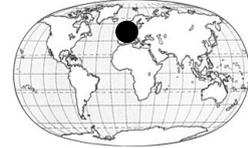


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## **STRATEGIES FOR THE USE OF PLANT PATHOGENS IN INVASIVE WEED MANAGEMENT**

There is an increasing concern with the use of chemical herbicides on their impact on human health and the environment. Herbicide use in nonagricultural fields such as pastures, natural areas, and recreational sites is problematic because of the lack of economic return, the inaccessibility of some sites, and the vast amounts of infested land. For these reasons, plant pathogens are being considered as a weed management option. Depending upon the nature of the target weed, different strategies are followed. Two important factors are knowing what plant stage to target for the most effective results and what agents are already available. The search for a specific type of pathogen can depend upon these factors. Another factor to consider is the habitat of the invasive weed. An airborne pathogen that is highly specific may be preferred to manage weeds that invade expansive natural areas with difficult access. In contrast, weeds that invade disturbed or isolated areas may be effectively controlled in an inundative approach with a more general pathogen that does not spread so easily. Finally, formulation of a stable, effective agent is essential to a biocontrol program with pathogens. Often pathogens effective in greenhouse tests lose their efficacy when applied in the field. In-depth studies have been conducted to find formulations that will maintain effectiveness under natural conditions, primarily in terms of reducing natural dew periods and improving long term storage of the pathogen. Despite the perception that pathogens are unsafe for release as biocontrol agents, the contrary has been demonstrated when specific guidelines are followed and relevant studies of pathogens on agronomic crops are considered. These guidelines include conducting host range studies where the risks and benefits can be analyzed and evaluating the likelihood of the pathogen changing hosts. Although pathogen mutations do occur, this has never been proven in nature to impact host shifts.

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