

## HERBICIDES USED IN PROPAGATION AT WIGHT NURSERIES

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Herbicides play an essential role in the propagation of woody ornamentals at our nursery. A large percentage of our propagation is done in outside areas where blow-in weed seed can be a problem. Our weed control program consists of selective use of post- and pre-emergence herbicides and minimal hand weeding.

The majority of our crops are propagated in either outside mist areas or greenhouses. The medium we use is pine bark: sand, 4:1(v/v). We do not use composted bark, it is green. In addition to these areas we produce one crop a year of bare root conifers in sandy ground beds at our River Division.

### PREEMERGENCE HERBICIDES

In our outside areas our primary herbicide is Ronstar G (2% oxadiazon) for broadleaf propagation. We apply this before sticking cuttings at 200 pounds per acre actual material. It is applied with either hand-held spreaders or by plane in large areas. We repeat this application every 60 days.

*Nandina domestica* 'Nana Purpurea' is the only cultivar we avoid with this herbicide treatment. We get puckering of the foliage and slower growth when herbicides are used. Once rooted we switch to Scott's Ornamental Herbicide 2, (OH-2) (2% oxyfluorfen and 1% pendimethalin), applied at 100 lbs. per acre actual material. We have not yet proven the safety of using OH-2 in the rooting process but it does provide better weed control over Ronstar. Our major concern in our outside mist areas is with our second application. It is difficult to remove herbicide granules from the new growth to prevent burning. The small droplet size of the mist does not physically remove the granules as well as larger droplets from impact sprinklers. This is mainly a problem on *Photinia fraseri* and *Lagerstroemia* species, which have sensitive soft new growth. These plants are skipped over when this is a concern.

In conifer propagation we are using Scott's Ornamental Herbicide 2 applied before sticking at 100 lbs. per acre, actual material. It is reapplied at a 90-day intervals during winter and 60 day intervals during the remaining season. Experiments on the nursery have shown OH-2 to be safe and effective on conifers during rooting.

Conifers propagated in our ground beds are also treated with OH-2 before sticking. The only difference here is that the sandy soil is treated with methyl bromide gas at 400 lbs. per acre by a private

contractor. Even with the gas treatment a pre-emergence is necessary for control of blown-in weed seeds.

Our greenhouse propagation is done primarily on the ground, which is covered with rock or asphalt. No pre-emergence herbicides are used when houses are covered due to plant damage that can result from volatilization of herbicides. Covers are removed in spring after danger of frost is gone. Our propagation of broadleaved plants begins in May. Before flats are put down rock is treated with Ronstar G at 200 pounds per acre actual material. Flats filled with medium are put down and also treated with the same rate of Ronstar G before sticking. This is the only pre-emergence herbicide application made in our greenhouses. Here again *Nandina* species are not treated to avoid problems. Seedlings are not treated with any herbicides. Many liners are planted out that season; carry overs are hand-weeded as needed. Because of the limitations in covered houses more hand weeding is done here than in any other area.

The deep well used in propagation is not chlorinated so walkways of either rock or asphalt get an accumulation of algae over time. We use copper sulfate broadcast by hand to prevent slips and falls.

#### POST-EMERGENCE HERBICIDES

Our primary post-emergence herbicides are Roundup (glyphosate), or Diquat (dibromide monohydrate). Roundup or Diquat is used at 2 quarts per 50 gallons water. Roundup is sprayed twice a year around perimeters to keep blow-ins to a minimum. We also spot spray with either of these products in all areas including greenhouses. Since diquat is an aquatic herbicide, it is used in heavy water-use areas such as propagation where there would not be enough absorption time for Roundup to be effective. Diquat is a contact herbicide and has replaced Paraquat, or Gramoxone, (paraquat dichloride) on our nursery because of its lower toxicity to employees.

Prevention is the key to our weed control program. Weeds, once they get started, propagate themselves much more readily than we can produce plants. One weed is too many. Through the selective use of pre- and post-emergence herbicides on a regularly scheduled basis, we can eliminate most weeds and safely propagate most woody ornamentals. Hand weeding will never be outdated but minimized to escape weeds. Herbicide screening trials are conducted each year as new products become available. In this business it pays to stay ahead of the weeds.