



SUCCESSION AND INTERPLANTING

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INTERPLANTING, SUCCESSION PLANTING, VERTICALS AND DISEASE RESISTANCE

Planting notes for some vegetables: this is under optimum conditions + based on similar conditions to ours in USA. Will vary with variety of vegetable and that summer's conditions

Plant	No/sq ft	Start in/out	Cool/ hot	Wks to Harvest	Seed store /yrs	Vertical yes/no	Comment
Bushbeans	6-9	Out	Hot –with corn	8-9	3-4	No	Pre soak seed(2 hours), plant when soil is quite hot/dry
Pole beans	2xrows	Out	Hot – full sun	9-10	2-3	Yes up to 8ft	Plant in trenches – well fed, pre soak only 2 hours
Beets	16	Out	Cool-partial shade	8	4-5	No	Best for fall crop start in midsummer; heavy feeder, water regularly
Broccoli	1	In or out	Cool-full sun	16	4-5	No	Cut main head when ready, smaller side heads will grow
Cabbage	1	In/out	Cool-full sun	16	4-5	No	Heads split in hot weather if too wet.
Carrots	16	Out	Cool-partial shade?	10	3-4	No	Touchon types for clay soils. Mulch to keep in ground till November
Cauliflower	1	In	Partial shade - cool	14	5-6	No	Not good grower in summer. Fussy about soil too
Swiss chard	4	In/out	Sun/parti al shade	8	3-4	No	Easy to grow – 3 seasons. Needs feeding. Can pass overwinter if well mulched
Corn-sweet	1	Out	Sun- hot only.	9-13	1	No but tall	Plant in blocks for pollination(wind) . Grown with beans+ squash. Pick + cook same day
Cucumbers	2	In/out	Sun-hot	9	5	Yes	Trench, beware cucumber beetles(cover till really growing well)
Eggplant	1	In	Sun-hot	19	5	No-stake	Heavy feeder, contact moisture
Lettuce	4	In/out	Partial shade - cool	7	5	No	Grows best in spring/ fall grow leaf lettuce-easiest
Melons	1	In/out	Summer only -sun	12	5	Yes	Mulch well – constant moisture + warm soil
Onion (sets)	16	Out	Sun	16-20	1	No	Feed to mid June, stop water when leaves go brown- do not feed nitrogen – bulbs will not form well
Parsley	4	In/out	Sun	14	2-3	No	Can overwinter with extreme care. High nitrogen fertilizer. Bring in big pot for winter growth
Peas	8in 2 rows	Out	Sun/shad e	10	3-4	Yes some	Grow snap peas-easier to grow more harvest . treat with rhizobium b4 planting.
Peppers	1	In	Full sun	19	4-5	No	Not easy to start-buy transplants? Warm soil b4 transplanting. Compost tea weekly
Radishes	16	Out	Full sun	4	5	No	Plant a few bi weekly
Spinach	9	Out	Partial shade	7	5		Spring and fall only, bolts in summer . High nitrogen fertilizer

Squash-summer-vines	3	Out	Sun	8	5	Yes	Easy to grow up trellises – trench + feed
Zucchini	1 per 3 x 3ft	Out	Sun	8	5	No	Space!! Fertilize monthly. Keep plant dry. Water ground only
Winter squash	1 per 2x 1 ft	Out	Sun	12	5	Yes	Butternut & Acorn easiest. fertilize monthly.
Tomatoes – bush	1 per 2 x 2 sq ft	In	Sun	17	4	No	For both types: VFN resistant varieties. Transplant after frost date. Self pollinating Feed heavily monthly
Tomato – vine	1	In	Sun	17	4	Yes	Take off side shoots, weekly . Ripen green ones with apples in dark in paper bags. Blossom end rot – too little calcium

Disease resistance – be proactive not reactive

Plant nutrition: This is basically a website for hydroponics but is also interesting for gardeners

<http://www.smart-fertilizer.com/articles/plant-nutrients>

<http://www.smart-fertilizer.com/articles/calcium-in-plants>

<http://www.smart-fertilizer.com/articles/boron-> most NB soils are boron deficient

INTERPLANTING ↑ <http://ag.arizona.edu/pubs/garden/mg/vegetable/intensive.html>

Growing two or more types of vegetables in the same place at the same time is known as interplanting. Proper planning is essential to obtain high production and increased quality of the crops planted. This technique has been practiced for thousands of years, but is just now gaining widespread support in this country. To successfully plan an interplanted garden the following factors must be taken into account for each plant: length of the plant's growth period, its growth pattern (tall, short, below or above ground), possible negative effects on other plants (such as the allelopathic effects of sunflowers and Jerusalem artichokes on nearby plants), preferred season, and light, nutrient and moisture requirements. Interplanting can be accomplished by alternating rows within a bed (plant a row of peppers next to a row of onions), by mixing plants within a row, or by distributing various species throughout the bed. For the beginner, alternating rows may be the easiest to manage at first.

Long-season (slow to mature) and short-season (quick to mature) plants like carrots and radishes, respectively, can be planted at the same time. The radishes are harvested before they begin to crowd the carrots. An example of combining growth patterns is planting smaller plants close to larger plants, radishes at the base of beans or broccoli. Shade tolerant species like lettuce, spinach, and celery may be planted in the shadow of taller crops. Heavy feeders, such as cabbage family crops, should be interplanted with less gluttonous plants.

Interplanting can help keep insect and disease problems under control. Pests are usually fairly crop-specific; that is, they prefer vegetables of one type or family. Mixing families of plants helps to break up large expanses of the pest-preferred crop, helping to contain early pest damage within a small area, thus giving the gardener a little more time to deal with the problem. One disadvantage is that when it does come time to spray for pests, it's hard to be sure that all plants are protected.

SUCCESSION AND RELAY PLANTING ↑

Succession planting is an excellent way to make the most of an intensive garden. To obtain a succession of crops, plant something new in spots vacated by spent plants. Corn after peas is a type of succession.

Planting a spring, summer, and fall garden is another form of succession planting. Cool season crops (broccoli, lettuce, peas) are followed by warm season crops (beans, tomatoes, peppers), and where possible, these may be followed by more cool-season plants, or even a winter cover crop.

Relaying is another common practice, consisting of overlapping plantings of one type of crop. The new planting is made before the old one is removed. For instance, sweet corn may be planted at 2-week intervals for a continuous harvest. This requires some care, though; crops planted very early are likely to get a slower start because of low temperatures. In the case of corn, it can be disastrous to have two varieties pollinating at the same time, as the quality of the kernels may be affected. Give early planted corn extra time to get started, for best results.

Another way to achieve the same result is to plant, at once, various varieties of the same vegetable; for example, you can plant an early-season, a mid-season, and a late-season corn at the same time and have a lengthy harvest.

Starting seeds indoors for transplanting is an important aspect of intensive gardening. To get the most from the garden plot, a new crop should be ready to take the place of the crop being removed. Several weeks may be gained by having 6-inch transplants ready to go into vacated areas. Don't forget to recondition the soil for the new plants.

Don't forget flowers and herbs in your planting schemes....

OTHER STRATEGIES FOR INTERPLANTING:

Plants with complimentary root growth : eg

Beans: carrots, celery, cucumbers, onions, radishes, squashes

Lettuce – radishes, carrots, onions, parsnips

Plants with complimentary top growth : eg

Cabbage family : chives, onions, peppers, tomatoes, corn, carrots,

Lettuce : carrots , corn, onions,

Plants that provide shade / tolerate shade eg

Pole beans : lettuce, spinach ,

Corn : lettuce, bush beans, squash

Tomatoes staked : lettuce , calendula , marigold .

<http://www.quick-and-easy-vegetable-garden.com/intercropping.html>- an honest small backyard gardener – two good videos with the weblog.

<http://www.organicgardeninfo.com/intercropping.html>- has very good lists for plants to interplant and as a follow up to beneficial and bugs – here we have a list of plants (based on the following parameters) planted to mitigate attacks .

Intercropping (aka interplanting) for Pest Control

Intercropping reduces pests in a variety of ways, including:

Chemical Repellent - These plants provide odours that confuse and ward off pests. This works best in intensive intercropping.

Parasitic Wasp Host Plant - These plants provide food and shelter for parasitic wasps as they search for pests.

Parasitic Wasp Increase - Intercropping plants attract parasitic wasps as a food source from either the plant or the pests.

Physical Interference - These plants "get in the way" of the pest as either a physical barrier or life cycle interference.

Predator Increase - These plants act as a food source or breeding ground for beneficial insects as they search out for pests.

Trap Crop - Another form of Intercropping is Trap cropping. Trap cropping encourages pests to congregate, which makes it easier for beneficial insects to prey and for handpicking.

Visual Masking - These plants provide a visual mask that confuses the pest or concealed the main crop.

Succession planting

<http://organicgardening.com/tags/succession-planting/succession-planting-keep-it-coming-> an overview with some very good pointers

VEGETABLES FOR MID-SUMMER PLANTING- <http://www.extension.umn.edu/distribution/horticulture/M1227.ht>

Note temperatures are in F not in C!

Crop	Days to maturity	Cold hardiness	Crop	Days to maturity	Cold hardiness
Basil	30-60	killed by frost	Green onion	60-70	survives high 20s
Beets	50-60	survives high 20s	Kale	40-65	the hardiest, down to 20°
Bush beans	45-65	killed by frost	Kohlrabi	50-60	survives light frost
Broccoli	50-70	survives light frost	Leaf lettuce	40-60	survives light frost
Brussels Sprouts	90-100	the hardiest, down to 20 °	Mustard greens	30-40	survives light frost
Cabbage	50-90	the hardiest, down to 20°	Peas	70-80* (*longer than if planted in spring)	survives high 20s
Cauliflower	60-80	survives light frost	Radishes	30-60	dig until soil freezes
Cilantro	60-70	survives light frost	Spinach	35-45	survives light frost may overwinter
Collard greens	40-65	the hardiest, down to 20°	Swiss chard	40-60	survives light frost
Garlic	Harvest the following July	winters over in ground	Turnips	50-60	survives light frost

Leafy vegetables, such as Swiss chard, kale and mustard greens can be harvested before the leaves reach full size. Often these small leaves are more tender and tasty than mature ones. These crops can be planted in succession every few weeks over the course of the spring and summer, to provide a steady supply of young leaves. Lettuce tends to bolt and taste bitter when grown in the heat of summer, so just enjoy it in spring or wait until temperatures cool to plant a late crop. Shade from taller plants may help improve the quality of summer-grown lettuce, as will selecting varieties suited for warm weather.

Basil and cilantro are fast-growing herbs that are ready for harvest about a month after sowing the seed. Garlic planted in September produces the biggest bulbs the following July, so after harvesting a late-maturing crop, you can plant garlic in that space.

Before sowing these second crops, turn over the soil and mix in some balanced compost to replace what earlier plants have used up. Left-over debris like stems or roots from the first planting can cause problems in seed germination if they aren't removed or allowed to break down, so wait a week or two before seeding the second crop, or be sure to remove this material as completely as possible.

GREEN MANURES

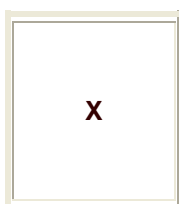
If it's too late to plant a second crop of vegetables, you may want to plant "green manure" to keep the area weed-free, prevent soil erosion, and add organic matter to the soil. Green manures include legumes such as vetch, alfalfa, clover, and peas; grasses such as annual ryegrass, oats, winter rye, and winter wheat; and broadleaf plants such as rapeseed and buckwheat. Sow seed thickly to create a cover that won't allow weeds to compete. Mow these crops down if they flower before they're killed by frost, to prevent them from self-seeding and becoming weeds.

In late fall or early spring, turn dead plant material from green manures into the soil before sowing seed or planting seedlings. This is also the time to add fertilizer to the soil. If the green manure is one that doesn't die over winter, wait about two weeks after you turn in the living plant material before seeding or transplanting your crops.

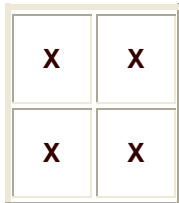
Your own notes :

SMALL SPACE PLANTING :

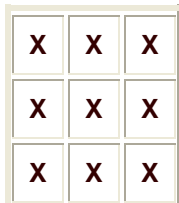
Based on the "*Square Foot Gardening*" book by Mel Bartholomew, plus our own experience at the Journey to Forever organic garden.(see journeytoforever.com) .



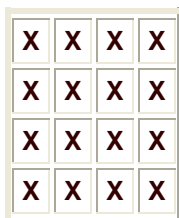
One plant in a square (one foot space between plants)
cabbage, broccoli, cauliflower, pepper, eggplant, okra, tomato



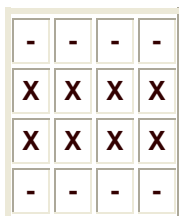
Four plants in a square (six inch space between the plants)
lettuce (crisphead, butterhead, loose leaf), Swiss chard (silver beet), bush beans, kai laan tsoi, baak choi, choi sum, komatsuna, Indian mustard



Nine plants in a square (four inch space between the plants)
lettuce (cos, mini), beetroot, radish, spinach, een choi (leaf amaranth), garlic,



16 plants in a square (three inch space between the plants)
radish, carrot, spring onion, celery,



Special: pole beans, peas, cucumbers , AJ adds : for tomatoes (vining type) melons, vining squash (growing on a vertical stand) use every other space in row 2 – i.e. each plant takes up two spaces , not one per space .