

leaves. At least 50 complete leaves per planting should be taken, rinsed, and allowed to dry completely before processing. Contact your regional fruit specialists for the exact protocol, processing instructions, and fees. Standards are available for comparison to determine if your results indicate the need for corrective measures. See Table 13.

Good root development is essential to the continued productivity and health of the strawberry planting. Primary roots generally live only a year or slightly longer, requiring the development of new roots at successively higher nodes on the growing crowns. To encourage increased root development, strawberry crowns are mulched with about 1 inch of loose soil during the renovation process, enough soil to cover the crown extension that has occurred during the past year without covering the top of the crowns.

Strawberries are a cool weather crop, producing most of their growth in the spring and fall. Growth is

greatly slowed during the hot, dry summer months, resulting in a shallow root system. During the growing season (April, May, August, September and October) applying 1-1/2" of water every 12 to 14 days will aid in maximum growth and fruit bud development. During fruiting, adequate moisture (1/2 to 3/4" of water per week) will maintain fruit size and production.

Irrigation can also eliminate frost damage to flowers during early bloom periods. If sprinklers are turned on before the temperature at ground level drops to 32½F and continued until air temperature is above freezing and all ice has melted off the plants, the blossoms will be protected. (Remember, the first blossoms to open will bear the largest berries.) The sensitive, actively growing tissue in the crown will also be protected from freezing injury that would make it more susceptible to pathogen attack.

Table 11. Number of strawberry plants per acre at different spacings.

In Row Spacing	Spacing Between Rows		
	36 inch	40 inch	42 inch
3 inches	58,080	52,293	49,783
6 inches	29,040	26,241	24,891
12 inches	14,520	13,120	12,446
18 inches	9,680	8,712	8,297
24 inches	7,260	6,540	6,223

Table 12. Critical freeze temperatures for strawberries based on stage of growth.

Stage of Development	Approx. Critical Temperature
Tight bud	25½F
"Popcorn"	28½F
Open Blossom	30½F
Fruit	28½F

Table 13. Critical nutrient values for strawberry tissue analysis.

	Deficient	Below Normal	Normal	Above Normal	Excessive
N (%)	1.50	1.80	2.00	2.80	>2.80
P (%)	0.20	0.25	0.35	0.40	>0.40
K (%)	1.20	1.50	2.00	2.50	>2.50
Ca (%)	0.60	0.70	1.50	1.70	>1.70
Mg (%)	0.25	0.30	0.45	0.50	>0.50
Mn (ppm)	40	50	150	250	>250
Fe (ppm)	50	60	150	250	>250
Cu (ppm)	5	7	10	20	>20
B (ppm)	20	30	60	70	>70
Zn (ppm)	15	20	35	50	>50

Source: PennState University