

## "Nursery Water Issues" Question-Answer Period

**ROBERT APPLETON:** I presume you're using gravel or sand in your construction. Would there be any benefit in adding a bark base to increase the amount of carbon?

**WARD PRYSTAY:** Yes. We chose to use the gravel as a control in the experiment. We didn't want to have either system influenced by the presence/absence of gravels or the presence/absence of an organic soil. Subsurface-flow wetlands have to be designed with an extremely porous medium to allow flow of accumulated debris or solids within the system. For low-carbon wastewaters like nursery or greenhouse effluents, having a organic soil would be beneficial.

**BRUCE BRIGGS:** It's been observed in the past that the waves of rippling water was more effective than recycling with a pump. Have you observed this?

**JOHN BYLAND:** No. We felt that using aerators or splashers was such an easy solution that could be done quickly.

**JIM CONNER:** I'm using secondary effluent water right now from a wetlands area. The wetlands, of course, are removing nitrogen and phosphorus which I want. My biggest problem with the effluent water is with sodium and boron causing leaf burn and scorch on my plants with overhead irrigation. Is there anything coming along that might remove those two elements?

**WARD PRYSTAY:** When you're dealing with the conservative elements like phosphorus, potassium or sodium, the only way to remove them from solution is to incorporate them into the sediments. Plant uptake for those is not that high; therefore, a chemical reaction is required to remove it. I haven't seen anything recently that's even addressed the issue you raised.

**LYDIANE KYTE:** You mentioned using a vinyl liner. What were you using before that?

**JOHN BYLAND:** The previous one was made from a product called gunnite, a specific formulation of concrete that can be blown and pumped very easily.

**ANONYMOUS:** What information was used to create the computer-generated image you showed us of water distribution from an irrigation system?

**RICHARD REGAN:** The Center for Irrigation Technology (Fresno, CA) has developed profiles for sprinklers. These profiles can be entered into a program to determine the influence of spacing, nozzle size, pressure, and height of nozzle above the crop. Many irrigation suppliers either have the software or subscribe to that software so they can provide those results for you.