches going toward the center of the tree at the top of your upward growing branches cut away 3-6" at an outward facing bud to stimulate new growth.

**Propagation:** Pear seeds will likely grow into a small bitter pear so propagate your trees by grafting a spring cutting onto a hardy pear root stock.

**Storage:** Dried, frozen, canned



## Pecan

**Fruiting Age:** 6-15 years

**About:** Pecans are self-fertile, but you can increase production with a second variety. Pecans are very tolerant of different kinds of soil if it doesn't get soggy. Make sure it gets plenty of water in the summer.

**Grow Zone:** 5-9

**Space Consumed:** 4-75' wide 6-130' tall

**Fertilizer:** Fertilize with high nitrogen fertilizer every spring

**Pruning:** When your tree is first growing it will need brutal pruning. Every fall for the first three years you will want to cut away all upright branches except for the strongest one. This will be your central leader. Maintaining your central leader is key to having a tree without breakage from wind. Each time you prune cut away a third of the central leader branch to encourage lateral growth. If you want the tree to stay smaller you can also top the tree once it gets to the height you want.

**Propagation:** You can grow pecans from cuttings or seeds. Soak your seeds in the shell for 24 hours and plant them 2" deep. It will take about a month to germinate.

**Storage:** Keep them in their shells until you are ready to use them.



## Pistachio

**Fruiting Age:** 6-15 years

**About:** You need at least one male and one female plant in order to grow pistachios. Humans have been eating pistachios for at least 9000 years. You can also use the tree's sap as a breath freshener. Pistachios are biennial, so they produce more every other year. These nuts also ripen all at once so you will need to process them quickly by removing the fruit, splitting the nut, and roasting them. Otherwise they will grow a deadly mold.

**Grow Zone:** 8-10

**Space Consumed:** 8-20' wide 10-30' tall

**Fertilizer:** Fertilize with potassium rich fertilizer in the late winter and compost in the spring.

**Pruning:** When your tree is first growing it will need brutal pruning. Every fall for the first three years you will want to cut away all upright branches except for the strongest one. This will be your central leader. Maintaining your central leader is key to having a tree without breakage from wind. Each time you prune cut away a third of the central leader branch to encourage lateral growth. If you want the tree to stay smaller you can also top the tree once it gets to the height you want.

**Propagation:** You can grow pistachios from cuttings or seeds. Because pistachios need a male and female plant for the female to produce nuts, there is no guarantee that a tree grown from seed will produce nuts. If you want to try anyway carefully remove the seeds from the shell and soak them for 24 hours. Then keep them cold for 4 weeks. Then plant them just under the surface of the soil.

**Storage:** They will only keep if you roast them.



## Plum

**Fruiting Age:** 3-6 years

**About:** There are both decorative and fruiting plum trees. If you want fruit be sure to know what variety you are getting. Plums are relatively easy to grow as long as they get full sun and sandy soil.

**Grow Zone:** 3-8

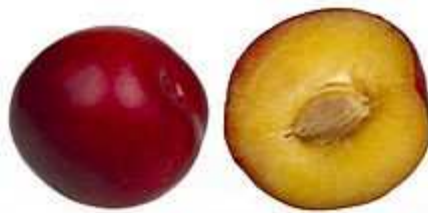
**Space Consumed:** 5-20' wide 7-20' tall

**Fertilizer:** Use compost every fall

**Pruning:** Cut away any dead or diseased wood. Cut away branches with lots of sap coming out. Cut away any branches growing inwards, though try to keep upper branches to protect the tree from too much sun. After cutting away any crossing branches you will want to cut back the new growth to wherever it will fruit. This will reduce risk of breakage due to weight. Remove branches that are 3 years old.

**Propagation:** You can grow plums from cuttings or seeds. Take the pits out of the plums and crack them open and remove the seeds. Keep them cold and moist for about 4 months. Then plant them 3" deep. You can also plant the whole pit outside in the fall.

**Storage:** Frozen, dried, canned



## Pomegranate

**Fruiting Age:** 2-3 years

**About:** Pomegranates are a slightly exotic tree. It will need a mostly compost soil to be planted in. If it doesn't have enough sunlight in the summer, it will not come out of dormancy next fall. Pomegranates are self-fertile, but hand pollinating will increase production. Depending on how you prune your plant it can be huge or very small.

**Grow Zone:** 6-10

**Space Consumed:** 3-30' wide 2-30' tall

**Fertilizer:** Use a high nitrogen fertilizer in the spring and high phosphorus in the fall.

**Pruning:** First cut away any dead or diseased wood. When branches are crossing cut the less developed or more poorly positioned branch away. Then just cut it down to the size you want.

**Propagation:** Pomegranates do not grow true to seed so you should grow from cuttings.

**Storage:** Frozen, canned, pickled



## Quince

**Fruiting Age:** 5 years

**About:** A quince looks like an apple and a pear were crossed, but it doesn't taste like either. It is a very stringent and dry fruit, but once it's cooked it turns pink and releases its flavor.

**Grow Zone:** 5-9

**Space Consumed:** 15-25' wide 15-30' tall

**Fertilizer:** High potassium and nitrogen fertilizer in the spring

**Pruning:** First cut away any dead or diseased wood. When branches are crossing cut the less developed or more poorly positioned branch away. Cut away any branches going toward the center of the tree at the top of your upward growing branches cut away 3-6" at an outward facing bud to stimulate new growth.

**Propagation:** Quince do not grow true to seed so you will have to grow them from cuttings.

**Storage:** Canned, pickled





## Starfruit

**Fruiting Age:** 10- 14 months

**About:** They are called starfruit because when you cut them the right way they are shaped like a star. Starfruit is one of the faster growing fruit trees. They just need good soil and regular watering and they will produce quickly.

**Grow Zone:** 9-11

**Space Consumed:** 3-6' wide 3-10' tall

**Fertilizer:** Compost tea once a year

**Pruning:** Prune for size

**Propagation:** Star Fruit grows best from cutting but can be grown from seed. Remove the seeds from the fruit and clean them. Plant them ½" deep.

**Storage:** Frozen, dried, canned, pickled



## Strawberry

**Fruiting Age:** 1 year

**About:** There are both everbearing and annual types of strawberries. Everbearing strawberries produce a smaller amount of fruit all season, whereas annual strawberries bear a large crop once a year. Strawberries grow like weeds and will spread everywhere if you don't stop them. You should probably mulch your strawberries if your temperatures get into the negatives.

**Grow Zone:** 3-10

**Space Consumed:** as wide as you let it get, 3-6" tall

**Fertilizer:** Compost in the late fall

**Pruning:** With everbearing strawberries you should break off unripe berries and flowers as well as runners at the end of the season so that it focuses on root growth.

**Propagation:** You can grow from seed or cuttings. Strawberries have runners that come off the main plant that they reproduce from naturally. Strawberry seeds have low germination rates so remove the seeds from the fruit and float them in a cup and stir. Whatever floats throw away. Then press the seeds into the surface of the soil

**Storage:** Frozen, dried, canned, pickled



## Tea Bushes

**Fruiting Age:** 1-5 years

**About:** Everyone likes a good cup of tea. There are many varieties of tea bushes, but they are all cared for in basically the same way. If you want your tea bush to continue to produce tasty leaves you will want to pinch off the flowers, unless you want to save some for seed. Wait until your bush is about three feet tall to harvest from it.

**Grow Zone:** 8-11

**Space Consumed:** 2-5' wide 3-6' tall

**Fertilizer:** High nitrogen fertilizer in the spring

**Pruning:** A tea bush doesn't need much pruning. You can cut off the tips of the branches to encourage lateral growth. You can also top the bush to get it to grow out more.

**Propagation:** Tea bushes can be grown from cuttings and seeds. Soak seeds overnight and plant them just below the soil surface.

**Storage:** Dried



## Walnut

**Fruiting Age:** 5-15 years

**About:** Walnuts have toxins that they release into the soil, so don't plant anything beneath your walnut tree.

**Grow Zone:** 4-9

**Space Consumed:** 6-8' wide 50-150' tall

**Fertilizer:** Compost every spring

**Pruning:** In late winter for the first three years you will want to cut away all upright branches except for the strongest one. This will be your central leader. Maintaining your central leader is key to having a tree without breakage from wind. Each time you prune cut away a third of the central leader branch to encourage lateral growth. Later on, cut away any low hanging and crossing branches, and thin out the canopy. Always cut to a branch.

**Propagation:** You can grow walnuts from cuttings or seeds. To do this remove the nut from the fruit. Keep it cold and wet for 4 months then soak it for 24 hours. Then plant it just below the surface of the soil. You can also plant it 1" deep outdoors in the fall.

**Storage:** Store them in their shell



# Herbs and Seasonings

## Agave

**Days to Harvest:** 3 years

**About:** Agave is used as a sweetener as well as to make tequila. If you want to use an agave plant to make tequila you have to wait 7 years for it to get mature enough.

**Grow Zone:** 5-9

**Where to Plant:** Full sun

**Companion Plants:** other succulents and ground cover plants

**When to Plant:** When the soil is warm

**Planting:** Plant sprouts so that the root is covered

**Germination Time:** new growth in days

**Germination Temp:** 50°-80° F 10°-28° C

**When to Thin:** Once the plant starts having smaller plants beneath it remove those. You can replant the baby plants.

**Regular Space:** 1 per 9 sqft

**Square Foot Space:** No benefit

**Fertilizer:** Compost tea every three months

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** Cut away the first layer of limbs with a sharp knife close to the stock once the plant is three years old.

**Propagation:** There will be baby plants growing beneath it once it is mature enough. You plant those to propagate it.

**Storage:** Process the plant for syrup or tequila

**Next Year:** If you live in a warm environment simply mulch it in the fall. If you are in a colder climate bring it indoors in the fall.



## Anise

**Days to Harvest:** 100-120

**About:** Anise is an intensely licorice flavored spice. The leaves can be used to add a light licorice flavor. This can be a dessert herb or a savory dish herb. It can go in almost anything that goes well with cloves. This plant has such a strong scent it can be used as an insect repellent for the brassica family.

**Grow Zone:** 4-9

**Where to Plant:** Full sun

**Companion Plants:** Cabbage, cauliflower, broccoli, Brussels sprouts, kohlrabi

**When to Plant:** When the soil is warm

**Planting:** ½" deep 4" apart

**Germination Time:** 7-14 days

**Germination Temp:** 60°-80° F 16°-28° C

**When to Thin:** Don't, the roots don't like to be disturbed

**Regular Space:** 2 per sqft

**Square Foot Space:** 4 per sqft

**Fertilizer:** High potassium fertilizer once 5" tall

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the seed heads start to turn brown, but before they are all the way brown, cut them away and hang them upside down to dry the rest of the way.

**Propagation:** Harvest the seeds then store them.

**Storage:** Store seeds in a cool, dry place.

**Crop Rotation:** Root crop next



## Basil

**Days to Harvest:** 50-75

**About:** Basil is one of the most common herbs grown in American gardens. It is also one of the easiest to grow. You can pinch off the top two leaves when it is about 4" tall to promote lateral growth.

**Grow Zone:** 2-11

**Where to Plant:** Full sun

**Companion Plants:** Anise, chives, coriander, dill, marigold, mint, oregano, rosemary

**When to Plant:** When soil is warm

**Planting:** ½" deep 2" apart

**Germination Time:** 8-14 days

**Germination Temp:** 50°-80° F 10°-28° C

**When to Thin:** 3" tall thin to 4" apart

**Regular Space:** 2 per sqft

**Square Foot Space:** 4 per sqft

**Fertilizer:** High nitrogen fertilizer when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Once the plant is 6" tall you can harvest no more than 1/3 of the plant

**Propagation:** There are many varieties of basil, and if you have more than one variety you will want to bag flowers or use mosquito netting. Just bounce the columns of flowers in the bags against each other and they will pollinate. Then wait for the flowers to dry out completely. Then crush the flowers into a bag or container and winnow out the extra material.

**Storage:** Dried

**Crop Rotation:** Fruiting crop next



## Bay

**Days to Harvest:** 200-300

**About:** Bay leaves actually come off of a small tree. If you live in a colder climate you can grow them indoors. They need a sandy well-draining soil. They only need watered when the leaves begin to droop.

**Grow Zone:** 10-11

**Where to Plant:** Full sun

**Companion Plants:** None

**When to Plant:** When soil is warm

**Planting:** 2" deep 3" apart

**Germination Time:** 10-30 days

**Germination Temp:** 60°-80° F 16°-28° C

**When to Thin:** When 3" tall transfer from starting pots

**Regular Space:** 1 every 4 sqft

**Square Foot Space:** Not practical

**Fertilizer:** Compost tea every 3-4 months

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** Once the tree is at least 10" tall pick no more than 1/3 of the plant

**Propagation:** Once your tree is fully mature it will put out flowers, which will turn into seeds that you can let dry on the plant. Then gather the seeds careful not to damage the tree as they grow close to the main stock. Bay trees are actually easier to propagate from cuttings.

**Storage:** Dried

**Next Year:** Make sure that if you grow it in a pot, the outer lip of the pot is always wider than the foliage.





## Cilantro/Coriander

**Days to Harvest:** 30-45

**About:** Cilantro is the plant, and coriander are the seeds. If you prefer the seeds you don't have to harvest the leaves.

**Grow Zone:** 3-8

**Where to Plant:** Partial shade

**Companion Plants:** Basil, dill, mint, yarrow

**When to Plant:** As soon as the ground is workable

**Planting:** 1" deep 6-8" apart

**Germination Time:** 7-10 days

**Germination Temp:** 50°-70° F 10°-21° C

**When to Thin:** Don't

**Regular Space:** 4 per sqft

**Square Foot Space:** 6 per sqft

**Fertilizer:** Compost when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Cut the stems close to the ground once they are 3" tall, and don't take more than 1/3 of the plant.

**Propagation:** Once it gets warm it will bolt. When the flowers begin to dry bag them to collect the seed. If you let them go, they will easily reseed themselves.

**Storage:** Dried, canned

**Crop Rotation:** Fruiting plant next



## Clove

**Days to Harvest:** 2,190

**About:** Cloves are actually the dried unopened flower of the clove tree. At one point in time cloves were a very precious commodity, and they have been grown and traded since at least the 1<sup>st</sup> century. Clove is a tree, and it takes six years to mature.

**Grow Zone:** 9-11

**Where to Plant:** Full sun

**Companion Plants:** None

**When to Plant:** When soil is warm

**Planting:** 1" deep 6' apart

**Germination Time:** 6 weeks

**Germination Temp:** 60°-80° F 16°-28° C

**When to Thin:** Don't

**Regular Space:** 1 per 36 sqft

**Square Foot Space:** No benefit

**Fertilizer:** Compost once a year

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** Once the little green flower buds appear cut them off and allow them to dry out completely in a hot place on a flat surface.

**Propagation:** Allow the flowers to bloom and become fruits. Then peel away the fruit and plant the seed immediately, it will not keep.

**Storage:** Dried

**Next Year:** If you are in a cooler climate make sure that you start your plant in a large pot so you don't have to disturb the roots later in its life.



## Cumin

**Days to Harvest:** 120

**About:** Cumin is a lovely spice with a very round flavor to it. Unlike many “spicy” spices it has a deep flavor that isn’t just hot. The plant produces lovely star shaped flowers. Allow the soil to dry between watering.

**Grow Zone:** 3-9

**Where to Plant:** Full Sun

**Companion Plants:** Cabbage beet, cucumber, potato

**When to Plant:** When the soil is warm

**Planting:** ¼” deep 4-8” apart

**Germination Time:** 7-14 days

**Germination Temp:** 60°-80° F 16°-28° C



**When to Thin:** When 2” tall thin to one plant every 8”

**Regular Space:** 2 per sqft

**Square Foot Space:** 4 per sqft

**Fertilizer:** Compost when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Once the flowers begin to brown bag them to catch the seeds.

**Propagation:** Harvest your seeds and soak them over night. Use a sandy soil and plant just below the soil surface.

**Storage:** Dried, canned

**Crop Rotation:** Root crop next

## Dill

**Days to Harvest:** 40-60

**About:** Dill is known for being used in pickles, but it is also good in egg salads and meat dishes. If you aren't careful dill will grow like a weed.

**Grow Zone:** 3-7

**Where to Plant:** Full sun

**Companion Plants:** Asparagus, basil, broccoli, cilantro, corn, cucumber, lettuce, potato

**When to Plant:** When soil is warm

**Planting:** Press into the soil surface

**Germination Time:** 7-14 days

**Germination Temp:** 60°-80° F 16°-28° C

**When to Thin:** When 1" tall thin to 2" apart

**Regular Space:** 36 per sqft

**Square Foot Space:** 49 per sqft

**Fertilizer:** high nitrogen fertilizer when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** once the plants are about 6" tall you can cut away up to 1/3 of the plant

**Propagation:** When it is stressed towards the end of the year it will bolt. Dill is in the carrot family so you will want to bag the flowers and hand pollinate. You can cut off the dry flower heads and knock the seeds into a bag.

**Storage:** Dried

**Crop Rotation:** Fruiting crop next



## Ginger

**Days to Harvest:** 150-200

**About:** Ginger is actually very similar to a spud when it comes to growing it. It is also a good anti-inflammatory spice. You can grow these easily in containers.

**Grow Zone:** 7-10

**Where to Plant:** Full sun

**Companion Plants:** None

**When to Plant:** When soil is warm

**Planting:** Plant starts 1" deep and 6" apart

**Germination Time:** 7-14 days

**Germination Temp:** 60°-80° F 16°-28° C

**When to Thin:** Don't

**Regular Space:** 2 per sqft

**Square Foot Space:** 3 per sqft

**Fertilizer:** High phosphorus fertilizer when planting

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** Once the plant is about four feet tall you can dig it up

**Propagation:** Take a piece of ginger and cut it into pieces with a bump on each piece. Soak the pieces for about 2 hours. Then bury them just beneath the surface.

**Storage:** Allow the root to dry out and form a skin. Store it in root cellar conditions. You can also dehydrate and grind it.

**Crop Rotation:** Leaf plant, or nitrogen fixing plant next



## Horseradish

**Days to Harvest:** 365

**About:** Horseradish is like a weed in that, if you leave even a piece of root in the ground it will come up again next year. Not only can you use the roots for horseradish sauce, but you can also eat the young leaves.

**Grow Zone:** 4-7

**Where to Plant:** Full sun

**Companion Plants:** Asparagus, potato, rhubarb, strawberry

**When to Plant:** As soon as the soil is workable

**Planting:** ½" deep 3-4" apart

**Germination Time:** 7-14 days

**Germination Temp:** 45°-75° F 7°-23° C

**When to Thin:** Once sprouted thin to 8" apart

**Regular Space:** 1 per sqft

**Square Foot Space:** 2 per sqft

**Fertilizer:** High phosphorus fertilizer once a year

**(Aero, Hydro, Aqua)ponics:** Not practical

**Harvest:** Once the plant has been growing for a year you can dig up some of the roots and store them.

**Propagation:** They can be grown from seed, just allow the flowers to dry on the plant then crush the seed out of them. But they grow much better from cuttings.

**Storage:** Root cellar conditions, dried, frozen, canned, pickled, fermented

**Next Year:** Make sure that you cut back some of the plant every year or it will take over every spare space of soil.



## Oregano/Marjoram

**Days to Harvest:** 80-90

**About:** Marjoram is just a milder sweeter version of oregano. They are both grown in the same way. Both also go very well in Italian dishes. Once it takes off you will want to keep cutting it back to control size.

**Grow Zone:** 3-10

**Where to Plant:** Full sun

**Companion Plants:** Anise, basil, chervil, sage, thyme

**When to Plant:** When soil is warm

**Planting:** ¼" deep and 6" apart

**Germination Time:** 7-14 days

**Germination Temp:** 60°-80° F 16°-28° C

**When to Thin:** When 3" tall thin to 12" apart

**Regular Space:** 1 per sqft

**Square Foot Space:** 3 per 2 sqft

**Fertilizer:** Compost once a year, and when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Once the plant is 6" tall you can harvest 1/3 of the plant.

**Propagation:** Wait for the plant to flower, then wait for the flowers to dry. Then point the flowers into a container or bag and flick the dry flowers. You can also propagate from thick healthy cuttings.

**Storage:** Frozen, dried, canned

**Crop Rotation:** Nitrogen fixing or fruit crop next. If you decide to leave it in the ground cut it down and mulch it well.



## Parsley

**Days to Harvest:** 70-90

**About:** Parsley is a very useful cooking herb. It can go on meats, pasta, and even fish. It is my go-to herb when cooking.

**Grow Zone:** 4-9

**Where to Plant:** Full sun

**Companion Plants:** Asparagus, carrot, chives, oregano, radish

**When to Plant:** When the soil is warm

**Planting:** ¼" deep 2" apart

**Germination Time:** 10-25 days

**Germination Temp:** 45°-80° F 7°-28° C

**When to Thin:** when 3" tall thin to 6" apart

**Regular Space:** 2 per sqft

**Square Foot Space:** 3 per 2 sqft

**Fertilizer:** Compost when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the plant is 6" tall you can cut away 1/3 of it to harvest

**Propagation:** When it is stressed towards the end of the year it will bolt. Parsley is part of the carrot family, so you will want to bag and hand pollinate the flowers. You can cut off the dry flower heads and knock the seeds into a bag.

**Storage:** Dried, canned, frozen

**Crop Rotation:** Fruiting plant next





## Saffron

**Days to Harvest:** 42-70

**About:** Saffron is the most expensive spice in the world for a reason. Saffron is actually the female stigma of a purple saffron flower. There are usually a few stigmas per flower. This means that an acer of saffron produces four pounds of saffron. It is also a delicate harvesting process. The air needs to be very dry, and not too warm in order for you to harvest the saffron, so early morning on a dry day.

**Grow Zone:** 6-10

**Where to Plant:** Full sun to Partial shade

**Companion Plants:** Parsley, pumpkin, rosemary, squash, sweet pepper, thyme

**When to Plant:** When the soil is workable late fall or early spring

**Planting:** Bury the bulbs 2 inches deep with the pointed end up. Give each bulb an inch around it.

**Germination Time:** 7-10 days

**Germination Temp:** 45°-75° F 7°-23° C

**When to Thin:** Do not thin.

**Regular Space:** 25 per sqft

**Square Foot Space:** 25 per sqft

**Fertilizer:** Fertilize with compost every fall

**(Aero, Hydro, Aqua)ponics:** Good for Hydro and Aqua but not practical for Aero

**Harvest:** When the flower first starts opening in the early morning, you can pluck out the red female stigma.

**Propagation:** Saffron is propagated from bulbs. Every four to six years dig up the bulbs in the fall and separate and replant them.

**Storage:** Dehydrated

**Next Year:** Cut away the dead stalks every fall.



## Sage

**Days to Harvest:** 75

**About:** Sage is an easy plant to grow. It is also used in cooking meats, as well as for religious purposes for some. Sage likes a sandier soil. They do not like to be overwatered.

**Grow Zone:** 5-8

**Where to Plant:** Full sun to Partial shade

**Companion Plants:** Basil, carrot, chives, cilantro, dill, fennel, garlic, mint, marigold, nasturtium, oregano, parsley, potato, tarragon, thyme

**When to Plant:** When the soil is just starting to warm

**Planting:** ¼" deep 2" apart

**Germination Time:** 7-10 days

**Germination Temp:** 60°-80° F 16°-28° C

**When to Thin:** When 3" tall thin to 6" apart

**Regular Space:** 2 per sqft

**Square Foot Space:** 3 per sqft

**Fertilizer:** Compost in the fall

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the plant is about six inches tall you can harvest about a 1/3 of the plant.

**Propagation:** Sage can be propagated from seeds or cuttings. To collect seeds, wait for the bell-shaped flowers to turn brown and the seeds to become dark. Then cut the flowers and shake them into a bag or container. Lay the seeds out to dry completely.

**Storage:** Dried, canned, pickled

**Crop Rotation:** In the fall mulch your sage well with compost.



## Stevia

**Days to Harvest:** 90-100

**About:** Stevia is a difficult plant to get growing from seed. It needs moist soil to germinate, but then dry soil to grow. They do not have a good germination rate. Once they get going though, they live strong. And they are easy to grow from cuttings. Stevia is sweeter than sugar.

**Grow Zone:** 9-11

**Where to Plant:** Full sun

**Companion Plants:** Marjoram and thyme

**When to Plant:** When the soil is warm

**Planting:** Press into the surface of the soil 6" apart

**Germination Time:** 7-21 days

**Germination Temp:** 60°-80° F 16°-28° C

**When to Thin:** Don't thin

**Regular Space:** 2 per sqft

**Square Foot Space:** 3 per sqft

**Fertilizer:** Fertilize with compost tea when planting

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the plant is 6" tall you can harvest 1/3 of the plant.

**Propagation:** It is best to propagate stevia from cuttings but you can do it with seeds. To get seeds allow the plant to dry out completely. Then cut off the flower clusters and shake them in a bag or container. You can also crush the heads into your container. Then blow away the chaff.

**Storage:** Dried, canned

**Crop Rotation:** Fruiting plant next



## Tarragon

**Days to Harvest:** 30-60 days

**About:** There are different kinds of tarragon. There's French tarragon, which can't be grown from seed, but is good for cooking. Then there is Russian tarragon which can be grown from seed, but is not good for cooking. There is also Mexican tarragon that can be used as a French tarragon replacement in hot climates.

**Grow Zone:** 3-9

**Where to Plant:** Full sun

**Companion Plants:** Basil, chives, cilantro, dill, mint, rosemary, sage

**When to Plant:** Separate roots in early spring right as they sprout

**Planting:** Plant cuttings with cinnamon

**Germination Time:** Cuttings should grow within 2 weeks

**Germination Temp:** 60°-80° F 16°-28° C



**When to Thin:** In early spring take some cuttings to promote growth.

**Regular Space:** 1 per 9 sqft

**Square Foot Space:** 1 per 4 sqft

**Fertilizer:** Compost when planting and once at the end of summer

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** When the plant has new sprouts, you can harvest those. You can also cut away woody growth in the spring to relieve the plant, and allow it to grow more. You can then harvest the leaves on the woody growth.

**Propagation:** Take cuttings in early spring and throughout the year once the plant is large.

**Storage:** Dried, pickled, canned

**Next Year:** At the end of summer cut away all the dry growth. Do not heavily harvest in the fall. If you grow in containers, tarragon needs frost time to grow next year.

## Thyme

**Days to Harvest:** 70

**About:** Thyme is a popular meat spice. It is also easy to grow. Once it is established it can survive most winters with protection. Until they are established, they are frost susceptible.

**Grow Zone:** 5-10

**Where to Plant:** Full sun

**Companion Plants:** Cabbage, eggplant, potato, strawberry

**When to Plant:** When the soil is warm

**Planting:** ¼" deep 2" apart

**Germination Time:** 20-30 days

**Germination Temp:** 60°-80° F 16°-28° C

**When to Thin:** When 3" tall thin to 4" apart

**Regular Space:** 9 per sqft

**Square Foot Space:** 12 per sqft

**Fertilizer:** Compost tea when planting and every fall

**(Aero, Hydro, Aqua)ponics:** Good for all

**Harvest:** Generally, it is best to wait to harvest until late summer and cut the plant back to 6" tall. Then preserve your thyme.

**Propagation:** Thyme does best when propagated from cuttings, but you can propagate it from seed. Wait for the flowers to dry out then crush them in a bag or container and blow away the chaff.

**Storage:** Dried, pickled, canned

**Crop Rotation:** In late summer cut back the plant to 6" tall. Then fertilize in the fall with compost or compost tea.



## Turmeric

**Days to Harvest:** 270-300

**About:** Turmeric is a tropical plant. Some of them have beautiful white flowers. They are extremely frost sensitive. They don't like to have too much water sitting on the rhizomes.

**Grow Zone:** 8-11

**Where to Plant:** Full sun to partial shade

**Companion Plants:** Fruit trees, lemongrass, pepper

**When to Plant:** When the soil is warm

**Planting:** 1" deep 6" apart

**Germination Time:** 5-10 days

**Germination Temp:** 70°-80° F 22°-28° C

**When to Thin:** Do not thin

**Regular Space:** 4 per sqft

**Square Foot Space:** 4 per sqft

**Fertilizer:** High nitrogen fertilizer when planting.

**(Aero, Hydro, Aqua)ponics:** Not practical for aero, good for hydro and aqua

**Harvest:** When the vegetation starts to wilt you can dig them up and process them.

**Propagation:** Dig up the rhizomes and break them apart. Then plant them separately. You can store them indoors in a bucket of sand or dry leaves for next year.

**Storage:** Dried, canned, pickled

**Crop Rotation:** Fruiting plant next



## Vanilla

**Days to Harvest:** 180-210

**About:** Vanilla is very difficult to grow. It is the second most expensive spice in the world. Vanilla is a climbing orchid. It can grow and climb up to 40 feet tall, but you can trim them without any true damage. You have to keep it damp. You also need to provide it with something to grow, whether you use a trellis or a tree. It also has aero roots. This means you either need high humidity, or you can wrap your trellis in a moisture holding substance. Vanilla must be hand pollinated. If you want to know how to process vanilla beans to make vanilla look into *Nuttatiello Guide to Self Sufficiency Making Ingredients* once it is written.

**Grow Zone:** 10-11

**Where to Plant:** Full sun

**Companion Plants:** Trees

**When to Plant:** When soil is warm

**Planting:** Cover your cutting with dry crumbled leaves, leaving the ends out in the air. Make sure the leaves are pointing down, and the inside of the leaves joints are pointing up.

**Germination Time:** Cutting will start growing in 2-5 days

**Germination Temp:** 70°-80° F 22°-28° C

**When to Thin:** Do not thin

**Regular Space:** 1 per sqft

**Square Foot Space:** 1 per sqft

**Fertilizer:** Mist with diluted compost tea once a month

**(Aero, Hydro, Aqua)ponics:** Not practical because of aero roots. Aeroponics is too wet.

**Harvest:** When the bean pods turn black, cut them away and process them.

**Propagation:** Cut vanilla vines towards the end of the vine.

**Storage:** Processed, dried

**Crop Rotation:** Root plant next



# Grains and Grasses

## Alfalfa

**Days to Harvest:** 60-70

**About:** Alfalfa is an excellent addition to your hay stores for your animals. It is packed with nutrients that keep well when dried. Alfalfa can also be eaten by people, though it is not common. This perennial will come back every year, and is also good forage for your animals in the spring.

**Grow Zone:** 4-9

**Planting:** Disperse alfalfa seeds as evenly as you can in the area you want to plant.

**Germination Time:** 2-6 days

**Germination Temp:** 45°-75° F 7°-23° C

**Harvest:** In late spring cut the alfalfa and spread it out in the sun to dry. Be careful to keep your animals from it, because cutting it will make the smell stronger.

**Storage:** Keep in a cool dry place once it's dried.





## Amaranth

**Days to Harvest:** 80-90

**About:** Amaranth is a lovely grain high in fiber and protein. It is good for your digestive health and has many micronutrients, such as, manganese, magnesium, phosphorus, and iron. Most of the time the grain is boiled whole and served in dishes that would go well with rice.

**Grow Zone:** 2-11

**Planting:** ¼" deep 3" apart

**Germination Time:** 4-10 days

**Germination Temp:** 60°-80° F 16°-28° C

**Harvest:** Once the seeds are hard and fully colored cut down the plant and shake it into a bag or container. You grip the blooms with your hands and drag down to get the seeds off.

**Storage:** Dried



## Barley

**Days to Harvest:** 60-70

**About:** Barley is a grain that's been used for around 10,000 years as far as we know. Barley can be ground for low gluten baked goods, or boiled for cereal. It is also commonly used in making alcoholic beverages. Barley needs a long mild winter season to grow.

**Grow Zone:** 8-11

**Planting:** 1" deep 1" apart

**Germination Time:** 3-5 days

**Germination Temp:** 45°-50° F 7°-10° C

**Harvest:** Wait for the plants to dry out. Then cut the plants down and let them dry further leaning against each other, and tied together. Then pile up your barley stocks and beat the pile viciously with sticks, or stomp around on them. You can then remove the straw, and save it. Then winnow the chaff from your grain underneath. If you have a small amount you can pull the grains off by hand.

**Storage:** Dried, fermented



## Buckwheat

**Days to Harvest:** 70-90

**About:** Buckwheat has a strong, nearly bitter flavor. Roasted buckwheat has an even more intense taste. It is usually used in dark breads and beer. Sometimes it is used as a hot cereal. Buckwheat is high in antioxidants and minerals.

**Grow Zone:** 3-5

**Planting:** Broadcast as evenly as you can in the area you want to plant

**Germination Time:** 3-5 days

**Germination Temp:** 45°-105° F 7°-40° C

**Harvest:** Once the flower heads are completely dry cut down the plant and shake and crush it into a container or bag. Then winnow out the chaff.

**Storage:** Dried, fermented



## Linseed/Flax

**Days to Harvest:** 30-40

**About:** Linseed, or flax, is a food and fiber crop. The fibers can be used for linen cloth or rope. Linseed is a natural laxative and may cause intestinal distress if over consumed. Linseed oil can also be used as a natural sealant. If you want to know how to make linseed into linen look into *Nuttatiello Guide to Self Sufficiency Shelter* once it is written. If you want to know how to turn linseed into linseed oil look into *Nuttatiello Guide to Self Sufficiency Making Ingredients* once it is written.

**Grow Zone:** 5-9

**Planting:** Broadcast the seeds as evenly as possible in the area you want to plant.

**Germination Time:** 10 days

**Germination Temp:** 45°-50° F 7°-10° C

**Harvest:** When the flowers are completely dry cut down the plant and shake it into a bag or container.

**Storage:** Dried or pressed



## Millet

**Days to Harvest:** 150-180

**About:** Millet is a group of small seeded grasses. It is good as a cereal grain, as well as feed for your animals. It can also be used as a replacement for rice. It has a similar nutrient complex as corn but is higher in protein. Nearly all of the millet production right now is in developing countries.

**Grow Zone:** 7-11

**Planting:** 1" deep 1" apart

**Germination Time:** 3-5 days

**Germination Temp:** 60°-80° F 16°-28° C

**Harvest:** When the grasses and seed heads have turned golden brown harvest the seed by rubbing them into a bag or container.

**Storage:** Dried



## Oat

**Days to Harvest:** 60-75

**About:** Though oats are known for oatmeal and rolled oats, they are most commonly used for animal feed. Oats are also used in many baked goods, such as bread, and oat cookies. They are also used in skin products for their anti-inflammatory properties. If you want to know how to turn oats into oatmeal look into *Nuttatiello Guide to Self Sufficiency Making Ingredients* once it is written.

**Grow Zone:** 2-7

**Planting:** 2" deep 2" apart

**Germination Time:** 3-5 days

**Germination Temp:** 45°-50° F 7°-10° C

**Harvest:** Once the stalks are completely yellow cut them down and gather them. Then put them in a pile and viciously beat them with sticks, or stomp around on them. You can then remove the straw, and save it. Then winnow the chaff from your grain underneath. If you have a small amount you can pull the grains off by hand.

**Storage:** Dried



## Orchard Grass

**Days to Harvest:** 50

**About:** Orchard grass is easy to establish and will come back every year. It is primarily used as forage for animals, but can be added to your hay stores.

**Grow Zone:** 3-7

**Planting:** Broadcast your seed as evenly as possible where you want to plant.

**Germination Time:** 3-5 days

**Germination Temp:** 60°-80° F 16°-28° C

**Harvest:** While the grass is still green in the spring cut it down as low as possible. Then tie bundles together and lean them against each other. Allow these to dry completely.

**Storage:** Store in a dry cool place.



## Rice

**Days to Harvest:** 120-140

**About:** Rice is actually a lot easier to grow than you would think. The problem comes in growing large quantities. You cannot grow rice in your vegetable garden with everything else. It has to grow in standing water. This means that you must have something to contain the water.

**Grow Zone:** 8-11

**Planting:** ¼" deep 5" apart

**Germination Time:** 2-5 days

**Germination Temp:** 50°-105° F 10°-40° C

**Harvest:** When the stalks turn yellow cut them down. Put the heads in a bag and beat it against the ground. The husk must be removed from the grains by lightly grinding them. then separate the chaff from the grain. How much you polish your rice determines the color of it.

**Storage:** Dried, fermented





## Rye

**Days to Harvest:** 40

**About:** Rye is a very versatile grass. It can be grown for its grains to make flour and alcoholic beverages. It can also be used as forage or feed. Rye also has a lower concentration of gluten.

**Grow Zone:** 3-9

**Planting:** 1" deep 2" apart

**Germination Time:** 5-10

**Germination Temp:** 40°-70° F 5°-20° C

**Harvest:** Once the stalks are completely yellow cut them down and gather them. Then put them in a pile and viciously beat them with sticks, or stomp around on them. You can then remove the straw, and save it. Then winnow the chaff from your grain underneath. If you have a small amount you can pull the grains off by hand.

**Storage:** Dried, fermented



## Sorghum

**Days to Harvest:** 90-120

**About:** This drought resistant grass is very popular in southern America. It is a sweet grain and has been used for cereals, animal feed, and in the making of ethanol. It also makes the most wheat like gluten free flour. If you grow one of the sweet varieties you can make your own sorghum syrup. If you want to know how to turn sorghum into sorghum syrup look into *Nuttatiello Guide to Self Sufficiency Making Ingredients* once it is written.

**Grow Zone:** 5-11

**Planting:** 1" deep 2" apart

**Germination Time:** 11-14 days

**Germination Temp:** 50°-70° F 10°-20° C

**Harvest:** When the leaves of the plants start to turn yellow you can harvest. Pests love sorghum so you may want to harvest as soon as possible. Cut off the seed heads, save the canes for syrup. Hang the seed heads upside down in a cool dry place until they are completely dry. Then beat them in a container or bag to collect the seed.

**Storage:** Dried, processed, fermented



## Spelt

**Days to Harvest:** 120-140

**About:** Spelt makes a nutty sweet flavored flour. It is higher in fiber than wheat, and is easier to digest. Though there is a myth out there about spelt being gluten free, that is false.

**Grow Zone:** 5-8

**Planting:** 2" deep 2" apart

**Germination Time:** 1-3 days

**Germination Temp:** 50°-70° F 10°-20° C

**Harvest:** Once the stalks are completely yellow cut them down and gather them. Then put them in a pile and viciously beat them with sticks, or stomp around on them. You can then remove the straw, and save it. Then winnow the chaff from your grain underneath. If you have a small amount you can pull the grains off by hand.

**Storage:** Dried, fermented



## Timothy Grass

**Days to Harvest:** 50

**About:** Timothy grass is another excellent addition to your hay stores. It grows well and comes back every year. You can also use it for forage in the spring.

**Grow Zone:** 2-11

**Planting:** Broadcast your seed as evenly as possible where you want to plant.

**Germination Time:** 7-14 days

**Germination Temp:** 50°-70° F 10°-20° C

**Harvest:** While the grass is still green in the spring cut it down as low as possible. Then tie bundles together and lean them against each other. Allow these to dry completely.

**Storage:** Store in a dry cool place



## Triticale

**Days to Harvest:** 220-250

**About:** Triticale is a cross between wheat and rye. It has lower gluten than wheat, but more than rye. It is a better tasting low gluten option. It will reseed itself if left alone, so it's an excellent forage crop as well. They are actually more susceptible to disease than wheat.

**Grow Zone:** 5-8

**Planting:** 2" deep 2" apart

**Germination Time:** 5-10

**Germination Temp:** 40°-70° F 5°-20° C

**Harvest:** Once the stalks are completely yellow cut them down and gather them. Then put them in a pile and viciously beat them with sticks, or stomp around on them. You can then remove the straw, and save it. Then winnow the chaff from your grain underneath. If you have a small amount you can pull the grains off by hand.

**Storage:** Dried, fermented



## Wheat

**Days to Harvest:** 210-240

**About:** Wheat is a worldwide staple. If you want to grow a large portion of your food, wheat is a good place to start since we eat so much of it. There are many species of wheat, so chances are you can find one to fit your climate.

**Grow Zone:** 2-11

**Planting:** 1" deep 2" apart

**Germination Time:** 7 days

**Germination Temp:** 40°-100° F 5°-37° C

**Harvest:** Once the stalks are completely yellow cut them down and gather them. Then put them in a pile and viciously beat them with sticks, or stomp around on them. You can then remove the straw, and save it. Then winnow the chaff from your grain underneath. If you have a small amount you can pull the grains off by hand.

**Storage:** Dried, fermented



## **Sprouts and Microgreens**

First of all, let me say, Sprouts and microgreens are two different things. Sprouts are simply the germinated seeds, while microgreens are plants with their first true leaves. They are both nutritious and tasty, but they are different.

If you want to have sprouts place your seeds in a moist environment, such as a damp cloth or paper towel and wait for them to sprout. It's that easy. Because they are grown in such a humid environment, they can grow mold. You may not be able to see the mold, so it is recommended that you cook your sprouts.

If you want microgreens you just plant your seeds in soil very close together. Since you are planning to eat your seedlings before they grow large, you don't have to provide them much space. Once they have their true leaves you can harvest them by cutting them at soil level. They are excellent in salads and as a garnish.

Here is a list of some plants that can be used as microgreens:

Alfalfa	Chervil	Linseed
Anise	Chicory	Marjoram
Amaranth	Chives	Mint
Arugula	Chia	Mustard
Basil	Clover	Onion
Beet	Collard	Pea
Broccoli	Coriander	Radish
Buckwheat	Dill	Sesame
Cabbage	Fennel	Sorrel
Cauliflower	Fenugreek	Spinach
Cress	Kale	Sunflower
Carrot	Kohlrabi	Wheatgrass
Celery	Leak	
Chard	Lettuce	

# Animals

## Fowl

### Chicken

**About:** It's hard to write about chicken, because it is so popular there isn't much new to say about them. Chickens are raised almost everywhere on our planet. Depending on the breed and climate they can be easy to care for. Their home needs to have a nesting box per five chickens and roosting space that is wide enough that they can sit on their feet in the winter. They need grains and greens for food, as well as grit for their digestive system. Crushed eggshells work.

**Breeding:** All you need is one rooster per 10 hens. The male will look like he is attacking the female, but he will get on her back and grab the back of her head with his beak. This is the normal breeding process.

**Brooding:** When a hen sits on the nest and won't move, she is likely broody. She will make a growl like sound and may peck at people who get near. If she hatches eggs, she will stop being broody. It takes 21 days for eggs to hatch. You can also give her chicks; this will stop the brooding as well. In some cases, placing her in cool water up to her belly may stop her brooding.

**Breeds:** There are three types of chicken breeds. There are meat chickens, egg chickens, and dual-purpose chickens. While technically you can eat any chicken, meat and dual-purpose chickens actually put on some muscle and fat for you to eat. You can also eat an egg from any chicken, but egg and dual-purpose chickens produce more eggs per year. Some dual-purpose chickens are the Orpington, the Wyandotte, and the Sussex. Some meat chickens are the Cornish Cross, Jersey Giant, and the Bresse. Some egg chickens are the White Leghorn, The Rhode Island Red, and the Silky.

**Purpose:** Eggs, meat, feathers

**Age of Production:** 6 months for eggs, three months for meat

**Production:** Meat chicken, 4lbs average, egg chicken, 100-300 eggs per year

**Temperament:** Temperament varies wildly in chickens. Orpingtons are very calm, while Silkies can be quite skittish.

**Space:** 2sqft inside the coop per chicken, 10sqft outside the coop per chicken



## Chicken Breeds

**Ameraucana:** These birds come in a plethora of colors. Their eggs are blue and they produce about 200 eggs per year. They have a broody temperament.



**Arab:** This pretty bird is hard to find information on. They produce about 50 eggs per year, and have a flighty temperament.



**Araucana:** This is actually the parent breed of Ameraucana. It also lays about 250 blue eggs per year. It has a broody temperament.



**Asil:** These birds are primarily ornamental. They produce 40 eggs per year and have an aggressive temperament.



**Australorp:** This particular breed of chicken does well at high altitudes. It lays 250 eggs per year, and produces 8-10lbs of meat. It has a docile temperament.



**Ayam Cemani:** This chicken is usually bred because it is all black, even the meat. It lays about 80 eggs per year and has a flighty temperament.



**Ayam Kampong:** This bird's name simply means village chicken. It lays about 25 eggs per year and has a flighty temperament.



**Barnevelder:** This dual-purpose bird is Dutch. It lays about 180 eggs per year and produces about 5-8lbs of meat. It has a friendly temperament.



**Bekisar:** This breed of chicken really is just for looks. The females are usually infertile so this is a rare bird. They are flighty as well.



**Bielefelder Kennhuhn:** This dual-purpose bird is German. It lays about 230 eggs per year, and produces 8-10lbs of meat. It has a broody temperament.



**Booted Bantam:** This bird has extravagantly feathered feet. It lays about 160 eggs per year and has a friendly temperament.



**Brahma:** This meat bird is one of America's oldest breeds. It lays about 150 eggs per year, and produces about 13-18lbs of meat. It has a calm temperament.



**Burmese:** This is another ornamental bird. It lays about 60 eggs per year and is flighty.



**Cochin:** This bird is principally for show, but can be used for meat. It lays about 160 eggs per year and produce about 12lbs of meat. It is calm and friendly.



**Cornish:** This bird is what America uses for its meat. They lay about 180 eggs per year and produce about 15-18lbs of meat. They are aggressive.



**Dong Tao:** These chickens are considered a delicacy in Vietnam. They lay about 180 eggs per year and produce about 10-12lbs of meat. They are aggressive.



**Frizzle:** This chicken is a breed that is particularly fluffy. Its feathers are great for pillows. It lays about 150 eggs per year and is a hardy forager.



**Ga Noi:** This breed was originally used for cockfights. It lays about 70 eggs a year and has an aggressive temperament.



**Green-legged Partridge:** This bird is known for its green legs. It lays about 180 eggs per year and has a docile temperament.



**Indian Giant:** This huge chicken breed is one of the largest in the world. It lays about 130 eggs per year and produces about 18-22lbs of meat. It has a friendly temperament.



**ISA Brown:** This breed's heritage is a closely guarded secret. It lays about 300 eggs per year and has a flighty temperament.



**Japanese Bantam:** This bird is mainly an ornamental breed. It lays about 75 eggs a year and has a friendly temperament.



**Jersey Giant:** This giant meat bird is the largest American breed. It lays 260 eggs per year and produces about 9-15lbs of meat. It has a calm temperament.



**Kadaknath:** This all black chicken is mainly raised for its black meat. It lays about 130 eggs per year and has an aggressive temperament.



**Legbar:** This bird is a rare British breed. They lay about 180 eggs per year and are good foragers.





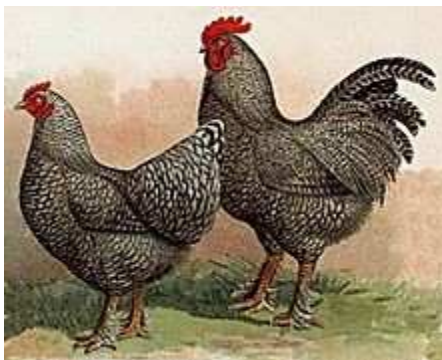
**Leghorn:** This small chicken lays a lot of eggs considering its size. They lay about 280 eggs per year and have a nervous flighty temperament.



**Lohmann Brown:** These chickens were bred specifically to lay eggs. They lay about 300 eggs per year and have a friendly temperament.



**Malines:** This dual-purpose chicken is Dutch. It lays about 160 eggs per year and produces about 8-12lbs of meat. It has an aggressive temperament.



**Marans:** This dual-purpose bird is French. It lays about 150 eggs per year and produces about 6-12lbs of meat. It has a docile temperament.



**New Hampshire:** This dual-purpose bird is an American breed. It lays 280 eggs per year and produces about 8-14lbs of meat. It has an aggressive temperament.



**Orpington:** This British bird is also dual purpose. It lays about 190 eggs per year and produces about 9-15lbs of meat. It has a calm broody temperament.



**Padovana:** This breed of chicken is mostly raised as an ornamental bird. It lays about 150 eggs per year and has a friendly temperament.



**Pekin:** This feathery British bird has feathered feet. It lays about 160 eggs per year and has a docile temperament.



**Plymouth Rock:** This is a very popular dual-purpose breed in America. They lay about 280 eggs per year and produce about 6-10 lbs of meat. have a calm temperament.



**Polish:** This bird is another ornamental chicken. It lays about 200 eggs per year and has a friendly temperament.



**Rhode Island Red:** This bird is a popular egg layer in America. They lay about 260 eggs per year and are hardy.



**Sasso:** These meat birds are a newer crossbreed. They lay about 100 eggs per year and are friendly.



**Sebright:** This little bird is an ornamental chicken. It lays about 50 eggs a year and is friendly.



**Serama:** This little bantam breed lays a lot of eggs for its small size. It lays about 200 eggs per year, and has a calm temperament.



**Shamo:** This chicken is mainly raised for ornamental reasons. It lays about 90 eggs per year and has a docile temperament.



**Silkie:** This fuzzy little chicken is an excellent addition to your flock. It lays about 100 eggs per year and has a broody temperament.



**Sulmtaler:** This dual-purpose bird is Austrian. It lays about 130 eggs per year and produces about 6-10lbs of meat. It is a hardy bird.



**Sultan:** This ornamental bird is known for its head plumage. It lays about 50 eggs per year and has a friendly temperament.



**Sundheimer:** This bird is a good meat chicken. It lays about 200 eggs per year and produces about 9-15lbs of meat. It has a docile temperament.



**Sussex:** This dual-purpose chicken is British. It lays about 250 per year and produces about 6-10lbs of meat. It has a docile temperament.



**Vorwerk:** This dual-purpose bird is German. It lays about 170 eggs per year and produces about 6-10lbs of meat. It has an active temperament.



**Welsummer:** This bird is an ornamental chicken with a decent egg production. They lay around 180 eggs per year and have a friendly temperament.



**Wyandotte:** This bird is a dual-purpose chicken. They lay about 200 eggs per year and produce about 8-14lbs of meat. They have a docile temperament.





## Duck

**About:** Ducks almost always need water. There are a couple breeds that only need drinking water for those of you who don't have a pond or lake, such as the Khaki Campbell. Ducks can survive with a small kitty pool if you don't have that many of them. They need some kind of shelter, and large floor level nesting boxes, one per five ducks. Female ducks quack, males don't. Male ducks also have a curled feather on their tail. Ducks eat grains grasses and bugs of all kinds.

**Breeding:** You should have one drake for every four hens. It is easier for ducks to breed if they have a body of water. They will bite at each other, bob heads, and the male will attempt to mount the female. When he mounts her, he will bite the back of her head. This is normal breeding behavior.

**Brooding:** Ducks will begin sitting on their nests heavily and the male will guard them. The duck will likely hiss and snap at anything that gets near. There are no known ways to end brooding in ducks other than her having ducklings, or hatching her eggs. Eggs take 28 days to hatch.

**Breed:** When choosing a breed, you may want to pick a flightless one, otherwise they are hard to keep home. The most common and well-behaved duck is the American Pekin. There is also the more skittish, but easy to raise Khaki Campbell, which produces eggs almost as well as a chicken. Then there are special breeds like the Cayuga that has black eggs.

**Purpose:** Meat, eggs, feathers

**Age of Production:** 4-6 months for eggs, 2-3 months for meat

**Production:** 8-10 lbs of meat, 100-350 eggs per year

**Temperament:** Ducks are usually just skittish if they are even that.

**Space:** 4sqft per duck

## Duck Breeds

**Abacot:** This German duck is dual purpose.



**American Pekin:** This duck is a meat bird. It is one of the more popular ducks in America.



**Alabio:** This Indonesian duck is a cross of a pekin duck.



**Ancona:** This speckled duck comes in a few colors.



**Aylesbury:** This duck was bred to look like a pet but still be good for meat.



**Call Duck:** This little duck is traditionally raised as a pet.



**Cayuga:** This duck is bred for meat and eggs. It lays black eggs.



**Crested:** These ducks come in several colors, but they all have a fluff ball on top of their head.



**Duclair:** This Rouen relative is a dual-purpose breed.



**Elizabeth:** This small duck is bred to be a meat bird.



**Golden Cascade:** This dual-purpose duck is an American breed.



**Hook Bill:** This duck is named for its odd bill.



**Indian Runner:** This flighty meat bird can be hard to catch. They stay standing upright most of the time.



**Khaki Campbell:** This dual-purpose duck is a cross of the Indian runner and Rouen.



**Magpie:** This is a rare British breed.



**Orpington:** This dual-purpose breed is soft and fluffy.



**Pomeranian:** This duck's dark plumage makes it different from most domestic ducks.



**Rouen:** These meat ducks look like many you can see on lakes in America.



**Saxony:** This breed of duck is for both meat and eggs.



**Silver Appleyard:** This dual-purpose bird is the result of intensive breeding.



**Swedish Blue:** This breed of duck is a meat duck. It has a shorter body but wider breast.



**Welsh Harlequin:** This duck is the result of a color mutation in a Khaki Campbell.





## Goose

**About:** Geese are fierce birds. Many people use geese as guard animals. They eat mostly grass or hay. You can also feed them some grain. Geese are three or four times the size of a duck, and they do need water in order to breed. They need large low to the ground nesting boxes, one per female goose you plan to breed.

**Breeding:** Males are generally larger and less vocal. You should have one male for every two females. Geese mate for life, so it will be nearly impossible to get geese to change their loyalty. The male will bite onto the female's neck and mount her. This is normal mating behavior.

**Brooding:** When geese get broody, they will start tearing up everything they can find to try to make a nest. Once she makes a nest, she will rarely leave it. You may have to remove her from her nest to get her to eat and drink. The eggs take 28-35 days to hatch. Goslings tend to be crushed by their mother, so you may want to remove the eggs once they start hatching, and allow them to finish hatching outside of the nest. Once they are walking around you can return them to the mother.

**Breed:** There are several breeds of geese. They all have similar temperaments and large bodies. There's the Toulouse, Emden, Scania, Danish Landrace, Landes, and the Italian.

**Purpose:** Meat, feathers

**Age of Production:** 3-5 months for meat

**Production:** 12lbs per goose

**Temperament:** Flighty and aggressive, geese are rarely friendly

**Space:** 8sqft per goose

## Goose Breeds

**African:** This goose breed was originally bred from a wild swan goose.



**Alsatain:** This goose is bred mostly for its fatty liver.



**American Buff:** These geese are more of a fawn hue than a buff.



**Brecon Buff:** This rare British breed is hard to find.



**Chinese:** This goose has a slightly bigger head than the African goose, but can look almost exactly like it.



**Cotton Patch:** This goose was originally used to weed cotton patches.



**Danish Landrace:** This goose is low fat with lots of meat.



**Emden:** This all white goose is German.



**Faroese:** These geese are thought to be the oldest breed of tame goose. They are extremely hardy.



**Öland:** This goose is usually used as a guard animal.



**Pilgrim:** This breed of goose is thought to have been developed in the depression.



**Pomeranian:** This German goose is one of the more docile breeds.



**Roman:** This breed of goose is known for the tuft of feathers on its head.



**Scania:** This is a very hardy goose.



**Sebastopol:** This breed is known for its shaggy feathers.



**Shetland:** This small goose is Scottish.



**Steinbacher:** This goose was originally bred as a fighting goose.



**Toulouse:** This big brown goose is French.



**Tula:** This goose is a fierce fighter and should be kept away from other birds.



**Twente:** This rare breed is from the Netherlands.



## Guinea Fowl

**About:** There is a love hate relationship with most people and their guineas. They can be loud and aggressive. They also get rid of most pest insects, and are excellent alarm birds. Their housing needs to be the same as chickens'. They eat grains, grasses, and insects.

**Breeding:** The males will have larger flaps on the side of their face. Have one male per six females. The male will mount the female and bite the back of her head to breed. This is normal behavior.

**Brooding:** After each hen lays about 30 eggs they will usually go broody. Guinea fowl usually brood in groups. This means you will have three or four birds on a large nest of eggs all hissing and screaming at you. The only thing to do is let them hatch out some eggs or fight them for the eggs on the regular. Eggs will take about 28 days to hatch.

**Breed:** There aren't that many breeds of guinea fowl, though there are a few ornamental breeds. There are three basic types of guinea fowl, helmeted, crested, and vulturine. Helmeted have a ridge on their head. Crested are the most aggressive and have curled feathers on their head. Vulturine have completely bald heads, and are usually ornamental.

**Purpose:** Eggs, meat, guard/alarm animals

**Age of Production:** 20 weeks for eggs, 11 weeks for meat

**Production:** 30 eggs per year, 1/3 lbs for meat

**Temperament:** Aggressive

**Space:** 3sqft per guinea fowl



## Guinea Fowl Breeds

**Crested:** This variant is very aggressive.



**Lavender:** This is just lighter than pearl. This is a helmeted guinea.



**Pearl:** This color is the most common. This is a helmeted guinea.



**Royal Purple:** This variant isn't recognized, but you can get it. This is a helmeted guinea.



**Splash:** This is also known as Pied. This is a helmeted guinea.



**Vulturine:** This variant is usually ornamental.



**White:** This variant is even white as a chick. This is a helmeted guinea.



## Partridge

**About:** Partridges taste like small chickens where the flavor has been concentrated. Partridges are usually a game bird, but can be raised. They need a large cage with roosting space. They eat grains and grasses.

**Breeding:** The males are slightly larger and have blockier heads. The females are smaller and more refined, and they have a spur on their metatarsals. The male to female ratio should be one to one. The male will mount the female and bite the back of her head. This is normal behavior.

**Brooding:** The hens will need a small nesting box. Once they are pregnant with an egg, they will start tearing at things trying to make a nest. Eggs will take 23-24 days to hatch.

**Breed:** There are two main breeds of partridge that are raised, Chukar and Hungarian.

**Purpose:** Meat

**Age of Production:** 12 weeks

**Production:** 1lb

**Temperament:** Docile

**Space:** 4 birds per square foot.

## Partridge Breeds

**Chukar:** This is the most common partridge raised, and the easiest to raise.



**Hungarian:** This is a more difficult partridge to raise, but it sells for a higher price.



## Peacock

**About:** Peacocks are beautiful birds. They can be loud, which makes them good alarm birds. Their tail feathers can be sold for up to \$3 a piece and they have around 200 feathers. The tail feathers fall out at the end of the breeding season. They need a shelter with a large nesting box. They eat insects, grasses, and small animals.

**Breeding:** You should have one male to two or three females. The male will fan out his tail and shiver it to try and impress the females. He will then mount her and bite the back of her head or neck. This is normal breeding behavior.

**Brooding:** Peahens will lay five to eight eggs and hide their nest. The eggs take 28 or so days to hatch. You may have to move the hen and her nest if you can find her. Do this carefully because she will be defensive. The males will also guard the females, so be wary of them.

**Breed:** There are two breeds of peafowl. The first is the one we traditionally know of, the Asiatic Peafowl. The next is the Congo Peafowl.

**Purpose:** Alarm birds, meat, feathers

**Age of Production:** 10-12 weeks for meat, 2-3 years for feathers

**Production:** 8lbs, 200 feathers per year

**Temperament:** Aggressive

**Space:** 80sqft per bird to prevent fighting.

## Peacock Breeds

**Blue/Indian:** This is an Asiatic peacock.



**Green:** This is an Asiatic peacock.



**Congo:** This bird is only native to the Congo.



## Pheasant/Quail

**About:** Pheasant and quail are usually hunted birds, but you can raise them with some effort. You have to have blinders for your birds otherwise they will peck each other's eyes out if kept in a confined space. Their living space will need an outdoor habitat with lots of roosting space. They will also need an area out of the weather. You will also have to enclose the space with a roof of bird netting. They eat insects, grasses, and grains.

**Breeding:** You want 8 hens to one cock bird. Take the blinders off of the cock birds at least. The male will mount the female and bite the back of her neck. That is normal mating behavior.

**Brooding:** A hen will hide her nest well. She will disappear for a while to sit on her eggs. She and the cock bird will guard the eggs. Eggs will hatch in 25 days.

**Breed:** Ring necked pheasant is the most common breed of pheasant, and Coturnix the most common breed of quail. There are several ornamental breeds.

**Purpose:** Meat, feathers

**Age of Production:** 24 weeks

**Production:** 1-3lbs

**Temperament:** Aggressive

**Space:** 10-15sqft per bird



## Pheasant and Quail Breeds

**Blood:** This is a small ornamental breed.



**Blue Eared:** This ornamental bird is named for its long white “ear” feathers.



**Brown Eared:** This is a brown version of the blue eared pheasant.



**Cheer:** This is a rare breed to find being bred domestically.



**Coturnix:** This is the most common breed of quail bred domestically.



**Golden:** This bird is ornamental, and is native to China. It also has feral populations in Europe, North and South America.



**Himalayan Monal:** This obviously ornamental bird is starting to be endangered.



**Kalij:** This ornamental bird is from the Himalayas.



**Lady Amherst's:** This ornamental bird was first introduced to Europe by a woman named Sarah Amherst.



**Mikado:** This bird is native to Tiawan.



**Northern Bobwhite:** This breed of quail is usually feral but has been seen domestically in Canada.



**Ring-Necked:** This is the most common breed of pheasant raised for meat and hunting.



**Siamese Fireback:** This ornamental bird is starting to become endangered.



**Silver:** This is yet another ornamental bird from China.



## Pigeon

**About:** Pigeons are actually a type of dove, only it is legal to raise pigeons for meat. Its meat is called squab. Meat birds are called utility pigeons. These birds, like chickens, can have a very complicated set up, or just be allowed to do their thing. They can feed themselves if you let them, but you may lose birds to other flocks if you don't keep them contained. If they are contained, you'll have to feed them. They also need a place to bathe, but they can soil the water unless you only uncover it once a day. They eat insects, grasses, grains, and whatever they find.

**Breeding:** Pigeons breed for life, but will take another mate if theirs dies. So, you need a one to one ratio. The male will mount the female and bite the back of her head, this is normal breeding behavior.

**Brooding:** Hens will lay two eggs at a time. If they lay more you need to remove some until there is only two, as the parents will only be able to regurgitate enough to feed two chicks. Each breeding pair will need two nest boxes, and four perches, this will prevent territorial fights. Eggs hatch in about 17 days.

**Breed:** There are many types of pigeons, but the one that is most common as a meat bird is the Carneau or the King Pigeon.

**Purpose:** Meat, feathers

**Age of Production:** Four weeks

**Production:** 1-1.5lbs

**Temperament:** They can be friendly to flighty, but usually not aggressive.

**Space:** 1.5sqft per bird

## Pigeon Breeds

**American Show Racer:** This breed is one of the most common homing pigeons in America. It is selectively bred for speed.



**Carneau:** This is commonly bred for meat. It is excellent at raising its young.



**Damascene:** This breed is generally ornamental.



**French Mondain:** This bird is ornamental, though it was originally bred as a meat bird in France.



**Giant Runt:** This breed is used for both exhibition and meat.



**King:** This beautiful white bird is generally bred as a meat bird.





**Strasser:** While this bird is generally ornamental, it has been used for meat.



**West of England Tumbler:** This bird is mainly ornamental.



## Swan

**About:** A female swan is called a pin, the male is called a cob, and the babies are called cygnets.

**Breeding:** You will want a one to one ratio for males and females. Swans need a large body of water to breed in. The male and female will bathe each other in the water until the male mounts the female. He will bite the back of her neck and it will look like he's drowning her. This is normal breeding behavior.

**Brooding:** The male will guard the female aggressively. The hen will make a nest and lay several eggs. They will hatch in about 30-33 days.

**Breed:** The most popular breed of swan is the Mute Swan. It is not actually mute, but it is quieter than the Trumpeting Swan, and has the classic swan look.

**Purpose:** Meat, feathers

**Age of Production:** 6 months

**Production:** 15-18lbs

**Temperament:** They are generally friendly, but defend their young aggressively

**Space:** 20' diameter pond per pair, and 5sqft of shelter per bird

## Swan Breeds

**Black:** This breed is native to Australia.



**Black-Necked:** This is the largest waterfowl native to South America.



**Coscoroba:** This is one of the smallest birds still called a swan.



**Mute:** This is the most common domestic swan raised.



**Trumpeter:** This swan is more likely than the mute swan to survive a winter in northern America.



**Tundra:** This swan will certainly survive the winter.



**Whooper:** This is the European counterpart to the trumpeter swan.



## Turkey

**About:** Everyone wants a turkey for thanksgiving in America. Raising turkeys is very similar to raising chickens. They need a low sitting nesting box per hen, and an area out of the weather with roosting space. They eat grasses, bugs, and grains.

**Breeding:** Have one tom for every ten hens. The males will puff up and spread their tails to attract the females. Then they will mount the hen and bite the back of her neck. This is normal breeding behavior.

**Brooding:** The hens will find a secluded place to lay their eggs once they become broody. They will not want to leave the nest so put food and water nearby. You can move a turkey's nest, if you move the eggs she will sit on the new nest.

**Breed:** The Broad-Breasted White turkey is the most similar to what you'd find at the grocery store. There are also heritage breeds that are hardier like Narragansetts and Bourbon Reds.

**Purpose:** Meat, feathers

**Age of Production:** 16-22 weeks

**Production:** 12-14lbs

**Temperament:** Flighty and aggressive

**Space:** 6sqft per bird indoors

## Turkey Breeds

**Auburn:** This is one of the rarest varieties of turkeys out there.



**Beltsville Small White:** Because of its small size this bird is usually ornamental.



**Black:** This bird was originally bred from turkeys found in Aztec civilizations.



**Bourbon Red:** This bird was developed in America, Kentucky to be specific.



**Broad-Breasted White:** This is the closest thing to a store-bought turkey you can get.



**Bronze:** This is one of the most common heritage turkeys used for meat.



**Jersey Buff:** This breed is named for its light brown feathers.



**Narragansett:** This breed is an American, the result of crossbreeding with the American wild turkey.



**Slate:** This breed is known for its slate gray feathers.



**White Holland:** This bird is known for its white feathers.





# Small Mammals

## Goat

**About:** Goats can be some intense animals. They are expert escape artists. They climb on everything, and chew on anything. So, you need an escape proof enclosure and something for them to be out of the weather. Despite this they can be worth it. They can have lovely personalities, and if raised from birth, they can be like family. Goats eat grasses, grains, and shrubbery. Every 2-4 weeks you need to trim your goat's hooves. They will also need a mineral salt lick.

**Breeding:** Goats have a bazaar breeding ritual. A female will continually bleat and have thick mucus coming from her privates when she is ready to breed. The male pees on his beard and front legs. Then he goes up to a doe who is flagging, or wagging her tail. She will squat and pee. The male places his nose in the stream and lifts his head and curls his lip to smell the urine. If he smells the breeding hormones, he will mount her.

**Gestation:** Once you suspect a female of becoming pregnant you should start her on a daily regiment of grain. Gestation should last about 150 days. When it is close to time you should segregate the female somewhere out of the weather. When she is close the tendons behind her tail will be soft to a point of not being able to feel them. Her tail will droop. It is best to leave a female alone when she is birthing. Once she has given birth, she will eat the placenta(s) and clean the baby(ies).

**Weaning:** Once the babies are born you have two choices. Either you allow the babies to nurse from the mother, or you take them and hand feed them. If you hand feed them, they will be docile and friendly. For males you wean from 12 weeks to 16 weeks. For females you wean from 15 weeks to 18 weeks.

**Breed:** There are three main types of breeds of goat: milk, meat, and fiber. Then there are dual purpose breeds.

**Purpose:** Milk, meat, fiber

**Butchering Age:** 3-5 months, can butcher at full grown if you boil the meat.

**Production:** Milk: 770-2,545lbs per year, Meat: 20-200lbs, Fiber 0-1/2lb per year

**Other Uses:** Goats can also be defense animals, and could be used to clear brush.

**Temperament:** Mischievous

**Space:** 10sqft indoors, 30sqft outdoors per animal

## Goat Breeds

**Alpine:** This breed is a dual-purpose goat. They produce 2,134lbs of milk per year, and about 35-40lbs of meat.



**American Lamancha:** These goats are known for their funny looking ears. They produce about 2035lbs of milk per year and 100lbs of meat.



**America Pygmy:** This goat is meant to be a pet, though it is possible to use it for both meat and milk.



**Anatolian Black:** This goat is a triple threat. It produces up to 3,000lbs of milk per year, up to 100lbs of meat, and 1/2lb of fiber per year.



**Anglo-Nubian:** This is a dual-purpose breed. It can produce up to 1,820lbs of milk per year, and 30lbs of meat.



**Angora:** This breed is meant for fiber. It produces 1/2lb of fiber per year.



**Australian Cashmere:** These goats have one of the softest hairs out there. They produce up to 1/2lb of fiber per year.



**Barbari:** This goat is perfect for a small operation. It produces about 253lbs of milk per year and 40lbs of meat.



**Beetal:** This is a good dual-purpose breed. They produce about 1444lbs of milk a year and 50 lbs of meat.



**Black Bengal:** This meat goat can be milked, but it only produces 268lbs of milk per year. It produces 65lbs of meat.



**Boer:** This breed is a meat goat. They can produce up to 50lbs of meat.



**British Alpine:** This common goat produces 1,800lbs of milk per year, and up to 110lbs of meat.



**Damascus:** This strange looking dairy goat can produce up to 1,433lbs of milk per year.



**Dutch Landrace:** This goat is one of the oldest breeds known to man. They produce 1,560lbs of milk per year and up to 180lbs of meat.



**Fainting:** This goat is meant to be a pet. When it is excited it becomes ridged and faints.



**Girgentana:** This breed of goat is Italian. It produces about 880lbs of milk per year and 120lbs of meat.



**Golden Guernsey:** This is a rare breed. It produces 1,904lbs of milk, and 100lbs of meat.



**Hejazi:** This meat goat produces about 60lbs of meat.



**Irish:** This goat is obviously Irish. It produces about 1,702lbs of milk per year and 140lb of meat at most.



**Jamnabari:** This dual-purpose goat is usually found in India. It produces up to 200lbs of meat for the males. They produce 960lbs of milk per year.



**Kalahari Red:** This prolific meat breed only produces about 960lbs of milk per year, but produces 230lbs of meat.



**Kamori:** This breed is meant for show, and is very expensive. They produce about 960lbs of milk per year and about 100lbs of meat.





**Kiko:** This breed is primarily used for meat. They produce 100lbs of meat, but they can produce anywhere from 960lb-1800lb of milk per year.



**Maltese:** This Italian goat produces 1,322lbs of milk per year and 130lbs of meat.



**Murciana:** This dual-purpose breed is mostly used for milk. It produces 1,320lbs of milk per year, and 110lbs of meat.



**Nachi:** This breed is meant for show, and prances about for it.



**Nigerian Dwarf:** As with most small breeds, this breed is meant to be a pet. But, as usual, you can use them for meat and milk.



**Oberhasli:** This is one of the most prolific milk goats out there. The oberhasli record for milk production is 4,665lbs of milk per year. It produces 100lbs of meat.



**Peacock:** This goat was named from a spelling error in another language. It was meant to be called a striped goat. It produces 1,200lbs of milk per year and 60lbs of meat.



**Pyrenean:** This goat produces 1,102lbs of milk per year and 130lbs of meat at most.



**Rove:** This meat breed is used for milk as well in France. They produce 1,363lbs of milk per year and about 100lbs of meat.



**Russian White:** This saanen cross produces 1,212lbs of milk per year and 130lbs of meat.



**Saanen:** This prolific dairy goat produces 2,545 pounds of milk per year and 150lbs of meat.



**Sirhoi:** This dual-purpose goat produces 153lbs of milk per year and 90lbs of meat.



**Spanish:** This breed is also known as brush goats, or scrub goats. They are excellent at clearing brush. They produce up to 230lbs of meat.



**Thuringian:** This breed of goat is German. It produces 2,204lbs of milk per year and up to 100lbs of meat.



**Toggenburg:** This grey goat is swiss. It produces about 1,631lbs of milk per year and about 100lbs of meat.



**Valais Blackneck:** This breed has interesting coloring. It will produce 1,102lbs of milk per year and 140lbs of meat.



## Pig

**About:** Pigs are extremely intelligent. Some say that they are even more intelligent than dogs. They need sturdy fencing that is buried at least a foot below the ground. They are stronger than you think and do dig. They also need a lot of mud in the summer to keep cool. They eat almost anything, but mainly grasses and grains. You want to feed them as little fat as possible for good quality meat.

**Breeding:** The sow will have a swollen vulva and be vocalizing when she is in heat. When presented with a boar she will stand stock still with her back slightly arched. This will allow the boar to mount her. He may mount her the wrong way, and miss repeatedly. You may want to help the boar aim, while wearing gloves obviously.

**Gestation:** Once your sow is bred you should increase their feed. Then you need to prepare a farrowing pen. Your pig will give birth in 3 months 3 weeks and 3 days. When your sow stops eating and starts pacing, and her teats are full of milk then you know she's about ready to give birth. If there starts being brown discharge you need to reach inside and pull the piglets out one at a time. The pen needs to have an area that the mama pig is and an area that only the piglets can get to. This way when the sow rolls over she won't crush the piglets because they can go through the holes in fencing, or a depressed area. Litters are usually 8-16 piglets.

**Weaning:** Start offering wet feed when the piglets are two weeks old. Then separate them from their mother at three weeks old.

**Breed:** The most common breed you see is the Large White. These pigs are pink British pigs that are the most common to use for meat. Another popular breed is the Hampshire pig.

**Purpose:** Meat

**Butchering Age:** 6-8 months

**Production:** 150-265lbs

**Other Uses:** Hogs can be used as pets and protection animals.

**Temperament:** Friendly to aggressive

**Space:** 10sqft per hog.

## Pig Breeds

**American Landrace:** This pig is of average size. The boars grow to about 700lbs.



**American Yorkshire:** This pig is the most well recorded breed in America. The boars get up to 650lbs.



**Angeln Saddleback:** This rare breed is primarily found in Germany. The boars grow up to 770lbs.



**Basque:** This breed has more body fat than most pigs. The boars get to be 350lbs.





**Bentheim Black Pied:** This breed is rare. The boars grow to be about 550lbs.



**Berkshire:** This breed is prized for its juicy and flavorful meat. The boars grow to be about 600lbs.



**Black Iberian:** This breed is one of the oldest in the world. The boars grow to about 500lbs.



**British Landrace:** This breed is one of the top breeds in Britain. The boars can grow up to 700lbs.



**British Saddleback:** This hardy hog is good at foraging. The boars grow to 705lbs.



**Chactaw:** This hog is a small breed traditionally used by native Americans. They grow up to 120lbs.



**Chato Murciano:** This breed of pig is in danger of extinction. The boars can grow up to 400lbs.



**Chester White:** This is the pig breed you are most likely to see on television. The boars grow to about 650lbs.



**Cinta Senese:** This hairy hog is Italian. The boars grow to be about 660lbs.



**Danish Landrace:** This pig has less extra body fat than most pigs. The boars grow to about 700lbs.



**Duroc:** There is a lot of questions about the origins of this pig. The boars grow to be about 880lbs.



**Essex:** This breed of pig is quite small. The boars only grow to be about 250lbs.



**Gascon:** This breed does well in mountainous regions. The boars grow up to 400lbs.



**Gloucestershire Old Spots:** This breed is known for being docile and very intelligent. The boars grow up to 600lbs.



**Guinea:** This breed is meant to be a pet. The hogs grow to about 300lbs.



**Hampshire:** This pig is close to the oldest breed in America. The boars grow up to 660lbs and are usually butchered at 125lbs.



**Hereford:** This breed of pig is rare. The boars grow up to 800lbs.



**Husum Red Pied:** This pig is nick named the Danish Protest Pig because it resembles the Danish flag. The hog was displayed when it was prohibited to display the flag. The boars grow to about 770lbs.



**Jeju Black:** This breed is from Korea. It is being used by both the north and south Korea's in collaboration. The boars get up to 300lbs.



**Kunekune:** This breed usually isn't raised for meat, due to the fact that it is so rare.



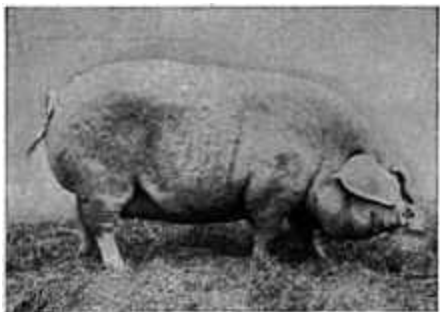
**Large Black:** This breed is endangered. The boars get up to 800lbs.



**Large White:** This is the most common meat pig out there. Males get up to 660lbs.



**Lincolnshire Curly Coat:** This breed has a lot of fat and a curly coat of hair. The boars get to be about 550lbs.



**Mangalica:** This breed produces very little lean meat. The boars get up to 200lbs.



**Meishan:** This breed is known for its large litters, up to 22 piglets. The boars get to be about 400lbs.



**Middle White:** This breed is endangered. The boars grow to about 620lbs.



**Mukota:** This small breed is usually found in Zimbabwe. The boars get up to 460lbs.



**Mulefoot:** This breed is extremely rare. The boars grow up to 600lbs.



**Oxford Sandy and Black:** This pig is also known as Plum Pudding. Boars weigh up to 600lbs.



**Piétrain:** This breed is Belgian. The boars get up to 570lbs.





**Poland China:** Originally bred in Ohio, this is the oldest breed in America. The boars can get up to 2,000lbs.



**Red Wattle:** This breed is known for its wattles. The hogs grow to be about 800lbs.



**Swabian-Hall:** This breed was developed by King George the third. The boars grow to be about 770lbs.



**Tamworth:** These pigs thrive on low nutrition food and grow slowly. The boars and sows get up to 600lbs.



**Vietnamese Pot-Bellied:** This breed is endangered. The boars get up to 300lbs.



**Wessex Saddleback:** This breed is well adapted to foraging woodlands. The boars get to be about 705lbs.



## Rabbit

**About:** Rabbits are one of the easiest animals to raise. They breed prolifically, and are usually docile. They need a shelter of some sort. If you have them in a hutch give it a mesh bottom with a small platform for them to rest their feet on. Rabbits eat grasses, greens, and roots. Do not feed a rabbit grains, it is not natural for their digestive system. If you need to change feed do so gradually, or your rabbit can die from bloat.

**Breeding:** You can have as many does to bucks as you can take the time to breed. You should always bring the doe to the buck. This way the buck has dominance and the female won't attack him. The doe and buck will run around each other in circles. Then the male will mount the female. When he is successful, he will fall off and lose his footing. You should wait for three to five fall offs before you separate them again.

**Gestation:** A rabbit's gestation can last 30-40 days, but it is usually 31 days long. At about 27 days you need to put in a nesting box. It should have a roof and two diagonal sides and a short front. There should not be a solid bottom because the kits and doe will urinate in it. You need to give the female nesting material, usually straw, and she will build a nest in the box. When it is close to time, she will start pulling out her fur in order to finish the nest. Then you should have 6-12 kits.

**Weaning:** Once the kits are 3 weeks old, only put grasses, or grass feed into the hutch. This will help prevent bloat in your kits. Once the kits are 7 weeks old separate all but one of them from the doe. Leaving one kit for a few days to a week allows the doe to finish drying up and allows the smallest kit time to catch up in growth.

**Breed:** Popular breeds are the Rex and New Zealand Whites. The Rexes make different colored pelts, while the New Zealand Whites make plain white pelts. So, depending on what you're wanting, those are the two most common breeds you see people raising for meat.

**Purpose:** Meat, pelts

**Butchering Age:** 8-12 weeks

**Production:** 3-4lbs

**Other Uses:** Can be used to clear away a garden space

**Temperament:** Docile

**Space:** 4sqft per rabbit

## Rabbit Breeds

**American:** This breed is either albino or gray. They grow up to 12lbs.



**Belgian Hare:** This breed was specifically bred to look like a wild rabbit. It grows up to 9lbs.



**Beveren:** This rabbit was bred for its fur. They can grow up to 12lbs.



**Blanc de Hotot:** This breed is known for the black rings around its eyes. They grow up to 11lbs.



**California:** This breed is bred for its fur and meat. It can grow up to 11lbs.



**Chinchilla:** This breed is named for its fur's resemblance to that of the chinchilla. They grow up to 13lbs.



**Cinnamon:** This breed was named for its fur color. It can grow up to 11lbs.



**Flemish Giant:** This breed is large. It averages at 15lbs, but can grow up to 22lbs.



**French Lop:** This breed is known for its long floppy ears. It can grow up to 15lbs.



**Palomino:** This golden breed was named after the palomino horse. They grow up to 12lbs.



**Satin:** This breed is named for the fine sheen that their coat gives off. They grow up to 11lbs.



**Silver Fox:** This rabbit is named for its coat resembling that of a Silver Fox. They grow up to 12lbs at maturity.



## Sheep

**About:** Sheep are easy animals to handle, though the males can be rambunctious. They need a place out of the weather and a sturdy fence. They will most likely respect any fence and not try to get out. They eat grasses and grains; they may eat some brush but it isn't their favorite. They need their hooves trimmed about every 4 weeks. You will need to shave most sheep breeds once or twice a year. They also need a salt mineral lick.

**Breeding:** You may want to keep the rams and ewes separate to prevent out of season breeding. You can have one ram for up to 50 ewes. When the ewe is in heat, she will start flagging, wagging her tail, and vocalizing. When presented with a ram she will wag her tail at him. He will eventually mount her.

**Gestation:** A sheep's gestation will last 148 days. When she is ready to give birth, the ewe will start stomping and her bag will fill up. Her vulva will swell and there should be clear to white discharge. She may stop eating. When it is almost time the tendons behind the tail will seem to dissolve away.

**Weaning:** Once the babies are born you have two choices. Either you allow the babies to nurse from the mother, or you take them and hand feed them. If you hand feed them, they will be docile and friendly. Wean from 12 weeks to 14 weeks.

**Breed:** The most common breed of sheep is the Merino. It is an excellent forager and highly adaptable. They have wonderful wool and a calm temperament.

**Purpose:** Fiber, meat, milk

**Butchering Age:** 6-8 months

**Production:** 40-50lbs meat, 300-1,800lbs of milk, 4-18lbs fiber

**Other Uses:** Can be used for pasture control

**Temperament:** Docile

**Space:** 16sqft per sheep



## Sheep

**Awassi:** This is a tri-purpose breed. They produce 895lbs of milk in a year, 10lbs of wool, and the rams get to be 200lbs.



**Babydoll Southdown:** This breed has soft wool and flavorful meat. They produce 11lbs of wool and the rams get to be 240lbs.



**Barbados Blackbelly:** This breed is a meat sheep. The rams grow to 90lbs.



**Border Leicester:** This sheep is dual-purpose. It produces about 4lbs of fiber and the rams grow to 380lbs.



**Charollais:** This sheep is a meat breed. They males grow up to 300lbs.



**Cheviot:** This breed is dual-purpose. They produce 10lbs of fiber and the rams grow to 200lbs.



**Chios:** This is a dairy breed of sheep. They produce up to 600lbs of milk per year, 5lbs of fiber, and the rams grow to be 200lbs.



**Churra:** This breed is Iberian. They produce 6lbs of fleece and the rams grow to 200lbs.



**Corriedale:** This is a dual-purpose breed. They produce up to 17lbs of fiber and the rams grow to be about 275lbs.



**Dorper:** This is a meat breed. The lambs leave a 35-40lb carcass and mature rams are about 230lbs.



**Dorset Horn:** This breed is on the rarer side. It produced 6lbs of fleece and the rams grow to be 275lbs.



**Friesian:** This is one of the most prolific milking sheep out there. They produce 1000lbs of milk per year, 12lbs of fiber, and the rams grow to be 200lbs.



**Gotland:** This sheep is mainly for show. It produces 4lbs of wool and the rams grow to be 200lbs.



**Hampshire:** This breed of sheep is dual purpose. The rams grow to about 300lbs and they produce about 6lbs of fiber.



**Hebridean:** This breed has coarse black wool that it sheds in the spring. The rams grow to be about 130lbs.



**Herdwick:** This is mainly a fiber breed and is one of the hardiest sheep out there. They produce about 4lbs of fiber and the rams grow to 80lbs.



**Icelandic:** This breed is considered gourmet meat. The lambs weigh up to 90lbs at slaughter. The rams grow up to 160lbs. They produce 7lbs of fiber.



**Île-de-France:** This breed is traditionally for meat. They produce 10lbs of fiber and the rams grow to about 220lbs.



**Jacob:** This breed of sheep is named for the spotted sheep Jacob had in the bible. They produce 6lbs of fiber and the rams grow to be about 180lbs.



**Karakul:** This breed is prized for its young lamb pelts. They produce 10lbs of fiber and the rams grow to 225lbs.



**Katahdin:** This is a meat sheep. The rams grow up to 230lbs.



**Lacaune:** This is a dairy sheep, and it sheds its wool. It produces 636lbs of milk per year.



**Lonk:** This breed is quite rare. It produces 6lbs of fiber and the rams grow to be 175lbs.



**Meatmaster:** This is a meat breed. The rams get up to about 230lbs.





**Merino:** These sheep have a very fine wool. They produce anywhere from 13-40lbs of wool.



**Montdale:** This breed is meant to be a meat sheep. The rams get to 275lbs.



**Najdi:** This breed is primarily for show. They produce 8lbs of wool.



**Ouessant:** This is the smallest breed of sheep. They produce 4lbs of wool.



**Pelibuey:** This is a meat sheep. The rams grow to about 120lbs.



**Priangan:** This sheep was bred for meat. The rams grow to be about 175lbs.



**Racka:** These are known for their spiral shaped horns. They produce 7lbs of fiber and the rams grow to be about 130lbs.



**Rambouillet:** This is a dual-purpose sheep. They produce 18lbs of wool and the rams grow to 300lbs.



**Romanov:** This sheep is primarily for meat. The rams grow to be about 175lbs.



**Romney:** This breed of sheep is dual-purpose. They produce 11lbs of wool and the rams grow to 275lbs.



**Ryeland:** The wool from these sheep made Queen Elizabeth I's favorite hose. The rams weigh 130lbs and the produce 6lbs of wool.



**Santa Inês:** This breed is bred for meat. The rams get to about 110lbs.



**Sarda:** This breed is meant for milk and has coarse wool. It produces 720lbs of milk per year and 4lbs of wool.



**Scottish Blackface:** This breed is actually British. They produce 6lbs of fiber and the rams weigh about 180lbs.



**Shetland:** This breed is one of the smallest British breeds. It produces 4lbs of wool and the rams grow to be about 125lbs.



**Shropshire:** This breed is dual-purpose. They produce 14lbs of fiber and the rams weigh 250lbs.



**Southdown:** This is not the same as the Babydoll Southdown. It produces 8lbs of fiber and the rams grow to 230lbs.



**Suffolk:** These sheep were bred for meat, but they do grow some wool. The rams grow to be 275lbs.



**Texel:** This breed has wonderfully lean meat. It produces 12lbs of coarse wool and the rams grow to about 200lbs.



**Valais Blacknose:** This breed is bred for meat and wool. The rams grow to be about 280lbs and each sheep produces around 9lbs of wool.



**Zwartbles:** This is a rare black breed. It produces 500lbs of milk per year, 9lbs of fiber, and the rams grow to be 220lbs.



# Large Mammals

## Bison

**About:** Bison are a nearly wild animal, and should be handled slower and calmer than other livestock. They need a fence at least 6 feet tall, because a male bison can jump up to six feet high if it was so inclined. You'll want to handle them as little as possible. A bison's meat is low fat and better for heart health than most red meats. They eat grasses and very little grain.

**Breeding:** The male will grunt and growl. The female will likely run away several times. Then the male will mount her.

**Gestation:** Increase the amount of feed available if you think a female is pregnant. Because they are so skittish, interfering with a Bison's birth can stop the birthing process and lead to a dead calf. A bison's gestation period is 283 days.

**Weaning:** Around 6 months old they should wean naturally.

**Breed:** The breed that often gets called buffalo is the plains buffalo. There are also a few hybrid cow-buffalo crosses.

**Purpose:** Meat

**Butchering Age:** 18-30 months

**Production:** 450lbs of meat

**Other Uses:** Pasture control and show animals, such as a zoo

**Temperament:** Flighty to aggressive

**Space:** 3 acres per animal



## Bison Breeds

**Beefalo:** This is a fertile hybrid of American cattle and the American bison.



**Plains:** This is the breed that used to cover the plains of America.



**Wisent:** This is a European bison.



**Wood:** This breed's natural habitat is upper Alaska and Canada.



**Zubron:** This breed is a hybrid of the Wisent.



## Cow

**About:** Cows are one of the most eaten animals in America next to pork and chicken. They may be larger, but they are relatively easy to raise. They need a sturdy 4-5 foot fence. They eat mostly grasses and some grains.

**Breeding:** You'll want to keep a male in with a female for about 45 days to make sure two heat cycles pass. The male will lick and nudge the female. Sometimes the female will lick and nudge back. Then he will mount her.

**Gestation:** A cow's gestation period is 283 days. Around 8 months you will be able to see the baby moving on the cow's right side. When it is close to time the cow's tail ligaments will loosen, as well as her vulva. She will also lift her tail to the side. Once you see something coming out of the vulva the birth should take 30 minutes to 2 hours. If it takes longer you may need to assist in pulling the calf out.

**Weaning:** With a dairy cow you should separate the baby immediately and bottle feed it. With a meat cow you should leave the baby with its mother to wean naturally. Calves should be weaned at 7-8 months old.

**Breed:** There are three main types of breeds: milk, meat, and dual-purpose. The Holstein cow is the black and white dairy cow that everyone is familiar with. Angus is the meat cow that is most popular in America today. Shorthorn is a common dual-purpose breed.

**Purpose:** Meat, milk

**Butchering Age:** under 36 months

**Production:** 490lbs of meat, and up to 23,000lbs of milk per year.

**Other Uses:** pasture control, draught animal

**Temperament:** docile to aggressive

**Space:** 1.5 acres per cow

## Cow Breeds

**Angus:** This is one of the most popular meat breeds. The bulls grow to be about 1,870lbs.



**Afrikaner:** This is a beef cow. The bulls grow up to 2,400lbs.



**Ayrshire:** This is a dairy cow. It produces 20,000lbs of milk per year and the bulls grow to be about 1,320lbs.



**Barzona:** This is a beef breed. The bulls grow to about 1,800lbs.



**Beefmaster:** This breed is a beef cow obviously. The bulls grow to be about 2,650lbs.



**Belgian Blue:** This double muscled breed has difficulty calving. The bulls grow up to 2,700lbs.



**Bonsmara:** This breed is known for being disease resistant. The bulls grow to be about 1,760lbs.



**Brangus:** This is a hardy cross between Angus and Brahman cattle. The bulls grow to be 2,000lbs.



**Braunvieh:** This is a dual-purpose breed. They produce 27,263lbs of milk per year and the bulls grow to be 2,860lbs.



**Brown Swiss:** This breed was once a dual-purpose breed, but its beef qualities have been bred out of it. It produces 22,600lbs of milk per year and the bulls grow to be 1,980lbs.



**Caracu:** This is a dual-purpose breed. They produce 4,630lbs of milk per year and the bulls grow to be 2,650lbs.



**Charolais:** This is a French breed of beef cattle. The bulls get to be 1,650lbs.



**Chianina:** This is one of the largest cattle breeds. The bulls grow up to 3,300lbs.



**Corriente:** This breed is most commonly used for rodeo games. The bulls grow to about 1,000lbs.



**Dexter:** This dual-purpose miniature cow is perfect for a small operation. They produce 9,270lbs of milk per year and the bulls grow to about 1,000lbs.



**English Longhorn:** Though, this breed was once used for dairy, it is now used for beef alone. The bulls grow to 2,200lbs.



**Gelbvieh:** This breed is dual-purpose. They produce 10,250lbs of milk per year and the bulls grow to 2,200lbs.



**Guernsey:** This is a dairy breed. They produce 13,630lbs of milk per year and the bulls grow to be 1,100lbs.



**Hanwoo:** This beef breed is Korean. The bulls grow to be about 1,030lbs.





**Hereford:** This is a British beef breed. The bulls grow to about 1,800lbs.



**Highland:** This hairy meat breed has bulls that grow up to 1,800lbs.



**Holstein:** This breed of cow is the black and white stereotype that we see in kids farm sets today. They produce 22,530lbs of milk per year. The bulls grow to about 1,700lbs.



**Irish Moiled:** This dual-purpose breed is rare. They produce 11,023lbs of milk per year and the bulls grow to 1,430lbs.



**Japanese Black:** This is a beef breed. The bulls grow to about 1,780lbs.



**Jersey:** This cow is the quintessential single-family farm cow. They produce 14,050lbs of milk per year. The bulls grow to be about 1,100lbs.



**Lakenvelder:** This is a dairy breed also known as Dutch Belted. They produce 20,000lbs of milk per year, and the bulls get to be 2,000lbs.



**Limousin:** This breed was originally used as a draught animal, but is now raised for beef. The bulls grow to about 2,860lbs.



**N'Dama:** This beef breed is West African. The bulls grow to about 790lbs.



**Rathi:** This is a dairy breed. They produce 6,195lbs of milk per year and the bulls grow to 900lbs.



**Red Poll:** This is a dual-purpose breed. They produce 11,359lbs of milk per year and the bulls grow to about 1,800lbs.



**Salers:** This breed is a dual-purpose. They produce 6,614lbs of milk per year and the bulls grow to be 2,420lbs.



**Santa Gertrudis:** This breed of beef cattle is tropical. The bulls grow up to 2,200lbs.



**Senepol:** This breed has a stronger immune response than most cattle. The bulls grow up to 2,050lbs.



**Shorthorn:** This breed may carry tibial hemimelia, a disease that causes deformities in new calves such as missing and fused bones. The bulls grow up to 1,400lbs.



**Simmental:** This is a dual-purpose breed. They produce 19,840lbs of milk per year and the bulls grow to 2,800lbs.



**Spanish Fighting:** This breed is bred specifically for bull fighting. The bulls grow to be 1,530lbs.



**Speckle Park:** This is one of the few breeds developed in Canada. The bulls grow to be 2,000lbs.



**Texas Longhorn:** This breed is known for its extraordinary horns. The bulls grow to be about 2,500lbs.



**White Park:** This is a rare breed. The bulls grow to be 2,200lbs.



# Fish and Crustaceans

## Bass

**Days to Maturity:** 90-180

**About:** Bass are easy to raise. They eat almost any living thing you'd find in a lake that is smaller than them. They also eat insect larva. It'll take up to two years to get a large fish.

**Water Conditions:** Need cycled water with native plants such as hydrilla to oxygenate the water, or a bubbler. Keep the water 55°-70° F.

**Breeding:** In order to breed bass, you will need a large tank with at least a patch of grass, fake or real, on the bottom. Put the male and female in together. The male will coax the female over to the nest, or patch of grass, and she will release eggs that he will inseminate. He will then rush the female away from the nest. You can then remove the female. The male will guard the nest, but you will want to remove them before the eggs hatch in 2-4 days. You can feed fry baby brine shrimp.

**Space:** 50-75gal per bass



## Carp

**Days to Maturity:** 1,095

**About:** Carp are bottom feeders, so some may not like the taste of them. They eat water plants and other fish and small animals.

**Water Conditions:** Cycled water at 70°-75° F

**Breeding:** Carp are reliant on a migration cycle to breed. In captivity you must inject the fish with hormones to get them to spawn. Then you “milk” the males and females for sperm and eggs and mix them together. Then put them into containers in which the water is always moving. Once they hatch in 4-8 days and use up the yoke sack you can feed them microorganisms.

**Space:** 75-100gal per fish





## Catfish

**Days to Maturity:** 547

**About:** Catfish are a bottom feeders, and some people may not like the taste. They eat water plants and other fish and small animals.

**Water Conditions:** Cycled water at 70°-75° F

**Breeding:** The male will build a nest with a layer of bubbles in it. The nest can be made out of anything as long as it has a cave-like structure. When you see the nest of bubbles you can then put the female in. Once she lays the eggs remove her. The male will guard the eggs until a week after they hatch. The eggs will hatch in about 10 days.

**Space:** 50-75gal per fish



## Crab

**Days to Maturity:** 180

**About:** Crabs are not the easiest creatures to raise. Unless you can get them breeding, they are not cost effective. Buying the initial animals will be your greatest expense.

**Water Conditions:** Most crabs are salt water creatures. They will need 1 cup of salt per 5 gallons of water. Water temperature should be 60°-70° F.

**Breeding:** The male will appear to be attacking the female. He will flip her over and mount her. She will open a flap on her lower region.

**Space:** 2.5gal per crab



## Crawfish

**Days to Maturity:** 90

**About:** These small crustaceans are relatively easy to raise. They will eat almost any small invertebrate, but you can also feed them blanched vegetation or fish food.

**Water Conditions:** Cycled water at 70°-75° F.

**Breeding:** You will want to have a tank already set up with a hiding spot for the mother. Simply put the male and female together. He will seem to be attacking her, then he will mount her. You can leave them all in together if there are plenty of hiding spaces for the mother and the babies.

**Space:** 5gal per crawfish



## Koi

**Days to Maturity:** 1095-1460

**About:** Koi are mainly ornamental, but they can be eaten. These fish produce more ammonia and shouldn't be raised with other breeds because of this. The meat can have a sour taste because of this as well.

**Water Conditions:** Cycled water at 70°-75° F with some sort of aeration, whether it's a bubble stone or plants.

**Breeding:** Put streamers or plant life into the tank. Place one female and four males in the tank. Shade the tank and leave them there for 72 hours. The males will vigorously chase the female. Once the time is up you can firmly stroke the female's belly to extract the eggs into the spawning tank. Then do the same with the males to fertilize the eggs. Remove the breeders from the spawning tank. Wait 4-7 days for the eggs to hatch. You can feed the fry microorganisms.

**Space:** 50gal per fish



## Lobster

**Days to Maturity:** 2555

**About:** Lobster take a very long time to mature. For this reason, they are not economical to grow just a few on your own. This is also why lobster is so expensive to buy.

**Water Conditions:** They will need 1 cup of salt per 5 gallons of water. Water temperature should be 60°-70° F.

**Breeding:** You will want to have a tank already set up with a hiding spot for the mother. Simply put the male and female together. He will seem to be attacking her, then he will mount her. You can leave them all in together if there are plenty of hiding spaces for the mother and the babies.

**Space:** 75gal per lobster



## Mussels

**Days to Maturity:** 365

**About:** Mussels take almost no work to grow because they are filter feeders. As long as something is dirtying the water, they will have food. On the other hand, they are very hard to breed.

**Water Conditions:** If you have a saltwater breed you need 1 cup of salt per 5 gallons of water. Other than that, you just need water that has algae. They do best in temperatures of 50°-60° F

**Breeding:** Every breed of mussel has a different fish that the mussel larva need as a host. The male release their seed into the water and the females collect it. Then they release their larva which attach to their specific fish.

**Space:** Enough space for them to fit



## Oyster

**Days to Maturity:** 480

**About:** Oysters are very easy to grow. Just keep them in enough water to cover them. They are filter creatures, so as long as something is dirtying the water, they will have food.

**Water Conditions:** If you have a saltwater breed you need 1 cup of salt per 5 gallons of water. Other than that, you just need water that has algae. They do best in temperatures of 70°-80° F

**Breeding:** The males will release seed and the females will release eggs. Then the larva will hatch and will attach to a suitable surface, even another oyster. They are microscopic so you won't be able to see them.

**Space:** Enough space for them to fit



## Prawn

**Days to Maturity:** 140

**About:** Prawns are a freshwater crustacean that is easier to grow than its saltwater cousins. Prawns are bottom feeders, so they eat detritus, plants, and microorganisms.

**Water Conditions:** Cycled water with plenty of aeration. They do best at about 80°-82° F.

**Breeding:** You want one male to three females. Put them somewhere with lots of hiding places. Once the female molts, they will mate. The male will look like he's attacking the female and he will mount her. This is normal breeding behavior. The females will hold the eggs under their tails until they hatch. You can leave them all together as long as there are plenty of places to hide.

**Space:** two square feet of surface to crawl on. You can layer netting to give them more surface in a smaller space.





## Scallop

**Days to Maturity:** 1460

**About:** Scallops take much longer to grow than other shelled delicacies. They also are free swimming and don't attach to anything.

**Water Conditions:** You need 1 cup of salt per 5 gallons of water. Other than that, you just need water that has algae. They do best in temperatures of 50°-60° F

**Breeding:** All Scallops start out male, but eventually become female once they are much older. The males release seed and the females release eggs. These mix together and create larva which are microscopic.

**Space:** about ¼ gallon of water per scallop.



## Shrimp

**Days to Maturity:** 140

**About:** There are many breeds of shrimp to choose. They can be large or small, but shrimp are very popular.

**Water Conditions:** They will need 1 cup of salt per 5 gallons of water. Water temperature should be 60°-70° F. You should also have a bubbler or plants.

**Breeding:** You want one male to three females. Put them somewhere with lots of hiding places. Once the female molts, they will mate. The male will look like he's attacking the female and he will mount her. This is normal breeding behavior. The females will hold the eggs under their tails until they hatch. You can leave them all together as long as there are plenty of places to hide.

**Space:** two square feet of surface to crawl on. You can layer netting to give them more surface in a smaller space.



## Sunfish

**Days to Maturity:** 180

**About:** There are a wide variety of sunfish that you can raise, but they are all raised basically the same. They will eat almost anything.

**Water Conditions:** Well oxygenated cycled water at 60°-70° F.

**Breeding:** The fish will swim around each other repeatedly. The male will swim at an angle and then do a little shake. That means they have bred. The male will then guard the eggs until they hatch.

**Space:** 10gal per sunfish but they do get territorial, so if you want more than one, they need at least 30gal per sunfish



## Tilapia

**Days to Maturity:** 240

**About:** Tilapia are a fish that needs the least amount of space. They are also easy to breed. This is the fish I would recommend for a homestead. They will eat almost anything.

**Water Conditions:** Well oxygenated cycled water at 70°-80° F.

**Breeding:** You want one male per 3-4 females. A female will lay eggs, then a male will fertilize them. Then the female will scoop the eggs up in her mouth and brood them until they hatch. You should have plenty of places for the mothers to hide. You can feed fry regular fish food.

**Space:** 3gal per tilapia



## Trout

**Days to Maturity:** 730

**About:** Trout are easy to raise but hard to breed. They naturally travel up river in order to breed at the beginning of rivers where the water moves just so. Trout eat insects and small animals.

**Water Conditions:** Well oxygenated cycled water at 45°-70° F.

**Breeding:** Trout make a very special journey in order to breed. Since this journey can't be replicated, they must be injected with hormones, then the eggs and sperm massaged out of the fish. Then this is stirred and the eggs are placed into slow moving water to keep them aerated. They will hatch in about 10 days. Trout fry eat microorganisms.

**Space:** 200gal per trout



## Bugs

A lot of the time people do not see bugs as food, but they can be very nutritious, not to mention delicious. Now there are bugs listed in the bible that are considered edible by most everyone. These include: grasshoppers, locust, and crickets.

Whether other bugs are edible is a controversy. There are many cultures that eat all kinds of bugs. It seems that any bug is edible, but whether you are willing to eat it or not is what matters. Some bugs eat things that we would get very sick if we ate. But people have eaten fly larvae, which dine on corpses, for centuries. So, it's really up to you.

My only recommendation would be to clean your food thoroughly, and to be sane. Don't start grabbing live bees and eating them. Also don't start eating handfuls of living fire ants. If it's poisonous you probably want to avoid it.

# Butcher Charts

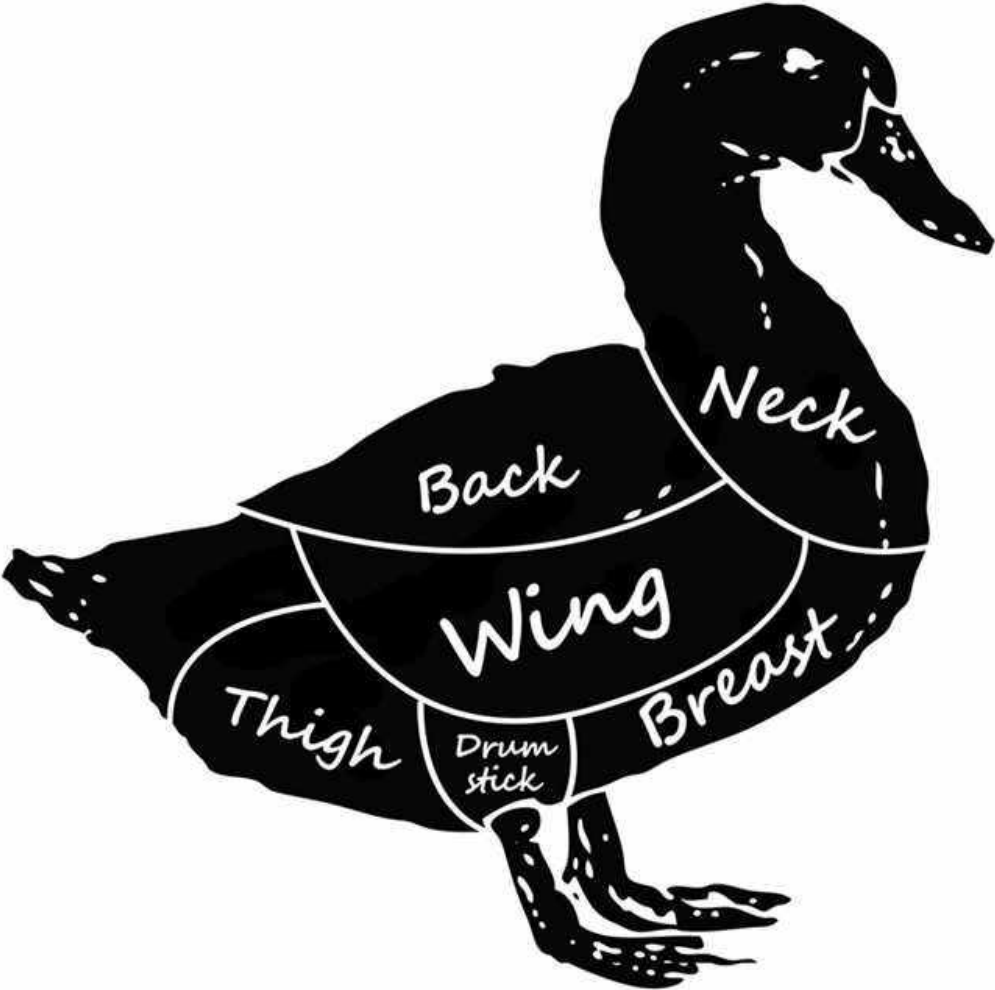
## Fowl

When you butcher a bird, you want to hang them upside down and cut off their head, or lay their neck over something hard and chop off their head. Then you dunk the body into boiling water in order to pluck the feathers. Then you remove the organs. You can save the gizzard, heart, liver, and kidneys for cooking.

## Chicken



Duck

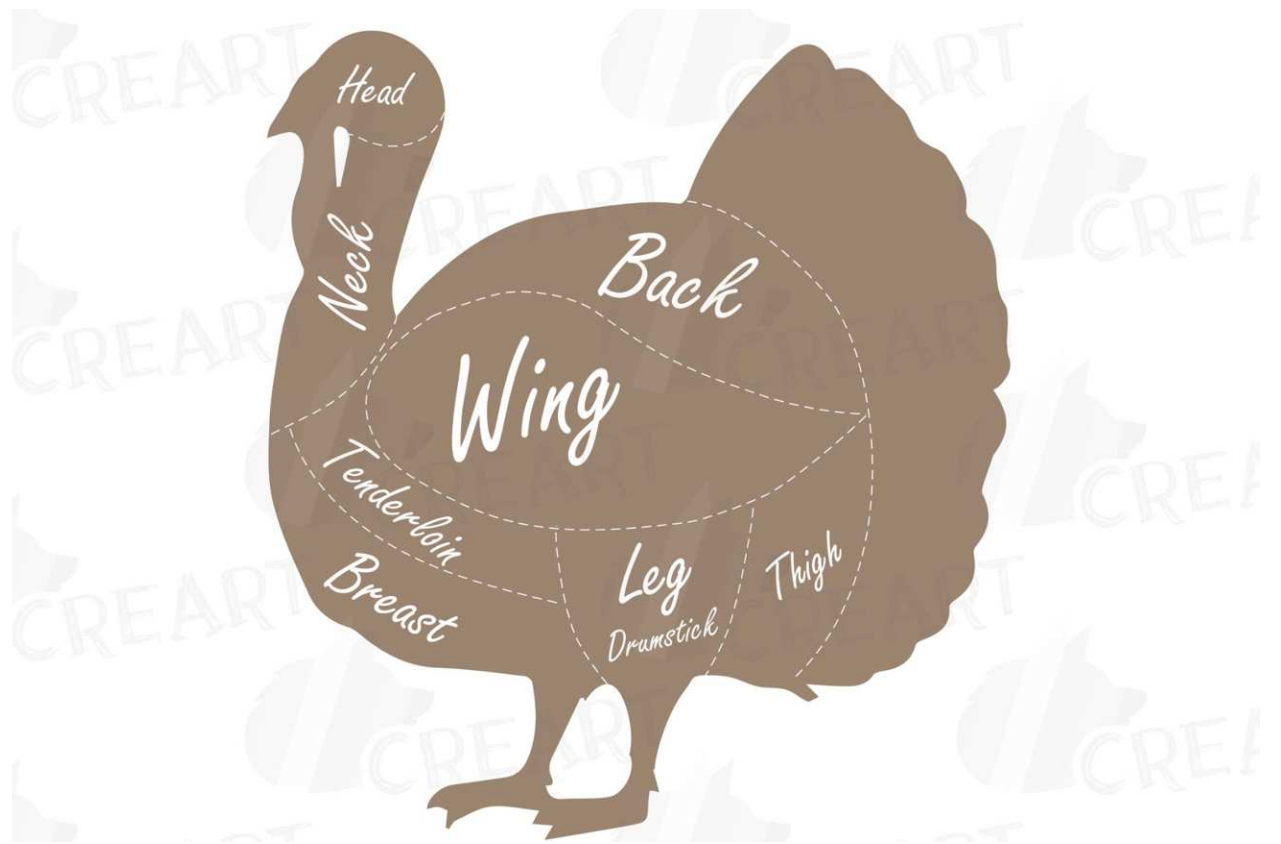




Goose



## Turkey

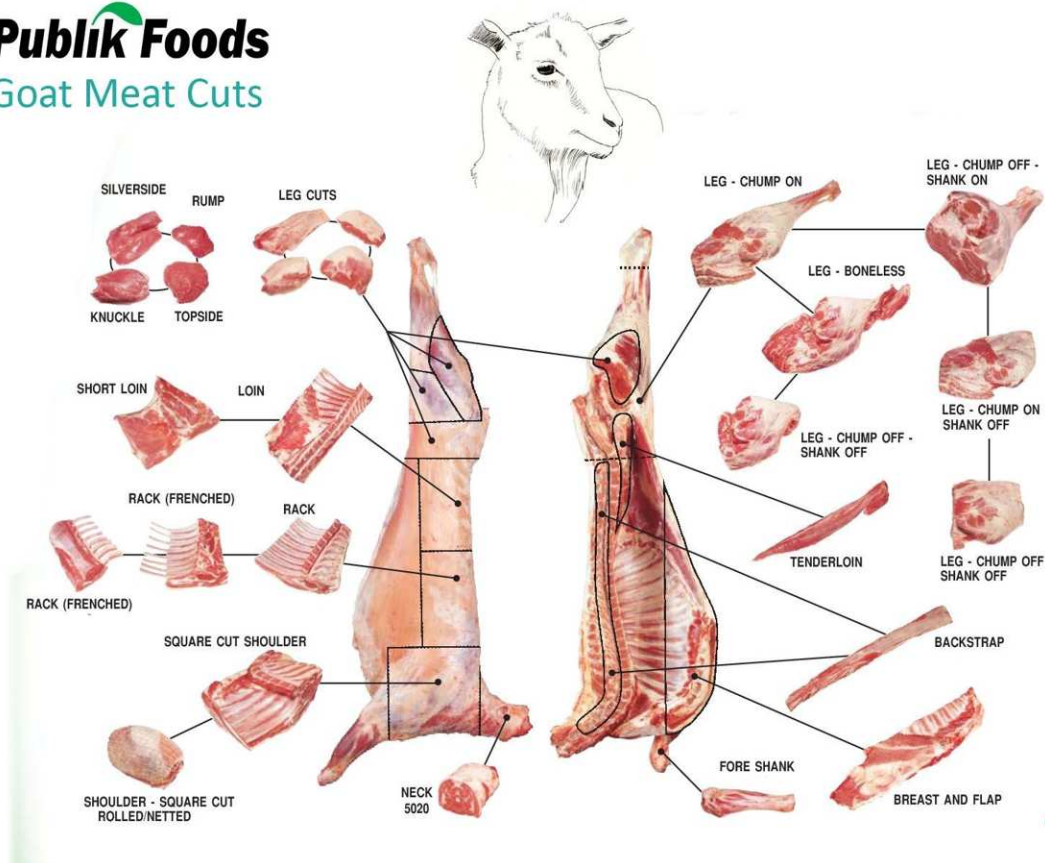


## Small Mammals

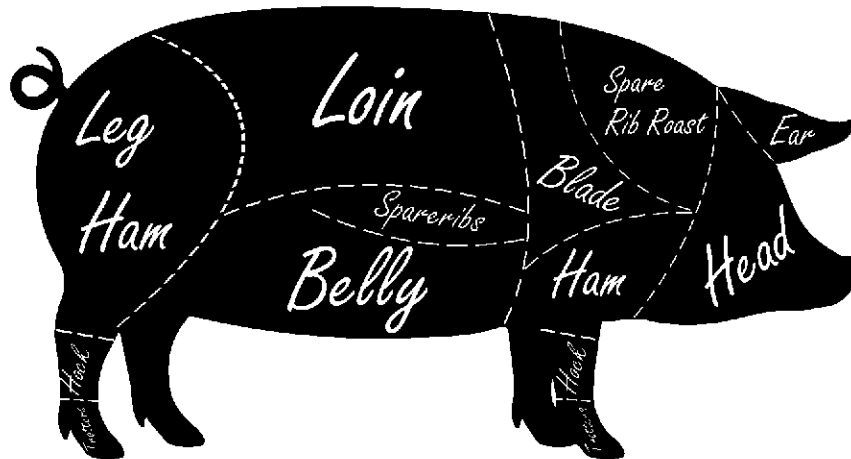
When you butcher small mammals you want to shoot them in the head, or slit their throat with a very sharp knife. If you go the second route, make sure you cut both jugulars as quickly as possible. Then you will want to hang the animal upside down. With a pig you will need to dip it in boiling water and shave off the outer layer of dirt and hair. Then will all small mammals you want to remove the organs. You can save the hearts, livers, and kidneys for cooking.

## Goat

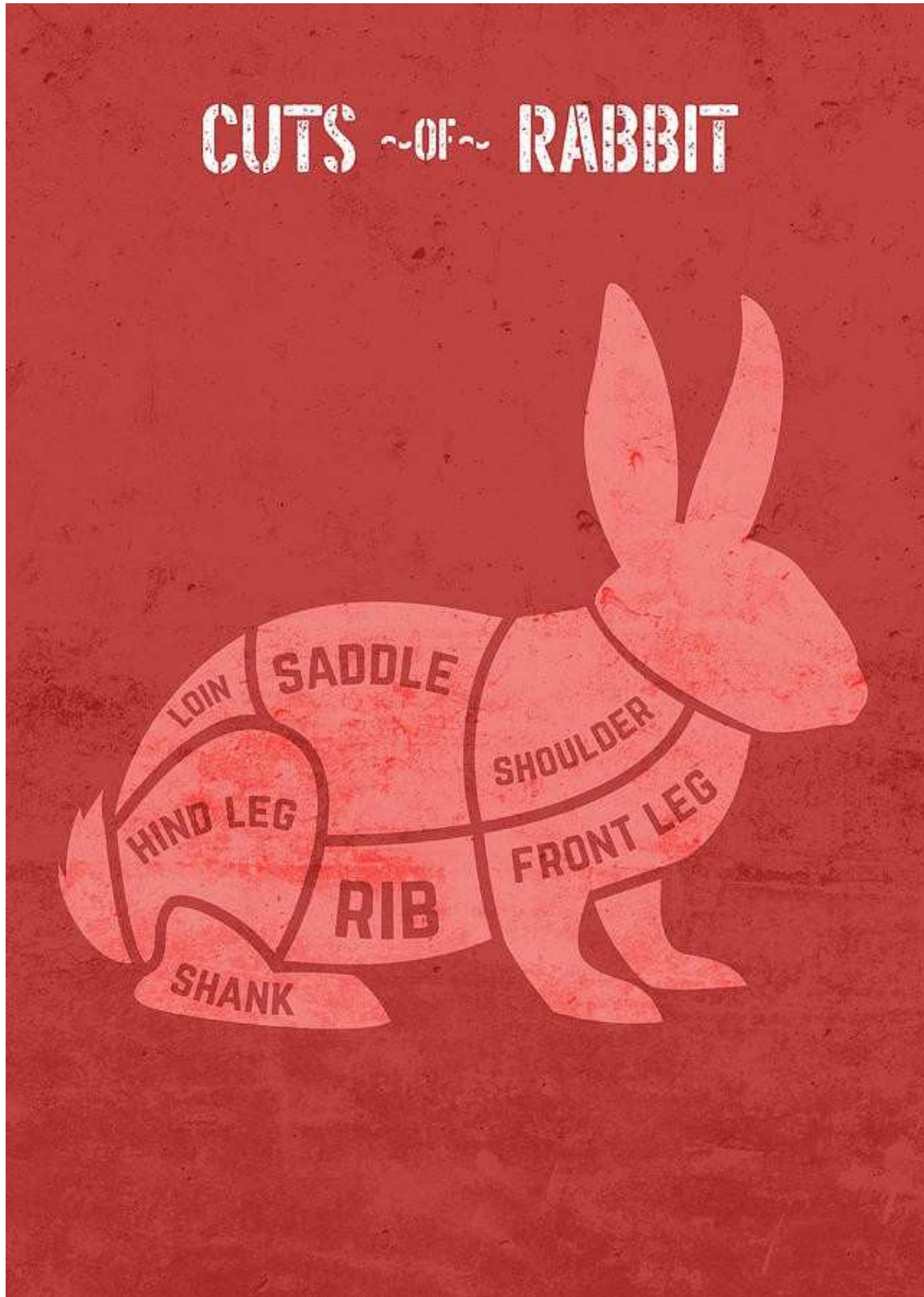
### Publik Foods Goat Meat Cuts



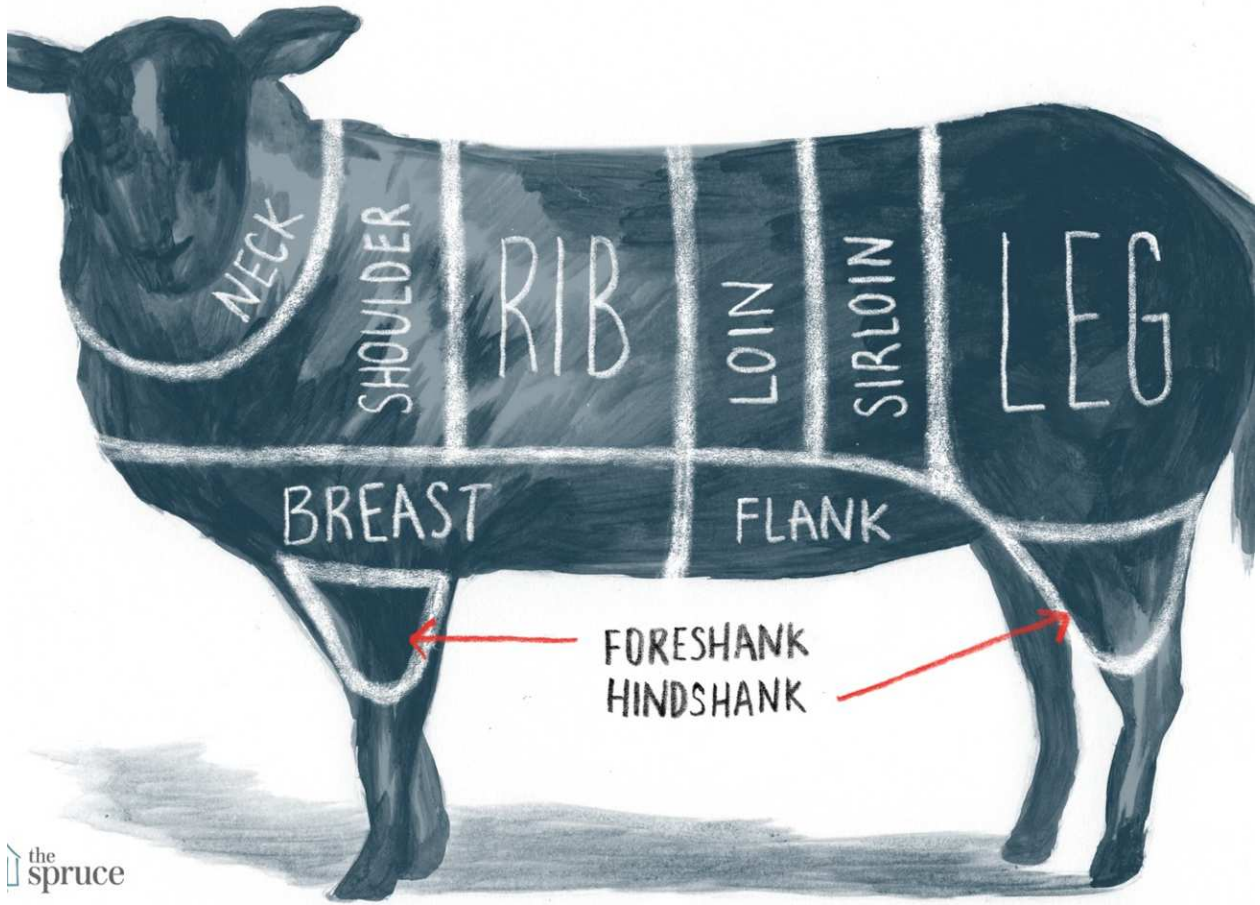
Pig



## Rabbit



Sheep

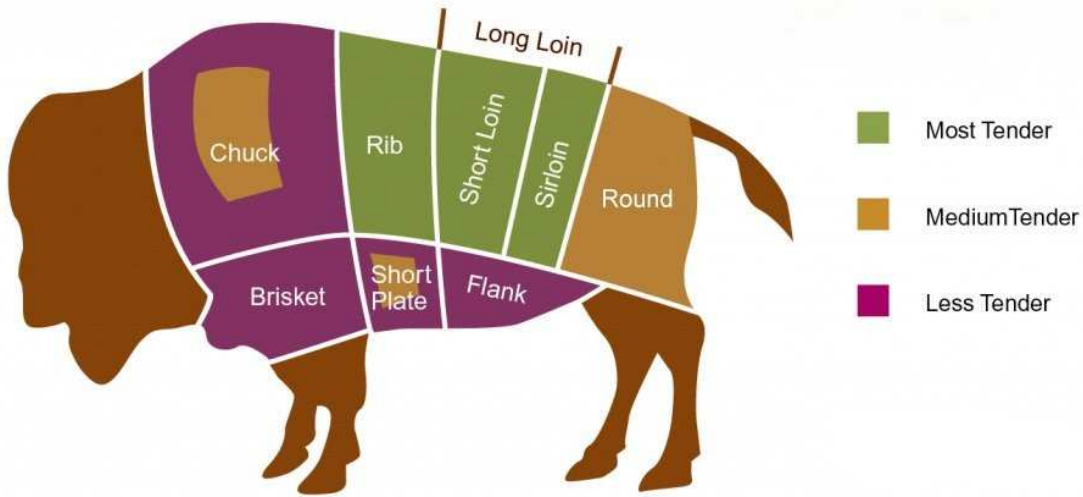


the spruce

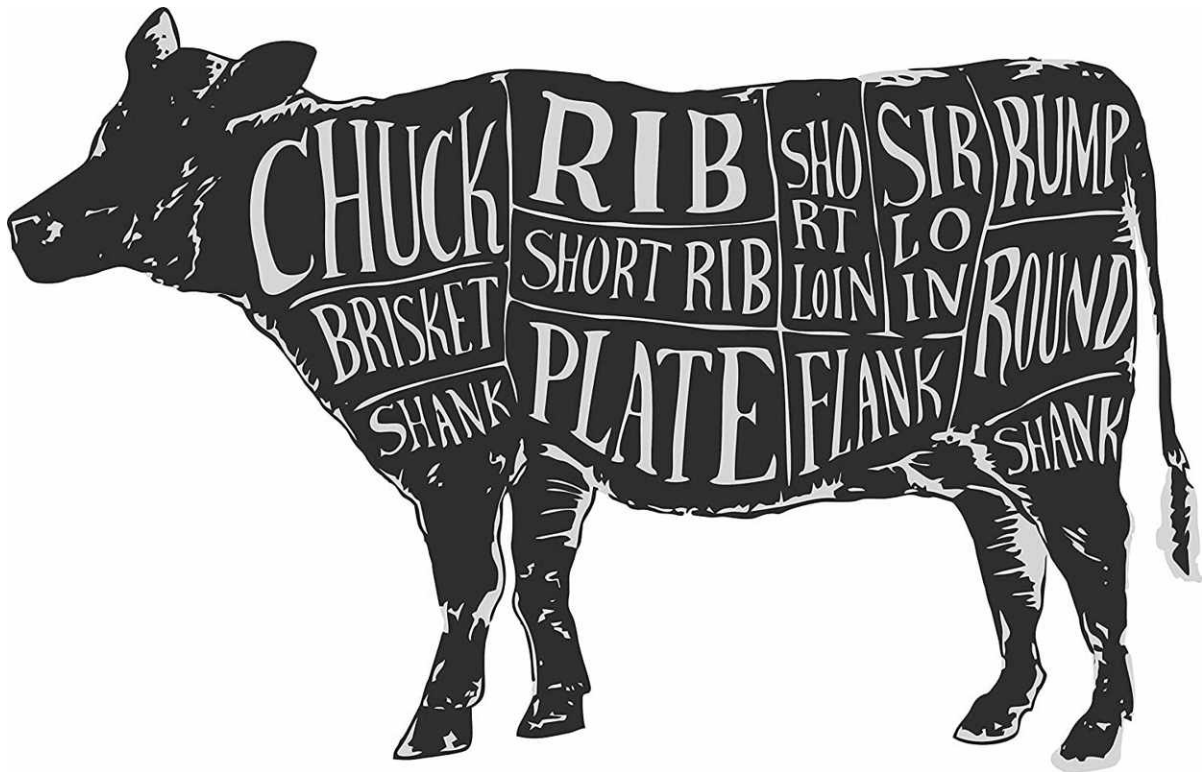
## Large Mammals

You butcher large mammals the same as you would small mammals, it's just a more arduous task.

### Bison



### Cow



## Fish and Crustaceans

When butchering fish, it really depends on the fish. First you always want to remove all the fish guts. If your fish has skin you can leave that on. If your fish has scales you need to remove those with a knife or a spoon, running it underneath the scales and popping them off. Then you want to cut the fish along the spine to get the fillet. Then remove the rib bones with tweezers or your fingers. You will then have your fillets.

For shelled fish such as mussels, oysters, and scallops, you simply push your knife into the shell and pry it open. Then slice the meat away from both sides of the shell and enjoy or cook the meat.

For crustaceans such as shrimp, lobster, or crab, or any of their cousins, you can simply cook them in the shell. Then you crack the shell and pull the meat out. You may want to devein, or cut out the digestive systems of the animals after they are cooked.

## Bugs

Most of the time bugs can be eaten raw or cooked. I recommend always cooking them to avoid anything they might be carrying. Wings are difficult to digest and can be removed after cooking. Most of the time you will want to cook the bugs live to sustain their structural integrity.



## How Much to Grow

Now, when you look at this, you may be thinking, “I won’t eat that much asparagus”, or “I need more corn than that”. This is just a base line. You can change it depending on your family and what they eat. It can even vary from person to person how much they’ll eat. Just start with this and adjust it as you go.

Number of people	1		
Plant	amount	space (sqft)	production (lbs)
Asparagus	5	5	125
Bush beans	12	6	1.8
Beets	15	5	3.75
Cucumber	1	2	5
Carrots	48	4	7.2
Corn	10	10	10
Eggplant	2	4	10
Leaf Lettuce	24	8	24
Mellon	1	6	12
Onion	12	3	12
Peas	15	2.5	1.5
Pepper	3	3	4.5
Potato	10	10	60
Spinach	30	5	2
Squash	1	6	10
Tomato	2	4	16
Zucchini	1	3	6
Wheat	144000	1000	60

This next one is how many animals you would need if you were to only have one type of animal for each category. If you wish to mix and match then you will have to do that math yourself.

Milk/dairy	produce per year	how many needed
Cow	23000	0.02173913
Goat	2000	0.25
Sheep	1000	0.5
Eggs		
Chicken	200	1.4
Duck	150	1.866666667
Goose	50	5.6
Red meat		
Bison	450	0.222222222
Cow	490	0.204081633
Goat	200	0.5
Sheep	200	0.5
Pig	250	0.4
Rabbit	4	25
Poultry		
Chicken	4	22.5
Turkey	12	7.5
small birds	1	90
Fish	3	8.666666667

If you want to take the next step in your self-sufficiency it would be to grow feed for your animals. In order to do this, you'll have to grow multiple kinds of grains for them, as well as hay. Which you will have to process in the heat of every summer. A cow or bison needs about 9,000lbs of hay per year or 9,200lbs of grain per year. You could also put these animals out to pasture most of the year and only need about 3,000lbs of hay or 3,100lbs of grain per year. That would only work if you have land. A goat or sheep will eat 1,500lbs of hay a year, or if you put them on pasture, about 400lbs of hay per year. They should have about 50lbs of grain per year. A pig you can feed 900lbs of grain per year, but you can supplement with table scraps and garden scraps. A rabbit will eat 200lbs of hay per year, but you can supplement that with grass clippings and garden scraps. A chicken will eat 80lbs of grain per year, but you can put them out to pasture, too. You can also supplement with garden scraps and table scraps. Depending on the fish, you can feed them grains or table scraps. They will eat about 80lbs of fish food per year.

# Lists

## Annuals

Arugula	Dandelion	Pea – Garden
Artichoke	Eggplant	Peanut
Asparagus Peas	English Daisy	Pepper
Bamboo	Fuchsia	Pineapple
Bean – Black	Garden Sorrel	Potato
Bean – Fava	Garlic	Primrose
Bean – Green	Hibiscus	Pumpkin
Bean – Kidney	Impatiens	Scented Geranium
Bean – Lima	Kiwi	Sea Kale
Bean – Pinto	Lavender	Spinach
Bean – Soy	Leek	Snapdragon
Beet	Lentil	Squash – Summer
Begonia	Lettuce – Head	Squash – Winter
Broccoli	Lettuce – Loose Leaf	Sugar Cane
Brussel's Sprouts	Lilac	Sunflower
Carnation	Marigold	Sweet Potato
Cauliflower	Melon – Summer	Tomatillo
Chinese Artichoke	Melon – Winter	Tomato
Chinese Cabbage	Nasturtiums	Violet
Chrysanthemum	Okra	
Clover	Onion – Bunching	
Corn	Onion – Sweet	
Cornflower	Onion – Tree	
Cucumber	Pansy	
	Peas – Black Eyed	

## **Perennials**

Asparagus

Day Lily

Gape

Gladiolus

Hollyhock

Honeysuckle

Mushroom

Peony

Phlox-Perennial

Rhubarb

Rose

Sweet Woodruff

Yucca Petals

## **Biennials**

Cabbage

Carrot

Celeriac

Celery

Celtuce

Collard Greens

Dame's Rocket

Endive

Fennel

Hamburg Parsley

Kale

Parsnip

Radish

Rutabaga

Salsify

Turnip

## **As Soon as Soil is Workable**

Arugula	Peony
Beet	Phlox-Perennial
Cabbage	Potato
Carrot	Primrose
Clover	Radish
Collard Greens	Rhubarb
Cornflower	Rutabaga
Dame's Rocket	Salsify
Dandelion	Snapdragon
Day Lily	Spinach
English Daisy	Sweet Woodruff
Garlic	Turnip
Hollyhock	Violet
Honeysuckle	Yucca Petals
Kale	
Leek	
Lentil	
Lettuce-Loose Leaf	
Mushroom	
Onion-Bunching	
Onion-Sweet	
Onion-Tree	
Pansy	
Parsnip	
Pea-Garden	

## **When Soil Starts to Warm**

Broccoli

Cauliflower

Celeriac

Chinese Cabbage

Fennel

Sea Kale

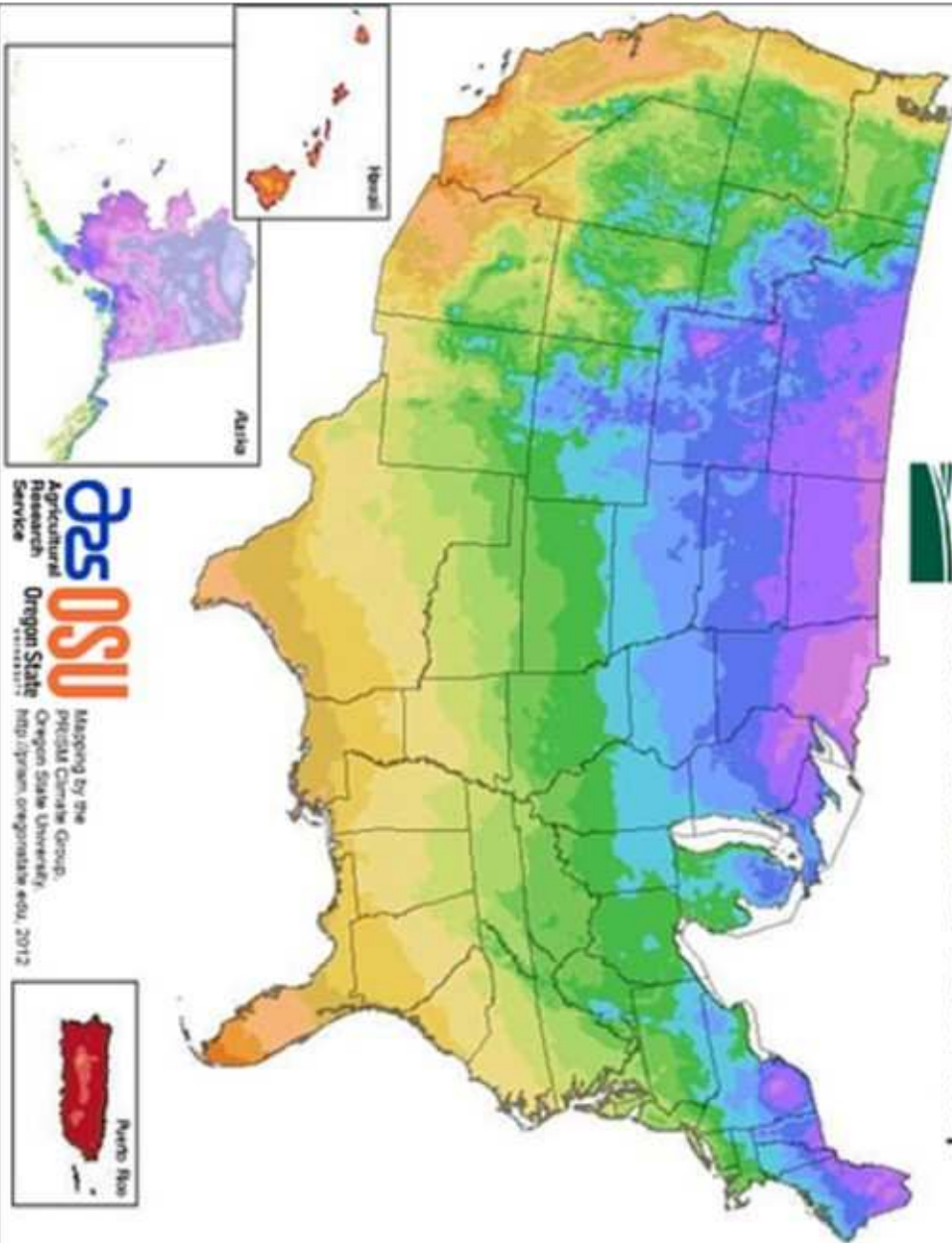
Sunflower

**When Soil is Warm**

	Grape	Tomatillo
Artichoke	Hamburg Parsley	Tomato
Asparagus	Hibiscus	
Asparagus Peas	Impatiens	
Bamboo	Kiwi	
Bean – Black	Lavender	
Bean – Fava	Lettuce – Head	
Bean – Green	Lilac	
Bean – Kidney	Marigold	
Bean – Lima	Melon – Summer	
Bean – Pinto	Melon – Winter	
Bean – Soy	Nasturtiums	
Begonia	Okra	
Carnation	Peas – Black Eyed	
Celery	Peanut	
Celtuce	Pepper	
Chinese Artichoke	Pineapple	
Chrysanthemum	Pumpkin	
Corn	Rose	
Cucumber	Scented Geranium	
Eggplant	Sea Kale	
Endive	Squash – Summer	
Fuchsia	Squash – Winter	
Garden Sorrel	Sugar Cane	
Gladiolus	Sunflower	
	Sweet Potato	



# USDA Plant Hardiness Zone Map



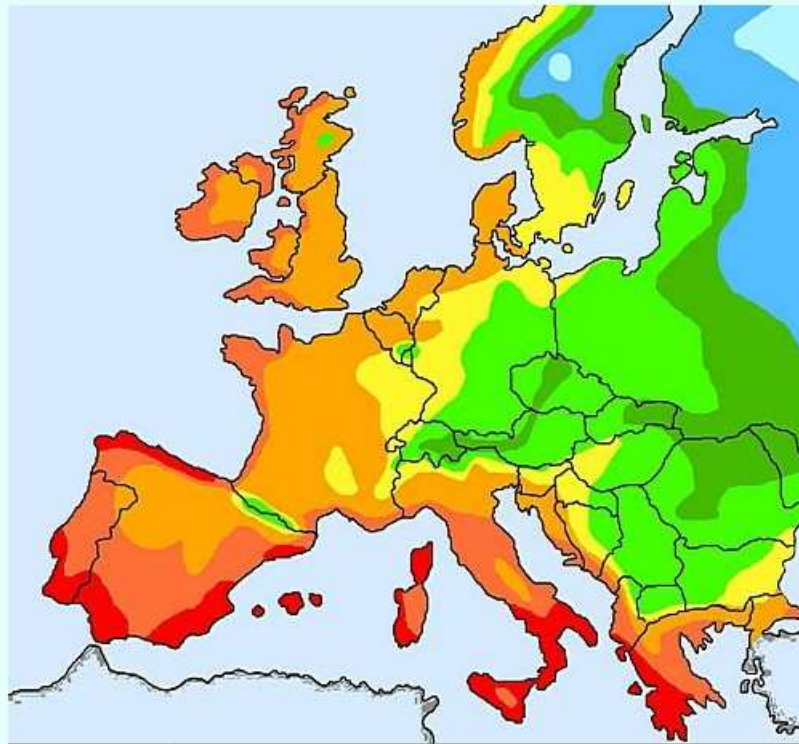
Average Annual Extreme Minimum Temperature  
1976-2005

Temp (F)	Zone	Temp (C)
-60 to -55	1A	-51.1 to -48.3
-55 to -50	1B	-48.3 to -45.6
-50 to -45	2A	-45.6 to -42.8
-45 to -40	2B	-42.8 to -40
-40 to -35	3A	-40 to -37.2
-35 to -30	3B	-37.2 to -34.4
-30 to -25	4A	-34.4 to -31.7
-25 to -20	4B	-31.7 to -28.9
-20 to -15	5A	-28.9 to -26.1
-15 to -10	5B	-26.1 to -23.3
-10 to -5	6A	-23.3 to -20.6
-5 to 0	6B	-20.6 to -17.8
0 to 5	7A	-17.8 to -15
5 to 10	7B	-15 to -12.2
10 to 15	8A	-12.2 to -9.4
15 to 20	8B	-9.4 to -6.7
20 to 25	9A	-6.7 to -3.9
25 to 30	9B	-3.9 to -1.1
30 to 35	10A	-1.1 to 1.7
35 to 40	10B	1.7 to 4.4
40 to 45	11A	4.4 to 7.2
45 to 50	11B	7.2 to 10
50 to 55	12A	10 to 12.8
55 to 60	12B	12.8 to 15.6
60 to 65	13A	15.6 to 18.3
65 to 70	13B	18.3 to 21.1


  
 Mapping by the
   
 PRISM Climate Group,
   
 Oregon State University,
   
 Agricultural Research
   
 Service
   
<http://prism.oregonstate.edu>, 2012



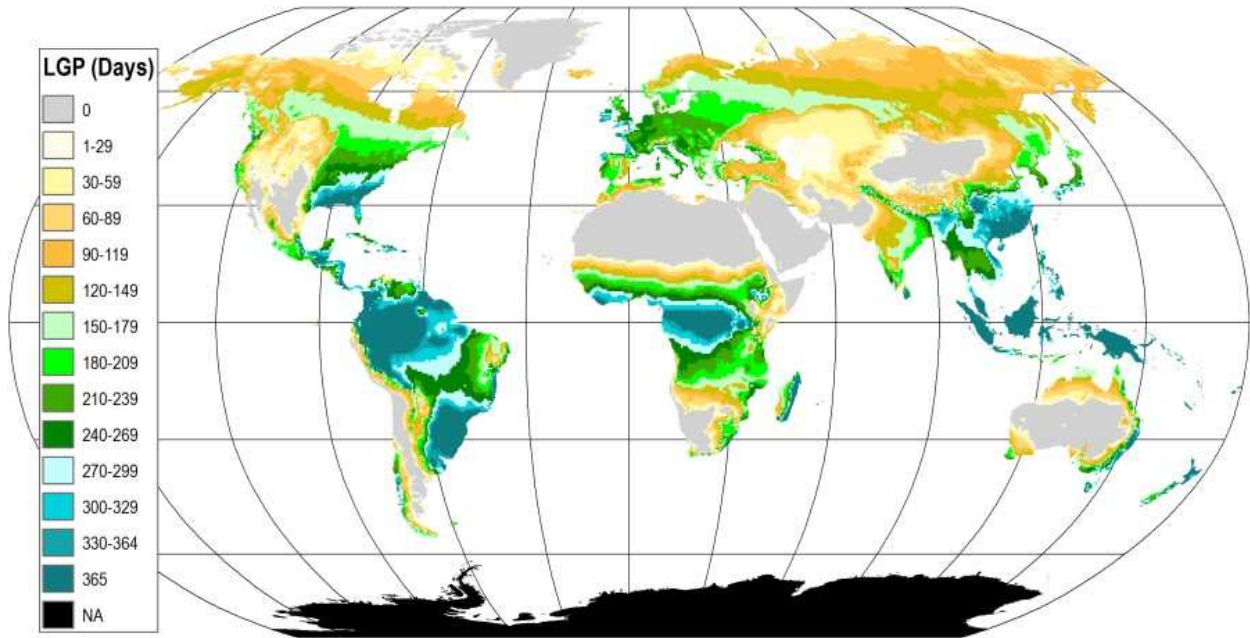
### EUROPE HARDINESS ZONE MAP



Zone	Fahrenheit	Celsius
3	-40 to -30 F	-40 to -34 C
4	-30 to -20 F	-34 to -29 C
5	-20 to -10 F	-29 to -23 C
6	-10 to 0 F	-23 to -18 C
7	0 to 10 F	-18 to -12 C
8	10 to 20 F	-12 to -7 C
9	20 to 30 F	-7 to -1 C
10	30 to 40 F	-1 to 4 C

These last two pages have been grow zone maps. You can attempt to find your growing zone on these maps, or you can look it up online.

The next page shows a map of growing seasons. This is how many frost free days there are in a year. You can attempt to estimate your growing season by this map, or you can calculate it yourself. Simply look up the first and last frost dates and count the days in between them.



You will want to cross-reference the following two lists to see what you can grow in the dirt outside where you live. This way you also know what you'll need a greenhouse for.

## By Zone (in ground)

a-annual p-perennial

### 1

Arugula

Beet

Parsnip

Potato

Radish

Spinach

---

### 2

Amaranth

Arugula

Basil

Beet

Begonia-Tuberous/Waxed a

Blueberry

Celtuce

Collard Greens

Cranberry

Impatiens

Leek

Lentil

Lettuce-Loose Leaf

Marigold

Oat

Parsnip

Pea-Garden

Potato

Radish

Spinach

Sunflower

Timothy Grass

Wheat

---

**B**

Amaranth

Apple

Arugula

Asparagus

Basil

Bean-Green

Bean-Lima

Bean-Pinto

Bean-Soy

Beet

Begonia-Tuberous/Waxed **a**

Blueberry

Brambles

Broccoli

Buckwheat

Cabbage

Carrot

Celtuce

Cilantro/Coriander

Clover

Collard Greens

Cornflower

Cranberry

Cumin

Currant

Dame's Rocket

Dandelion

Dill

Garden Sorrel

Garlic

Goji Berry

Hamburg Parsley

Hollyhock

Impatiens

Kale

Leek

Lentil

Lettuce-Head

Lettuce-Loose Leaf

Marigold

Melon-Winter

Mushroom

Oat

Onion-Bunching

Onion-Sweet

Onion-Tree

Orchard Grass

Oregano/Marjoram

Parsnip

Pea-Black Eye

Pea-Garden

Pear  
Peony  
Phlox-Perennial  
Plum  
Potato  
Pumpkin  
Radish  
Rose  
Rutabaga  
Rye  
Salsify

---

**4**

Alfalfa  
Amaranth  
Anise  
Apple  
Arugula  
Artichoke  
Asparagus  
Basil  
Bean-Black  
Bean-Fava  
Bean-Green  
Bean-Lima  
Bean-Pinto  
Bean-Soy

Spinach  
Squash-Summer  
Squash-Winter  
Strawberry  
Sunflower  
Tarragon  
Timothy Grass  
Turnip  
Violet  
Wheat  
Yucca Petals

---

Beet  
Begonia-Tuberous/Waxed **α**  
Blueberry  
Brambles  
Broccoli  
Brussel's Sprouts  
Buckwheat  
Cabbage  
Carrot  
Cauliflower  
Celeriac  
Celtuce  
Cherry  
Chestnut  
Chinese Cabbage

Cilantro/Coriander

Clover

Collard Greens

Corn

Cornflower

Cranberry

Cucumber

Cumin

Currant

Dame's Rocket

Dandelion

Day Lily

Dill

Endive

English Daisy

Fuchsia **α**

Garden Sorrel **α**

Garlic

Goji Berry

Grape

Hamburg Parsley

Hollyhock

Honeysuckle

Horseradish

Impatiens

Kale

Kiwi

Leek

Lentil

Lettuce-Head

Lettuce-Loose Leaf

Lilac

Marigold

Melon-Summer

Melon-Winter

Mushroom

Nasturtiums **α**

Oat

Onion-Bunching

Onion-Sweet

Onion-Tree

Orchard Grass

Oregano/Marjoram

Pansy

Parsley

Parsnip

Pea-Black Eyed

Pea-Garden

Peach/Nectarine

Pear

Peony

Pepper

Phlox-Perennial

Plum

Potato

Primrose

Pumpkin

Radish

Rose

Rutabaga

Rye

Salsify

Scented Geranium

Sea Kale

Snap Dragon **a**

Spinach

Squash-Summer

---

## **5**

Agave

Alfalfa

Almond

Amaranth

Anise

Apple

Apricot

Arugula

Artichoke

Asparagus

Squash-Winter

Strawberry

Sunflower

Sweet Woodruff

Tarragon

Timothy Grass

Tomatillo

Tomato

Tulip Petals

Turnip

Violet

Walnut

Wheat

Yucca Petals

---

Basil

Bean-Black

Bean-Fava

Bean-Green

Bean-Kidney

Bean-Lima

Bean-Pinto

Bean-Soy

Beet

Begonia-Tuberous/Waxed **a**



Blueberry	Dame's Rocket
Brambles	Dandelion
Broccoli	Day Lily
Brussel's Sprouts	Dill
Buckwheat	Eggplant
Cabbage	Endive
Carnation	English Daisy
Carrot	Fennel
Cauliflower	Fig
Celeriac	Fuchsia <b>a</b>
Celery	Garden Sorrel <b>p</b>
Celtuce	Garlic
Cherry	Gladiolus
Chestnut	Goji Berry
Chinese Artichoke	Grape
Chinese Cabbage	Hamburg Parsley
Chrysanthemum	Hibiscus
Cilantro/Coriander	Hollyhock
Clover	Horseradish
Collard Greens	Honeysuckle
Corn	Impatiens
Cornflower	Kale
Cranberry	Kiwi
Cucumber	Lavender
Cumin	Leek
Currant	Lentil

Lettuce-Head  
Lettuce-Loose Leaf  
Lilac  
Linseed/Flax  
Marigold  
Melon-Summer  
Melon-Winter  
Mushroom  
Nasturtiums **α**  
Oat  
Onion-Bunching  
Onion-Sweet  
Onion-Tree  
Orchard Grass  
Oregano/Marjoram  
Pansy  
Parsley  
Parsnip  
Pea-Black Eyed  
Pea-Garden  
Peach/Nectarine  
Pear  
Pecan  
Pepper  
Peony  
Phlox-Perennial  
Plum  
Potato  
Primrose  
Pumpkin  
Quince  
Radish  
Rose  
Rutabaga  
Rye  
Sage  
Salsify  
Scented Geranium  
Sea Kale  
Snap Dragon **α**  
Sorghum  
Spelt  
Spinach  
Squash-Summer  
Squash-Winter  
Strawberry  
Sunflower  
Sweet Woodruff  
Tarragon  
Thyme  
Timothy Grass  
Tomatillo

Tomato  
Triticale  
Tulip Petals  
Turnip

---

Violet  
Walnut  
Wheat  
Yucca Petals

---

**6**

Agave  
Alfalfa  
Almond  
Amaranth  
Anise  
Apple  
Apricot  
Arugula  
Artichoke  
Asparagus  
Asparagus Peas  
Bamboo  
Basil  
Bean-Black  
Bean-Fava  
Bean-Green  
Bean-Kidney  
Bean-Lima  
Bean-Pinto  
Bean-Soy  
Beet

Begonia-Tuberous/Waxed **a**  
Blueberry  
Brambles  
Broccoli  
Brussel's Sprouts  
Cabbage  
Carnation  
Carrot  
Cauliflower  
Celeriac  
Celery  
Celtuce  
Cherry  
Chestnut  
Chinese Artichoke  
Chinese Cabbage  
Chrysanthemum  
Cilantro/Coriander  
Clover  
Collard Greens  
Corn

Cornflower  
Cucumber  
Cumin  
Currant  
Dame's Rocket  
Dandelion  
Day Lily  
Dill  
Eggplant  
Endive  
English Daisy  
Fennel  
Fig  
Fuchsia **a**  
Garden Sorrel **p**  
Garlic  
Gladiolus  
Goji Berry  
Grape  
Hamburg Parsley  
Hibiscus  
Hollyhock  
Honeysuckle  
Horseradish  
Impatiens  
Kale

Kiwi  
Lavender  
Leek  
Lentil  
Lettuce-Head  
Lettuce-Loose Leaf  
Lilac  
Linseed/Flax  
Marigold  
Melon-Summer  
Melon-Winter  
Mushroom  
Nasturtiums **a**  
Oat  
Okra  
Onion-Bunching  
Onion-Sweet  
Onion-Tree  
Orchard Grass  
Oregano/Marjoram  
Pansy  
Parsley  
Parsnip  
Pea-Black Eyed  
Pea-Garden  
Peach/Nectarine

Pear  
Pecan  
Peony  
Pepper  
Phlox-Perennial  
Plum  
Pomegranate  
Potato  
Primrose  
Pumpkin  
Quince  
Radish  
Rose  
Rutabaga  
Rye  
Saffron  
Sage  
Salsify  
Scented Geranium  
Sea Kale

---

**7**

Agave  
Alfalfa  
Almond  
Amaranth  
Anise

Snap Dragon **a**  
Sorghum  
Spelt  
Spinach  
Squash-Summer  
Squash-Winter  
Strawberry  
Sunflower  
Sweet Woodruff  
Timothy Grass  
Tomatillo  
Tomato  
Triticale  
Tulip Petals  
Turnip  
Violet  
Walnut  
Wheat  
Yucca Petals

---

Apple  
Apricot  
Arugula  
Artichoke  
Asparagus

Asparagus Peas	Chinese Cabbage
Bamboo	Chrysanthemum
Basil	Cilantro/Coriander
Bean-Black	Clover
Bean-Fava	Collard Greens
Bean-Green	Corn
Bean-Kidney	Cornflower
Bean-Lima	Cucumber
Bean-Pinto	Cumin
Bean-Soy	Currant
Beet	Dame's Rocket
Begonia-Tuberous/Waxed <b>a</b>	Dandelion
Blueberry	Day Lily
Brambles	Dill
Broccoli	Eggplant
Brussel's Sprouts	Endive
Cabbage	English Daisy
Carnation	Fennel
Carrot	Fig
Cauliflower	Fuchsia <b>a</b>
Celeriac	Garden Sorrel <b>p</b>
Celery	Garlic
Celtuce	Ginger
Cherry	Gladiolus
Chestnut	Goji Berry
Chinese Artichoke	Grape

Hamburg Parsley

Hibiscus

Hollyhock

Honeysuckle

Horseradish

Impatiens

Kale

Kiwi

Lavender

Leek

Lentil

Lettuce-Head

Lettuce-Loose Leaf

Lilac

Linseed/Flax

Marigold

Melon-Summer

Melon-Winter

Millet

Mushroom

Nasturtiums α

Oat

Okra

Onion-Bunching

Onion-Sweet

Onion-Tree

Orchard Grass

Oregano/Marjoram

Pansy

Parsley

Parsnip

Pea-Black Eyed

Pea-Garden

Peach/Nectarine

Pear

Pecan

Peony

Pepper

Phlox-Perennial

Plum

Pomegranate

Potato

Primrose

Pumpkin

Quince

Radish

Rose

Rutabaga

Rye

Saffron

Sage

Salsify

Scented Geranium  
Sea Kale  
Snap Dragon **a**  
Sorghum  
Spelt  
Spinach  
Squash-Summer  
Squash-Winter  
Strawberry  
Sunflower  
Sweet Potato  
Sweet Woodruff

---

Tarragon  
Thyme  
Timothy Grass  
Tomatillo  
Tomato  
Triticale  
Tulip Petals  
Turnip  
Violet  
Walnut  
Wheat  
Yucca Petals

---

## **8**

Agave  
Alfalfa  
Almond  
Anise  
Apple  
Apricot  
Arugula  
Artichoke  
Asparagus  
Asparagus Peas  
Avocado  
Bamboo  
Basil

Barley  
Bean-Black  
Bean-Fava  
Bean-Green  
Bean-Kidney  
Bean-Lima  
Bean-Soy  
Beet  
Begonia-Tuberous/Waxed **p**  
Blueberry  
Brambles  
Broccoli  
Brussel's Sprouts



Cabbage  
Carnation  
Carrot  
Cauliflower  
Celeriac  
Celery  
Cherry  
Chestnut  
Chinese Artichoke  
Chrysanthemum  
Cilantro/Coriander  
Cinnamon  
Clover  
Collard Greens  
Corn  
Cornflower  
Cucumber  
Cumin  
Currant  
Dame's Rocket  
Dandelion  
Day Lily  
Eggplant  
Endive  
English Daisy  
Fennel

Fig  
Fuchsia **a**  
Garden Sorrel **p**  
Garlic  
Ginger  
Gladiolus  
Goji Berry  
Grape  
Hamburg Parsley  
Hibiscus  
Hollyhock  
Honeysuckle  
Impatiens  
Kale  
Kiwi  
Lavender  
Leek  
Lentil  
Lettuce-Head  
Lettuce-Loose Leaf  
Lilac  
Linseed/Flax  
Loquat  
Marigolds  
Melon-Summer  
Melon-Winter

Millet  
Mushroom  
Nasturtiums **a**  
Okra  
Olive  
Onion-Bunching  
Onion-Sweet  
Onion Tree  
Oregano/Marjoram  
Pansy  
Parsley  
Parsnip  
Pea-Black Eyed  
Pea-Garden  
Peach/Nectarine  
Peanut  
Pear  
Pecan  
Peony  
Pepper  
Phlox-Perennial  
Pistachio  
Plum  
Pomegranate  
Potato  
Primrose  
Pumpkin  
Quince  
Radish  
Rice  
Rose  
Rutabaga  
Rye  
Saffron  
Sage  
Salsify  
Scented Geranium  
Sea Kale  
Snap Dragon **p**  
Sorghum  
Spelt  
Spinach  
Squash-Summer  
Squash-Winter  
Strawberry  
Sugar Cane  
Sunflower  
Sweet Potato  
Sweet Woodruff  
Tarragon  
Tea Bushes  
Thyme

Timothy Grass

Tomatillo

Triticale

Tulip Petals

Turmeric

---

Turnip

Violet

Walnut

Wheat

Yucca Petals

---

9

Agave

Alfalfa

Almond

Amaranth

Anise

Apple

Arugula

Artichoke

Asparagus

Asparagus Peas

Avocado

Bamboo

Banana

Basil

Barley

Bean-Black

Bean-Fava

Bean-Green

Bean-Kidney

Bean-Lima

Bean-Pinto

Bean-Soy

Beet

Begonia-Tuberous/Waxed p

Blueberry

Brambles

Broccoli

Carrot

Cauliflower

Celery

Chestnut

Chinese Artichoke

Chrysanthemum

Cinnamon

Citrus

Clove

Clover

Coffee

Collard Greens

Corn

Cornflower  
Cucumber  
Cumin  
Dame's Rocket  
Dandelion  
Date  
Day Lily  
Eggplant  
Endive  
English Daisy  
Fennel  
Fuchsia **a**  
Garden Sorrel **p**  
Garlic  
Ginger  
Gladiolus  
Goji Berry  
Hamburg Parsley  
Hibiscus  
Honeysuckle  
Impatiens  
Kale  
Kiwi  
Lavender  
Leek  
Lentil

Lettuce-Head  
Lettuce-Loose Leaf  
Linseed/Flax  
Loquat  
Macadamia Nut  
Marigold  
Melon-Summer  
Millet  
Mushrooms  
Nasturtiums **a**  
Okra  
Olive  
Onion-Bunching  
Onion-Sweet  
Onion-Tree  
Oregano/Marjoram  
Pansy  
Parsley  
Parsnip  
Pea-Black Eyed  
Pea-Garden  
Peanut  
Pecan  
Pepper  
Phlox-Perennial  
Pineapple

Pistachio  
Pomegranate  
Potato  
Pumpkin  
Quince  
Radish  
Rice  
Rose  
Rutabaga  
Rye  
Saffron  
Salsify  
Scented Geranium  
Snap Dragon **p**  
Sorghum  
Spinach  
Squash-Summer  
Squash-Winter  
Starfruit

---

Stevia  
Strawberry  
Sugar Cane  
Sunflower  
Sweet Potato  
Tarragon  
Tea Bushes  
Thyme  
Timothy Grass  
Tomatillo  
Tomato  
Tulip Petals  
Turmeric  
Turnip  
Violet  
Walnut  
Wheat  
Yucca Petals

---

## **10**

Amaranth  
Arugula  
Artichoke  
Asparagus  
Asparagus Peas  
Avocado

Bamboo  
Banana  
Barley  
Basil  
Bay  
Bean-Fava

Bean-Kidney  
Bean-Lima  
Bean-Soy  
Beet  
Begonia-Tuberous/Waxed p  
Blueberry  
Broccoli  
Cashew  
Celery  
Chinese Artichoke  
Chocolate  
Cinnamon  
Citrus  
Clove  
Clover  
Coffee  
Collard Greens  
Corn  
Cornflower  
Cucumber  
Dandelion  
Date  
Dragon Fruit  
Eggplant  
Fennel  
Fuchsia p  
Garden Sorrel p  
Garlic  
Ginger  
Gladiolus  
Goji Berry  
Hibiscus  
Impatiens  
Kale  
Lentil  
Lettuce-Head  
Lettuce-Loose Leaf  
Loquat  
Macadamia Nut  
Mango  
Marigold  
Melon-Summer  
Millet  
Mushroom  
Nasturtiums p  
Okra  
Olive  
Onion-Bunching  
Onion-Sweet  
Oregano/Marjoram  
Parsnip  
Pea-Garden

Peanut  
Pepper  
Pineapple  
Pistachio  
Pomegranate  
Potato  
Pumpkin  
Radish  
Rice  
Rose  
Rutabaga  
Saffron  
Scented Geranium  
Snap Dragon **p**  
Sorghum  
Spinach  
Squash-Summer

---

## **11**

Amaranth  
Arugula  
Artichoke  
Asparagus  
Asparagus Peas  
Avocado  
Banana  
Barley

Squash-Winter  
Starfruit  
Stevia  
Strawberry  
Sugar Cane  
Sunflower  
Sweet Potato  
Tea Bushes  
Thyme  
Timothy Grass  
Tomatillo  
Tomato  
Turmeric  
Turnip  
Vanilla  
Yucca Petals  
Wheat

---

Basil  
Bay  
Bean-Lima  
Beet  
Begonia-Tuberous/Waxed **p**  
Cashew  
Chocolate  
Cinnamon

Citrus	Pea-Garden
Clove	Peanut
Coffee	Pepper
Collard Greens	Pineapple
Corn	Potato
Cucumber	Pumpkin
Date	Radish
Dragon Fruit	Rice
Eggplant	Rose
Fuchsia p	Rutabaga
Garden Sorrel p	Scented Geranium
Gladiolus	Sorghum
Hibiscus	Spinach
Impatiens	Squash-Summer
Kale	Squash-Winter
Lentil	Starfruit
Lettuce-Head	Stevia
Macadamia Nut	Sugar Cane
Mango	Sunflower
Marigolds	Sweet Potato
Melon-Summer	Tea Bushes
Millet	Timothy Grass
Mushroom	Tomatillo
Nasturtiums p	Tomato
Okra	Turnip
Parsnip	Vanilla



Wheat

---

**12**

Arugula

Avocado

Banana

Bean-Lima

Cucumber

Mango

Nasturtiums p

Peanut

---

Pepper

Potato

Radish

Scented Geranium

Spinach

Squash-Summer

Squash- Winter

---

**13**

Bean-Lima

---

## **Growing Season (outside in the ground)**

This list moves in increments of 5. If a section of fives is skipped, that is because there was nothing in that section. Every subsequent section includes the sections before it. For example section 10 includes radishes as well. This list is referring to the hardiest breeds, with the shortest grow times.

### **5**

Radish

---

### **10**

Cilantro/Coriander

Linseed/Flax

Mushroom

Tarragon

Turnip

---

### **20**

Arugula

Primrose

Spinach

Rye

---

### **25**

Beet

Lettuce-Loose Leaf

Saffron

---

### **30**

Orchard Grass

Pea-Garden

Timothy Grass

---

### **40**

Alfalfa

Collard Greens

Dandelion

Dill

Impatiens

Oat

Onion-Bunching

Peony

Potato

Sweet Woodruff

Tulip Petals

Yucca Petals

---

### **45**

Bean-Soy

Broccoli

Tomato

---

**50**

Basil

Bean-Green

Buckwheat

Cabbage

Carrot

Cucumber

Dame's Rocket

Fennel

Hollyhock

Kale

Okra

---

60

Agave

Almond

Amaranth

Apple

Apricot

Asparagus

Asparagus Peas

Barley

Bean-Lima

Blueberry

Brambles

Cherry

Chestnut

Chinese Cabbage

Corn

Cranberry

Currant

English Daisy

Fig

Garlic

Gladiolus

Goji Berry

Grape

Horseradish

Lentil

---

Lettuce-Head

Lilac

Marigold

Pea-Black Eyed

Peach/Nectarine

Pear

Pecan

Phlox-Perennial

Plum

Quince

Rhubarb

Rose

Rutabaga

Squash-Summer

Strawberry

Triticale

Walnut

Wheat

---

**65**

Endive

Sage

---

**70**

Clove

Cornflower

Honeysuckle

Parsley

Sea Kale

Snap Dragon

Sorghum

Thyme

---

**80**

Bamboo

Bean-Fava

Brussel's Sprouts

Cauliflower

Celtuce

Day Lilly

Garden Sorrel

Kiwi

Leek

Lentil

Onion-Sweet

Onion-Tree

Oregano/Marjoram

Pansy

Parsnip

Pepper-Sweet

Pomegranate

Salsify

Scented Geranium

Squash-Winter

Sunflower

Tomatillo

Violet

---

**85**

Hamburg Parsley

Pumpkin

---

**90**

Bean-Black

Bean-Kidney

Bean-Pinto

Begonia-Tuberous/Waxed

Carnation

Melon-Summer

Nasturtiums

Stevia

Sweet Potato

---

**100**

Anise

Celery

Chrysanthemum

Fuchsia

Hibiscus

Lavender

Pepper-Hot

Spelt

---

**110**

Celeriac

Melon-Winter

---

**120**

Cumin

Eggplant

Peanut

Rice

---

**150**

Artichoke

Ginger

Millet

---

**180**

Vanilla

---

**200**

Bay

Chinese Artichoke

---

**270**

Turmeric

---

**365**

Avocado

Banana

Cashew

Chocolate

Cinnamon

Citrus

Clove

Coffee

Date

---

Dragon Fruit

Loquat

Macadamia Nut

Mango

Olive

Pineapple

Pistachio

Star Fruit

Sugar Cane

Tea Bushes

---

# Glossary

**Acidic (soil):** soil that has a pH lower than 7, commonly referred to as sour soil

**Alkaline (soil):** soil that has a pH higher than 7, commonly referred to as sweet soil

**Amend (soil):** to add thing to your soil in order to change the pH and/or the nutrient density

**Annual (plant):** a plant that only lives for one season so you need to replant it every year

**Biennial:** a plant that grows seeds the second year of life

**Blanch:** to cover a plant or part of a plant to prevent light from reaching it, this tends to make plants sweeter and more tender

**Bleat:** a “baa” sound made by an animal such as a sheep or goat

**Boar (pig):** a male pig

**Bolt (plant):** when a plant shoots out a flower stock, this usually makes it's leaves bitter

**Brassica:** A family of plants that include mustard, cabbage, collards, broccoli, cauliflower, turnips, kale, Brussel's sprouts and more

**Buck (rabbit):** a male rabbit

**Bulb (plant):** a round underground root that is surrounded by fleshy scale leaves or leaf bases, it stores nutrients over winter for the plant to sprout again

**Bull (cow):** a male cow

**Calf (cow):** a baby cow

**Clay:** a stiff, sticky fine-grained earth, typically yellow, red, or bluish-gray in color

**Cob (swan):** a male swan

**Cock (bird):** a male bird

**Companion Plant:** a plant that grows well next to another plant

**Crop rotation:** when you plant a crop that benefits from the soil after you've planted another crop



**Cross Pollinate:** the creation of mixed offspring between two different breeds of a plant that are from the same family of plants

**Crown (plant):** a group of tangled roots

**Cucurbit:** The cucumber family that includes cucumber, watermelon, pumpkin, and more

**Cutting (plant):** what you cut away from a plant

**Cygnets (swan):** a baby swan

**Detassel (corn):** to remove the tassel like part of the top of a corn plant

**Doe (rabbit or goat):** a female rabbit or goat

**Drake (duck):** a male duck

**Dual-Purpose:** an animal that can be used for more than one thing

**Edible:** Can be eaten with minimal effort, such as cooking, peeling, boiling, or fermenting

**Ewe (sheep):** a female sheep

**Eye (potato):** small roots coming out that look similar to eyes, but once they grow, they look like small plants

**Fertilizer:** some mix of nutrients for plants

**Flagging (mammal):** wagging of the tail repeatedly, and sometimes obsessively

**Foliage:** the leaves of a plant

**Fowl:** bird

**Frost:** temperatures below 32° F or 0° C

**Frost Hardy:** a plant that can withstand temperatures below 32° F or 0° C

**Fry (fish):** baby fish

**Germinate:** a root coming out of a seed

**Grow Zone:** numbered regions in which certain temperatures are and aren't reached for lengths of time, each number is different, when a plant is hardy to certain grow zones it can be grown in those regions

**Hardy:** withstands harsh conditions well

**Harvest:** to take the intended part of a plant or animal

**Head (plant):** leaves bundled tightly together in a large ball

**Heifer (cow):** a female cow

**Hen (bird):** a female bird

**Humidity:** the moister level in the air

**Lamb (sheep):** a baby sheep

**Manure:** animal feces that may or may not need to be aged to be useful to plants

**Migration:** a traveling period, usually yearly, and usually to the same place, by an animal

**Minerals:** inorganic nutrients

**Molt (crustacean):** when the hard outer shell becomes soft and flakes off revealing a new shell beneath

**Nitrogen:** an essential nutrient for healthy foliage in plants

**Nutrient:** microscopic parts that are necessary for healthy life

**Ornamental:** meant for show, not for food

**Perennial:** a plant that comes back every year in the same place from the same root

**pH:** the hydrogen ion concentration in a solution

**Phosphorus:** an essential nutrient for healthy roots in plants

**Pin (swan):** a female swan

**Planting Guide:** a collection of descriptors on how to plant things

**Pod (seed/bean):** a fleshy containment that can dry and still contain seeds or beans

**Potassium:** an essential nutrient for healthy fruits on plants

**Propagate:** to cause a plant to reproduce, or replicate

**Prune:** to remove parts from a plant

**Ram (sheep):** a male sheep

**Ratio:** the amount of something in comparison to itself

**Region:** an area of land and/or water

**Reseed:** when seeds fall from a plant and grow the next year without any effort on your part

**Rhizome:** an underground stem that acts as a root and looks like puffed up tubes, usually hard and crisp

**Rooting Agent:** something that causes a cutting or shoot to grow roots

**Sand:** a coarse medium-grained soil that is usually brown, yellow, grey, or black

**Set (onion):** a small bulb

**Side Dressing (fertilizer):** to put the fertilizer along the side of a plant, not directly onto the plant

**Silt:** material that has not become dirt yet, such as wood, dead leaves, or dead plant material

**Silks (corn):** the silky strands of plant material on the top of an ear of corn

**Spud:** a potato, or potato like root

**Spur (bird):** a sharp bonelike protrusion from the leg

**Squab:** pigeon meat

**Substrate:** coarse bits of an insoluble material

**Temperature:** how hot or cold something is

**Thin (to):** to remove some of the plants to make sure they have room to grow

**Thong (sea kale):** root cuttings, usually with sprouts

**Tom (turkey):** male turkey

**Transplant:** to remove a plant from one place and replant it in another

**Tuber:** a much-thickened underground part of a stem or rhizome

**Umbel:** round cluster of flowers

**Variety (plant):** different types of the same plant

# Index

Acidic: 11, 118, 121, 124

Agave: 148

Alfalfa: 167, 182

Alkaline: 11

Almond: 113

Amaranth: 168, 182

Amend: 11

Anise: 149, 150, 158, 182

Annual: 28, 81, 82, 87, 90, 91, 93, 96, 99, 100, 103, 106, 107, 108, 145, 330

Apple: 44, 105, 114, 120, 143

Apricot: 115

Arugula: 15, 182, 330, 333

Artichoke: 16, 33, 36, 108, 330, 335

Asparagus: 17, 27, 46, 155, 157, 159, 328, 330, 331, 335

Asparagus Peas: 18, 330, 335

Avocado: 116

Barley: 169

Basil: 17, 41, 64, 77, 79, 150, 152, 155, 158, 161, 163, 182

Bass: 302

Bay: 151

Biennial: 27-34, 38, 43, 46, 47, 57, 58, 60, 70, 71, 73, 80, 86, 140, 332

Bean: 15, 18, 19-28, 30, 31, 32, 34, 39, 40, 41, 44, 58, 60, 61, 62, 64, 66, 67, 70, 73, 123, 126, 166, 330, 335

Beet: 15, 17, 21, 27, 28, 29, 32, 59, 63, 73, 154, 182, 330, 333

Begonia: 81, 330, 335

Bison: 287-289, 326, 329

Blanch: 42, 49, 306

Bleat: 240

Blueberry: 118

Boar: 254-265

Bolt: 15, 28, 35, 37, 42, 51, 52, 68, 152, 155, 159

Bramble: 119

Brassica: 12, 15, 28, 29, 30, 32, 38, 47, 70, 80, 86, 149

Broccoli: 20, 22, 23, 25, 27, 28, 30, 61, 66, 70, 149, 155, 182, 330, 334

Brussel's Sprouts: 29, 37, 330

Buck: 266

Buckwheat: 170, 182

Bulb: 27, 43, 44, 58, 59, 88, 110, 160

Bull: 290-301

Cabbage: 20-23, 25, 30, 34, 37, 44, 51, 52, 58, 61, 62, 63, 66, 70, 149, 154, 164, 182, 330, 332, 333

Calf: 290, 292, 300

Carnation: 82, 330, 335

Carp: 303

Carrot: 12, 15, 20-23, 25, 31, 33, 34, 43, 46, 49, 51, 52, 60-63, 71, 73, 79, 159, 161, 182, 332, 333

Cashew: 120

Catfish: 304

Cauliflower: 20, 22, 23, 25, 27, 30, 32, 34, 37, 61, 70, 83, 149, 182, 330, 334

Celeriac: 33, 34, 63, 332, 334

Celery: 15, 20-25, 28, 29, 30, 32, 33, 34, 49, 51, 52, 61, 62, 63, 70, 73, 182, 332, 335

Celtuce: 35, 332, 335

Cherry: 121

Chestnut: 36, 122

Chicken: 183-199, 200, 215, 219, 229, 236, 290, 318, 329

Chinese Artichoke: 36, 330, 335

Chinese Cabbage: 37, 330, 334

Chocolate: 123

Chrysanthemum: 83, 108, 330, 335

Cilantro: 152, 155, 161, 163

Cinnamon: 12, 93, 97, 100, 106, 118, 119, 124, 163

Citrus: 93, 99, 125

Clay: 11

Clove: 149, 153

Clover: 19, 45, 48, 84, 182, 330, 333

Cob: 233

Cock: 189, 223

Coffee: 12, 13, 18, 87, 118, 126

Collard Greens: 38, 80, 332, 333

Coriander: 64, 150, 152, 182

Corn: 13, 18, 20, 22-26, 39, 40, 46, 53, 54, 61, 62, 63, 66, 67, 74, 75, 85, 155, 172, 328, 330, 335

Cornflower: 85, 330, 333

Cow: 287, 290-297, 326

Crab: 305, 327

Cranberry: 127

Crawfish: 306

Cross Pollinate: 12, 29, 31, 35, 37, 40, 42, 43, 46, 49, 51, 52, 53, 54, 86

Crown: 17, 103

Cucumber: 15, 16, 20, 22-25, 29, 30, 33, 39, 40, 50-54, 56, 61, 62, 63, 66, 70, 73, 110, 154, 155, 330, 335

Cucurbit: 12, 40, 67

Cumin: 154

Currant: 128

Cutting: 12, 67, 72, 82, 93, 97, 106, 114, 115, 119, 121, 123, 125, 130-147, 151, 157, 158, 161-164, 166, 167, 182

Cygnets: 233

Dame's Rocket: 86, 332, 333

Dandelion: 87, 330, 333  
Date: 129  
Day Lily: 88, 331, 333  
Detassel: 13  
Dill: 15, 29, 30, 31, 33, 34, 38, 43, 46, 47, 60, 70, 73, 150, 152, 155, 161, 163, 182  
Doe: 240, 266  
Dragon Fruit: 130  
Drake: 200  
Duck: 200-208, 319  
Eggplant: 20-23, 25, 41, 56, 61, 63, 66, 78, 79, 164, 330, 335  
Endive: 42, 332, 335  
English Daisy: 89, 330, 333  
Ewe: 271  
Eye: 66  
Fennel: 43, 161, 182, 332, 334  
Fig: 90, 131  
Flagging: 240, 271  
Flax: 171  
Foliage: 11, 36, 63, 66, 71, 72, 77, 92, 102, 151  
Fowl: 183, 318  
Frost Hardy: 113, 115  
Fry: 302, 307, 315, 316  
Fuchsia: 90, 330, 335  
Garden Sorrel: 91, 330, 335  
Garlic: 21, 22, 23, 25, 29, 35, 38, 44, 47, 61, 62, 66, 80, 161, 330, 333  
Ginger: 156  
Gladiolus: 92, 331, 335  
Goji Berry: 132  
Goat: 240-252, 322, 329  
Goose: 208-214, 320  
Grape: 45, 48, 335  
Guinea Fowl: 215, 216  
Hamburg Parsley: 46, 332, 335  
Hardy: 71, 93, 104, 113, 114, 115, 117, 138, 189, 195, 197, 211, 213, 257, 293  
Hen: 183, 200, 215, 219, 221, 223, 229, 233, 236  
Hibiscus: 93, 330, 335  
Hollyhock: 94, 331, 333  
Honeysuckle: 95, 331, 333  
Horseradish: 157  
Humidity: 12, 55, 77, 126, 166  
Impatiens: 96, 330, 335  
Kale: 30, 38, 47, 66, 70, 182, 332, 333  
Kiwi: 48, 330, 335  
Koi: 307  
Lamb: 275, 277, 278  
Lavender: 97, 330, 335  
Leek: 34, 49, 80, 330, 333  
Lentil: 50, 330, 333

Lettuce: 15, 17, 21, 27, 29, 30, 31, 33, 35, 41, 42, 51, 52, 58, 59, 60, 62, 63, 66, 70, 73, 110, 155, 182, 330, 335

Lilac: 98, 330, 335

Linseed: 171, 182

Lobster: 308, 327

Loquat: 133

Macadamia Nut: 134

Mango: 120, 135

Manure: 11, 17, 126

Marigold: 12, 39, 63, 79, 99, 150, 161, 330, 335

Marjoram: 62, 158, 162, 182

Melon: 12, 39, 40, 53, 54, 56, 66, 330, 335

Microgreens: 182

Migration: 303, 316

Millet: 172

Molt: 311, 313

Mussels: 309, 327

Mushroom: 55, 331, 333

Nasturtium: 15, 26, 29, 53, 54, 73, 100, 161, 330, 335

Nectarine: 137

Nitrogen: 11, 12, 15, 19, 27, 30, 31, 33, 34, 35, 37, 38, 39, 42, 44, 46, 47, 49, 51, 52, 55, 57, 58, 62, 66, 68, 69, 70, 72, 73, 76, 77, 80, 83, 84, 90, 93, 94, 101, 102, 105, 108, 116, 117, 118, 121, 125, 126, 128, 135, 136, 139, 142, 143, 146, 150, 155, 156, 158, 165

Oat: 173

Okra: 37, 40, 56, 330, 335

Olive: 136

Onion: 15, 21, 22, 23, 25, 27-32, 35, 49, 57-62, 64, 66, 70, 73, 80, 110, 182, 330, 333

Orchard Grass: 174

Oregano: 150, 158, 159, 161

Oyster: 71, 310, 327

Parsley: 17, 21, 31, 43, 51, 52, 60, 159, 160, 161

Parsnip: 21, 31, 33, 34, 43, 46, 60, 62, 68, 71, 332, 333

Partridge: 219, 220

Pansy: 101, 330, 333

Pear: 138, 143

Peas: 16, 18, 19, 20, 21, 22, 23, 50, 61, 62, 330, 335

Peanut: 63, 330, 335

Peach: 44, 113, 115, 137

Pecan: 139

Peony: 102, 331, 333

Pepper: 13, 22, 23, 25, 37, 56, 61, 64, 77, 78, 79, 83, 100, 160, 165, 330, 335

Perennial: 57, 71, 81, 83, 84, 86-95, 97, 98, 100-104, 107, 109-112, 167

pH: 11, 127

Pheasant: 123-128

Phlox – Perennial: 86, 103, 331, 333

Phosphorus: 11, 31, 37, 46, 57, 59, 66, 70, 71, 77, 80, 90, 93, 94, 98, 101, 102, 105, 116, 118, 121, 125, 134, 137, 138, 142, 156, 157, 168

Pig: 254-265, 323, 329

Pigeon: 229-232

Pin (swan): 233

Pineapple: 65, 330, 335

Pistachio: 140

Plum: 133, 141

Pomegranate: 142

Potassium: 11, 23, 39, 40, 41, 45, 48, 53, 54, 64, 67, 74, 75, 78, 79, 81, 82, 117, 118, 130, 140, 143, 149

Potato: 15, 20-26, 28, 29, 30, 32, 37, 39, 40, 41, 50, 53, 54, 62, 63, 66, 67, 70, 71, 73, 74, 75, 154, 155, 157, 161, 164, 330, 335

Prawn: 311

Prim Rose: 104

Pumpkin: 33, 39, 67, 75, 160, 330, 335

Quail: 223-228

Quince: 143

Rabbit: 266-270, 324, 329

Radish: 20, 22, 23, 25, 31, 40, 51-54, 60, 61, 63, 66, 68, 159, 182, 332, 333

Ram: 271-286

Rhubarb: 69, 81, 157, 331, 333

Rhizome: 165

Rice: 168, 172, 175

Rooting Agent: 12

Rose: 44, 46, 59, 102, 105, 330, 331

Rutabaga: 70, 71, 80, 332, 333

Rye: 176, 180

Saffron: 160

Sage: 29, 30, 31, 60, 62, 70, 158, 161, 163

Salsify: 70, 71, 77, 332, 333

Scallop: 312, 327

Scented Geranium: 106, 330, 335

Sea Kale: 72, 330, 334, 335

Sheep: 271-287, 325, 329

Shrimp: 313, 327

Snap Dragon: 107

Sorghum: 177

Spelt: 178

Spinach: 15, 17, 29, 30, 33, 41, 64, 70, 73, 87, 111, 182, 330, 333

Sprouts: 17, 29, 37, 45, 77, 94, 148, 149, 163, 182



Spud: 156  
Spur: 219  
Squab: 229  
Squash: 12, 20, 22, 23, 25, 33, 39, 40, 61, 66, 74, 75, 160, 330, 335  
Star Fruit: 144  
Stevia: 162  
Strawberry: 18, 20, 22, 23, 25, 28, 30, 32, 44, 51, 52, 59, 61, 63, 70, 145, 157, 164  
Substrate: 13, 55  
Sugar Cane: 76, 330, 335  
Sunflower: 16, 21, 22, 23, 25, 39, 40, 53, 54, 61, 66, 108, 182, 330, 334, 335  
Swan: 233-235  
Sweet Potato: 71, 77, 330, 335  
Sweet Woodruff: 109, 331, 333  
Swiss Chard: 27, 29  
Tarragon: 16, 161, 163  
Tea Bushes: 146  
Thong: 72  
Thyme: 15, 30, 70, 73, 158, 160, 161, 162, 164  
Tilapia: 315  
Timothy Grass: 179  
Tom: 236  
Tomatillo: 13, 78, 79, 330, 335  
Tomato: 13, 17, 20, 22, 23, 25, 28, 30, 31, 32, 34, 37, 46, 53, 54, 58, 59, 60, 61, 64, 66, 70, 78, 79, 132, 330, 335  
Transplant: 17  
Triticale: 180  
Trout: 316  
Tuber: 36, 102  
Tulip Petals: 110  
Turkey: 236-239, 321  
Turmeric: 165  
Turnip: 66, 70, 71, 80, 332, 333  
Umbel: 12, 31, 43, 46  
Vanilla: 109, 166  
Violet: 111, 330, 333  
Walnut: 147  
Wheat: 177, 178, 180, 181  
Yucca Petal: 112, 331, 333