Fruit and Vegetable Gardening

Lake-friendly Gardening

The Vermont and New York Master Gardener Programs, supported by the University of Vermont and Cornell Extension and Lake Champlain Sea Grant, support the objectives of the Lake Champlain Management Plan and Basin Program. This factsheet is intended to help prevent or reduce pollution coming from residences within the Lake Champlain Basin.

Gardens are a wonderful source of food

We all enjoy fresh garden-grown fruits and vegetables. By using **lake-friendly gardening** techniques, it is possible to produce top-quality crops, while maintaining soil fertility and protecting our natural waters.

> The **lake-friendly gardening** approach to fruit and vegetable gardening is to select disease-resistant species, properly plant them in well-prepared sites, and minimize the use of chemicals.

Where to plant

To get the most out of a garden, it is important to choose the right site. It should have a minimum of 6 hours of direct sunlight, have well-drained soil, and be away from shade-casting trees.

Plant the garden on level ground, avoiding sloping areas that are likely to erode. If the garden has to be on an incline, plant in strips between areas that remain in sod, so that each row acts as a ridge to trap rainfall, reducing soil erosion.

What to plant

Fruit and vegetable plants need adequate sunlight, moisture, space, air, soil temperature, pH, and fertility. A plant living in less than optimum conditions will not be as healthy as a plant growing under ideal conditions. When selecting varieties, choose those suited to your area. Caring for them properly means better plant health and reduced maintenance. Carefully read seed catalog descriptions and check with the Master Gardener Program or the local Extension office in your area (see contact information at the end of this sheet) for a list of recommended varieties. Healthier plants mean:

- more food from the garden
- less garden work
- less reliance on pesticides to deal with insects and diseases that take advantage of weak plants
- less potential for pollution and erosion

Proper watering

Water only when needed. Vegetable garden soil should be kept evenly moist. If nature does not provide 1 inch of rainfall per week, supplement with single deep applications, allowing soil to dry out in between.

Some vegetable crops are naturally more deep-rooted and drought-tolerant than others. Generally, leafy crops, the nightshade family crops, and onion family crops will need the most frequent watching. Root vegetables should also be kept evenly moist (no wet-dry fluctuation) to prevent woody roots. The application of mulch materials will reduce the need for additional water. Seeds and seedlings in the germination-establishment phase require more frequent, shallow watering because they need moisture closer to the surface.

Small fruits, such as blueberries, strawberries, and raspberries, need adequate moisture (1 inch per week). Full-size fruit trees require less watering than dwarf fruit trees, because they are deeper rooted.

Pests

Serious pest problems can usually be avoided by properly locating, planting, and maintaining the garden. The following preventative measures will reduce the chance of pest invasion:

- Choose healthy vegetable transplants and disease-resistant fruit and vegetable varieties.

- Rotate crops in a practical manner so that the same crop or a related one is not in the same place year after year. Repeated plantings of the same plants in the same spot can encourage insect infestation and the buildup of soil diseases.
- Practice good garden sanitation. Weeds, garden debris, and other rubbish may harbor insects, slugs, and diseases.

- Weed out "volunteer" vegetable seedlings such as tomatoes and squash because they compete with desired crops for water, space, and nutrients.
- Time vegetable plantings to avoid peak insect infestations. Record when insect problems appear, so you can plan future plantings.
- Encourage beneficial friends in the garden, such as ladybugs and their larvae, by avoiding pesticides.
- Inspect plants for harmful insects and their eggs frequently. Pick off and destroy any you find.
- Dislodge insects with strong sprays of water. This may be all the control you need for aphids, whiteflies, two-spotted mites, and spittlebugs.
- Place insect barriers over vegetable plants; use screening or floating row covers (remove covers for insect-pollinated plants when flowers appear).
- Protect fruit crops from birds with netting.
- Properly train and prune fruit trees to help reduce disease and insect problems.
- Control slugs by trapping them in containers of beer. They can also be lured beneath boards for capture.
- Keep the garden free of debris to limit hiding and breeding places for pests.
- Mulch around fruit and vegetable plants to keep weeds down. Pull all weeds by hand before they get large. Herbicides are unnecessary in a vegetable garden.
- Use the least toxic pest-control method. Some of these might include B.t. (*Bacillus thurengensis*), insecticidal soaps, and horticultural oil.
- Apply compost and green manures to build soil structure and fertility.

Fertilizer

Fertilizers supplement the nutrients already in soil. Have the soil tested to determine which nutrients are deficient and to what extent. Many gardeners apply too much, which may damage plants, endanger water quality, and waste money. In the Lake Champlain basin, excess phosphorus is a particularly serious water quality problem so phosphorus should only be added to soil when there is a clear deficiency.

Using the soil test data (if you need help interpreting the results, contact the Master Gardener Program or your local Extension office—see end of sheet for contact information), decide which type of fertilizer is best for your garden. Organic fertilizers can supply specific nutrients, while complete chemical fertilizers may be better for soil that is deficient in the three major nutrients. Typical organic fertilizers include compost, manures, cottonseed, bone and blood meal, fish extract (these last three may attract animals), and other organic materials. Because the percentage of nutrients in organic material is relatively low compared to chemical fertilizers, fairly large amounts may be required to supply plant needs.

If your soil is deficient in one nutrient—nitrogen, phosphorus, or potassium (N-P-K)—the others are already present in the soil in adequate levels. In that case, individual nutrients should be applied using separate fertilizers–e.g., ammonium nitrate for N (33-0-0) or potassium chloride for K (0-0-60). When using chemical fertilizers on established plants, apply in bands along rows of seeded vegetables or in a circle around each plant. This improves yield and reduces the use of fertilizer. Remember, using a complete chemical fertilizer containing P where phosphorus levels are adequate will contribute to the excess phosphorus load entering the lake.

Master Gardener Program
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