

## **A WORD OR TWO ABOUT GARDENING**

### **Time to Plant the Veggies**

Round about August/September when somebody in Miami-Dade decides to ‘start a garden’ it means that they are planning to grow vegetables in their backyard. Not flowering or ornamental plants, but tomatoes, peppers, beans, squash, broccoli and a cornucopia of fresh produce. Nowadays it is not only backyard gardeners who are planning to grow vegetables, but those with space for a container or two on their balcony or patio. Since tomatoes and sweet peppers are the most popular choice, I have concentrated on these for this article. A common observation I hear from those calling the Miami-Dade Extension Office reveals a degree of frustration that whilst there are acres of tomato plants in the fields around Homestead, they are having problems just trying to grow a couple of plants in containers on the back patio. Let us look at some of the factors that contribute to ensuring a successful home- grown vegetable garden.

One of the first decisions you will need to make when planning your vegetable garden is where to plant. If you do not have a yard, then you can use containers; for tomatoes, peppers and eggplant for instance, 5 gallon plastic buckets with drainage holes are ideal. You will then need to situate each container so that it receives a minimum of 6-8 hours of sun per day. Vegetables grown for the fruit they produce, such as tomatoes, peppers and eggplant should receive the maximum amount of available sunlight, whereas leafy vegetables will succeed with a little more shade. You can make your own soil mix using all or some of the following components: garden compost, sphagnum peat, Perlite, vermiculite and coarse sand plus dolomitic lime. Aim for a product with 40-50% organic components, and a pH of about 6.5. If you buy a potting mix make sure it states that it is designed for container gardening – those used to propagate seeds or root cuttings are too light, and are unable to support the root system of a large mature tomato plant.

Those with space to grow vegetables in the backyard will, in addition to providing adequate exposure to sunlight, also have to decide whether to grow directly in the ground or to build up a raised bed. Raised beds offer a number of advantages in Miami-Dade: they avoid digging planting beds in South Dade’s concrete-like limestone, the necessity of enriching our poor quality native soil with organic matter and lessen the risk of soil becoming waterlogged in areas with poor drainage. Furthermore, soil in a raised bed can easily be replenished, avoiding the potential build up of pests or disease. The design of a raised bed can be quite simple and inexpensive, or can utilize more permanent materials. The essential features are four retaining walls, at least 8-10’’ deep (more for root crops), usually fabricated from wood, plastic lumber or masonry. Please ask for a copy of the Miami-Dade Extension Office publication on ‘Raised Beds’ for more details (tel. 305 248-3311).

If you decide to plant directly in the ground you will need to take steps to reduce problems from soil borne plant diseases and pests, and maximize the fertility of your soil. You should incorporate some good quality garden compost, or other organic matter such

as sphagnum peat to improve the organic content of Miami-Dade's rocky/sandy soil. Black peat (sedge) is not recommended unless it is thoroughly worked into the existing soil well in advance of setting out the plants. Since this material can make the soil too heavy and compacts easily it is usually advantageous to improve aeration by also incorporating an aggregate such as Perlite or Perma-Till and coarse (masons) sand. Do not use raw manure – apart from the potential human health hazard, the salts present in manure can burn plant roots. The amended soil should have a 30-50% organic content and be loose and friable when moist (if it forms a sticky ball when squeezed together it is too heavy). For a small area it is probably easier to purchase one of the brand name garden soil mixes available at local garden centers. Make sure it is specifically formulated for flowers or vegetables and work it thoroughly into the existing soil.

Organically based fertilizer can also be worked into the soil – since these release usable plant nutrients slowly, they should be incorporated ahead of actual planting. Miami-Dade sits on a bed of limestone rock, so it is not necessary under normal conditions to incorporate lime into the soil. There have however been instances where the use of large quantities of black muck topsoil have resulted in blossom end rot of tomatoes (due to a deficiency of calcium). Under such circumstances dolomitic lime should have been added to the soil.

Apart from improving soil structure, raising the organic content of soil helps to prevent a build up of soil nematodes, microscopic worm-like organisms that damage plant roots. One other means of reducing soil nematodes, in addition to soil-borne diseases and insects, is to apply a double thick layer of clear plastic over the vegetable bed 8-10 weeks before you plant. Use ¼ strips of wood to separate the plastic, first wetting down the soil before you cover with the plastic. The plastic cover creates a greenhouse effect allowing the heat from the sun to penetrate, but trapping the radiant heat produced as the soil warms. The plastic should be rolled back 2-3 times to make sure the soil is moist. This soil solarization procedure will sterilize the top 3-4" of soil. There are no chemicals available to homeowners for soil sterilization when growing edible crops. If you see the letters VFN on a tomato seed packet it signifies that variety has been bred to be resistant to two soil borne diseases (verticillium and fusarium wilt) as well as certain parasitic soil nematodes. Seed recovered from such plants will not necessarily carry any of these resistance traits. Special attention to using fresh sterile soil is especially important when planting heirloom tomato varieties since they are more liable to be susceptible to diseases in general.

One common problem many backyard gardeners face, especially with tomatoes, is a failure to set fruit. There are plenty of blossoms, but they just fall off and no fruit forms. One cause, especially early in the growing season, are day and/or nighttime temperatures that are too high. Added to this is the fact that with longer day length, there needs to be a greater difference between day and night temperatures. Just remember that when daytime temperatures approach 90°F and/or nighttime temperatures remain above 70°F, the physiological processes that lead to fruit development cannot proceed normally. By late October, night temperatures can be expected to fall below 70°F, so it follows that the earliest time to be putting out tomato transplants is mid August. Since September is

normally our second wettest month and the peak of hurricane season you may wish to delay planting until later. Temperature effects on fruit set vary according to the variety; small fruited cherry tomatoes will set fruit throughout summer in Miami-Dade.

A succession of nighttime temperatures below 55°F will inhibit fruit set, and there are fruit setting hormones that will overcome this problem. Remember however that these are only effective if low temperatures are the problem – they do not work when temperatures are too high. High humidity increases the risk of blossom drop, as do certain insect pests. Other problems that can cause poor fruit set in tomatoes include insufficient dispersal of pollen, especially in areas where the air is still. This is liable to be more of a problem with container plants grown on a sheltered patio. In such a situation try carefully shaking the open flowers (around midday) to dislodge pollen. Applying too much nitrogen (as fertilizer) will also decrease the onset of fruit production. Once fruit is beginning to set, the demand for nitrogen will increase and you should side dress with an appropriate fertilizer (request publications from the Miami-Dade Extension Office for details).

Late in the season as temperatures climb above 85°F tomatoes may well not develop lycopene, the pigment that gives them their deep red color, and ripen to a paler orange/yellow color. Lycopene is an anti-oxidant that is claimed to protect against prostate cancer, cataracts and possibly heart disease. This should not be confused with the presence of whitish tissue inside the ripened tomato, which is not known to be related to temperature. Although not fully understood, this appears due to plant stress, and has been associated with infestation with the sweet potato whitefly.

Peppers have cultural and climatic requirements similar to those for tomatoes; however they are more tolerant of high temperatures. Even so flowers are not fertilized when daytime temperatures are above 90°F, and for optimum fruit production temperatures should be between 68 - 78°F. Whilst peppers are somewhat drought tolerant, lack of soil moisture during flowering can interfere with fruit set. This does not mean that they need to be inundated with water on a daily basis – excessively wet soil will cause the plants to defoliate. As with all vegetables, water around the base of the plant, once the top 1” of soil becomes dry - provide 1” of water per week, including rainfall). For more detailed information, request a copy of the publication “Irrigation of the Home Garden: Vegetables and Bedding Plants in South Florida”, or download it from <http://miami-dade.ifas.ufl.edu/publications.htm> . Insect pests can interfere with fruit production: thrips are tiny active insects that destroy flower blossom, and grubs of the pepper weevil beetle can severely damage developing fruit, especially during late spring, causing them to drop.

If you see evidence of insect damage on your vegetable plants you must identify the pest and make sure any chemical you use is appropriate as a control measure. The chemical you use must list the crop on the label. It is best to start with the least toxic controls such as insecticidal soap or ultra-fine horticultural oil before considering anything more toxic.

In closing, the one other vegetable flowers profusely but then often fails to set fruit are the cucurbits, including squash, melon and cucumbers. Unlike peppers and tomatoes cucurbits are insect pollinated and unless you notice bees in the neighborhood, you will have to hand pollinate your plants in order to ensure a crop (except seedless cucumbers such as Sweet Success). Request a fact sheet from the Miami-Dade Extension Office for further information.

At a later date we will consider problems with leafy vegetables, but for next time a discussion of annual cool season bedding plants in Miami-Dade. We need to diversify, and use them more often as a source of landscape color

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