Registration of Herbicides for Use on Forest Nursery Seedbeds[1]

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Abstract.--Briefly outlines the herbicides that have been available for general weed control on forest tree nursery seedbeds, new products, recently registered or registration pending, recent changes in Federal legislation affecting these, and how to obtain registration of new herbicides.

The use of herbicides to control weeds on forest tree nursery seedbeds is gaining much interest. Reduction in administrative time and handweeding costs results in a much more efficient nursery operation. The USDA Forest Service Nursery at Coeur d'Alene, Idaho reduced handweeding costs by 75% using one herbicide in a marginally effective way. (McDonald and Isaacson, 1973). Projecting their cost reduction ($6 per thousand seedlings) to the 1.3 billion bare-root seedlings produced annually in the U.S. could mean a savings of $7.8 million in 1969 dollars. Increasing this amount by 191 percent in 1979 (Consumer Price Index, March, 1979) the savings would amount to $15 million.

HERBICIDES GENERALLY AVAILABLE

Four herbicides have been available for a number of years and have been used successfully on forest tree nursery seedbeds. They are chloramben, DCPA, diphenamid and trifluralin.

Chloramben, sold as Ornamental Weeder by Amchem Products, Inc., is a granular herbicide used for preemergent control of germinating annual broadleaf weeds and grasses. It is recommended for use in ornamental plantings, ground covers and conifer seedbeds. This product is only useful after the seedlings have emerged so may require wee'linL the seedbed prior to its application.

DCPA, sold as Dacthal W-75 for Turf by Diamond Shamrock Corporation, is a wettable powder herbicide for use in preemergence control of crabgrass, other annual grasses, and certain broadleaved weeds. It is recommended for **use** on mineral soils in turf and nursery stock.

Diphenamid, sold as Enide 50W by TUCO Division of the Upjohn Company, is a wettable powder herbicide for preemergence control of many annual grass and broadleaf weeds. It is recommended for use in tomatoes, peppers, sweet potatoes, okra, strawberries, blackberries, raspberries, tobacco, soybeans, peanuts, cotton, fruit trees, bermuda grass, dichondra, ice plant, ornamentals and pine seedbeds.

Trifluralin is sold as Treflan For Professional Use by the Elanco Products Company as either a granular or emulsifiable concentrate preemergence herbicide. It is recommend for control of annual grasses and broadleaf weeds in nursery stock, ornamental trees, ornamental woody shrubs, gladioli, established flowers and roses. Treflan is most effective when incorporated into the soil.

NEW HERBICIDES

Just recently registered was Napropamide, Devrinol 50-WP Ornamental, sold by Stauffer Chemical Company. This is a preemergence herbicide to control annual grasses and broadleaf weeds. It is recommended for use on container-grown ornamentals, field-grown nursery stock, liner stock, ground covers and dichondra.

Pending Federal registration is bifenox, sold as Modown Herbicide 80% Wettable Powder by the Mobil Chemical Company. It is a preemergence herbicide to control annual grasses and broadleaf weeds. The new label will state a recommendation for use on forest nursery seed beds. Currently, there are

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special local needs registrations in California, Oregon, Washington and Colorado and pending registrations in Idaho and Montana.

This brief description of six herbicides shows that the recommendations vary from very general to specific. The recommendation for nursery stock is general and the recommendation for pine seedbeds is specific. The recommendation for forest nursery seedbeds is intermediate; a later discussion will indicate why this may be more appropriate than other designations of site.

LEGISLATION CHANGE

From 1972 to 1978 the use of pesticides was regulated by Section 12(a) (2)(g) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) which made it unlawful for any person to use a registered pesticide in a manner inconsistent with its labeling. Congress intended this to be enforced in a "common sense manner" but the wording was too broad to be interpreted precisely. This resulted in anxiety among those who had uses for pesticides which were not explicitly labeled.

In 1978 FIFRA was amended. According to the new language, it is a violation of the law to use a registered pesticide "in a manner not permitted by the labeling" with three exceptions. They are: (a) a pesticide may be used at lower than the label dosage; (b) a pesticide may be used to control target organisms not listed on the labeling if its use is still consistent with the sites included on the labeling and; (c) any application method not prohibited by the labeling is acceptable.

The real important language for our purposes is "if still consistent with the sites included on the labeling". This language is a key to what Congress meant. In their Conference Report, they stress the site as important and imply that variations in use are acceptable if the variations would not cause unreasonable adverse effects on the environment.

Using this rationale, it can be interpreted that the six herbicides described can legally be used on forest tree seedbeds even if the label does not explicitly so state. The USDA Forest Service does not advocate non-labeled uses. However, recommendations may be made for these non-labeled uses if supported by sound information. A case in point is the Devrinol 50-WP Ornamental label. The nearest thing to our needs is a claim on the label for weed control in field-grown ornamentals. The Westwide Nursery Herbicide Screening Project has developed data which supports a registration for use on forest tree nursery seedbeds. The author has recommended to the Western Regional Foresters that Devrinol be considered for forest tree nursery seedbed weed control. Included with the recommendation was a list of weeds controlled, the forest tree species which are tolerant to the herbicide, and use directions and precautions pertinent to the culture of these species. Upon revision of the Devrinol label the manufacturer will incorporate this use pattern into the labeling.

A label claim for weed control on forest tree nursery seedbeds is a signal to the nurseryman that data is available to support this use and the data represents the range of the culture of the species. The labeling will be designed to show which species have been shown to be tolerant to the herbicide and which weed species will be controlled.

With the flexibility granted by the 1978 amendments to FIFRA it would be to everyone's advantage if labels were developed with general site designations such as forest tree nursery seedbeds. Tolerant species of seedlings could be listed under this. It would not be illegal to use the herbicide on species not listed on the label but the user would be accepting the liability if the seedlings were damaged.

OBTAINING NEW REGISTRATIONS

What must be done to get forest tree nursery seedbed uses placed on an herbicide label? Not much more than a nurseryman would do to assure himself that the herbicide is safe and effectively used in his nursery. The only other thing that must be done is to keep in frequent communication with colleagues doing similar work and the chemical company technical representatives. The Westwide Nursery Herbicide Screening Stud (Stewart, Abrahamson and McDonald, 1976 , Stewart, 1977 and Stewart, Owston and Weatherly, 1978) is a fine model to follow. With all nurseries following the same protocol, the information developed should complement and supplement that from individual nurseries.

This systematic investigation results in meaningful information which chemical companies can use to support the registration of the

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[3]Stewart, R. E., S. McDonald, and L. Abrahamson. 1976. An administrative study for herbicide screening and weed control demonstration in western forest tree nurseries, 1976-1980. Pacific Northwest Forest and Range Experiment Station, Corvallis, Oregon (unpublished).

herbicides. It also isolates those herbicides which are not suitable for forest tree nursery seedbed weed control.

To summarize, there are herbicides now registered that will provide acceptable weed control and are safe to seedlings on forest tree nursery seedbeds. Even though the labeling does not explicitly include these uses, the 1978 amendments to FIFRA allow their use. Registration of additional herbicides or additional uses will require communication among nurseries and chemical manufacturers.

LITERATURE CITED

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