

Intensive Family Gardening the SFG Way



Ron Smith, Ph.D., Extension Horticulture Specialist and Professor
Department of Plant Sciences, NDSU
and **Betsey Smith**, Fargo

Betsey and I have been square foot gardeners since we moved to Fargo in 1985. Square foot gardening (SFG) caught Betsey's attention while we were living in a trailer park in Tucson, Ariz. She declared back then that once we settled down somewhere, SFG would become a way of life for us, and indeed it has. Our kids, being just toddlers then, showed increasing interest in what their parents were up to and actually got involved in the planting, insect control, weeding and harvesting.


Why this form of gardening rather than the conventional? The two major reasons to pursue SFG techniques are saving space and maximizing production. In addition, Americans are increasingly concerned about their food supply, and this is one of the ways to alleviate that concern because the quality and quantity of food is directly controlled by the gardener.

The SFG concept is an adaptation of some gardening practices that became popular in France known as "French intensive gardening." This is where the envelope of plant proximity is pushed to the maximum

by employing techniques known as succession planting and interplanting, resulting in very high yields for the space occupied. In America, this method of gardening was picked up and popularized as square foot gardening. SFG was developed by Mel Bartholomew, a retired engineer who wrote the book on the subject.

What SFG Embodies

Both the French intensive gardening and SFG concepts embrace excellent soil preparation. This requires a lot of work initially to do it right, but once the initial workup is completed, it becomes "easy gardening" for every year thereafter. Native soil is completely removed and replaced with "designer soil," or the native soil is double dug and undergoes a major modification. The intent is to maximize a good air/water balance in the soil root zone profile to eliminate any physical barrier to root development. The typical 6-inch loosened soil depth is not sufficient; 10 to 12 inches are recommended.



To accomplish this well-aerated and rich soil structure, copious amounts of compost, well-decomposed barnyard manure, sand, weathered sawdust and vermiculite can be added. Depending on what is available locally, work with various materials in differing combinations to achieve the drainage and nutrient characteristics desired. Work initially in small batches and test for drainage. Have a sample of the mixture sent to the NDSU Soil Testing Lab for nutrient analysis and physical characterization.

Or if you want to operate by guessing, take at least three components (more would be better) and mix them in approximately equal proportions by volume. For example, equal proportions of sand, peat and soil might provide the basic initial characteristics desired. Add to that some well-composted barnyard manure, weathered sawdust or compost of your own making to further enhance the soil's ability to produce superior vegetable crops. Don't be hidebound by book recipes that will cause greater than necessary expense in getting the SFG established. Try to use local resources and the results will be satisfactory.

Once established, SFG beds require little additional work, with their main limiting factors in producing high yields being sunlight and water. Because the beds are densely planted, they are effectively interplanted, so plant spacing is important. A strong recommendation is to grow plants of similar height next to each other. The truly devoted square foot gardener will harvest early maturing crops, such as lettuce, radishes and spinach, and have a transplant of a later-maturing crop to put in place. Melons, cucumbers and tomatoes would be good succession crops.

Assuming you have selected the right location for the garden to get a full day of direct sunlight (six to eight hours), the next consideration is the need for water. Be vigilant about providing water on a regularly scheduled basis, using a drip or soaker hose when needed to wet the entire root zone with each irrigation cycle.

Establishing the Beds

The SFG book recommends that bed sizes be 16 square feet (4 feet by 4 feet) and delineated with boards that will allow the gardener to walk between the beds and reach in from all sides to get to the crop without stepping on the highly cultivated soil. Some square foot gardeners have made squares by using 1- by 12-inch boards, securing them on edge and placing them where the sun shines, water can be delivered and the designer soil brought in. No digging needed!

Some modifications can be made to suit the location and intent of the gardener; for example, beds can be 4 by 8 feet, 2 by 4 feet, 3 by 3 feet, 1 by 1 foot and so on. Raised beds also are recommended to make reaching the vegetables easier and to act as a buffer against flooding rain events.





and plants showing disease symptoms can be removed, so the harvested crop is pesticide free. From age 4 to 94, SFG can provide healthy exercise, good nutrition and lifelong satisfaction.

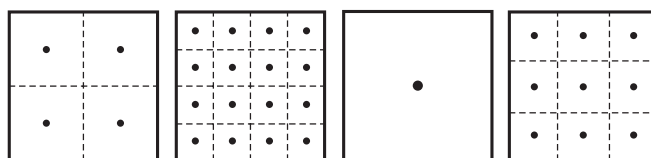
Spacing Examples for SFG

- One plant per square foot: broccoli, cabbage, cauliflower, corn, eggplant, peppers, tomatoes
- Four plants per square foot, 6-inch spacing: lettuce, Swiss chard, marigolds
- Nine plants per square foot, 4-inch spacing: bush beans, spinach, beets
- Sixteen plants per square foot, 3-inch spacing: carrots, radishes, onions

They can be elevated slightly or to the point where the gardener can stand or push a wheelchair right up to the edge and work on planting, cultivating and harvesting. Be creative in your SFG layout.

Note the absence of any recommendation for using heavy, motorized tillers. Being all done with hand tools, the SFG lends itself to involving everyone in the family in gardening. Our daughter and son got involved in our SFG projects starting when they were toddlers, and now as young adults, are pursuing their own approach to SFG tactics. It provides good, easy exercise, giving the gardener fresh air and sunshine to enjoy, and a minimum amount of weeding – which is essentially none after the Fourth of July due to the density of planting. And harvesting vegetables is an easy undertaking that is not dreaded due to the ease of getting to the crops, and the produce tastes delicious.

Since the gardener has easy control over this limited space, pesticides, either conventional or organic forms, are not necessary. Insects can be picked off

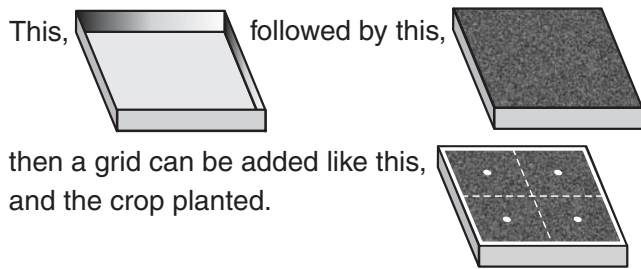


The above schematics show the final spacing of plants in a typical SFG setting. With transplants such as tomatoes and cabbage, thinning will not be needed; with lettuce, carrots and beets, thinning is needed to get the plants the right density for proper development. Shop the market for coated seed – carrots, for example – to get the spacing right the first time and bypass thinning after emergence.

Betsey has developed a teaching/planting guide with 1-foot squares of high-impact plastic cut and then drilled with each of the spacing squares as shown above.

An added bonus with SFG is the ease of providing protection from a late-spring cold snap or damage to a maturing crop of tomatoes from an early fall frost. Geotextile coverings can be cut easily to fit over the 4- by 4-foot squares that make application and removal quite easy. These simple coverings allow for air, sunlight and water to reach the crops and provide protection down to approximately 28 degrees Fahrenheit.

SFG couldn't be easier



End-of-season Care

Once the last harvest is made, remove the spent plants, turn the soil over and add any soil amendments that might be needed based on either a soil test or simple observation from the season's harvest. Usually the addition of peat, compost or any well-weathered organic material can be incorporated so the garden is ready for planting early the following spring.

Reference: "All New Square Foot Gardening" by Mel Bartholomew, Cool Springs Press, Franklin, Tenn.

For more information about gardening and food preservation, visit www.ag.ndsu.edu/extension and follow the links.



Time with a child is time well spent.

For more information about parenting and 4-H, visit www.ag.ndsu.edu/family and www.ndsu.edu/4h



18 U.S.C. 707



Vary your veggies

- Eat more dark green veggies
- Eat more orange veggies
- Eat more dry beans and peas

www.MyPyramid.gov