

Fertilizer Management in Coastal Cool-Season Vegetables



Evaluate Current Irrigation and Fertilization Practices and Plan Improvements in Management

- Determine the extent of nitrate contamination of ground water beneath or near crop fields and assess the potential for transport of soluble contaminants (nitrate, salts) downward to the ground water and laterally to surface waters.
- Develop and implement a system for keeping long-term records on each field of water and nutrient/soil amendment inputs, cultural operations, pest problems, land leveling or other improvements, and crop yield and quality.
- Review current cultural practices and develop improved nutrient and water management plans.

Base the Amount and Timing of N Fertilizer Applied on Crop Needs and Production Goals

- Before applying N early in the growth cycle, assess the amount of nitrate already present by soil (or soil solution) sampling and analysis.
- When applying manure shortly before a crop is planted, determine the nutrient content of the manure and the amount of nitrate already present in the soil. Apply manure at a rate consistent with the crop nutrient requirements.
- Split applications of N fertilizer.
- When possible, avoid water-running N fertilizer in the furrows. If fertilizer N must be water-run, maximize irrigation uniformity and inject fertilizer during the last half of the irrigation set.
- Use plant tissue sampling for mid- and late-season fertilizer decisions.
- Do not apply excessive single amounts of fertilizer N during the rainy season.
- For fertilizer application during fall tillage, use only low N-containing materials such as N:P₂O₅:K₂O equal to 1:3:3. Higher N materials may be appropriate if a crop is to be planted soon.
- Measure nitrate levels in the irrigation water and adjust N fertilizer rate accordingly.

Place N Fertilizer Materials Where Maximum Plant Uptake Will Occur

- Incorporate N fertilizer into the crop bed by either placing fertilizer on or near the seed row and watering it in, knifing fertilizer into the bed, or broadcasting fertilizer and then listing it up into the bed.
- Incorporate manures and other organic amendments into soil with consideration of the timing of conversion of manure N to other forms.

Minimize Leaching Losses of Nitrate During Non-crop Periods

- If conditions permit, grow a cover crop rather than leaving fields fallow during the rainy season.

These best management practices were excerpted and modified from the University of California Division of Agriculture and Natural Resources "Production Guide: Nitrogen and Water Management for Coastal Cool-Season Vegetables." This Fact Sheet is based on Management Measures 1, 3, 4, and 5 of the Production Guide. This publication can be ordered from ANR Communication Services at 800-994-8849 or on the Internet at <http://commserv.ucdavis.edu/ucce/>.

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