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GROWING A FALL GARDEN

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So you want to grow garden fresh vegetables this fall. Where do you start? Simply looking at seed packets in catalogs or local nurseries will not get the job done. One must garden smartly if economical production and utilization are expected.

Once the decision to have a fall garden has been reached, a gardener must take action--drastic action. One must pull out some of those plants that have been nurtured from "babies" in the spring to monsters now. This takes courage and faith! It is recommend that all plants, weeds included, be removed except okra, cherry tomatoes and pole beans if the foliage is healthy. Large-fruited tomatoes may have some small ones still hanging on, but unless you have at least 20-25 good-sized fruit, pull them out--make green tomato relish or chow-chow. If you recall, the largest, best tomatoes you had this spring were the first ones produced. The tomato plant has gotten old, diseased, and damaged by insects; it will never produce an abundance again. Besides, it is too large to be manageable as far as insect and disease populations are concerned. Pull the old plants up and discard them. Give them to the garbage man. Don't try to compost insect and disease-ridden plants--spider mites don't compost!

Then, determine where to put the garden. If you are an "ole timer," you may need to think in terms of garden relocation. The major consideration for garden placement is sunlight. All vegetables require some sunlight; the most popular vegetables require full sun. "Full" sun means at least 8 hours of intense, direct exposure. If such exposure is not received by crops such as tomatoes, peppers and squash (vegetables that contain seed), the plants grow spindly, they have weak stems, drop blooms and are generally nonproductive. Shade in the afternoon (after 3 p.m.) is wonderful; shade in the morning is acceptable. There are vegetables which produce passably in the shade. Generally, those crops such as greens, broccoli, cauliflower, root crops (carrots, turnips) which do not produce a fruit with seed will yield sparingly in semi- shaded areas but even these crops will do better in a full sun condition. Crops such as tomatoes, peppers, squash, beans and cucumbers may not produce anything if grown in the shade; plants will grow tall and spindly. The production potential of the garden's most popular vegetables depends solely on the amount of direct sunlight they receive.

Some gardeners believe shading is beneficial, but remember that commercial vegetable producers never shade crops. Use shade-tolerant crops for planting between larger growing vegetables such as tomatoes. During the early establishment period of a crop such as tomatoes, leave several feet of vacant space between transplants in which short, fast-maturing, shade-tolerant vegetables can be produced.

Do not locate the garden within 6 feet of hedges, shrubs or trees. Not only do these larger, more permanent plants compete for light, but they also gobble up nutrients and water necessary for healthy vegetables.

If a new garden site has been selected and it was previously covered with grass, this turf MUST be removed. Don't think that you can dig or till this existing grass into the garden soil and get rid of it. Even a well-tilled, pulverized garden soil will contain enough bermuda grass sprigs to cause troubles for years to come. New garden areas are doomed before they begin if all bermuda and other lawn grass is not completely removed BEFORE tillage begins. If a raised garden is being considered, sod should be removed BEFORE additional soil is

put into the prepared frame.

What about chemicals which might be applied to the grass to kill it rather than pulling it out? Yes, you're in luck! There are several brand names which contain the weed and grass killer glyphosate. These include Round-up and Kleenup - - check ingredients on label for the term "glyphosate" and follow label instructions for application rate.

Once the sod has been removed, the garden area should be shoveled to a depth of 10-12 inches. Rototillers, when used in a new garden area, will not penetrate adequately. Rototillers can be used to loosen and mix shoveled areas. Apply 1 to 2 inches of coarse (sharp), washed sand and 2 to 3 inches of organic matter to the garden site surface and incorporate to improve the soil's physical quality. The soil's physical condition will have to be altered over a period of time rather than trying to develop desirable soil in a season or two. If you are making the effort to build a raised bed garden don't skimp on the soil which you put into it.

The addition of fertilizer is the next step. You have two options. You can add only one pound of ammonium sulfate (21-0-0) per one hundred square feet (10 feet by 10 feet) and use ammonium sulfate every three weeks at the rate of one tablespoon sprinkled around each plant and watered in as a sidedress application for hybrid tomatoes and peppers. The second fertilization choice, and probably the one which will result in a more abundant harvest, is to use 2-3 pounds of a slow release fertilizer (19-5-9, 21-7-14, 25-5-10) per 100 square feet of garden area. Even if slow release fertilizer is used, It is still recommend to use ammonium sulfate (21-0-0) every three weeks at the rate of one tablespoon sprinkled around each plant and watered in as a sidedress application for the super productive hybrids. Horse or cattle, never fowl in the fall, manures may be substituted for commercial fertilizer and used at a rate of 60-80 pounds per 100 square feet of garden area.

After all ingredients have been added, mix the soil thoroughly and prepare beds on which to plant rows of vegetables. These beds should be 30-36 inches apart to allow for easy movement through the garden area when plants get larger. Pile and firm the planting beds then pre-irrigate the entire garden area by wetting with a sprinkler for at least two hours. Allow the area to dry for several days and it will be ready to plant.

When growing tomatoes and peppers, it is easier to use transplants. However, the use of transplants alone does not insure bountiful, precocious fall production. What must be accomplished is rapid establishment of fall transplants. As hot and dry as the weather has been, some people think that transplanting is risky. Transplants WILL survive hot temperatures and full sun IF adequate moisture is available to the plant. "To the plant!" is the key phrase. Transplants in peat pots or cell packs with restricted root zones require at least two weeks to sufficiently enlarge their root systems so that active growth can begin. Until that time, gardeners must provide adequate, daily moisture or the transplants will either die or stunt to the point that fruit maturity will be delayed. Delayed maturity is what we need to avoid!

Daily moisture should be provided on an individual basis to transplants. Depressions or basins around each transplant can be filled daily, or as needed depending on the soil type, with water to provide the necessary wetting or a drip irrigation system can be installed. Too much water, i.e., keeping roots soaking wet instead of moist, will cause root rotting and subsequent transplant stunting or death.

A transplant with a larger root system which can be easily watered will be helpful. Such a large root system will spread faster, have access to more water and will support an older plant which has the potential of producing more fruit, sooner. Fall-recommended tomato varieties such as Bingo, Merced and Celebrity can be purchased in a large transplant form with larger root systems in mid to late August. You can also purchase smaller, peat pot or cell pack transplants and grow larger transplants yourself. This simply involves the use of potting mix, Osmocote slow-release fertilizer pellets to be evenly mixed into the potting mix, a water soluble fertilizer to water the enlarging transplants every time moisture is required, a gallon pot or container, and full sun (afternoon shade

after 2 p.m. preferred) location free of pests (kids, dogs, etc.) for a 30 day length of time. If you have all of these elements and won't over water the containerized plants, GROW YOUR OWN.

Surefire, Heatwave, Bingo, Merced and Whirlaway are the best, highest quality varieties available but they are also the highest maintenance (proper watering, periodic fertilization, pest control). For those who don't want to take the challenge of growing the above mentioned high maintenance varieties, Carnival and Celebrity, are recommended. The main advantage of growing Bingo, Merced or Whirlaway in the fall is their firmness of fruit and ability to develop a deep red color if harvested green to avoid freeze damage. Surefire and Heatwave are the only tomato varieties which will set flowers and fruit during the heat of September and are thus the earliest maturing tomatoes of a fall planting. The fruit size of Surefire is dependent upon cultural techniques used to grow the plant but it is the longest storing of any tomato variety on the market. The best bell pepper, Summer Sweet 860, is also available in local nurseries. Of course, since bell peppers are eaten in an immature state, i.e., when they are green before turning red or yellow (860 is a yellow-when-mature variety), the urgency of planting is not as critical.

Of course larger transplants will cost more but the ease of establishment may be worth the extra funds. In fact a recently completed Texas A&M study confirmed that just two of the larger transplants, even though they were more expensive initially, significantly out yielded six of the smaller, cheaper transplants which died (were killed!) after planting. Certainly you believe the Aggies; don't you?

Proper timing is probably the most important factor in successful fall gardening. Regardless of variety selected or cultural practices used, if a gardener does not do the right thing at the right time, any chances of success are diminished.

Remember these are "average" planting dates for each region.

With these dates in mind, a gardener can decide which frost-susceptible vegetables to plant, when to plant and whether to use transplants or seeds.

Fall vegetable crops are categorized as long-term and short- term crops. Duration of these crops is dependent upon when the first killing frost occurs and the cold tolerance of the vegetables.

Plant long-term, frost-tolerant vegetables together. Frost- tolerant vegetables include beets, broccoli, Brussels sprouts, cabbage, carrots, cauliflower, chard, collards, garlic, kale, lettuce, mustard, onions, parsley, spinach and turnips.

Plant short-term, frost-susceptible vegetables together so that they can be removed after being killed by frost. Frost protection and the planting of a cereal rye cover crop are facilitated if such a grouping system is used. Frost-susceptible vegetables include beans, cantaloupes, corn, cucumbers, eggplants, okra, peas, peppers, Irish potatoes, sweet potatoes, squash, tomatoes and watermelons.

Keep in mind the relative maturity rate, average height (in feet) and frost sensitivity of the crop of various garden vegetables with FS meaning frost-susceptible crops which will be killed or injured by temperatures below 32 degrees F. and FT meaning frost-tolerant crops which can withstand temperatures below 32 degrees F.

The quick (30-60 days) maturing vegetables are: beets (1 1/2 feet) FT; bush beans (1 1/2 feet) FS; leaf lettuce (1 foot) FT; mustard (1 1/2 feet) FT; radishes (1 1/2 feet) FT; spinach (1 foot) FT; summer squash (3 feet) FS; turnips (1 1/2 feet) FT; and turnip greens (1 1/2 feet) FT.

The moderate (60-80 days) maturing vegetables are: broccoli (3 feet) FT; Chinese cabbage (1 1/2 feet) FT; car-

rots (1 foot) FT; cucumbers (1 foot) FS; corn (6 feet) FS; green onions (1 1/2 feet) FT; kohlrabi (1 1/2 feet) FT; lima bush beans (1 1/2 feet) FS; okra (6 feet) FS; parsley (1 1/2 feet) FT; peppers (3 feet) FS; and cherry tomatoes (4 feet) FS.

The slow (80 days or more) maturing vegetables are: Brussels sprouts (2 feet) FT; bulb onions (1 1/2 feet) FT; cabbage (1 1/2 feet) FT; cantaloupes (1 foot) FS; cauliflower (3 feet) FT; eggplant (3 feet) FS; garlic (1 foot) FT; Irish potatoes (2 feet) FS; pumpkins (2 feet) FS; sweet potatoes (2 feet) FS; tomatoes (4 feet) FS; watermelon (1 foot) FS; and winter squash (1 foot) FS.