

NUGGETS OF KNOWLEDGE

The following three papers were part of the Nuggets of Knowledge session

Plug Tray Storage Shelf[®]

Jill Cross

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Classical Farms is a mid-size wholesale bedding plant grower located in Rainier, Washington. It has been owned by Ross Merker and Ann Roggenkamp since 1985.

We do most of our vegetative propagation ourselves, but due to space/facility limitations, leave the majority of the seed propagation and plug growing to others.

Problem: Finding space, space, and more space, especially in the spring when our shipping and planting are really rolling along.

When our plug tray shipments arrive, (usually 512 or 288 size) we need a bench/prime location to store them as we plant up over the week. Our best benches and growing conditions are in our shipping bay, so we used to take up order space with our plugs, defeating the purpose of the shipping benches.

Solution: We have seen shelf ideas in use at other nurseries in the past, so Ross decided to try our own version. He and Keith Koontz, our facilities maintenance guru, came up with the plan and how to put it together.

Each 6 × 13 ft. shelf contains:

Number	Item
1	Roll 2 × 4 in. wire fencing (6 ft),(wrapped around top rail tight)
3	10 ft top rail (chain link fence supply)
4	Chain link fence corners (comes with own hardware)
2	Pipe clamps (used instead of hinges)
2	Turn buckles
	12-ft-high tensile wire
2	Eyelets
1	Hand crank
2	Pulleys (both single and double block)
	30 ft plastic coated cable 1/8 in.
5	Cable binders (small)

RESULTS

These shelves have been a good temporary staging area for our plug trays. We are able to load our shipping tables for their shipping purpose and keep our plug trays in a well aerated, central location.

Positives: Space savings, central location, cost, easy to monitor plants in the short term. Also, we pick up our plugs at the airport in our own trucks, so it is convenient that we can just back right into the area where they will be stored.

Negatives: Tougher for shorter employees to check trays, sometimes tough to slide on/off. Can't check back trays easily, have to shuffle somewhat to check.

Lights Out®

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During the dark winter months in the Pacific North West, many lights get left on accidentally. Recent advances in motion sensor light controls have made it easy and economical to automatically turn off lights at the nursery. Screw-in motion sensors can change a light bulb into an automatic light.

At Beyond Green LLC, we have found many applications for their use: employee time-clock area, lunch areas, hallways, pump houses, chemical storage area, and remote corners in the warehouse. The motion of a person entering the area triggers the detector and turns on the light automatically which remains on for 10 to 15 min. Many types of sensors are available at your local home improvement store. The sensor costs range from \$8 to \$14. Check with your local utility company for cost sharing or energy-saving coupons. Additional savings may be found ordering online.

A drawback is most sensors are for indoor use only. Other added benefits include night security and increased safety.

Pond Biocontrol®

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When I moved the nursery to a new location by Canby, Oregon, I acquired an irrigation holding pond that is bowl-shaped with no direct outlet or spillway and the water level is maintained by pumping in or out. It turned out to be a biological nightmare.

The floating weeds and algae mats continually plugged the floating pump intake lines, necessitating a cleaning job about three times a day to keep the pumps running. Dredging with a rake and dipping with a skimmer just provided a lot of physical exercise and not much control. It looked like a movie set for "The Creature from the Black Lagoon." I didn't want to treat with aquatic herbicides since it was a major source for my field irrigation for a diverse crop list.

So my first attempt at control was to stretch a spare piece of heavy shade cloth across the shallow end of the pond to try to shade out the weeds. But the floating weeds moved where the wind and current sent them and it was not very effective. The intakes were still clogging.

So I next attempted to go after the mosquitoes since the new threat of West Nile

Virus. So I went for a biocontrol, gold fish. I visited the local PETCO and purchased 25 little feeder gold fish (12 gold and 13 black, the black ones seemed sturdier) and dumped in the pond at 8 PM. It was like ringing the dinner bell for the local blue heron. By 6 AM big daddy blue heron was seriously fishing in the pond. Neighbor Ed said he hadn't seen a blue heron around here in 20 years. The bird hung around for a few weeks. So I wrote off my goldfish investment, and continued cleaning the pumps and added a few more screens.

So I had spent \$7.25 on this adventure.

Winter came the weeds froze and the pond looked normal. In the spring everything starts growing about the time the irrigation season starts. But as the water warmed with the spring days, something was different this year.

One weekend in mid May, the pond looked like it had been thrown into a blender. All the weeds were torn up into tiny pieces. The goldfish were still there and feeding like Holsteins.

25 goldfish, \$7.25, the results: priceless

The weeds are gone!

The 25 gold fish had grown and multiplied into about 200 fish that were hungry and growing fast. Of course the blue heron kept coming back, but he went after the frogs and tadpoles. Now they are gone. The mosquitoes are definitely gone. The mud snails are gone. The duck weed, algae mats, and aquatic weeds are gone.

So the gold fish population has grown from 25 in Year 1 to about 200 in Year 2, to about 800 in Year 3, and now about 2,000 by Year 4. They are also a wide range of colors and patterns.

The intakes on the pumps get checked once a month, the pond is clean and the fish are thriving. I give the fish a treat of a couple scoops of dry cat food three times a week during July and August. The blue heron shows up occasionally, but this year an enterprising Osprey had developed a taste for the now 5-in. goldfish, and visits almost daily.

This experience has been a small-scale laboratory on how an ecosystem can be quickly changed by introducing a new species to it. It took about 16 months from weeds to clean.

Caution: I do not recommend introducing a non-native fish into a pond with a free flowing outlet, drain pipe, or spillway. Asian carp were introduced into southern ponds in the U.S.A. for weed control in the 1980s. Disastrous floods accidentally swept the fish into the main waterways and the Mississippi River. They spread. The fish are now far north threatening the Great Lakes ecosystem. So be careful with what you release.

Questions and Answers

Douglas Justice: If you're such a cheapskate why didn't you make the floaties round? Why not just put two of them together and glue them into a circle?

Mike Anderson: It's because I forgot to consult an expert.

Kristin Yanker-Hansen: I think Mike Anderson and Steve Hottovy should get

together. Books on basic pond construction and maintenance suggest putting water hyacinths and goldfish in together.

Steve Hottovy: I tried water lettuce, but the goldfish ate it. I also tried a water lily, but they ate it.

Bob Buzzo: What's going to happen to the goldfish? Won't they get too large?

Steve Hottovy: I added some koi to the pond and they are now 17 in. long. They are much less active. The biggest goldfish is 5 in. long and they are dwindling due to an osprey feeding on them.

Sylvia Mosterman: By adding the lettuces in your compost, will you accumulate toxins by doing that?

Mike Anderson: I don't think so. I believe you're trapping the nitrates and phosphorus that may be in the pond. If there are toxins in there, I'm not aware of it.

Mary Fazekas: Would you consider offering tours for bird watchers interested in osprey and blue heron?

Steve Hottovy: There's also an eagle nesting down by the river. He hasn't yet decided to "fish" the pond, but he's there.