Irrigation Tailwater Regulations in the 1990s

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INTRODUCTION

A reliable supply of quality water is the life blood of the nursery industry. Agriculture consumes 42% of all industrial water used nationwide. This figure increases to 85% in California where agriculture represents 10% of the State's industry (Bolusky and Regelbrugge, 1992). As the 1990s continue, there will be a growing struggle between agriculture, industrial, urban, and environmental interests over water. As this struggle intensifies, water regulations will likely increase.

In spite of the recent changes in Congress and the deregulation of Federal laws, most Americans want environmental laws strengthened rather than weakened. In a recent survey, when asked about safe drinking water laws, 76% favored stricter laws, while 15% did not (American Nurseryman, 1995a). The current environmental consciousness of society and concern for safe drinking water makes it necessary for the nursery industry to understand and become proactive in current and future water regulations, as they relate to irrigation tailwater management in the 1990s.

Water regulations that nursery managers need to be aware of can be broken down into two major areas, the quantity of water consumed and the quality of irrigation tailwater leaving the nursery.

QUANTITY OF WATER CONSUMED

As the South continues to be the fastest-growing region in the country, demand for municipal drinking water will increase and begin taxing the current supply of water within the region. Currently most southern states have no restrictions on the amount of water used by nurseries.

Florida currently requires nurseries to obtain consumptive water permits for wells from regional water management districts and limits the time periods that irrigation can occur. Most nursery irrigation is permitted between 5 PM and dawn with allowances for syringing during the day in summer.

In 1993, Alabama passed a Clean Water Act that will require growers that consume more than 100,000 gal of water a day for irrigation to file a usage form with the State (American Nurseryman, 1995b).

In the state of Washington, state officials believe that groundwater is a public resource and want to put meters on all private wells to charge for the use of this public resource.

In contrast to this, the State of Wisconsin which required the state's largest nursery to report monthly groundwater usage, dropped this requirement in 1995.

While the amount of water consumed by the nursery industry is of primary concern, a secondary concern will come from stress on municipal water supplies to meet the demands for drinking and landscape irrigation water by increasing urban populations. Municipal water rationing could result and have a profound impact on landscape plant selections in urban areas.

CURRENT FEDERAL LEGISLATION CONCERNING WATER QUALITY

The *Clean Water Act* is the backbone of federal water regulations. It defines a polluter as anyone that alters the physical or chemical composition of water. Initially, it focused pollution control efforts on *point sources*. These are pollution sources with easily definable discharge sites, such as the end of a pipe, and they were required to obtain permits (NPDES permits) with pollutant limitations to discharge into lakes, streams, and rivers. *Nonpoint pollution sources* were defined as pollution sources with multiple, dispersed discharge sites. Agriculture and Forestry were classified as nonpoint sources of pollution and were exempted from the permit system. Nurseries are included in the agriculture exemption.

The upper limit for nitrate-nitrogen in safe drinking water has been established as 10 mg liter^{-1}. This is the numerical figure being enforced by most states when they are monitoring surface or groundwater. A six-state survey of container nurseries revealed that this limit was being exceeded at certain times (Yeager et. al., 1993).

The Clean Water Act is up for reauthorization this year and some changes that could occur include: (1) a focus on nonpoint pollution sources, (2) a 5-year review, similar to the national Farm Bill, (3) a requirement of all states to identify high priority, threatened, or impaired watersheds with site-specific plans that account for all nutrients and pesticides down to the nursery level, and (4) a new emphasis on pollution prevention through voluntary compliance with Best Management Practices (BMP), rather than through regulation.

Another lesser known, but in some instances more important, federal bill is the Coastal Zone Act Reauthorization Amendments. This bill required states to develop management plans for nonpoint pollution sources (agriculture and nurseries were specifically mentioned) within the first two counties in from coastal estuaries. These management plans were to be filed by July 1995 and had to include sections on erosion and sediment control, nutrient management, irrigation water management, and pesticide management. The plans also had to include enforceable mechanisms to deal with violations and the management measures must be economically viable options.

NURSERY IRRIGATION TAILWATER REGULATIONS

Currently, very few states regulate nursery irrigation tailwater; but every state is complaint-driven when it comes to enforcement of state and federal water pollution laws. Oklahoma has a voluntary compliance agreement between the Oklahoma Department of Agriculture and the state's largest nurseries. This compliance agreement covers surface water only and sets annual average limits on nitrate-nitrogen (10 mg liter^{-1}), total phosphorus (1 mg liter^{-1}), and pesticide residue (zero tolerance).

Texas requires irrigation tailwater discharge permits for the state's largest nurseries, but each discharge permit has different requirements. Greenleaf Nursery Company's Texas Division permit called for daily maximums on nitrate-nitrogen (15 mg liter^{-1}), ammoniacal-nitrogen (15 mg liter^{-1}), total phosphorus (15 mg liter^{-1}), chemical oxygen demand (150 mg liter^{-1}), and pesticide residue (zero tolerance).

While most states are currently concentrating on surface water, Wisconsin is more concerned with groundwater monitoring. The state's largest nursery is required to monitor its deep water irrigation wells and drinking water wells within 1/4 mile of the nursery. They are just monitoring for nitrate-nitrogen to be below 10 mg liter^{-1}, but would prefer levels to be below 2 mg liter^{-1}.

BEST MANAGEMENT PRACTICES

The Southern Nurserymen's Association sponsored the development of a *Best Management Practices* (BMP) manual written and edited by university professors from throughout the South. The Best Management Practices covered in this manual include irrigation water management, media management, fertilizer management, pesticide management, and tailwater management.

This manual can provide the backbone for initiating a dialogue between the nursery industry and state regulators as a starting point for developing a state nursery nonpoint pollution prevention program. Through the wise use of this BMP manual and cooperation among the nursery industry, Alabama state regulators and Auburn University—a pollution management plan has been developed that's being used as a model for other nonpoint source industries within the State. This is also occurring in Louisiana.

By employing BMPs, irrigation tailwater quality problems can be prevented; but it will be at a greater expense to the nursery industry.

FUTURE CONSIDERATIONS

All future enforcement efforts will probably focus on pollution prevention at the source of the pollutant. Surface water pollution will be dealt with through river basin (watershed) management. These efforts will involve multiple state agencies and multiple states in many instances (downstream states rights to clean water).

These river basin management plans will involve total maximum daily load limits. These will establish numerical daily limits on the amount of specific pollutants that can be released off site by individual pollution sources. These daily pollution limits can be traded or sold between industries, similar to current air pollution limits.

The nursery industry is part of the environmentally oriented sector of our economy. In spite of the environmental benefits of our product, nurseries are perceived as wasteful users and polluters of water. The industry must become proactive on both the state and national level to work with regulatory agencies and the public on the development of nursery water management plans to change the current perception and to ensure that our industry is perceived as prudent water managers.

As water becomes more scarce and as national concerns over the quantity and quality of water intensify, a significant increase in the amount of guidance at the state and national level will be required to assure the survival and well-being of the nursery industry.

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