

# Self Assessment: Nursery Water Quality

Oct. 6, 2011

Valerie J. Mellano, Ph.D.  
UC Cooperative Extension  
San Diego County



UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION  
**AGRICULTURAL WATER QUALITY**  
**RESEARCH & EDUCATION**  
SAN DIEGO COUNTY

# Ag Water Quality Research and Education Program

- ▶ UC Cooperative Extension, San Diego County  
9335 Hazard Way, Suite 201  
San Diego CA 92123

[www.cesandiego.ucdavis.edu](http://www.cesandiego.ucdavis.edu)

# Nursery Compliance with Water Quality Regulations:

- ▶ Can be of great assistance for growing operations in preparation for water quality inspections
- ▶ We developed “Water Quality Self-Assessments” for the agriculture and nursery industries
  - Tree Crops
  - Greenhouse and Nursery
  - Animal Ag
  - Large Landscaped Areas
  - Vine and Berry Crops

# Categories in Self Assessment: Greenhouse and Nursery

- ▶ Property Management
- ▶ Road Management
- ▶ Irrigation Practices
- ▶ Leaching and Runoff
- ▶ Nutrient Assessment and Fertilizer Management
- ▶ Integrated Pest Management

# Using the Self Assessment:

- ▶ Provides the basis for addressing runoff and nonpoint source pollution potential
- ▶ Each question will have a yes/no/not applicable answer
- ▶ Answering “no” to any question indicates an issue that needs more attention
  - Does not automatically indicate that it is causing pollution problems, but that it has the potential to cause issues

# If you are going to be inspected for water quality compliance:

- ▶ Try to schedule your inspection
- ▶ Go through the Self Assessment prior to the inspection if possible
- ▶ Self Assessment is designed to follow the topics/areas that are reviewed by the inspectors

# A. Property Management:

- ▶ Does irrigation water remain on your property?
- ▶ Does operational water remain on your property?
- ▶ Do you know where all your storm drain inlets are located?
- ▶ How do you manage your outdoor/non-cropping areas?
- ▶ Do you have runoff from indoor packing/loading areas?
- ▶ Do you use shading compound on your greenhouse roof?

more.....

more.....



UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION  
**AGRICULTURAL WATER QUALITY  
RESEARCH & EDUCATION**  
SAN DIEGO COUNTY

# A. Property Management cont.

- ▶ Do you have secondary containment on your fuel tanks?
- ▶ How do you manage your non-production landscaped areas?
- ▶ How do you maintain/store your vehicles and equipment?
- ▶ Do you have a spill kit available?
  - This is the most common non-compliance issue in the San Diego area

more.....

more.....



UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION  
**AGRICULTURAL WATER QUALITY  
RESEARCH & EDUCATION**  
SAN DIEGO COUNTY



# A. Property Management cont.

- ▶ Are pesticides and fertilizers stored properly?
- ▶ Are stockpiles of potentially polluting materials stored properly and out of waterways?
- ▶ Are adequate restrooms or portable sanitation units available?
- ▶ Are all employees involved in water quality management properly trained?

# B. Road Management and Erosion Control:

- ▶ Are nursery roads properly permitted?
  - Designed to avoid steep slopes?
  - Are exposed soils seeded to avoid erosion during wet months?
- ▶ Are waterbreaks used to diver water off the roads and minimize erosion?
- ▶ Is sediment trapped before it flows into waterways?
- ▶ Is nursery road use restricted during wet weather?

## C. Irrigation Practices:

- ▶ Is irrigation water quality regularly monitored by nursery personnel or professionally by a lab?
- ▶ Do spray patterns of overhead sprinklers uniformly deliver water without watering walkways and edges?
- ▶ Are overhead sprinklers used only in areas where pots/plants are spaced closely together to avoid runoff?

# C. Irrigation Practices cont:

- ▶ Is hand watering used with the use of an on/off mechanism?
- ▶ Are emitters used properly?
- ▶ Is the irrigation system routinely maintained?
- ▶ Is an irrigation evaluation done to ensure maximum efficiency of your system?
- ▶ What information do you use to determine irrigation timing?

# C. Irrigation Management cont.

- ▶ Is pulse irrigation used?
- ▶ Are irrigation timers used in scheduling irrigations?
- ▶ Do you take into consideration the changes in plant water needs as the seasons change?

# D. Leaching and Runoff

- ▶ Are specific factors such as salinity measurements used to determine leaching practices?
- ▶ Is the amount of leaching that occurs measured?
- ▶ Are you using proper potting mix to provide proper drainage and water holding capacity?

# D. Leaching and Runoff:

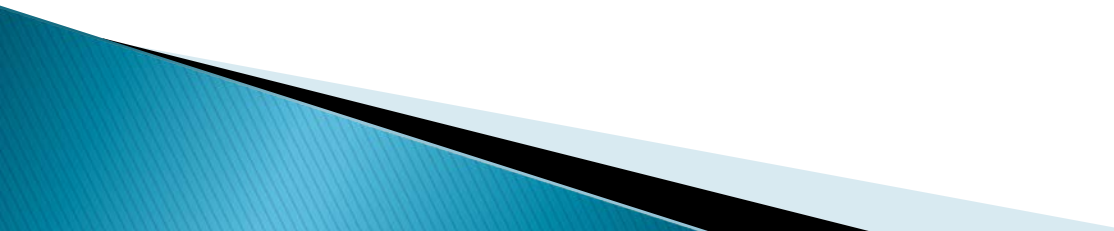
- ▶ Is irrigation runoff collected from production areas?
- ▶ Is runoff water quality monitored?
- ▶ Are water quality records maintained?

# E. Nutrient Assessment and Fertilizer Management

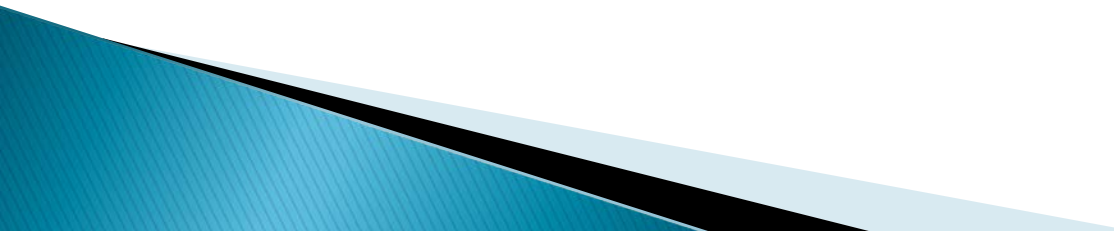
- ▶ Is nutrient analysis performed on potting mix and plant material?
- ▶ Are nutrients present in irrigation water taken into consideration when applying fertilizer materials?
- ▶ Do you use slow-release fertilizers?
- ▶ Is an EC meter used to monitor the liquid fertilizer?
- ▶ Are fertilizer injectors properly calibrated?



## F. Integrated Pest Management:

- ▶ Are plants regularly monitored for pests?
  - ▶ Are weather conditions considered in scheduling pesticide applications?
  - ▶ Do you use diagnostic services to ID pests and diseases?
  - ▶ Do you use low toxicity pesticides whenever possible?
  - ▶ Do you always follow pesticide label directions?
- 

## F. Integrated Pest Management cont:

- ▶ Are biological controls used whenever possible?
  - ▶ Do you use good sanitation measures prior to and after planting?
  - ▶ Are all plants brought onto your property checked for pests?
- 

# Other Program Materials:

- ▶ Field Guide–English and Spanish
- ▶ Pest Wheel–English and Spanish
- ▶ Water Quality Record–Keeping System
- ▶ Spill Kits
- ▶ Employee Training Materials–English and Spanish
- ▶ Water Quality Touch Screen Kiosks
- ▶ Field and Fair Demonstrations

# What we are revising and working on:

- ▶ iPad-based Self-Assessments
- ▶ Online Classes

## “Water Schools”

2-hr courses that fulfill the annual Ag Waiver requirement