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Intensive Gardening Methods

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Introduction

The purpose of gardening intensively is to harvest the most produce possible from a given space. More traditional gardens consist of long, single rows of vegetables spaced widely apart. Much of the garden area is taken by the space between the rows. An intensive garden minimizes wasted space. The practice of intensive gardening is not just for those with limited garden space; rather, an intensive garden concentrates your work efforts to create an ideal plant environment, giving better yields.

Though its benefits are many, the intensive garden may not be for everyone. Some people enjoy the sight of long, straight rows in their gardens. Others prefer machine cultivation. Weeding by hand or with hand tools is required in intensive plantings, although fewer weeds will be present due to the close plant spacings. Still other gardeners like to plant their gardens in a very short period of time and have harvests come in all at once. The intensive gardening ideal is to have something growing in every part of the garden at all times during the growing season.

A good intensive garden requires early, thorough planning to make the best use of your time and space. Before planting, you must consider the interrelationships of plants, including their nutrient needs, shade tolerance, above- and below-ground growth patterns, and preferred growing seasons. Using the techniques described below, you can develop a high-yielding intensive garden.

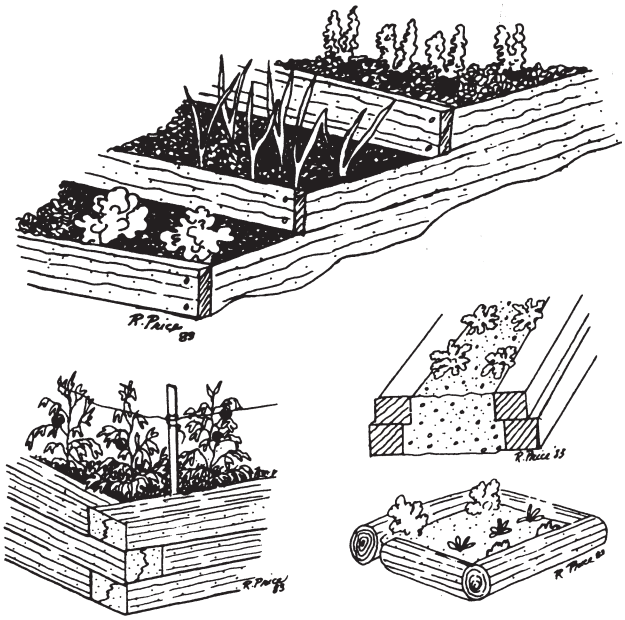
The Raised Bed

The raised bed or growing bed is the basic unit of an intensive garden. A system of beds allows you to concentrate soil preparation in small areas, resulting in the efficient use of soil amendments and an ideal environment for vegetable growth.

Beds are generally 3 to 4 feet wide and as long as you desire. You work from either side of the bed, reducing the incidence of compaction caused by walking on the soil.

Soil preparation is the key to successful intensive gardening. Plants compete for available water and nutrients, and an adequate supply must be provided for more closely spaced plantings. Have a soil test done so you know if and how much phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), and micronutrients (iron, manganese, zinc, copper) your soil needs. Nitrogen (N) fertilizer additions will be crop specific. If you suspect there is an inadequate amount of organic matter in the soil, you can have the soil tested for organic matter content. Soil test results will indicate if organic amendments are needed. Till the soil so that the top 10 to 12 inches has a loose tilth suitable for vegetable production.

By their nature, raised beds are a form of wide-bed gardening, a technique by which seeds and transplants are planted in wide bands of several rows or broadcast in a wide strip. In general, the goal is to space plants at



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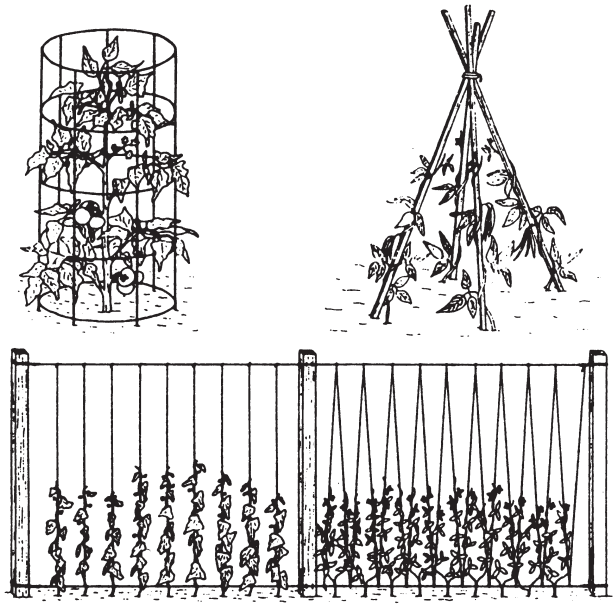
equal distances from each other on all sides, such that leaves will touch at maturity. This saves space, and the close plantings reduce moisture loss from surrounding soil. (Also see Spacing below.)

Vertical Gardening

Using trellises, nets, strings, cages, or poles to support growing plants constitutes vertical gardening. This technique is especially suited, but not limited, to small garden spaces. Vining and sprawling plants, such as cucumbers, tomatoes, melons, and pole beans are obvious candidates for this type of gardening. Some plants entwine themselves onto the support, while others may need to be tied. Remember that a vertical planting will cast a shadow. Beware of shading sun-loving crops, but plant shade-tolerant crops near the trellises to take advantage of the shade. Plants grown vertically occupy much less space on the ground, and though the yield per plant may be (but is not always) low, the yield per square foot of garden space is high. Because vertically growing plants are more exposed than non-staked plants, they dry out quickly and may need to be watered frequently. This fast drying is an advantage to those plants susceptible to fungus diseases. Several examples of vertical gardening structures are shown below.



Interplanting

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 maintain the quality of the crops you 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 you must take into account several factors for each plant: the length of its 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. You can accomplish interplanting 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.

Long-season (slow-maturing) and short-season (quick-maturing) 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 mixed with less gluttonous plants. Root, leaf, and soil-building crops (legumes) may be mixed to take advantage of available nutrients.

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

Spacing

Individual plants are more closely spaced in a raised bed or interplanted garden. An equidistant spacing pattern calls for plants to be the same distance from each other within the bed; that is, plant so that the center of one plant is the same distance from the centers of plants on all sides of it. In beds of more than two rows this means that the rows should be staggered so that the plants in every other row are between the plants in the adjacent rows (see illustration). The distance recommended for plants within the row on a seed packet is the distance from the center of one plant to the center of the next. This results in a more efficient use of space and leaves less area to weed and mulch. The close spacing

tends to create a nearly solid leaf canopy, acting as a living mulch, decreasing water loss, and keeping weed problems down. However, plants should not be crowded to the point at which disease problems arise or competition causes stunting.

Succession 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 the spots vacated by spent plants. Corn after peas is a type of succession.

Relaying is another common practice, consisting of multiple plantings of one crop to provide a continuous harvest. Sweet corn and bush beans are usually recommended for relaying, but cucumbers or other crops that yield for two weeks or less are also good prospects.

One approach to relaying is to plant one variety several times at about two-week intervals (more time between early plantings in colder soil but only 10 days between the last plantings). Another approach is to make one planting of two or more varieties that differ in maturity time, e.g., 50-day and 60-day beans or early-, mid-, and late-season sweet corn.

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.

Starting seeds indoors for transplanting is important for effective gardening. To get the most from your 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 a vacated area. Don't forget to recondition the soil for the new plants.

Planning an Intensive Garden

Begin planning your garden early. In January or February when the cold days of winter seem never-ending, pull out last year's garden records and dig into your new seed catalogs. As with any garden, you must decide which crops you want to grow based on your own likes and dislikes, as well as how much of each you will need. At this time of year you may want to take soil samples to avoid waiting for results during the busy spring soil sampling time. An account of which cultivars were most successful or tasted best is useful in making choices. Use the charts below and your own experience to determine which crops are likely combinations.

An intensive garden requires detailed planning, but the time saved in working the garden and the increased yields make it well worthwhile. Good gardening practices such as watering, fertilizing, crop rotation, composting, and sanitation are especially important in an intensive garden.

Economic Value of Crops

Judging the economic value of crops grown in the vegetable garden is difficult due to the different lengths of time they require for maturity and harvest, the availability of varieties and vegetable types not generally found in the marketplace, and the lack of comparison values for vegetables that are not acceptable by commercial standards (cracked tomatoes, crooked cucumbers, etc.), but which are perfectly useable for the home gardener. Nevertheless, several studies have attempted to determine which crops bring the most value per square foot of garden space, partly to aid small-space gardeners in making decisions about what to plant. Of course, if no one in the family likes beets, there is no point in growing them just because they are economically valuable, but this list may help you determine which vegetables to plant and which to buy. Perennial crops are not on the list below because each of the studies was on a one-season basis. However, asparagus, rhubarb, horseradish and other perennial crops have considerable economic worth. Fruit trees and shrubs, too, are valuable producers, especially considering the long term.

Top 15 Vegetables In Economic Value[1]

Tomatoes	Beets
Green bunching onions	Carrots
Leaf lettuce	Cucumbers
Turnip (greens + roots)	Peppers
Summer squash	Broccoli
Edible podded peas	Head lettuce
Onion storage bulbs	Swiss chard
Beans (pole, bush)	

[1]Values based on pounds produced per square foot, retail value per pound at harvest time, and length of time in the garden.

Low-value Crops[2]

Corn	Winter squash
Melons	Pumpkins

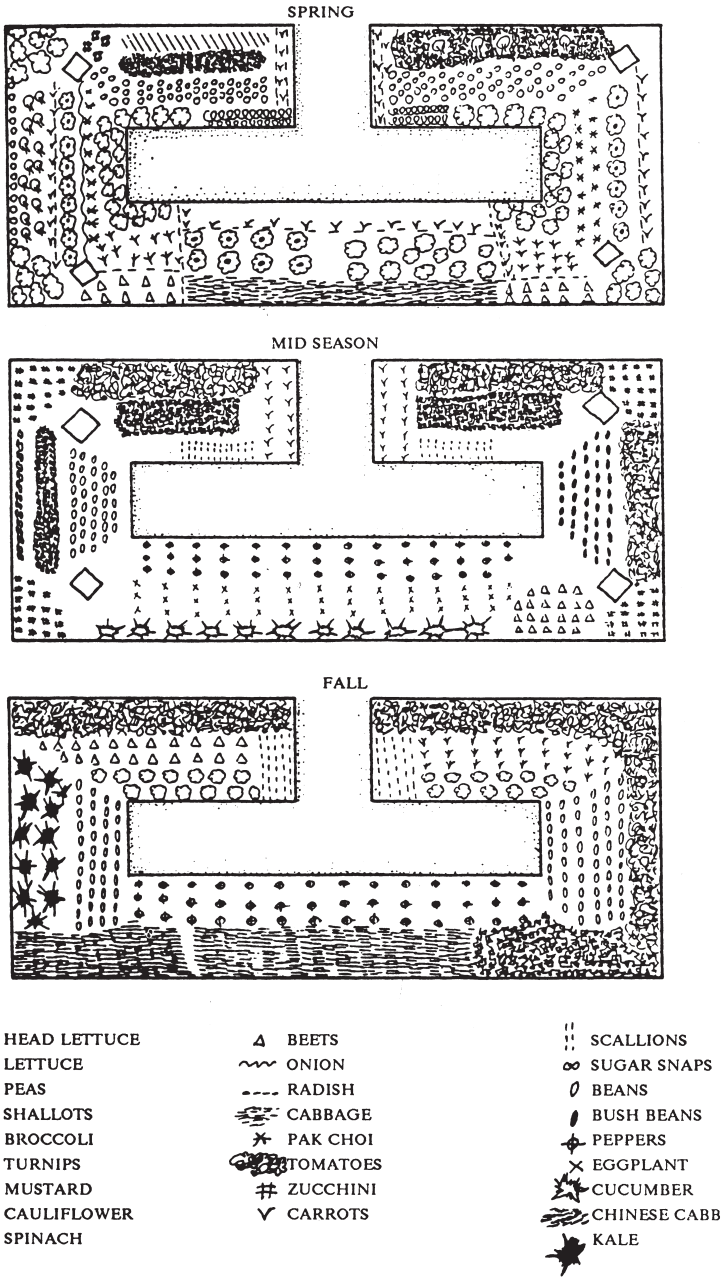
[2]Not recommended for small gardens; however, miniature varieties or trellising may increase value per square foot.

Intensive Spacing Guide

Note: to determine spacing for interplanting, add the recommended spacing inches for the two crops to be planted together, and divide their sum by 2. For example, if radishes are planted next to beans, add 2" + 4" = 6", then 6" divided by 2 = 3". The radishes should be planted 3" from the beans.

Plant	Inches	Plant	Inches
Asparagus	15-18	Lettuce, head	10-12
Beans, lima	4-6	Lettuce, leaf	4-6
Beans, pole	6-12	Melons	18-24
Beans, bush	4-6	Mustard	6-9
Beets	2-4	Okra	12-18
Broccoli	12-18	Onion	2-4
Brussels sprouts	15-18	Peas	2-4
Cabbage	15-18	Peppers	12-15
Cabbage, Chinese	10-12	Potatoes	10-12
Carrots	2-3	Pumpkins	24-36
Cauliflower	15-18	Radishes	2-3
Cucumber	12-18	Rutabaga	4-6
Chard, Swiss	6-9	Southern pea	3-4
Collards	12-15	Spinach	4-6
Endive	15-18	Squash, summer	18-24
Eggplant	18-24	Squash, winter	24-36
Kale	15-18	Sweet corn	15-18
Kohlrabi	6-9	Tomatoes	18-24
Leeks	3-6	Turnip	4-6

An Intensive Garden Plan for the Maximum Harvest



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