A Water Quality Issue: Opportunity or Opponent?©

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INTRODUCTION

How often have you heard the phrases "don't blame me I didn't do it" or "it will never happen to me"? This is often our first reaction when someone communicates discomforting information and could have been the response of the nursery industry in Broward County Florida when asked by the South Florida Water Management District (SFWMD) to help reduce the concentration of total phosphorus in surface water discharged to the Everglades. The Everglades Forever Act (http://www.sfwmd.gov/org/wrp/wrp_evg/projects/efa.html) stipulated that water in the Everglades Protection Area should be 10 ppb total phosphorus; however, canal waters of the C-11 West Basin flowing into the Everglades Protection Area currently exceed 10 ppb.

A water quality issue similar to this could involve your nursery in the future. The publicity of environmental consequences resulting from container plant production has become more commonplace in urban and rural areas. Consequently, the nursery industry is usually confronted with the decision to ignore the situation and likely suffer the consequences of those outside the industry deciding what is best for the industry, or the industry can decide to be a participant in the solution as the industry did in Broward County Florida under the leadership of the Broward Chapter of the Florida Nursery, Growers and Landscape Association, the statewide nursery organization.

AREA OF INTEREST

The specific area of focus by SFWMD involves the C-11 canal that flows west from Ft. Lauderdale to the Everglades. SFWMD is responsible for the maintenance of the C-11 canal. Secondary canals that flow to the C-11 canal are maintained by three drainage districts that make up the C-11 West Basin: South Broward Drainage District (SBDD), Central Broward Water Control District (CBWCD), and Indian Trace Drainage District (ITDD). The Drainage Districts encompass about 72 square miles, and land use is approximately 61% developed and 16% agriculture (Adorisio et al., 2004), primarily container and field-grown nursery plants. Wetlands, forests, and rangelands are also present. Average total phosphorus concentrations at selected locations in the C-11 West Basin canal waters for 2000-2003 are given in Table 1.

BMP DEVELOPMENT

In early 2003, the SFWMD asked the nursery industry in Broward County to participate in developing Best Management Practices (BMPs). Subsequently, The Flor-

Table 1. Average total phosphorus concentrations of canal waters at selected locations in the C-11 West Basin of Broward County Florida for 2000-2003.

Drainage district	Total P (ppb)	Number of sampling locations
ITDD	16	6
SBDD	88	20
CBWCD	33	14

ITDD = Indian Trace Drainage District
SBDD = South Broward Drainage District
CBWCD = Central Broward Water Control District
Source of data <http://www.sfwmd.gov/org/reg/esp/pdfs/esp_annrpt_2004.pdf>.

ida Department of Agriculture and Consumer Services (FDACS) became involved in the process because the Office of Agricultural Water Policy (OAWP) of FDACS is responsible for developing BMPs that are adopted by rule with statutory authority. The BMPs must be economically and technically feasible and developed with grower input. FDACS relies on expertise from university personnel to ensure the BMPs are research-based to the extent possible. Also, regulatory personnel of the state are involved in the BMP development process to ensure that BMPs provide the "backbone" for addressing water quality issues.

In late 2003, FDACS and the University of Florida began discussing with industry the topics that should be the subject of a BMP guide or manual. In early 2004, nursery industry personnel from south Florida agreed to lead the development of the following topics or chapters: Nursery Layout, Container Substrates and Planting Practices, Fertilization Management, Container Substrate Nutrient Monitoring, Irrigation Water Quality, Irrigation Application, Irrigation Uniformity, Erosion Control and Runoff Water Management, Pesticide Management, and Waste Management. Numerous meetings and discussions with as many nursery plant producers as possible representing Broward, Dade, and Palm Beach counties were convened along with representatives from government agencies, associations, and educators to determine the content of the chapters, which were based on the cultural practices producers were currently using or could be using that would minimize or reduce surface water nutrient movement from their nursery to adjacent canals. This process evolved into a draft document titled *South Florida Container Nursery BMP Guide* <http://floridaagwaterpolicy.com>. This document has a similar format to *Best Management Practices Guide for Producing Container-Grown Plants* printed by the Southern Nursery Association that provided background information for the chapter leaders and nursery industry participants who developed the document for south Florida. The *South Florida Container Nursery BMP Guide* will be used by container plant producers to determine "how to" comply with water quality standards by assessing their nursery and marking in the guide those practices they are currently using and those practices they commit to implement. Thus, they have a plan that, once implemented, along with keeping required records, qualifies the nursery for a waiver of state-imposed liability for surface and ground water cleanup and presumption of compliance with state water quality standards.

EDUCATION

Workshops have been conducted in several locations in south Florida to assist nursery operators with implementation of BMPs. The workshop format enables hands-on experiences with calculation of irrigation uniformity, substrate physical property determination, and measuring container substrate nutritional levels. Workshop participants also conduct an assessment of BMPs at a nursery.

Based on: (1) nutrient data collected previously from canal waters, (2) the physical infrastructure of a nursery, or (3) the willingness of owner to cooperate, nurseries have been selected to demonstrate BMPs. For example, implementation of a grassed water conveyance area or runoff water collection structure would trap or allow suspended sediments in water to flocculate, thus cleaning the water before discharge to the canal. Data will be collected to verify the effectiveness of the grassed waterway and collection structure. Interested persons will be able to view the demonstration and learn about the effectiveness of the BMPs during field days conducted by University of Florida Extension.

ASSISTANCE

Some nursery operations are currently using many of the BMPs in the draft document, but others will need to change or implement new practices. Change is not easy psychologically and can also be costly. To help defray some costs, a cost share program has been established in which 80% of the costs of construction for a BMP can be paid for by Palm Beach Soil and Water Conservation District (PBSWCD). The cost share program is administered by PBSWCD with funding provided by FDACS and SFWMD. The first year $400,000 was available for cost share, with $320,000 proposed for each of the two subsequent years. To assist nurseries with the decisions about which BMPs to implement, a mobile irrigation lab funded by FDACS is conducting site visits. For example, the mobile irrigation lab staff might conduct an irrigation uniformity test and suggest improvements that can be cost shared by the nursery.

CONCLUSION

Does your nursery impact surface water quality? You may not know the answer at this time, but surface water quality criteria for nutrients are being established for the natural waters of the states as specified by the Federal Clean Water Act of 1972. Consequently, surface water issues for nurseries are likely in the future and can be addressed by working together, as indicated by what has happened in response to elevated phosphorus concentrations in the canals in Broward County. Our future will depend on how well agencies, industry, universities, and associations work together, not only to confront and solve the water quality issues, but to leap forward using new production technology. We can make it happen!

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