Water Treatment Technologies for Specialty Crops

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\textbf{Introduction}
- Irrigation runoff at ornamental production operations can range from 2,000 to 10,000 gallons per acre per day (Fueett, 1997)
- Runoff water may include nutrients, pesticides, pathogens, growth regulators and other agrochemical inputs, which can cause harm both at the operation and in the surrounding environment
- Ideally, runoff would be cleaned and reused, which would save growers money and reduce their environmental impact
- Growers would like cost and benefit information before making a decision
- There are a number of technologies that ornamental plant producers could implement

\section*{A-Vegetated Channel}

\textbf{Description:} Aquatic and/or semiaquatic plants are placed in channels that lead to recycling ponds or off-site (Fig. 1&2). Plants slow water movement allowing sediment to be removed from the water column.

\textbf{Benefits:}
- Does not require additional area to be removed from production
- Inexpensive to install and maintain

\textbf{Concerns:}
- Must be maintained for maximum effectiveness (sediment removed, debris cleaned out)
- Removed sediment may be difficult to dispose of

\textbf{Target removal:} Sediment, phosphorus, soil-bound agrichemicals

\section*{B-Carbon wall}

\textbf{Description:} Water is plumbed to a trough with wood chips. Water flows through the wood chips, where microorganisms colonize pore spaces.

\textbf{Benefits:}
- Does not require additional area to be removed from production
- Inexpensive to install and maintain
- Long lasting (10-20 years)

\textbf{Concerns:}
- Difficult to measure effectiveness over time

\textbf{Target removal:} Pathogens, nitrogen, sediment, agrichemicals

\section*{Conclusions}
- Specialty crop producers have a number of options for sediment, agrichemical and pathogen remediation
- Recycling water would allow producers to either reduce irrigation costs, or increase production space
- Operations can choose treatment options that will work with their removal needs, budget, and land availability
- Growers would prefer unbiased, current information regarding water treatment options for their operation