

Selecting the Right Herbicide for Nursery and Landscape Use[©]

Robert P. Rice Jr.

Department of Horticulture and Crop Science, California Polytechnical University, San Luis Obispo, California 93407

For many weed control practitioners in the nursery and landscape industries, chemical weed control means the use of a common pre-emergent herbicide such as Ronstar and a post-emergent treatment with Roundup. The relative safety, effectiveness, and low cost of chemical weed control when compared with hand weeding limits their consideration of other options.

Actually, a more careful look at herbicide choices can reap benefits in lowering weed control costs, possibly improving quality of control, and decreasing environmental and safety concerns. For each application situation a different herbicide or herbicide combination may perform better, and the extra effort in evaluating the situation will pay for itself. The first step is to determine the weed spectrum that will need to be controlled as well as the mix of ornamental species that might be present in the treated areas. References such as *The Nursery and Landscape Weed Control Manual* (Rice, 2001) and the *Turf and Ornamental Reference for Plant Protection Products* (Anonymous, 2003) provide cross references that will facilitate the process of determining which herbicides will control all or the majority of the weeds while being safe to use on desirable ornamentals.

ECONOMICS

There are a number of factors that should be considered as a part of the process of evaluating the cost of weed control:

- Cost of product/unit area—i.e., \$100/acre.
- Duration of effective weed control (how long will the product effectively control weeds and how long do you need weed control?).
- Are there formulation options with differing costs (granular vs. wettable powder, for example)?
- Weed spectrum controlled (will the product control all the weeds or will escapes have to be controlled by hand or post-emergence applications?).
- Consider a tank mix to pick up uncontrolled species rather than increasing the rate of one herbicide to control difficult species (often the combination of two herbicides at low rates will provide better and more cost-effective control than using one herbicide at a higher rate).
- Incorporation flexibility (how long can you wait after application before incorporating the herbicide?).
- Will an older, out-of-patent material work as well as a higher priced patented material?
- Risk of hidden phytotoxicity (i.e., dwarfing, slowing of growth, poor rooting of stolons).
- Risk of drift injury to surrounding plants (translocated vs. contact post-emergent materials).

- Risk of injury due to adverse weather (i.e., leaching of positionally selective herbicides).
- Risk of obvious phytotoxicity.

ENVIRONMENTAL SAVINGS

When contemplating the environmental concerns associated with herbicide treatments, thought should be given to factors such as:

Long-term cost of the herbicide as it relates to environmental problems:

- Leaching, runoff, nonpoint source pollution, recycling of water in nurseries.
- Volatilization, photodegradation.
- Pre-emergence vs. repeated post-emergence.
- Resistance and herbicide rotation.

Remember that herbicides are only one tool in your weed control toolbox and should be used as a part of an integrated weed control program that includes the use of mulches, competition and proper ornamental plant choice and density, preventive practices such as equipment cleaning and prevention of seed production, solarization, and steam sterilization of nursery soils among others. Ultimately, proper herbicide choice coupled with an integrated approach to weed management will result in maximum economic and environmental savings.

LITERATURE CITED

- Anonymous.** 2003. Turf and ornamental reference for plant protection products. C&P Press, New York.
- Rice, R.P.** 2001. Nursery and landscape weed control manual. Thomson Publications, Fresno, California.