

**Thursday Afternoon, December 11, 1986**

The Thursday afternoon session convened at 1:30 p.m. Mark Bridgen serving as moderator.

## **LINER BED HERBICIDE UPDATE**

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### **INTRODUCTION**

The value of the liner crop based on the area occupied (amount of land) is extremely high and it is not cost effective for the herbicide industry to label herbicides for use in liner beds. This means that the nursery industry will need to do most of its own research to determine what herbicides will be effective and safe for use in liner beds.

The use of herbicides in liner beds should be done only after careful evaluation of the existing weed problems, the liner species being grown, and the bed medium. To do otherwise is courting disaster.

The purpose of this paper is to describe how a nursery should develop a weed control system for its liner beds including an in-house research program.

### **DEVELOPING THE WEED CONTROL SYSTEM FOR LINER BEDS**

The first rule in any pest management program is to identify the problem. This is especially true with weed control problems. You must know what weeds are causing the most problems in the liner beds before you can select an herbicide or develop a weed control system.

After determining the major weed problem the next step is to start clean. The liner beds need to be free of perennial weeds. To accomplish this may require the use of soil fumigates or steam pasteurization. Dr. Elton Smith has published the techniques for steam pasteurization and chemical fumigation of liner beds in his publication, *Chemical Weed Control in Commercial Nursery and Landscape Plantings* from The Ohio State University. Besides the soil fumigants listed, such as Picfume, Larvacide 100, MC-2, Pano-Brome C1, Vapam, VPM, and Vorlex, one should include Basamid, or Mylone. Basamid, or Mylone, is relatively new and is worthy of evaluation as a soil fumigation treatment. There has been some con-

cern with the loss of mycorrhizal fungi when soil fumigation has been used and I believe that this is a legitimate concern. To determine whether there are adverse or positive effects of the treatments, always have several untreated areas. Compare carefully the liner growth (root and shoot) from the treated area and from the untreated area.

Some guidelines in setting up the untreated checks might be appropriate. First scatter the checks throughout the beds. Do not leave ends of beds untreated as the checks since other factors such as moisture might influence the growth. Always make certain the same plant species, cultivar, age, etc. are being compared. Be prepared to hand weed the check area.

The cost of soil fumigation is high (maybe as much as \$1000/acre) but compared to the cost of hand weeding the liner beds it would be cost effective to use fumigation.

Once the site is weed-free the next step is to apply the appropriate preemergence herbicides to maintain weed control in the crop. Some preemergence herbicides such as Treflan can be used pre-plant but most will be used post-plant. Before selecting the herbicide you must match the weed problem with the herbicide and then determine if that herbicide can be used safely on the plant. Remember most herbicides will not be labelled for use in liner beds and some herbicides cannot be used on liner beds. Rout is one such herbicide. Also, conifer seed beds are not the same as liner beds (rooted cuttings). Since most herbicides are not labelled for use on liner beds you will have to do some research on your own.

First, always make trial areas. Do not treat whole beds until you have experimented with the herbicide. Evaluate the growth response of several cultivars since there often are cultivar differences in response to herbicides. Secondly, set up checks (no treatment areas) as described for soil fumigation. Rate the growth of the plants in both treated and untreated areas.

Dr. Elton Smith recognized the need for the use of herbicides in liner beds and in his publication lists the herbicides that have been evaluated by him as being useful for weed control in liner beds. The herbicides listed are:

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| Dacthal | —Primarily annual grass control and fairly short-lived.                                   |
| Dual    | —Primarily annual grass control. Combined with Princep it can be used on some evergreens. |
| Enide   | —Annual grasses and more broad-leaved annuals than Dacthal; longer lasting.               |
| CIPC    | —Chickweed control.   |
| Kerb    | —Perennial grasses and must be applied late in fall before the soil freezes.              |
| Princep | —Used at reduced rates and in combination with grass control herbicides.                  |

- Treflan —Preplant annual grasses; short-lived.  
Devrinol —Annual grasses and broad-leaved weed control.

Other herbicides can be tried but the key word is *tried*. Do not treat whole beds before gaining experience with a particular herbicide.

The postemergence grass herbicides such as Poast and Fusilade can be used to remove established grasses from liner beds. Fusilade provides better control of perennial grass than Poast. Wayne Lovelace reported last year on a technique using Poast to remove a grass cover-crop from seed beds. This is an excellent technique. Read the labels carefully on these products. The Fusilade label has been expanded but some plants require a directed spray and some will exhibit as much as 50% injury.

### CONCLUSIONS

The use of herbicides in liner beds should be done only after careful evaluation of the weed problem, plant being grown, and soil types in the liner bed. Develop a total weed control system for the liner beds. Use the following techniques:

1. Determine the major weed problem.
2. Start clean—use soil pasteurization or fumigation if necessary.
3. Before or after planting use a preemergence herbicide.
4. Select herbicides that will control the weeds and be safe on the crop.
5. Always leave untreated areas and check growth of liners against the growth in herbicide-treated areas.
6. Never use an herbicide in the whole liner beds until it has been tried.
7. Remember to check cultivars as well as species for growth response.