

Strawberries

General Information

Strawberries are attacked by a variety of pests, including insects, mites, pathogens and weeds. While much of this publication deals with chemical controls, the best overall approach to pest management integrates chemicals with other methods. Where possible, cultural practices that may help in managing these pests are presented. The single most important factor in controlling pathogens is the maintenance of vigorously growing plants. Weeds compete with strawberries for essential water and nutrients. Weeds also promote pest injury by acting as alternate 'homes' for pathogens and insects, inhibiting spray penetration, and maintaining high humidity in the strawberry leaf canopy.

Good soil and air drainage are essential. Roots rot quickly in waterlogged soil, and fruit rots are more common when the soil surface does not dry quickly. Well-drained loams are the most suitable soil types for good root penetration and plant growth. Sites where cold air can drain away to lower levels will decrease the possibility of frost damage to the flowers and fruit. A southern, sloping site is the most ideal location providing quick-drying soil and earlier ripening berries.

For good root penetration, aeration and drainage, organic materials should be added to the soil. Disc animal manures, and/or green manure crops (cover crops) thoroughly into the soil before planting. The use of leguminous cover crops may increase soil nematode populations, which may be injurious to strawberries. Sudan grass (which will suppress nematode populations) and Japanese millet are annual cover crops well suited for most situations, providing heavy organic matter production. See section on "Cover Crops and Green Manures" on page 8 for more on this subject. If poultry manure is used, it must be applied carefully. It is a rich source of nitrogen which, if used to excess, can promote excessive vegetative growth and soft berries (both conditions encourage disease).

In new beds, a soil test should be done to determine the pH, and the rate and types of fertilizer to apply. Have the soil tested at your state university or private soil-testing lab and apply the necessary lime to adjust the pH to within the range of 5.8 to

6.2. Some soils low in magnesium may benefit from the use of dolomitic (Hi-Mag) lime. Pre-plant fertilizer recommendations will generally call for the application of blended fertilizer containing nitrogen, phosphorous and potash in a 1-2-2 ratio (250 to 400 pounds of 10-20-20 is a typical recommendation). Nitrogen at up to 30 pounds per acre banded over the plant row is generally recommended during the period of heavy runner development (late June or early July). An additional smaller application may be suggested for early August.

Heavy fertilizer applications should be avoided in the spring on established beds; too much nitrogen will promote abundant vegetative growth that encourages disease by inhibiting good air circulation needed to dry plant surfaces. The longer moisture films remain on fruit and leaves from irrigation, rain, dew or high humidity, the greater the chance of fungal spores germinating, and disease outbreaks occurring. Berries may also become soft as a result of too much nitrogen. Light applications of fertilizer may be made in spring (8-15 lbs of actual N per acre) to promote early plant growth and fruit development.

Leaf tissue analysis is a good way to determine nutrient levels actually in the plant rather than what is in the soil. Sometimes the nutrients in the soil are not available to the plant due to pH, organic matter content, or some other reason. Leaf tissue analysis tells you what the plant is getting and what the plant is lacking. The samples are taken after bed renovation in the summer from the first fully expanded new

Table 10. Recommended optimal soil characteristics for growing strawberries.

SoilCharacteristic	DesirableRange*
pH	5.8-6.2
Organic matter	4 to 6 %
Phosphorus	20-30 ppm
Potassium	120- 180 ppm
	Base Saturation >3.0
Magnesium	100-150 ppm
	Base Saturation >5.0
Calcium	1000 - 1500 ppm
	Base Saturation >50.0

* Desirable range will vary with soil type (sand, silt, or clay), soil organic matter, and pH.