

Table 3. Crop nutrient requirements for N, P, and K for vegetables grown on irrigated marl soils.

Crop	Crop nutrient requirements ^{1,2}		Footnotes
	N-P ₂ O ₅ -K ₂ O Lb/A		
Beans, bush	45-60-60	3	
Beans, pole	70-100-100	3	
Beans, lima	60-80-80	3	
Beets	60-80-80	3	
Broccoli	90-80-100	3	
Cabbage	90-80-100	3	
Carrots	90-80-100	3	
Cauliflower	90-80-100	3,4	
Celery	90-80-100	3	
Chinese cabbage	90-80-100	3	
Collards	90-80-100	3	
Corn, sweet	80-70-80	3	
Cucumber	80-60-90	3,4	
Eggplant	80-70-100	3,4	
Endive	80-70-80	3,7	
Lettuce	80-70-80	3,8	
Muskmelon	90-80-100	4	
Mustard	80-70-80	3	
Okra	80-70-100	3	
Onions	80-70-100	3	
Peas, English	50-70-70	3	
Peas, southern	50-70-70	3	
Pepper	80-70-100	3,4	
Potato, Irish	60-120-120	3	
Potato, sweet	40-80-80	3	
Radish	45-60-60	6	
Spinach	80-70-80	3	
Squash, summer	45-60-60	3	
Squash, winter	45-60-60	3	
Strawberry	90-120-120	4,5	
Tomato	120-160-160	3,4,5	
Turnip	80-70-80	3	
Watermelon	90-80-100	3,4	

Footnotes:

¹These amounts should be applied as fertilizer **only** to soils testing "very low" in P and K. Use a soil test to determine precisely how much fertilizer is needed.

²Make a supplemental sidedress application to unmulched crops of 30-0-20 lb N-P₂O₅-K₂O/A after any rainfall that amounts to 2- to 3-inches in a 7-day period. Use a liquid-injection wheel or drip irrigation to apply supplemental fertilizer to mulched crops. Supplemental applications will probably not be needed on mulched crops unless flooding occurs. Crops might respond to a sidedress-band application of P during cool periods.

³For unmulched crops, apply all P and micronutrients before or at planting. Increased efficiency of plant use of these nutrients might be realized by banding these nutrients in the soil to the side of the row. Apply 25% to 50% of the N and K at planting, or sidedress at crop emergence. Apply the remainder of the N and K in 2 to 3 split applications during the growing season.

⁴For mulched crops, apply 25% to 50% of the fertilizer broadcast in the bed and the remainder in bands prior to installing the mulch.

⁵For drip-irrigated crops apply all P and micronutrients, and 20% to 40% of the N and K, in the bed. Apply the remaining N and K through the drip system.

⁶Apply all fertilizer prior to or at planting.

⁷Includes escarole and chicory.

⁸Includes head, leaf, and romaine.

crop. Overliming also can reduce the accuracy with which a soil test can predict the fertilizer component of the CNR.

It is important, however, not to allow soil pH to drop below approximately 5.5 for most vegetable production, especially where micronutrient levels in the soil may be high due to a history of micronutrient fertilizer and micronutrient-containing pesticide applications. When soil pH decreases in such soils, the solubility of micronutrients can increase to levels that may become toxic to plants.

Irrigation water from wells supplied by limestone aquifers is an additional source of liming material usually not considered in many liming programs. The combination of routine additions of lime and use of alkaline irrigation water has resulted in soil pH values greater than 8.0 for many sandy soils in southern Florida. To measure the liming effect of irrigation, have a water sample analyzed for total bicarbonates and carbonates, and the results converted to pounds of calcium carbonate per acre annually. Include this information in your decisions concerning lime.

It should be evident that liming, fertilization, and irrigation programs are closely related to each other. An adjustment in one program will often influence the other. To maximize overall production efficiency, soil and water testing must be made a part of any fertilizer management program.

Nutrient forms

Nitrogen can be supplied in both nitrate and ammoniacal forms. Nitrate-nitrogen is generally the preferred form for plant uptake in most situations, but ammoniacal N can be absorbed by some plants directly or after conversion to nitrate-N by soil microbes. Since this rate of conversion is reduced in cold, fumigated, or strongly acidic soils, it is recommended that under such conditions 25% to 50% of the N be supplied from nitrate sources. This ratio is not as critical for unfumigated or warm soils. For more information on nutrient sources, consult Extension Circular 225-C.