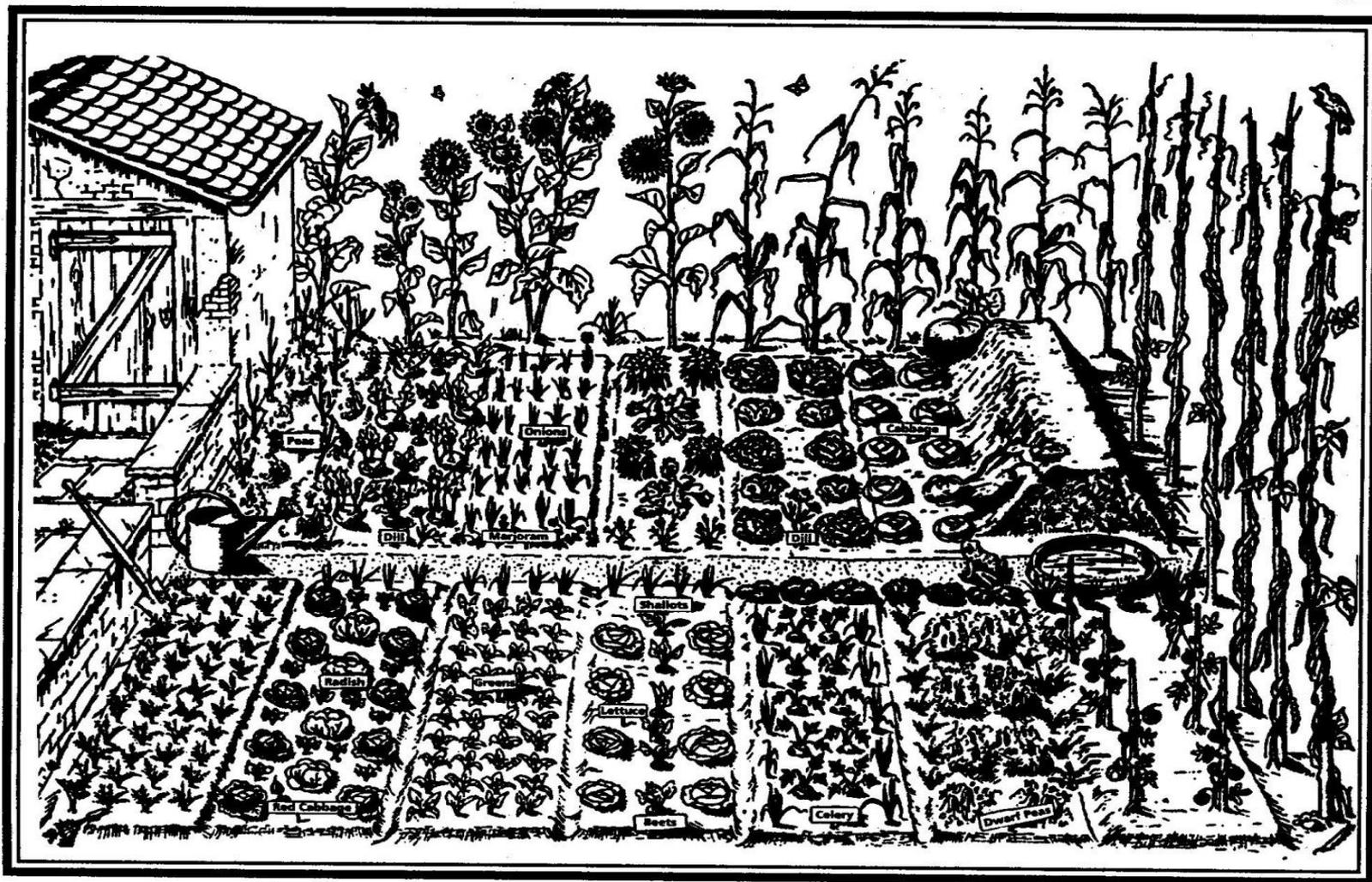


This program is made possible by The Trustees of Reservations <http://www.thetrustees.org/> and Growing Places Garden Project <http://growingplaces.org/>.



"The relationship of rows—one to the other—is of utmost importance. Certain vegetables interfere seriously with the development of others and such vegetables should be widely separated. Some plants help repel harmful insects and many deep-rooted species actually aerate the soil for those which grow at a shallower depth. The above picture illustrates, on a small scale, an arrangement of a backyard garden that very nearly approaches the ideal."

—Organic Farming and Gardening, Feb. 1943



Choosing a Raised Bed

What is a Raised Bed Garden?

A raised bed garden is a garden built on top of your native soil, sometimes incorporating native soil, sometimes not. Raised bed gardens can be contained to keep the bed intact, or they can be more free form, with soil and amendments merely piled several inches high. Border or Borderless...

Advantages of a Raised Bed Garden

Aside from avoiding the issue of gardening in poor soil, raised bed gardens offer several advantages:

Raised beds warm more quickly in spring, allowing you to work the soil and plant earlier.

Raised beds drain better.

The soil in raised beds doesn't get compacted, because they are constructed with accessibility in mind.

It's easy to tailor the soil for your raised bed to the plants you plan to grow there.

After the initial construction process, raised beds require less maintenance than conventional garden beds.

How to Make a Raised Bed Garden

Contained raised beds are the most popular type of raised beds, and they're great for vegetable and herb gardens, as well as flower gardens. Fruits, such as strawberries, grapes, and blueberries do very well in a contained raised bed.

You can choose from a variety of materials to construct your raised bed. Wood is a very popular choice, because it is easy to work with and it is inexpensive. Concrete blocks, natural stone, or brick are also nice options, but there is definitely an added expense and labor to consider in using them. Some gardeners go the ultra-simple route, and simply place bales of hay or straw in whatever configuration they desire, then fill it with good soil and compost and plant it up. This solution will only give you a year of use, because the straw will decompose, but it's worth trying if you don't mind replacing the bales yearly, or if you're still developing a more permanent solution. Since most contained raised beds are constructed from wood, here are instructions for building your own wood raised bed garden.

Step One: Select your site. If you know that you'll be growing vegetables or herbs, or sun-loving flowers in your new garden, select a site that gets at least eight hours of sun per day. A flat, level area is important, and you should also make sure that the area has easy access to water sources as well as room for you to work.

Step Two: Determine the size and shape of your garden. Make sure that you can access all parts of the garden without stepping into the bed. One of the main advantages of a raised bed is that the soil doesn't get compacted the way it might in a conventional bed because they are planned for accessibility. . Any length you like will work, as long as you keep the width in control. In terms of depth, six inches is a good start, and many vegetables grow well in a bed that is six inches deep. As with many things, though, if you can do more, more is better! Ten to twelve inches would be ideal. If you have decent subsoil (not too clayey or rocky) you can simply loosen the soil with a garden fork and build a six to eight inch deep bed. If your soil is bad, or you are planning to grow crops like carrots or parsnips that need a deeper soil, your bed should be at least ten inches deep.

Step Three: Prep Your Site. Once you know the size and shape of your bed, you can get to work prepping the site. How much prep you will have to do is determined by the depth of the bed you're planning, as well as the plants you're planning to grow there. If you are planning a vegetable or herb garden, a six-inch deep bed is perfect. To save yourself some labor, you can use newspaper, landscape fabric, or cardboard to cover and smother it, then put your soil and amendments right on top. However, to ensure that your plant's roots have plenty of room to grow, it is a good idea to dig out the existing sod and loosen the soil with a shovel or garden fork.

Step Four: Construct the Bed. Two by six, or eight lumber is perfect, as it is easy to work with and will give you plenty of depth. Cut your pieces to the desired size, then attach them together to make a simple frame. You can attach them in a variety of ways. You can make a simple butt joint at each corner, pre-drilling and then screwing the corners together with galvanized screws. You can use a small piece of wood in the corner and attach each side to it.

Step Five: Level Your Frames. Using a level, make sure your frame is level in all directions. This is a necessary step because if your bed is not level, you will have a situation where water runs off of one part of the garden and sits in another. If part of your frame is high, just remove some of the soil beneath it until you have a level frame.

Step Six: Fill Your Garden. The whole point of a raised bed garden is that it gives you the opportunity to garden in perfect soil. Take this opportunity to fill your bed with a good mixture of quality topsoil, compost, and rotted manure. Once they're filled and raked level, you're ready to plant or sow seeds. You'll need 1 yard of soil per 4X8 raised bed.

Maintaining a Raised Bed Garden. Happily, raised bed gardens require very little maintenance. Each spring or fall, it's a good idea to top dress with fresh compost and manure, or, if your bed only holds plants for part of the year, go ahead and dig the compost or manure into the top several inches of soil. As with any garden, mulching the top of the soil will help retain moisture and keep weeds down. Moisture retention is important, because raised beds tend to drain faster than conventional beds.

Garden Planning

Location of Your Garden

- Think about ~
 - Sun – rises and sets, throws shadows
 - Water – source and how far away
 - Kids – be thoughtful about planning
 - Critters – to fence or not to fence
- Soil Preparation ~
 - Prepare your own or purchase locally.
 - If you have existing gardens and want to change your method of gardening, you will want to make sure the soil structure is good. A soil test can be a very useful tool.
 - If you purchase soil locally, you want to make sure you have a good blend, the basis for a bountiful harvest.
 - The recommended mix:
 - 1/3 part peat moss
 - 1/3 part compost
 - 1/3 part vermiculite/perlite

Garden Layout

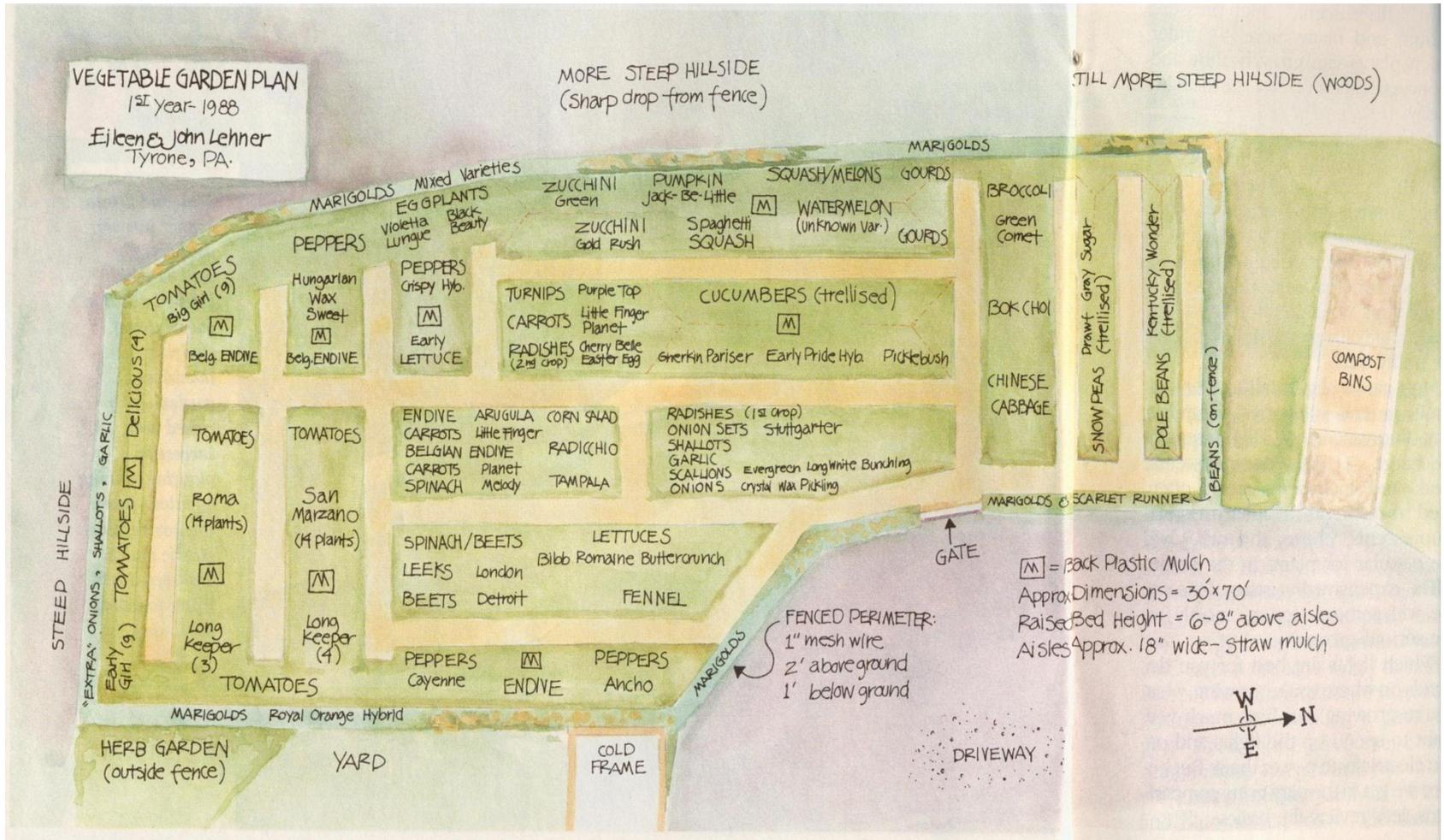
- Map out what will go in each square or group of squares.
 - Make a list of the vegetables, herbs, and flowers you want to grow
 - Map them out on a grid depending on your garden size
 - Plan succession plantings of greens for continuous harvest leaving a square or 2 fallow for a week or 2. (lettuce and spinach)
 - Plan to promote companion planting and reduce pest problems.
- Each square is managed simply and independently.

Things you will need to begin planting:

- Seeds (from a reliable seed source)
- Seedlings (locally purchased)
- Tools: hand trowel, hand cultivator, iron rake, hoe, fork, hammer
- Twine for laying out square foot grid
- Twine or old nylons for tying up plants and vines
- Scissors or snips
- Wooden markers to label planted areas
- 5ft/6ft Tomato stakes, trellis stakes/fencing
- Watering Can, hose
- Bucket for weeds, carrying tools, and harvest
- Wheelbarrow or child's wagon is a handy item
- Gloves (optional)

Dedicate a Notebook to Your Garden...

Recordkeeping is Important

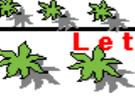
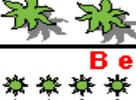
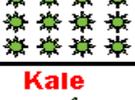
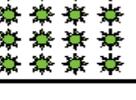


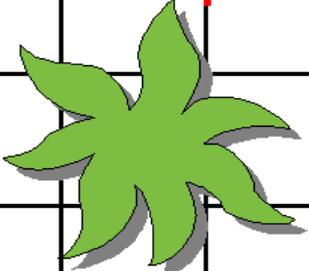
What is the Square Foot Gardening Method?

A METHOD OF PLANNING AND PLANTING A GARDEN

- Where did it come from?
 - Mel Bartholomew perfected an age old method in 1976 and published this method of gardening in 1981, an engineer that retired and managed a community garden in Long Island NY. For years before that, people have been using a variety of practices. This method, he proposed, is an efficient system with high yields.
- What do you want to harvest?
- How much of each different crop do you want to eat?
- How much space do you have to dedicate to your garden?
- How much time do you have for your garden?
- Do you know what a square foot is?

A Sample Layout

Cukes 	Garlic 	Winter Squash 	
Spinach 	Spinach 	Radishes 	Radishes 
Onions 	Spinach 	Lettuce 	
Swiss Chard 	Swiss Chard 	Lettuce 	Lettuce 
Beets 	Beets 	Carrots 	Carrots 
Collards 	Kale 	Carrots 	Carrots 
	Broccoli 		
	Cabbage 		

Cukes on trellis 	Pole Beans on Trellis → 		
Flowers	Basil 	Basil 	Flowers
Summer squash 			
			Radishes 
Radishes 	Zucchini 		
Cabbage 			
Cabbage 			

Planting Recommendations

Seeds, seedlings, tools, watering can and planting diagram

Seeds

• *Step 1 - Determine the spacing requirements for the crop you are about to plant.*

You can find this out by looking at the diagram you made or by referring to the back of the seed packet for planting and growing information. Crops such as zucchini and tomatoes are special cases and require more than one square foot.

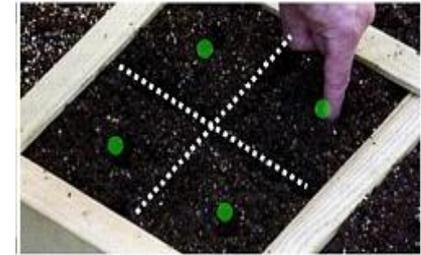
Extra large plants (1 per square) should be planted in the center of the square.



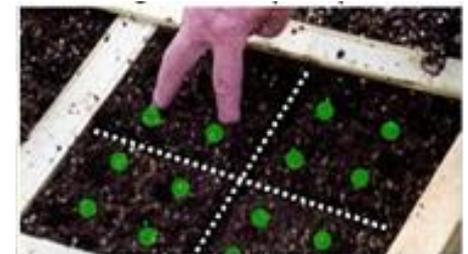
Extra Large Plants - 1 per Square



Medium Plants - 9 per Square



Large Plants - 4 per Square



Small Plants - 16 per Square

For large plants, 4 per square is adequate planting space.

For medium sized crops (9 per square), take your pointer and pinkie fingers and draw two lines horizontally which divides the square into thirds. Then draw two lines in the opposite direction so that you have nine sections. Plant in the center of each section.

Small plants are planted approximately 3 inches apart (16 per square). Once again divide the square in half each way by drawing a cross. Then, take your pointer and middle fingers, and make two small depressions in the soil. They should be spaced about the same distance your eyes are spaced apart. Make four holes in each of the four squares

- *Step 2 - Decide how deep to plant the seeds*

It's important to place your seeds below a moist surface to prevent them from drying out. Generally speaking, you should plant a seed deep enough so that 3 more of the same seed could lie on top of it. In hot weather, 4 seeds should be able to lie on top of it. This will help protect the seed from drying out as it starts to grow. For specifics on seed depth for each crop, refer to the seed packet or the Seed Information Chart in this handout.

Since we are rarely equipped with a ruler when we go out to plant seeds, it's helpful to know that the length of your index finger from the first knuckle to the tip is approximately 1 inch. So just use your own finger as a guideline!

- *Step 3 - Plant the seeds*

Normally, one seed per hole is all that is needed.

However, you may find it difficult to pick up just one seed, especially with small, unusually shaped seeds. In that case, a 'pinch' - two or three seeds - is just fine.

Cover the seed(s) lightly with soil and tamp down gently to bring the seed(s) in contact with the soil. Be sure to water the seeds gently right after you plant them. This is best done with a spray bottle. Some of the seeds are so small and so close to the top of the soil that a stream of water from a cup or a hose might wash them away. Keep soil moist - not soaking - as seeds germinate.

Approximate seed germination times for each crop are listed in the Vegetable Guide section. If a sprout does not appear after the specified time, wait a bit longer (a few days to a week, depending on weather, temperature, etc.) and then try replanting that crop again.

- *Step 4- Repeat Steps 1-3 for each crop*

If more than one seedling sprouts, you can just take a pair of small scissors and carefully snip them off at the base of all but the strongest one.



Succession Planting Tip:

You can plant some squares immediately, while others you may want to leave empty temporarily. Planting the same crop a week or two later is called successional planting and allows you to stagger your harvest. It is a good idea that a bit of organic material be added to a square that has been harvested before planting again.

Example: Lettuce and spinach grow quickly in the cool spring days, harvest before the heat of the summer and replant with a second planting of broccoli, then plant garlic in the fall.

Transplanting Tip:

Dig a hole in the soil slightly larger than the container the seedling is in. Then carefully pry the entire plant and its surrounding soil out of the pot. If you see a clump of tangled white roots at the bottom of the root ball, gently loosen the roots with your fingers.

Carefully place the root ball, roots down, into the hole and fill it with soil lightly patting it into place. Try to keep the leaves dry (to prevent disease and fungus) and soil moist as the plant gets used to its new home. Newly transplanted seedlings and plants often suffer from shock and will look sad for a couple of days but will generally perk up after that.

To lessen the shock, transplant on cloudy days or early in the morning. When transplanting a seedling, first make sure the soil in the square is well watered and moist. Then saturate the seedling prior to transplanting so the shock of transplanting is diminished.

What will my garden produce:

A 4 x 4 square foot garden with an average of 8 plants per square will produce about 130 plants and bushels of vegetables and herbs, enough for 1 person to eat all summer. A family of 4 to 6 people should plant 3 4x8 gardens, or 6 4x4 gardens, and if you want to can or freeze additional produce for the winter/spring supplement, plant an additional plot all of one crop to be harvested all at one time.

How much of my time does a garden require:

The layout requires you to do some planning, and preparation of the garden takes an effort but the outcome will be your reward! Don't take any shortcuts here as this will be the beginning of many a harvest.

The rest requires a minimal time commitment on average:

About 3-4 hours per week for the first month with seed and seedling watering, daily checks, and the beginning of a weeding program as weeds rob plants of water and vital nutrition.

About 2-3 hours per week for the second month with watering, harvesting, weeding and inspections.

In the third and final months, time varies due to weather, watering, and harvest schedule. Most plants are full and little need for any weeding but don't let any get away from you. The sooner pulled, the fewer in subsequent years. Be removing all spent leaves under plants and dispose of them to a compost area or into the trash if they are diseased in any way.

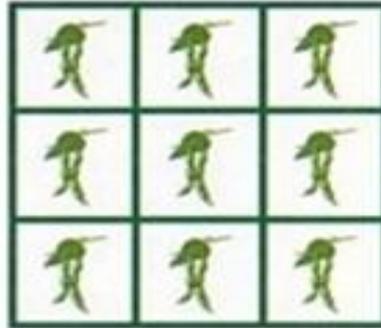
Broccoli



Leaf Lettuce



Bush Bean



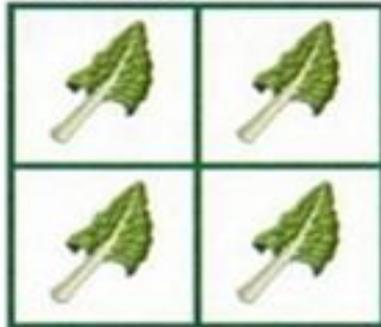
Carrot



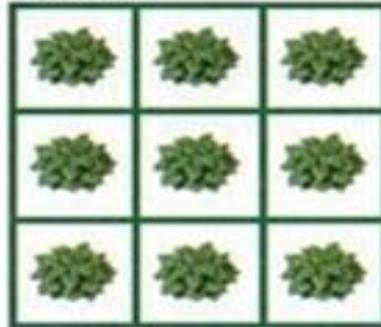
Cabbage



Swiss Chard



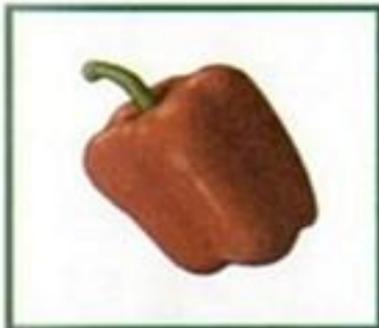
Spinach



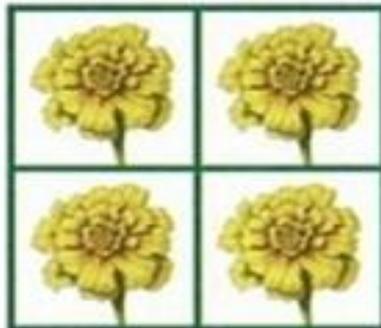
Radish



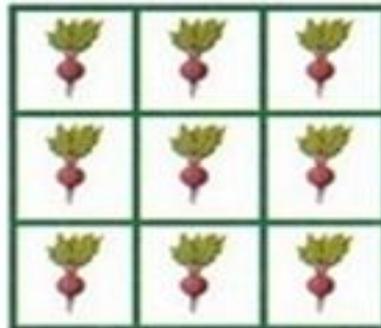
Pepper



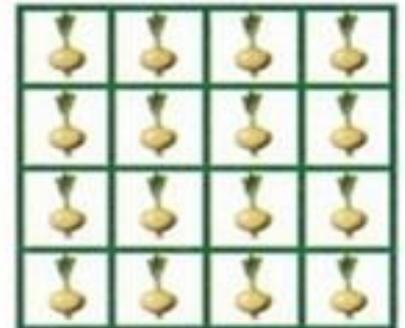
Marigold



Beet



Onion



Inter-planting Methods

Planting 2 or more crops together is called inter-planting. Leaves overlap and roots intermingle, causing the plants to interact in good ways when properly planned. It is a preventative technique.

This technique is used to save space, to enhance yields, or to repel pests. Many bugs and soil/plant diseases will infest a whole area devoted to one plant, but will do less damage or none at all in a mixed planting area.

The growth habits of plants must be known, as well as the companion aspects of the individual plants.

- Example: low plants with short growing times such as radish, lettuce and other greens can be tucked in around the base of bush beans, broccoli, and tomatoes to maximize space. The taller plant can also provide a bit of shade to the lettuce...squash plants and melons provide a living mulch around the base of corn keeping out weeds and holding moisture in the soil. Any quick maturity leafy crop will do fine...

Rethinking your existing perennial gardens? Try incorporating vegetables into that landscape to provide an edible garden among what you are currently growing and feeding...time and space saving technique!

Plant Compatibility Chart

Vegetables and herbs that are compatible **like** to grow together and often help each other to grow better, yield more or enhance the vegetables flavor. Some plants also repel certain bugs so it's good to grow them near plants the bugs like to eat. These plants can be planted in squares next to each other or even in the same square if there is enough space.

Vegetable	Compatible with	
Beans	Cabbage family, carrot, corn, cucumber, eggplant, peas, potato, Swiss chard, celery	Borage, lovage, marigold, nasturtium, oregano, summer savory, petunia, rosemary
Beets	Bush beans, cabbage family, lettuce, onion	Garlic
Cabbage family*	Beets, cucumber, lettuce, onion, potato, spinach, Swiss chard	Chamomile, dill, garlic, nasturtium, sage, thyme, rosemary
Carrot	Beans, lettuce, onion, peas, peppers, tomato	Chives, rosemary, sage, thyme
Corn	Beans, cucumber, melon, peas, potato, squash, pumpkins	Marigold, parsley
Cucumber	Beans, broccoli, cabbage family, corn, lettuce	Marigold, parsley, nasturtium
Eggplant	Beans, peppers	Marigold, thyme
Lettuce	Beet, cabbage family, carrot, onion	Chive, dill, garlic
Melon	Corn, pumpkin, squash	Marigold, nasturtium, oregano
Onion	Beets, celery	Chamomile, savory
Peas	Beans, carrot, corn, cucumber, turnip	Parsley
Peppers	Carrot, eggplant, onion	Basil, parsley, petunia, marjoram
Spinach	Cabbage family, lettuce, pea, radish, celery	Onion, strawberry, borage, lettuce
Squash	Corn, melon, onion, pumpkin, radish	Borage, marigold, nasturtium, oregano
Tomato	Asparagus, beans, carrot, cucumber, onion, eggplant, broccoli	Basil, bee balm, borage, calendula, chive, parsley, sage, thyme, marigold

Some plants are NOT compatible

Vegetable/Herbs	Is NOT compatible with
Beans	Chive, garlic, leek, onions, shallots
Beets	Pole beans
Cabbage family*	Pole beans, tomato, pepper, eggplant, lettuce, radish, strawberries, mustard
Carrot	Dill
Corn	Tomato, celery
Cucumber	Potato, tomato, sage
Onion family	Beans, peas, sage, pepper, asparagus
Peas	Onion family, squash, tomato
Tomato	Corn, cucumbers, dill, cabbage family, peppers , potato
Basil	Oregano
Pumpkins	Potato

Edible Flowers to Incorporate into your garden

Nasturtiums, borage, calendula, marigolds, johnny-jump-ups, anise hyssop, chive blossoms

One of my favorite Companion Planting websites: www.ghorganics.com

Seed Information Chart

Crop	Seed Depth (inches)	Spacing (plants/square)	Growing Season				Number weeks Seed to Harvest	Number of Years seeds store	Full Sun (6+ hours) or Partial Sun (4-6 hours)
			S	S	F	W			
Beans, bush	1	9	N	Y	N	N	8	3-4	Full
Beans, pole	1	8	N	Y	N	N	8	3-4	Full
Beets	½	16	Y	Y	Y	N	8	4-5	Partial
Broccoli	¼	1	Y	N	Y	N	16	5-6	Full
Cabbage	¼	1	Y	N	Y	N	16	5-6	Full
Carrots	¼-½	16	Y	Y	Y	N	10	3-4	Partial
Cauliflower	¼-½	1	Y	N	Y	N	14	5-6	Partial
Swiss Chard	½	4	Y	Y	Y	N	8	4-5	Partial
Corn	1	1	N	Y	N	N	9-13	1-2	Full
Cucumbers	½-1	2	N	Y	N	N	9	5-6	Partial
Eggplant	¼	1	N	Y	N	N	19	5-6	Full
Lettuce	¼-½	4	Y	Y	Y	N	7	5-6	Partial
Kale	½	1	Y	N	Y	Y	8	5-6	Partial
Muskmelons	½	1	N	Y	N	N	12	5-6	Full
Onions	¼-½	16	Y	Y	N	N	20	1-2	Partial
Parsley	1/4	4	Y	Y	Y	Y	14	2-3	Partial
Peas, Bush	1	8	Y	N	Y	N	10	3-4	Partial
Peas, Climbing	1	12	Y	N	Y	N	10	3-4	Partial
Peppers	¼	1	N	Y	N	N	19	4-5	Full
Radishes	½	16	Y	P	Y	N	4	5-6	Partial
Spinach	½	9	Y	N	Y	N	7	5-6	Partial
Summer Squash, vine	½-1	3 per 1'x4' block	N	Y	N	N	8	5-6	Full
Summer Squash, bush	½-1	1 per 3'x3' space	N	Y	N	N	8	5-6	Full
Winter Squash	½-1	1 per 1'x4' block	N	Y	N	N	12	5-6	Partial
Tomatoes	½	1 per 2'x 2' block	N	Y	N	N	17	4-5	Full

Key

P – Partially

S, S, F, W = Spring, Summer, Fall, Winter growing seasons

Vertical Garden Methods

Vertical gardening is a great option for small yards or small spaces in big yards.

Lots of advantages to growing up:

- Increase yields by growing up
- Easier to harvest by an easier reach, better on your back
- Better air circulation around plant, improved growing condition = healthy plant
- Keeps vegetables off ground, prevents mold, soil borne disease, crawling insects and pests from reaching fruits and leaves
- Use to create shade for another part of the garden or plant

Can be anything from training one or two of your vegetables to grow upward, or creating structures from wood, metal, trellises, tripods, hanging baskets, shelves, wire, twine, sticks, fencing, nets, cages, may poles, etc...

It is important to install the support prior to planting and anchor them for wind.

Great climbing vegetables:

- Cucumbers, Peas, Pole Beans, Melons, Squash, Tomatoes, Gourds and even some small varieties of pumpkins.

Great ornamental climbing vegetables:

Hyacinth bean, Red Malabar climbing spinach, Lemon summer squash

Container Gardening

The Anywhere Garden Concept!

All you needs is sunshine, water, fertilizer,
the right growing media, good plant choices
and the desire to grow....

Container - Type, Size and Capacity

Growing Media

Choosing a Location

Crop Selection for containers

Care – Watering, Fertilization, and Growing Tips (Trellises and Supports)

Suggested Vegetables for Container Growing

Feeding the Soil

A healthy soil provides nutrients necessary for plants.

Organic matter is critical to healthy soil. Every time we harvest, nutrients are taken away from the soil. The addition of organic matter to the soil brings them back. Adding compost is a good way to incorporate organic matter into your soil. This can either be purchased or you can create your own compost using kitchen scraps and yard debris. They can be turned into a nutrient rich material that will feed your garden. Composting is not only a good way to feed your garden, but also reduces the amount of garbage you pay to dispose of.

Other tips and tools:

Every three years or so, turning over the top 2” of your garden soil with a spade or large shovel is recommended to aerate the soil. Having good air circulation in the soil encourages micro-organisms and bacteria that are needed to break down compost and dead plant material. Aeration also helps water retention.

As material in your soil break down such as leaves, wood chips, and plant material, you may find the soil level in your beds dropping. It is suggested you replace the soil. You can add in compost, either homemade or store bought, purchase bags of garden soil, or contact your town for fill or compost they might have. Adding in soil every year will spread cost out over time and make the labor less intensive. Do your best to mix in additional compost or soil with what already exists in your raised-beds.

Mulching

Mulching is not a necessity, but it does provide substantial benefits- water conservation, weed control, disease control, and it helps keep the soil cool in summer.

- grass clippings, (ONLY if NO CHEMICALS are used to treat the lawn), spread 1-2 inches thick, no more, and leave the area immediately at the base of plants bare.
- newspaper (only black and white, nothing glossy) can be layered 6-8 sheets thick and overlapped by neighboring layers; anchor with a thin layer of soil, rocks, or wood chips.
- straw
- seed free hay or salt marsh hay
- shredded oak leaves also make good mulch and will aide in producing a more nutrient rich soil, you can run over them with your mower.
- black plastic and tin foil...

3 Stages of Watering

- **Seeds:** After you have planted seeds, your goal is to keep the area where the seeds were planted moist, but not soggy. Use the mist setting of a spray head on your hose or pour from a watering can, and gently water the soil until it is moist but no puddles are forming. You want at least the top 1” of soil to be damp. You can check by inserting your finger into the soil up to the first knuckle to make sure it is moist. You need to do this every day.
- **Seedlings:** Once your seedlings have emerged and are established, they can tolerate a bit of dryness in the top 1” of soil. Use a gentle spray from your hose or your watering can to water your plants when the top 1” of soil is slightly dry. Water deeply so all the soil is moist again. You might need to do this every other day.
- **Mature plants:** Pay attention to what your plants are telling you.
 - Does the plant look a little droopy or slightly wilted?
 - Is the color of the leaves a little off?Most mature plants require approximately 1 inch of water per week. You can use an empty tuna can (or other can that is 1” deep) and place it out in your garden. If the can hasn’t been filled by rain during that week, give the garden a good watering.

- **When first planting**, frequent watering is necessary to keep the soil and root systems (but not leaves) of new plants moist. If you have a “soaker hose”, lay it down in the middle of the beds and turn it on low for twenty minutes every other day. If you do not own a hose, use a watering can to water the individual squares. The frequency and amount of watering will depend on the weather and the size of the plants.
- **If it has been rainy**, it’s not necessary to water as frequently as when it has been sunny and dry.
- After seedlings are established and growing well, you can water less frequently.
- **When watering by hand**, pour close to the ground so you do not “rupture” the soil. This also keeps the leaves from getting wet. Damp leaves can lead to blight and other fungus problems.
- Water and harvest during the cooler hours of the day – preferably in the morning.
- If the plants look yellow, they are getting too much water; if they look wilted, they are not getting enough. . If leafy plants look wilted midday but perk up again at night and early morning, they’re doing fine.
- **In the heat of the summer, it will be essential to water every day.**

Fertilizing

With very rich, organic soil, there should be very little need to add any extra fertilizer for your plants. However, one of the best ways to replenish the nutrients in your soil throughout the growing season is to mix a cup or two of compost into each square after harvesting and before replanting it. You can also mix in some organic fertilizer at this point if the plants need a little boost, no more than once a month.

If your plants are looking unhealthy, you might choose to apply a liquid or granular organic fertilizer. Liquid fertilizers are generally sprayed on the soil or the plant either directly from the bottle or mixed in combination with water and applied with a sprayer. Liquid fertilizers provide a quick solution to nutrient deficiency problems because they are rapidly absorbed. Granular fertilizers are generally sprinkled on the ground around the base of the plant but not on the leaves or the stem of the plant (which can cause damage to the plant) and gently scratched in to the top inch or so of the soil. These are absorbed slowly and provide more long term benefits. In either case, be sure to read the instructions very carefully before applying any form of fertilizer and keep all fertilizers out of the reach of children.

Some natural fertilizers you may wish to investigate include bat guano, fish emulsion, fish meal, kelp meal, and/or pelletized chicken manure. Each of these are beneficial to a variety of plants, and would work well as an “all purpose” boost.

Note that in the case of fertilizers, too much of a good thing will do more harm than good. Often, plants receiving too much fertilizer will produce a lot of leaves and grow very big but will not produce many fruits or vegetables. (Too much nitrogen)

Pest Control

The best way to keep pests away is to grow healthy plants and maintain a clean garden environment. Certain plants grown in combination also provide protection from some pests. Onions and chives provide great protection and can be used to line some of your planted squares. Nasturtiums and marigolds can also provide protection from pests and can be planted throughout the garden.

Homemade Insecticidal Soap/Oil

1 gal of water, 1 tbs each of dish soap, baking soda, & vegetable oil. This takes care of aphids & black spot on roses.

Borage:

Aphid lions are attracted to borage. Aphid lions are one of the friendly insects in your garden, dining on many other garden insects.

Canola oil:

Smothers insects

Cinnamon powder:

Is an antifungal and repels ants

Cornmeal:

If you have a problem with cutworms, try sprinkling cornmeal around the plants. They eat the cornmeal, but can't digest it.

White Flour:

If you have a problem with cabbage worms or potato beetle, go out in the morning while there is still dew on your plants. Sprinkle the plants with flour. Then the next day, wash off the flour and the dead bugs.

Sugar

Sugar water sprayed on plants infected with aphids, scale, whiteflies or mites, can attract ladybird beetles (who will eat these critters for you). Spray the sugar water onto the plants.

Vinegar

A good common all-around gardening agent that fights fungus diseases, some insects, and kills weeds.

Garlic Tea Spray

Effective for most plant diseases. Naturally, the sooner you catch and treat the plant disease, the easier it is to cure. To make the Garlic Tea Concentrate: Puree 2 to 3 garlic cloves. Mix with 1 qt water, and blend again. Strain out the garlic, and add 1/8 tsp liquid soap. Store in an air-tight container. To use, mix 1 part garlic tea with 10 parts water. Apply with a spray bottle.

Herb Tea Spray

Save fragrant clippings from your herb garden (the stronger smelling they are, the better!). Fill a gallon jug or bucket with water and place the clippings in the jug to brew. Let it brew for about a week. Strain out the herbs and add 2 tbsp liquid soap. Keep in a spray bottle, so it's ready when you need it. (Try a Basil or Mint Tea spray for leaf-hoppers, aphids, cabbage loopers, mites or beetles!)

Troubleshooting Plant Problems

The following are some common problems many gardeners encounter during the growing season.

Possible solutions are listed.

- Failure of tomatoes, peppers, and eggplant to set fruit (blossom drop).

If plants are growing well, this problem is frequently caused by adverse night temperature (below 60° F and above 70° F). Very seldom does excess use of nitrogen (manures) cause blossom drop, nor does sprinkler irrigation.

- Blossom-end rot of tomatoes and peppers. This is caused by a calcium deficiency that develops when soil moisture fluctuates (drought, heavy rains) or there is excessive nitrogen (manures). Proper irrigation, fertilization, and adequate mulch usually prevent it. Use of egg shells, spent match or a calcium pill in the hole when planted are old farmer tips...

- New leaves on cucumber plant suddenly wilt. Leaves may show dead areas and fruit may be mottled. The most likely cause is cucumber mosaic virus, a common disease. Bacterial wilt and root rot are other possible causes of the wilting. A rise in temperature or depleted soil moisture also causes wilting, but plants soon recover.

- Lettuce and spinach go to seed. This is normal for these crops under warm temperatures and long days. Planting in the early spring and selecting the proper variety are remedies.

Snap bean flowers fail to develop. High daytime temperature (above 90° F) is often the cause.

Setting usually resumes when temperature drops.

- Tomato fruits are rough and misshapen. This is often associated with low temperatures (50°–60°F) while flowers are forming.
- Cucumbers are off-shaped (e.g., crooked, nubbins). This often occurs because of low soil moisture. Cool temperatures at the time flowers are developing can be a cause. Poor pollination because of lack of bees or low number or male flowers is also a possibility.

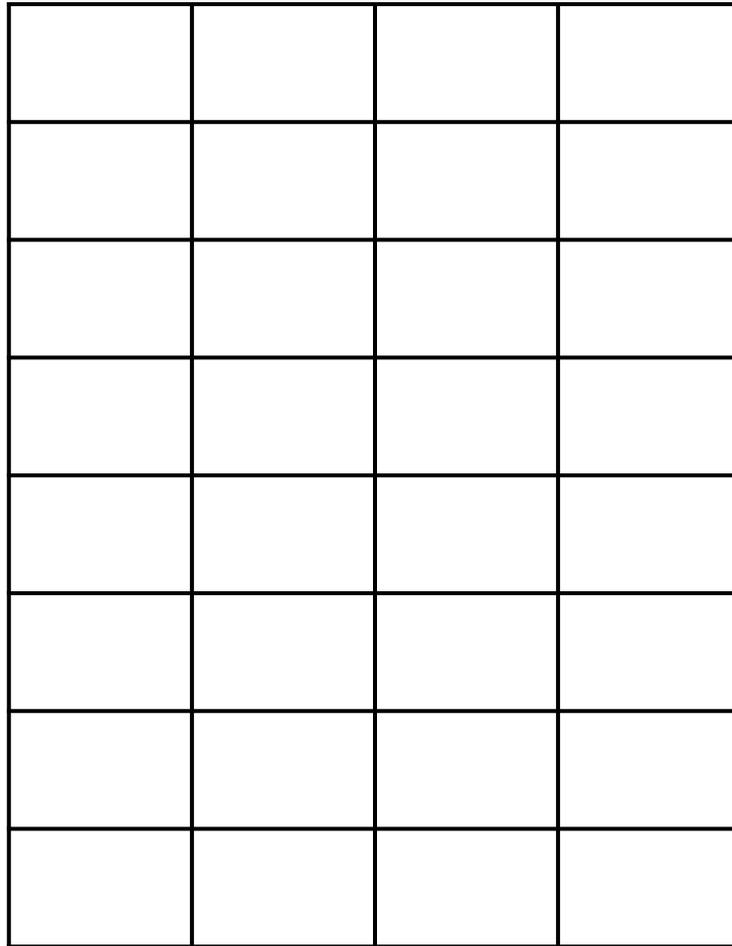
Avoid Problems by Keeping Plants Healthy

Pests and diseases are notorious for “kicking a plant while it’s down.” Plants that are stressed are generally more susceptible than plants that are healthy and strong. Allowing plants to become stressed can result in the need for more drastic control measures—including pesticides—that could harm beneficials and other non-target species.

Plant stressors include:

- **Moisture stress** (too much or too little water).
- **Improper planting sites.** Placing a shade-loving plant in full sun (or the reverse), and placing plants in areas of poor air circulation (which can lead to problems with fungi) are common mistakes that stress a plant and may leave it more susceptible to pests, diseases, or environmental problems. If a plant continually has pest or disease problems, you may want to replace it. Choose a variety that is resistant or not susceptible to these problems. Horticulturists can help identify these resistant plants or suggest plants that are better suited for problem areas such as those with poor drainage, compacted soil, or the potential for road salt, wind, or cold/heat damage.
- **Improper mulching.** Mulch should be pulled back a bit from the base of the plant.
- **Improper fertilization.** One common mistake is to overfertilize plants with nitrogen. This actually favors pests (such as aphids, mites, and the black vine weevil) more than it helps the plant. Soil tests can be used to determine if or how much fertilizer is needed.

Blank Square Foot Grid



End of the Season

When the cool weather returns again, the plants are looking tired, and the harvest is about all in, it is NOT time to sit back yet.

- Time to assess the return on this years garden, the goods and bads, the changes for next year.
- Remove all limp and dead plant material from the garden. Compost the remains or throw it away. Clean it all up.
- Get the spade out, or a fork, and the iron rake.
- Get some fresh compost, chicken/cow manure, lime (if necessary), wood ash, and some organic matter-good time to mow the fallen leaves into the garden.
- Turn over the beds and stir in the new additives.
- Cover with a light seeding of winter rye seed, this will provide a green layer to the garden in the spring to be turned in.
- Clean off all your tools, wipe the dirt from the plant markers, and the stakes, and put all the tools away.
- Put any leftover seed into a dry, 40-50 degree space, preferably in a tin or sealed bag.
- Make sure you took adequate notes during the growing season about what went right and what went wrong so you can improve on those things in the next growing season.
- Browse garden sites and catalogs during the winter and begin planning . . .

Someone Else's Plan...

Garden Plans 2010

Week -2 March 8	Week -1 March 15	Week 0 April 5	Week 1 April 19	Week 2 May 10	Week 3 May 17	Week 4 May 24
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South Fence



Gravel path

Potatoes	Potatoes	Pole Beans	Pole Beans	Trellis	Pole Beans	Pole Beans	Pole Beans	Lettuce	Lettuce	Onions	Pepper	Snow Peas	Black Crim Tomatoes
Potatoes	Potatoes	Pole Beans	Spinach	Lettuce	Onions	Pepper							
Potatoes	Potatoes	Lettuce	Carrots	Carrots	Carrots	Carrots	Spinach	Spinach	Green Onions	Onions	Pepper	Sweet Peas	Striped Roma
Potatoes	Potatoes	Broccoli	Broccoli	Broccoli	Broccoli	Broccoli	Broccoli	Broccoli	Broccoli	Onions	Pepper		

North

West



"Farmstead" raised garden beds shown above



LET'S GET GROWING

Make the list - what you want to eat

Make the plan - location by size, sun direction, tree shadows, water distance

Test the soil where you intend to plant

Creating new beds or regenerating existing soil

Measure, measure, and PLAN!

Layout a growing plan - plant heights, size, maturity date, companions and not!

Get the DIRT going.

Seeds and transplant purchases - where to keep them til planting

Day and night temps

Frost dates – early and late

Get the tools together and go to it.



The garden creates the gardener...

What do you like to eat? Plant that. Learn as you go, but start NOW!
Picture the Harvest, it will be your reward. Enjoy the experience and
no two years will be the same. Keep notes! Then share the love!