Monrovia Nursery's Response to New Environmental Restrictions

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WATER

Water quality and quantity has probably been the hottest environmental topic in the past few years. In the western U.S.A. precipitation has been below normal for the past 8 years and this has led to numerous clashes between city authorities, environmental groups, industries, and agriculture, over who has rights to the water and how much should be used and how much conserved.

At Monrovia Nursery Company, water management has always been a top priority. Since 1968 we have been involved in water research and recycling. Our research director, Conrad Skimina, was instrumental in developing our water recycling system 20 years before it became a public issue. He has presented several papers on our findings at past I.P.P.S. meetings. In 1984 when Monrovia's Oregon nursery was started, 100% water recycling was built into its design. On our 565 acres there, each production bed slopes to its center drain tile to carry irrigation water back to the drainage canal and on to the collection ponds. The water collected is chlorinated and pumped to storage reservoirs for reuse. Daily water samples are taken and tested to monitor pH and fertility levels. Detailed water analysis is done monthly in our lab.

On a national level the efforts of nurserymen to manage water resources was further complicated by Congress passing the Federal Clean Water Act which set nutrient limits on run-off or effluent entering public waters. To start to enforce this on the local level, the Oregon Department of Environmental Quality (DEQ) focused on container nurseries and the high nutrient loads entering low flow streams during Oregon's dry summers. Most container nurseries were not prepared to deal with the DEQ demands individually, so the Oregon Association of Nurserymen organized an irrigation run-off group. This group negotiated with the DEQ for years to prevent the container nurseries from being reclassified as point source (industrial) run-off, losing agricultural status and subject to all the associated permits, mandatory testing, bureaucratic paperwork and possibly fines.

The efforts worked and the container nursery growers realized the advantages of collection of irrigation run-off and voluntarily agreed to develop and adopt the Oregon Statewide Container Nursery Irrigation Management Plan. From June 1993 all container nurseries in Oregon have to have a plan on file with the Oregon Department of Agriculture on how they will prevent nutrients in irrigation run-off from entering Oregon streams. Most container nurseries were able to change irrigation practices to meet the deadline and prevent irrigation run-off—a few required site modification, some at significant cost.

With the Clean Water Act, Monrovia's fertilization practices have also changed. In the past we relied on injection of liquid fertilizer during irrigation to feed our plants. Recent advances in slow-release fertilizers make it possible to incorporate fertilizer in the soil mix even on long-term crops. We still liquid feed but now at much lower levels.

One fact had became apparent, the public perceived that farm ponds were toxic pools collecting the pesticides and herbicides from the fields. To counter that idea and educate the public, we installed floating duck houses on all of our reservoirs and have quite a population of domestic and wild ducks living and nesting at the nursery. The ducks do a great job at public relations.

Another public perception is: "Every time I drive past that nursery those sprinklers are running. Boy, they must be using a tremendous amount of water". To counter this we emphasize the fact we recycle 100% of our irrigation run-off to all nursery visitors: garden clubs, school groups, politicians, neighbouring farmers, etc. If 1000 gal of water is applied 500 to 700 gal is recaptured for reuse, depending on weather conditions.

Ground water quality is the next area of concern facing nurseries. To establish a data base, Monrovia installed test wells near all our reservoirs to monitor ground water quality. The wells are tested quarterly and no change has been found in the ground water.

ORGANIC MATERIALS

Burning used to be an acceptable means of disposal for leaves, pruning debris, clippings, etc. The Federal Clean Air Act and local air quality standards have made it unacceptable. The other method was to load up the dumpster and bury it in the landfills; again, this is no longer allowed. Landfills and dumps are filling up and new ones are not being developed fast enough because of all the environmental impact studies needed. So what do we do with the mountains of green waste material off the 1250 acres of container nursery stock?

The answer is to collect, grind, compost, and recycle. By collecting all the pruning debris, propagation clippings, leaves, and culled plants at the nursery, we generate enough organic material to produce about 15% (by volume) of our potting media. Weeds are excluded from the recycling pile. Grinding the material helps speed up the composting and produces a more uniform size particle. The ground material is composted for about 60 to 90 days depending on the season. Many city authorities are also producing compost from homeowners' garden waste and it is being used by some nurseries in their potting mixes. More work remains to be done with garden debris compost.

PLASTICS

Nurseries use a large amount of plastic products. Our Oregon nursery uses about 20 million containers and 110 acres of polyethylene film for winter protection and greenhouse coverings each year. Many of the plastic items are reused for several years, but then what? Plastic recycling as a viable business in the U.S. still has a long way to go. The recycling of nursery plastics is further complicated by the degree of its cleanliness. Any soil, leaves, and residues require the plastic to be washed prior to recycling.

Part of Monrovia's solution has been to encourage the fledgling plastic recycling business. The majority of the plastic pots and flats we purchase are made in part of recycled plastics, creating a demand. Broken and discarded pots and flats are collected at the nursery and given to our local pots manufacturers to be recycled.

The poly film used to cover the 1200 overwintering hoop houses is stored for reuse by baling it into large 5-ft diameter bales using a John Deere 535 hay baler or

rolling it into smaller rolls on 10-ft lengths of PVC pipe. We tried keeping the plastic as clean as possible but the fact is the weather is against us at that time of year. Poly film to recycle is marked and baled separately. The recyclers like the compactness of the large bales over loose folded plastic and it is more economical for them to handle, haul and store. Another problem with polyethylene film recycling is the nursery industry overwhelms the processors in the spring when the plastic is removed. So at Monrovia, we bale and store our scrap poly film until the processors can take it. We are also working with the local nursery association and a local recycler to ship baled plastic over to China where it can be economically cleaned and recycled. We donated bales for several shipments this past spring. Plastics are vital to our business and recycling should be encouraged.

CHEMICALS

The Environmental Protection Agency's (EPA's) Worker Protection Standards, coming into effect in Jan. 1995, limits re-entry into an area that has been sprayed for 12, 24, or 48 h. All agricultural chemicals are in the process of having the label directions of use rewritten. New re-entry time intervals (REI) are being incorporated in the new label. Many low-toxicity chemicals used to have a re-entry time of "when spray has dried". The REI is based on the chemical toxicity, its persistence, and the method of application. The notification of workers about chemical applications has been expanded to include written and oral notification about the treated area.

At Monrovia Nursery Company, worker safety is a priority for us. We have at three locations in two states a combined total of 1450 employees working on 1250 acres producing 1400 taxa for a grand total of 42,000,000 plants per year. Given the volumes we grow and ship, the crops must be readily accessible. To do so we have tried to control our pest and disease problems through changes in our cultural practices, biological controls, sanitation, and integrated pest management techniques using low-toxicity chemicals applied as spot sprays. When chemical applications are needed, treated areas are marked with small blue flags indicating workers should not enter the area until spray has dried and the flags have been removed by a supervisor. The flag system has worked well. It is understood by the employees and easy to implement.

The new Worker Protection Standard, however, called for large placard signs to be placed at the treated area, a cumbersome and expensive proposition given our nursery's size and diversity. So we helped organize a nursery task force through our state nursery association to work with the Federal EPA and Oregon Occupational Health and Safety Administration to develop a modified flag system that meets the Worker Protection Standard posting requirements. It worked and is being implemented serving as a model program for other states too.

Still the re-entry intervals will have a big impact on how we operate the nursery on a daily basis. To accomplish spraying in a more timely fashion we had two versions of a boom sprayer built with a 50-ft folding boom spray arm. This allows us to reach halfway across the blocks of plants when spraying and cover a lot of ground in a short time. Also the spraying schedule has been shifted to after hours, nights, and weekends when fewer employees are working. We have increased our scouting to determine pest populations and thresholds before applications are made.

Another important part of the Worker Protection Plan is education and access to information. All employees will go through pesticide safety training before January 1995. Pesticide handlers will receive additional special training.

FUTURE CHANGES

Methyl Bromide fumigation will be eliminated and we are looking for an alternative. Many other agricultural speciality chemicals will be lost because it is uneconomical for the chemical companies to spend the money required for reregistration of chemicals for minor use crops. Water will continue to be a major topic as ground water legislation is put forward. Bark as a soil mix component is in jeopardy due to Endangered Species Habitat Protection and reduced logging. Land use legislation is pending. The mandatory use of native plants in government projects will affect the range of stock grown.

POTENTIAL FOR ACTION BY NURSERY GROWERS

Get Involved. Join your local or state nursery association to stay up to date on the changes pending.

Be Proactive. Don't wait for changes to be handed to you and then try to live with them. Have a say in how the changes will affect your nursery.

Conduct an In-House Environmental Audit. See if your nursery complies with existing and pending environmental and safety laws. Use this information in planning your business to avoid creating bigger more expensive problems later on. We conduct an environmental audit covering all aspects of our nursery each year.

Support Nursery Research. Many of the changes we face cannot be solved by individuals due to cost and complexity. Collectively the answer may be achieved for the benefit of all the nurseries.

Educate. Conduct in-house training sessions for employees. Broaden their skills and awareness. Allow the public to see the how and why of your nursery business to clear up the misconceptions and stereotypes.

It's going to take some time, effort, and money but the viability of the nursery industry in these environmental times is in our hands.