

NURSERYMEN MUST LEAVE HERBICIDE CHECK PLOTS

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Abstract--To determine if seedling injury is herbicide related, untreated check plots must be used throughout forest nurseries. Not using check plots in the past has resulted in failure to detect herbicide injury as well as falsely blaming herbicides for seedling injury. Approximately 50 feet of bed should be left untreated for every 4 acres.

There are two reasons why herbicide check plots must be used in forest nurseries. First, checks are essential for detecting herbicide injury that would otherwise go unnoticed. For example, at one nursery trifluralin was used as a preplant soil incorporated treatment for ten years. Several pine species including trifluralin sensitive shortleaf were grown on the treated soil. Seedling production of shortleaf was consistently poor, but because no check plots were used and because production of the other pine species was satisfactory, trifluralin injury on shortleaf remained unnoticed. At another nursery, napropamide was used operationally on soil with less than 1 percent organic matter. Root injury was observed for two years but was not attributed to napropamide. Use of check plots at these nurseries would have resulted in early detection of herbicide injury and would have prevented further seedling injury.

The second reason for using herbicide check plots is to avoid falsely blaming herbicides for seedling injury and to be able to more adequately determine the actual problem. Although many factors can cause seedling injury, herbicides are usually the first factor blamed for seedling injury. Fertilizers, insects, diseases, wind, nutrient deficiencies, nematodes, and abnormal weather conditions can also cause stunting or injury. Numerous examples can be cited. At one nursery, seedlings were dying in patches in one compartment and herbicides were immediately suspected. However, the real reason for the injury turned out to be an improper ammonium nitrate application. At another nursery, seedlings were stunted and chlorotic. Chemical burn was thought to be the problem even though adjacent green trees had also been sprayed with the same herbicides. As it turned out, low soil pH was the true cause. At another nursery a wet, cool spring resulted in smaller than normal seedlings. However, herbicide injury was suspected by the nurseryman's superior. The nurseryman felt the cause of the small seedlings was weather related but had no proof due to having no check plots.

Check plots have been very useful in the past. For example, at one nursery numerous seedlings were broken over due to a brown lesion on the stem. Herbicides were not suspected in this case since the same injury occurred on untreated check plots.

The check plots should be spaced periodically throughout the nursery. A 50 foot length of bed should be left untreated for every 4 acres. The untreated area should be placed in the middle of the treated section and should be flagged. Signs stating "No Herbicides" would help prevent the area from being accidentally sprayed. These areas will require frequent handweeding to prevent stunting due to weed competition.