# BIOHERBICIDES AS ALTERNATIVES TO METHYL BROMIDE FOR WEED CONTROL

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As public pressures increase to reduce chemical inputs in agricultural and horticultural production systems, researchers are challenged to develop effective weed management strategies that result in reduced chemical inputs while maintaining the high levels of control that are required by current agricultural practices. The loss of methyl bromide as a soil fumigant to control weeds and other pests represents such a challenge. Public concerns regarding safety as they relate to pesticide usage, future trends towards more sustainable agriculture, and encroachment of urban areas into former agricultural lands will likely favor a weed control approach based on non-chemical means, such as biological control.

The use of indigenous plant pathogens, such as *Fusarium, Colletotrichum*, and *Myrothecium* spp. and some of their metabolites, such as AAL toxin, monensin, nitropropionic acid, and others provides an environmentally responsible approach for controlling weed pests. We have examined the weed control potential of several microorganisms and some of their natural products as weed control agents for weeds such as nightshades (*Solanum* spp.), purslane (*Portulaca* spp.), spurges (*Euphorbia* spp.), lambsquarter (*Chenopodium album*), and other problematic weeds. We have also conducted research to improve the bioherbicidal efficacy of these organisms through innovative uses of formulation and application techniques. In some situations, these biologcally-based weed control agents performed as well or better than methyl bromide in controlling weeds. Examples of current laboratory, controlled-environment, and field research to use biologically-based approaches to control these weeds and their potential uses as alternatives to methyl bromide for weed control will be presented.