

WEED SANITATION PROGRAM
AT THE VALLONIA NURSERY

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The objective of a weed sanitation program is to reduce the cost of nursery weed control. This is accomplished by controlling weed reinfestation of fumigated nursery beds. An effective program involves many aspects of nursery management from fumigation to the control of certain types of weeds in areas adjacent to nursery beds.

The starting place is a thorough seedbed fumigation. Methyl bromide at 450 pounds per acre will kill almost all weed seeds in the soil to the depth of effective treatment (about 12 inches in loose sandy soil). However, some plants have seeds which are resistant to methyl bromide. These are generally species that have hard seed coats. Several species of clover (*Trifolium* spp.), wild geranium (*Geranium* spp.), and morningglory (*Ipomoea* spp.) are the major problems at the Vallonia Nursery. These species also have seed which remain viable in the soil for many years. Therefore, special attention is given to preventing these weeds from producing seed in seedbed areas.

The next step in the program is to prevent reinfestation of the fumigated soil by weed seeds from adjacent unfumigated areas. This problem is solved by considering the major ways in which weed seeds are disbursed. Under our conditions species which have windborne seed are a major problem. The most troublesome species are dandelion (*Taraxacum* spp.), and horseweed and fleabane (*Erigeron* spp.). These species produce large amounts of seed, they readily resprout unless the root system is removed, and are resistant to control mineral spirits. The amount of seed of these species reaching the fumigated area can be greatly reduced by preventing seed production in areas adjacent to the nursery bed. This is easily accomplished by spraying adjacent fields with a phenoxy herbicide such as 2,4-D (2,4 dichlorophenoxy acetic acid) in late summer and/or early spring. The amine formulations is used according to label directions. Other species which can be troublesome are the willows (*Salix* spp.), poplars (*Populus* spp.) and sycamore (*Platanus* spp.). Generally the problem from these species is not serious and can be controlled if necessary by removing trees of these species in areas adjacent to nursery beds.

In addition to wind, water can carry weed seed into the fumigated soil. This source of weed seed is reduced by fumigating the bed-ends and keeping this area weed free by the use of contact herbicides. In midsummer a cover crop is planted on the bed ends to prevent erosion. During heavy rains

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surface water from adjacent fields can carry large amounts of weed seed into the nursery bed. This problem is solved by creating ditches to route water around the nursery beds and by keeping drainage ditches open so that water is rapidly carried away rather than ponding which would allow time for suspended weed seed to settle out in the beds. Water which is carrying eroded soil, as from a tilled field, will carry much more weed seed than otherwise.

The last major source of weed seed is that carried on nursery equipment which has been used in unfumigated areas. This problem is controlled by washing all equipment including tractors before entering the fumigated areas. This is also a standard practice for disease control.

The next step in the program, is the removal of all weeds that germinate before they produce seed. This may sound like an impossible task, however, we have reduced hand weeding cost by 60 to 80 percent over that required before the sanitation program was started. In addition the degree of weed control is much improved. Herbicides can be of assistance in this program by further reducing the amount of hand weeding. However, herbicides can not substitute completely for hand weeding because the weeds that escape the herbicide can quickly take over the area. Also, it is possible to build up a population of weeds that are resistant to a specific herbicide.