Water 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.

Operate Irrigation Systems to Minimize Deep Percolation and N Losses

- Monitor soil moisture between irrigations and use the information to guide irrigation timing decisions.

- Base amount of water applied on crop need.

- Know the flow rate and the time required to apply the desired inches of water.

- Use the minimum leaching fraction to calculate the amount of water that will prevent yield reduction from salinity or stand establishment problems.

- When injecting fertilizer into irrigation water, follow all applicable government agency and industry guidelines for backflow prevention and regularly check and maintain backflow prevention devices.

- If irrigation efficiency remains low after all practical improvements have been made, as shown by an irrigation system evaluation, convert to a more efficient irrigation system.

Improve Existing Furrow Irrigation

- Convert to surge irrigation. Improve infiltration uniformity by turning irrigation water on and off as it flows down the furrow.

- If fields are more than 1000 feet long, consider cutting the furrow run length in half with a corresponding decrease in set time.

- Use high flow rates initially to get water down the field and then cut back to finish off the irrigation. Avoid doing the opposite.

- Prepare fields as uniformly as possible, with no major variations in slope.

- Use practices to increase uniformity among furrows (e.g., torpedoes, extra tractor trips, etc.).

- Collect surface runoff for recirculation or reuse elsewhere.

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Improve Existing Sprinkler Irrigation

- Monitor flow and pressure variation throughout the system to detect non-uniform application.

- Maintain the irrigation system by repairing leaks, replacing malfunctioning sprinklers, and maintaining adequate water pressure through the entire set. Replace nozzles every three years and rebuild sprinkler heads every five years or as needed.

- To the extent possible, operate sprinklers during the least windy periods.

- Use offset lateral moves. Alternate the location of lateral pipes on successive irrigation events.

- When the pressure variation throughout the system is excessive, use flow control nozzles.

- Make set times as short as possible for stand establishment.

- For very large blocks, consider converting to linear move sprinkler system.

Improve Existing Drip Irrigation

- Use appropriate lateral hose lengths to improve uniformity.

- Use drip tape that has a small emitter discharge exponent.

- Check for clogging potential by conducting water analysis and fertilizer/water compatibility tests.

- Use filtration, chemical treatments, and flushing as necessary to prevent or correct clogging problems.

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