

Vegetable Gardening in Pagosa Country

Ron Chacey – 2023

This is an outline of the challenges, potentials and processes of growing your own food in Pagosa Country. It does not cover all the details, nor does it determine what will work in your particular soil situation and microclimate. You will need to determine that over a few years of experimentation. Different varieties of any one vegetable may perform better or worse in your garden. Every location tends to be different – sometimes changing in less than 100 feet.

Challenges

Soil – Most of our soils need improvement, and some are best replaced with raised beds with soil developed using collected soil and amendments. Suggestions include: soil from under Gambel Oak, plus sand, minerals, nitrogen and compost. Composting here is slow due to dry air and cold nights.

Animals & Pests – Deer, rabbits, ground squirrels, moles, voles, birds, and slugs are examples of critters that will tend to destroy your vegetable plants. They must be prevented by fencing or sprayed materials. Lethal methods are effective, if allowed, but are usually temporary. A good fence is the only method that can be guaranteed to be effective – 7 ½ feet for deer, and buried for some rodents. Below is a page covering other pest such as insects.

Climate – Ours is a difficult climate with many micro-climates, a short frost-free season, very cold nights, intense sun, dry wind, and lack of rain. Most vegetable plants cannot survive in our climate on their own, but there are ways to create micro-climates to counter these adversities. It may take a few years to discover what plants will work best where and with what protection.

Frost – We can have frost in some locations on any day all summer, but most areas will have their last frost before the middle of June – sometimes in May. The first frost in the fall can happen in August, but usually not until mid September. Frost will vary greatly from area to area. The season can be extended using either greenhouses, plastic tunnels, or row covers.

Cold Nights & Cold Soil – Many of the more warmth loving plants, such as tomatoes, peppers, eggplant, cucumbers, melons, and even beans or squash may not produce well in many areas where the temperature is in the low 50s or high 40s most nights of the summer. Finding the right micro-climate or creating one using row covers and heat sinks such as rocks or water containers can help. Growing in large containers above/off the ground will warm the soil up more during the day, thus keeping roots warmer at night. Green houses and tunnels can be very effective.

Intense Sun – The use of remay (spun polyester or polypropylene) row cover or other type of shading is very effective with those well watered plants that tend to wilt under our sun. This can include lettuce, greens, beets, radishes, cauliflower and other cool weather plants.

Dry Wind – Transplants do better when protected for a few days with shade and wind protection – also when covered with a cloche that will retain more moisture in the air around the plant, such as gallon jugs without lids removed and with the bottom cut out. Some plants will do best when shaded and/or surrounded or fully covered with remay or other protection for the whole season.

Water – Most vegetables will require more water than we receive by rain. Watering by hand or with soaker or emitter hoses is usually necessary. The frequency and amount of watering will be reduced with adequate compost or humus in the soil, and with deep mulch such as straw, compost, paper or plastic. Saw dust and wood chips will hold moisture, but they cause the reduction of the available nitrogen and the plants growth may be retarded. Use straw for plants that like cool roots and dark compost or plastic for those that like warm roots.

Potential Vegetables to Grow in Pagosa Country

The plants that succeed will vary greatly from place to place, depending upon the micro-climate. Also, some will like more or less sun shine to thrive. Experiment, experiment, experiment!

Plants are listed below as to challenges from animals, frost, dry wind, intense sun, or cold nights. Most of the plants listed below are annuals, but some are perennials marked with (P).

I am sure there are plants that I have neglected to list – please add them.

With a large greenhouse the list could be more extensive.

For more information concerning particular plant care, please check with the local Cooperative Extension Service, in books from the library, or Google.

Plants with few or no challenges in Pagosa country (in 2018 the deer ate some of these):

Globe Onions – Leeks – Garlic – Green Onions (P?) – Walking Onions (P) – Chives (P)

Potatoes –

Rhubarb (P) – Asparagus (P) – Horseradish (P) -

Tarragon (P) – Lovage (P) – Oregano (P) – Lemon Balm (P) – Thyme (P) – Lavender (P)

Sorrel (P) – Marjoram – Sage – Rosemary

Plants with few or no challenges in Pagosa country, except for protection from animals:

Peas – Sun Chokes (P)

Strawberries (P) – Raspberries (P) -

Plants that need protection from animals and possibly the sun or dry wind:

Lettuce – Greens (chard, kale, mustards, collards, spinach, bok choy, frisée, etc)

Radishes – Beets – Carrots –

Parsnips (a long season root - in a cold frame, plant very early and harvest all winter)

Broccoli – Cauliflower – Cabbage

Plants that need protection from animals, early season frost protection and a long warm summer:

Sweet Corn – Beans – Winter Squash – Summer Squash

Plants that need protection from cold nights and will do well in a plastic covered high tunnel or greenhouse:

Basil – Marjoram – Tomatoes – Peppers – Eggplant – Cucumbers – Melons – Summer Squash

Plants that can do well in a green house in the winter:

Lettuce – Greens (chard, kale, mustard, collards, spinach, bok choy, etc)

Carrots – Beets – radishes – green onions

Tomatoes – pole beans – peas

Perhaps also parsnips – eggplant – peppers, etc. (more experimenting is needed)

Some Ways to Create Microclimates in Pagosa Country

South side of the house or hillside aspect: More impact by the sun, particularly if in a semi enclosed area, will do more to heat up the soil and any heat sinks (rocks, water containers, etc) that are in the garden. South side vs north side can dramatically change the microclimate.

Wind breaks: These can prevent both warmth and moisture from being drawn out of the soil. Hot dry winds can desiccate plants such as lettuce, causing them to wilt every day and not be productive.

Heat Sinks: Rocks and water containers are most commonly used. These will collect heat from the sun during the day and slowly give off that heat during the cold nights. They can be used next to or beneath the plants. Rocks look good, but are hard to move. Gallon plastic jugs filled with water and no cap can be convenient and effective.

Large pots on the deck: When the soil is not in contact with the ground, the cold of the ground does not penetrate the roots in the soil over night. The sun can warm up the pot more than the ground, so warmth loving plants (tomatoes, eggplant, peppers, etc) will be more productive. The large pots that have a water reservoir underneath appear to have additional heat sink capabilities.

Cloches: Covers for individual plants can provide considerable protection during difficult times for the plants. Traditionally glass was used, but plastic works well. Gallon jugs with the bottom cut off and the lid removed work well to protect transplants from hot dry air for a few days. Use a stick to keep the jug from blowing away. Walls of Water (a ring of water filled plastic tubes) are very effective at protecting young plants from frost for early spring plantings.

Row Covers: If plastic is used, it must be opened every day to prevent overheating, and when opened, some protections are not in effect. Row covers made of spun materials are put on and left on day and night, without having to be opened and closed every day because they can breathe. Spun row covers protect only a small amount from light frosts, and are most valuable for protecting from hot dry wind, intense sun, animals and insects. Sun and heat loving plants do not do well in such an environment, but lettuce and tender greens thrive with the protection, particularly in the heat of the summer. Light weight row covers can just be thrown over the plants and weighted down at the edges with enough looseness to allow the plants to push it up. Either square or hooped frames can be put over the plants to hold up the heavier row covers which may provide more protection. Some plants may benefit from row cover protection while young, but be more productive without the cover when they are larger and growing rapidly with deeper roots.

Plastic covered Tunnels – high and low: Hooped tunnels covered with plastic can be very effective at increasing the production of heat loving plants such as tomatoes, peppers, eggplant, cucumbers, melons, basil, summer squash, etc. Large walk-in tunnels are very convenient and will retain more heat overnight, thus being more effective. Plastic tunnels must be ventilated or opened every day when the sun is shining on them or they will over heat. They can be put up in March and taken down in October, thus allowing the soil to be flushed over winter of salt build up, as well as having many insects eliminated by the winter cold.

Greenhouses and Grow Domes: These are a more expensive, but very effective way to extend the growing season – the bigger, the more effective. They will protect from frost considerably better than a plastic covered tunnel. They can provide an additional living space that can be very enjoyable. Consideration needs to be made for protection from insects as they can become concentrated. Also, salts can build up (like in potted plants in the house) and will need to be scraped off and removed, with some of the soil being replaced on a regular basis.

Some Ways to Build Gardens and Soils in Pagosa Country

The amount of full sun per day, southern aspect or slope, high quality soil, compost and fertilizer will all have considerable effects upon what you will be able to produce in your garden.

More sun is usually best, as row covers and shading can be used when needed for plants that will suffer from too much heat from the sun. Sun not only provides for plant growth, but also builds up warmth so that the plants can actually be productive. Most garden veggies like a lot of sun shine and warm soil.

When you include a southern aspect and heat sinks, such as rocks, you can usually extend your season and increase the nighttime temperature of the soil. Low rock walls, rock, gravel or concrete walkways and water containers can all help retain heat and release it over night.

If you also raise the beds, the soil will be even warmer over night. The soil in the raised beds has more surface area for absorbing heat, plus there is less connection to the earth which is constantly sending up the cool from a few feet below the surface. Raised beds can be on flat ground or can be terraced to make the soil level when on a slope. Rocks work well, and logs, timbers, 2x lumber will also get the job done. Most material that you have on hand or can afford will work. Beware of treated lumber, as toxic materials have been used, such as creosote, and arsenic. Some new treated lumber is not toxic.

One of the problems with south facing slopes can be a lack of moisture and good soil. However, good soil is actually not very available at most garden sites in Pagosa Country. Good soil has a high humus content, good drainage, and available minerals and nitrogen. Nitrogen & phosphorus need to be added regularly as they tend to leach out with water that percolates through the soil.

Most local soils will test fine for mineral content and low in nitrogen. However, soil minerals are not always available to the plants. Minerals broken down by micro-organisms become available to plants, so a new garden with good test levels of minerals may not produce well until after a few years as an organic garden. Therefore, it may be best to add minerals that are easily absorbed for a few years when using new soil. Some Pagosa soils may have phosphorus that is not available.

Garden soil can be purchased, but can be costly. Beware that some “top soil” is only what is on top, not actually “good” top soil. One excellent soil source, which has been built up over the centuries is Oak Soil – soil from under Gambel Oak clusters with trees that are over 6 inches in diameter. The first 3 to 6 inches of soil and leaf mold will work without additions, but will be terrific when compost, sand and fertilizers are added.

Compost can be purchased, but many contain wood material that has not finished composting and will rob nitrogen from your soil until it is fully composed. Well composed wood will make good compost – wood chips and old rotten wood or logs. The problem is that it takes a lot of time for the pieces to completely decompose, particularly when they are not small. A compost pile of old wood chips with dirt for organisms, and an activator will start to work right away, but may take a couple of years to finish, even when turned and watered well a couple of times. Not all compost has sufficient nitrogen levels.

Food scraps and garden waste can also be composted, but the time, labor and yield make it only worth it when you are not in a hurry, and have a very small garden. These vegetable wastes can also be simply buried or tilled into the garden soil in the fall, and allowed to incorporate themselves, mostly labor free.

Fertilizing Soils in Pagosa Country

For a very small garden, complete organic fertilizers are available, which need to be added every year or more. For a garden of more than a few hundred square feet, you may want to add the compost, minerals and nitrogen separately and save some money. The following are suggestions following what I am currently doing for my gardens and are somewhat derived from Eliot Coleman's *The New Organic Grower*.

Starting a Raised Bed –

8 to 12 inch diameter logs pinned together, with additional logs on the downhill side to make terraces. Most veggies need less than 12 inches of soil, but some like asparagus need more. Plant shallow rooted plants on the up side of the terraces, and deep rooted on the down side.

Fill 8 to 20 inches deep with oak soil, or other high quality soil, that has 10 to 20 percent sand added, depending on the drainage needs of the plants that will go into the garden. Carrots, parsnips and asparagus all need lots of good drainage. Note that new, deep soil will compress over time and it will need to be fluffed up and maybe added to after a year or so, to re-fill the bed to the top.

Till in 10 percent compost (less if the soil already has high humus content) in the top 12 inches. 25 to 50 lbs. of compost can be added per 100 sq. feet every year either tilled in or as mulch that gets tilled in later.

For each 100 square feet of soil, add the following minerals at about 4 to 8 inches deep, as organic minerals do not readily leach down through the soil. Adding them on top every year does not put them down at the level where the roots are working. The mineral amounts below are calculated as sufficient for 10 years, and I presume that the garden micro-organisms will be breaking down sufficient minerals from the sand and soil after 10 years – if not, then more minerals can be added at that time. If you are doing short term gardens, just use 10% of the amounts every year.

Green Sand (potassium and trace minerals) – 20 lb. per 100 sq. feet

Rock Phosphate – 10 lb. per 100 sq. feet – note that in some soils this phosphorus does not become available, and you will need to use seabird guano

Azomite (trace minerals & optional) – 50 lb. per 100 sq. feet

Add nitrogen at the surface on a regular basis, as it will leach down through the soil. Both nitrogen and compost need to be added at least once a year, and will provide better yields when also added a couple of times during the growing season. Beware of adding too much nitrogen, as it can burn or over stimulate the plants. Use small amounts, but often and regularly. Start with small amounts and add more only when the plants appear to need it due to lack of vigorous growth.

Organic Blood Meal is an effective all purpose nitrogen fertilizer and Corn Gluten is a good mid season nitrogen to till into the soil, as it is also said to be effective at preventing the germination of weeds. A good system is to till in blood meal and add compost as mulch when the plants are started. Then after a few weeks, till in the mulch along with corn gluten, and then add more compost as mulch.

Nitrogen can be added by growing nitrogen producing legume cover crops, but in a small garden this may not be very desirable, as they take up time and space. Diakon Radish as interspersed green mulch or following early crops can bring up nitrogen that has leached down more than a foot. The Diakon then die over winter to leave aerated soil and humus and nitrogen near the surface. Groundhog Diakon is not very edible, but grows up to 20-inch-deep roots.

Fertilizers, Soil Additives and Potting Mixes for Pagosa Country

Vermiculite

Absorbs and holds water – it is valuable in seed starting mixes, potting mixes and as a soil amendment. Damping off fungus does not readily grow across its sterile mineral surface – good for starting tender baby plants such as onions and snapdragons, or for rooting vegetative cuttings.

Sphagnum (Peat) Moss

Organic material mined from bogs in Canada – it is valuable as a soil amendment that does not decompose very rapidly, thus maintaining good soil tilth. It is slightly acid which will balance the local soil's tendency to be base or alkaline.

Seed Starting Mix

Mostly finely screened sphagnum moss – may have added fertilizers, composts, and water retention materials such as perlite or vermiculite. Beware of mycorrhizae (fungus) additions. While they may be good for the garden, they can also cause damping off of young tender plants.

Potting Mix

A coarse version of a starting mix, usually with added fertilizers – use for larger seeds and as a foundation under a seed starting mix for small seed. This can also be used for growing mature plants in pots on the deck or in a green house.

Blood Meal

Organic nitrogen – it is a strong, general purpose nitrogen fertilizer.

Corn Gluten

Organic nitrogen – this is reported to act to prevent seed germination, so it works well as a top or side dress nitrogen that is applied and lightly tilled in after plants are growing in the garden and are about to start producing.

Rock Phosphate or Seabird Guano

Soil additive – it is necessary for plant growth and health, particularly for root and flower development – the guano can be added yearly, as it will leech out, or rock phosphate tilled in once every 5 to 10 years along with green sand and Azomite.

Green Sand

Mineral soil additive – this contains ocean derived trace minerals and potassium

Azomite

Mineral soil additive – this is clay from under an ancient sea bed. It contains a wide array of trace minerals that are readily available to plants, and is an assurance that your plants are not lacking and underperforming.

Compost

Decomposed organic materials – these provide soil with well balanced nutrients at a balanced ph (acid/base balance) so that plants perform well. If wood materials are included and not fully decomposed, they can rob the soil of nitrogen until decomposition is complete. Soil that has too much clay or too much sand can both be improved with compost by increasing both the ability to drain well and to hold moisture at the same time. Plants can grow in pure compost, but they may need to be watered almost every day to prevent drying out completely and killing the plants.

Some Common Pests & Controls in Pagosa Country

The early years of a garden may not have many pests, as they have not found it yet. Sticky yellow traps are most useful for finding out what insects are in need of control. A healthy vigorous garden may not be as vulnerable. The only controls that I am interested in for my vegetable garden are not highly toxic.

Aphids – small green or brown eggs or soft round insects that suck on plants most often on new growth or underside of leaves. The adults are small flies. They are most in need of control in greenhouses and covered beds. Washing or rubbing them off can be enough if discovered early enough. Horticultural Oil mixed with water and sprayed on all parts of the plant can be very effective if repeated every day or two, as needed. It is not toxic – it kills by suffocation. Peppers can be harmed by too much oil – rinse it off after 30 minutes. Insecticidal Soap can be effective; however, some plants can be hurt by the soap. Rinsing the plants with water a half hour after any spray can protect the plants. Ants will move aphids onto plants, so eliminating any ants is necessary.

Ants – They will undermine plants in the garden eliminating the plant's ability to get to water, and they will move aphids around in the garden. Highly toxic ant killers are not the most effective. Terro Ant Killer is borax in a syrup (liquid or granules) and is very quick & effective.

White Fly - A wave of the hand over a plant with white fly will create a small cloud of small white flies. They damage plants similar to aphids and are also treated with spray of Horticultural Oil or Insecticidal Soap.

Root Maggots or Fungus Gnats – These will attack house plants, seed flats, and most other plants. The plants will wilt and there will be very small black flies running around on the soil surface. Their larvae eat on the roots of plants. Soaking the soil with BT (bacillus thuringis) in water will eliminate them if repeated often enough. Using coconut coir mulch may prevent them from laying their eggs in the soil.

Cabbage Loopers – A small white or yellow butterfly that flits about over broccoli, cauliflower and cabbage will lay eggs on the plants. The green worms (larvae) will eat the plant, usually messing up the cabbage, making it unusable. They can be washed out of broccoli and cauliflower with salted water. Spraying the plants regularly with BT (dry powder or in water) will kill the larvae before they do major damage.

Blight & Viruses – The only way I know to deal with these is to not grow in the same soil for several years. Growing with companion plants and/or growing various plants together may help. Remove a few inches of soil and all of the year's plant material may also help.

There are other pests that might want to use your garden, but I have not encountered them here and do not know much about dealing with them.

Keeping Your Own Seed

Keeping seeds from hybrid plants can be unsatisfactory as half of them may not be the same as the hybrid and may eventually revert to something that you do not want. OP (open pollinated and/or heirloom) should breed true to the parent. Often different varieties of the same vegetable will cross when flowering at the same time, so it may be best to grow only one variety.

Harvest seeds when they are dried and are no longer green. In order to clean the seeds, some can be agitated in a shoe box cover, and some can be winnowed in the wind or by blowing on them. In our climate, seeds can be stored in a paper envelope in a dry place. If the air is humid, seeds will need to be in plastic or glass containers when well dried. Be sure to label them with name and year. Your own seeds will often be more vigorous than purchased seeds, perhaps more acclimated to your garden

Some seeds such as lettuce & tomatoes are very easy to keep as they self-pollinate and do not need a 2nd plant. Lettuce plants will cross pollinate, Single tomato flowers may cross pollinate, but will usually self-pollinate in the wind or by you shaking the plant. Lettuce seeds are ready when the flower head starts to form a dry white cluster of fluff. Tomato seeds are ready in any ripe tomato. Soak the tomato seeds in warm water for a few hours then rinse, strain and place on a ceramic plate. Scrape them loose from the plate before they are fully dry and are stuck hard to the plate. Harvest eggplant and pepper seeds the same as tomatoes, however these plants are more likely to cross with other varieties of their species.

Other seeds such as squash, cucumbers and melons are easy to harvest – do the same as for tomatoes. These plants cross pollinate readily so you need to only grow one variety or to cover the female flowers and pollinate between the male and female flowers by hand with a q-tip. Paper cups work well to cover the female flowers. Male flowers are on a longer stem.

Root crops such as beets, carrots, chard and parsnips are easy except that the roots need to be kept over winter and not frozen so that they can produce their seed the 2nd season. Set them out when the weather is no longer freezing. They will cross pollinate if near a 2nd variety that is flowering at the same time. Note that beets and chard will cross pollinate.

Onions and leeks are very similar to the root crops, as they are biennials and need to be kept over to the next year.

Radishes, most greens and most herbs, are all easy, as most will self-pollinate. However, they will also cross pollinate with other members of their species or group, producing a hybrid. They are ready when dry, hard, and no longer green.

Beans & peas are easy – just let them go to dry on the plant. They will cross pollinate, so you will need to only grow one variety of bean or pea.

Seed Starting

With our short season and the weather often going quickly from winter to summer, most plants will be more productive when started in containers and transplanted out, particularly those that can withstand a light frost. Seeds planted in cold, damp soil will often rot before they can germinate. Most root crops need to be planted where they will grow, as when transplanting the root can get damaged or distorted.

Seeds need to be started in containers at different times of the year depending on when and where you will be setting them out and how long the plants take to set their 2nd set of leaves (their first true leaves), making them ready to transplant. Soak the soil and seeds after planting in containers, then let them drain.

Seeds will germinate best when given the appropriate temperature. Too hot or too cold can kill the seeds. See the page below as a guide. Most seeds germinate best at about 77 degrees. Spinach is the most particular – it needs 50 degrees or less to do best. Most tropical plants will germinate better above 80 degrees, but most seeds will die at temperatures much above 90 degrees. Heat mats are available that increase the room temperature about 20 degrees. Lights will also increase the temperature. Seed flats that are at higher temperatures will dry out more rapidly.

Seeds can be started in potting mix in very small containers and transplanted to larger when they have their 2nd leaves and/or their roots are starting to emerge at the bottom. Most seeds do best when planted about 1 to 2 times as deep as they are thick. Some, like onions, do best when covered with vermiculite so they will not be attacked by powdery mildew. Some wild flowers need to be on the surface and receiving sunlight.

Once the seeds emerge, they need fairly intense light. Florescent warm color lights will work as well as those specific for plants. Do not let the leaves touch the light tubes as it will desiccate the leaves. For starts, it is good to have a system for raising and lowering a frame with the lights attached.

It is usually best to transplant right after the plant sends out its first true leaf, not the cotyledons that come out of the seed. When transplanting, some plants (such as strawberries which grow from a crown) must be set so that the crown is not below the soil. Most herbaceous plants, and particularly tomatoes and cabbage family plants like to be buried deep, as they will send out roots from any stem that is below the soil line. Set these plants so that the soil supports the plant, not letting it fall over. Pack the soil around the transplant just enough so that there are no air pockets and the root ball will be fairly tight, but with dense and/or wet soil or mixes, beware of packing too tightly.

When growing in containers, it is often best to do some bottom watering – setting the container in an inch or two of water (it can also contain liquid fertilizer) for 15 to 30 minutes. Top watering will not always keep the bottom of the container moist. When starting seeds bottom watering is best, as top watering can damage a small plant or can disturb or uncover the seeds. Top watering can easily be done with a spray bottle.

When growing plants in larger containers, it is good to have a large tray or saucer that can be filled with water regularly, in addition to top watering. Some fancy containers come with a water tray and wicks to keep the bottom of the container moist. With the surface of the soil remaining dry it may be possible to prevent fungus gnats and other pest from attacking the soil and plants.

Setting out plants without protection from the sun and wind can cause the plants to suffer or die. Using a cloche for a couple of days will usually be of great help, as well as a shade for several more days. Do not leave a cloche on too long, as the plant will become overly dependent upon the climate inside the cloche.

Usual percentage of seedlings produced at different temperatures

Numbers in () are the days to seedling emergence. Number in red = optimal daytime soil temperature for maximum production in the shortest time.

I am sorry to say that I have forgotten the source of this data.

Crops	32°F	41°F	50°F	59°F	68°F	77°F	86°F	95°F	104°F
Asparagus	0	0	61(53)	80(24)	88(15)	95(10)	79(12)	37(19)	0
Beans, lima	0	0	1	52(31)	82(18)	90(7)	88(7)	2	0
Beans, snap	0	0	1	97(16)	90(11)	97(8)	47(6)	39(6)	0
Beets	0	53(42)	72(17)	88(10)	90(6)	97(5)	89(5)	35(5)	0
Cabbage	0	27	78(15)	93(9)	0(6)	99(5)	0(4)	0	0
Carrots	0	48(51)	93(17)	95(10)	96(7)	96(6)	95(6)	74(9)	0
Cauliflower	0	0	58(20)	60(10)	0(6)	63(5)	45(5)	0	0
Celery	0	72(41)	70(16)	40(12)	97(7)	65	0	0	0
Cucumber	0	0	0	95(13)	99(6)	99(4)	99(3)	99(3)	49
Eggplant	0	0	0	0	21(13)	53(8)	60(5)	0	0
Lettuce	98(49)	98(15)	98(7)	99(4)	99(3)	99(2)	12(3)	0	0
Muskmelon	0	0	0	0	38(8)	94(4)	90(3)	0	0
Okra	0	0	0	74(27)	89(17)	92(13)	88(7)	85(6)	35(7)
Onions	90(136)	98(31)	98(13)	98(7)	99(5)	97(4)	91(4)	73(13)	2
Parsley	0	0	63(29)	0(17)	69(14)	64(13)	50(12)	0	0
Parsnips	82(172)	87(57)	79(27)	85(19)	89(14)	77(15)	51(32)	1	0
Peas	0	89(36)	94(14)	93(9)	93(8)	94(6)	86(6)	0	0
Peppers	0	0	1	70(25)	96(13)	98(8)	95(8)	70(9)	0
Radish	0	42(29)	76(11)	97(6)	95(4)	97(4)	95(3)	0	0
Spinach	83(63)	96(23)	91(12)	82(7)	52(6)	28(5)	32(6)	0	0
Sweet Corn	0	0	47(22)	97(12)	97(7)	98(4)	91(4)	88(3)	10
Tomatoes	0	0	82(43)	98(14)	98(8)	97(6)	83(6)	46(9)	0
Turnips	1	14	79(5)	98(3)	99(2)	100(1)	99(1)	99(1)	88(3)
Watermelon	0	0	0	17	94(12)	90(5)	92(4)	96(3)	0

Seed Companies –

There are many more, particularly for specialty seeds, but these companies may have most of what one needs. The companies that I buy most from are listed first.

- territorialseed.com - some unusual varieties of vegetables and flowers – they do extensive development and experimentation with new varieties
- superseeds.com – Pine tree Garden Seeds – inexpensive packets for experimentation
- rareseeds.com – Baker Creek Heirloom Seeds – unusual varieties from which you can keep your own seed – inexpensive packets but with fewer seeds
- jungseed.com – selection of many desirable varieties
- fedcoseeds.com – inexpensive packets for experimentation
- wildseedfarms.com – annual flower seeds
- kitazawaseed.com – Japanese and Asian varieties
- growitalian.com/vegetable-seeds – seeds from Italy
- gurneys.com – many old standard seed varieties