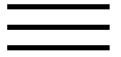


Social and economic drivers shaping the future of biological control: a Canadian perspective on the factors affecting the development and use of microbial.

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Social and economic drivers shaping the future of biological control: A Canadian perspective on the factors affecting the development and use of microbial biopesticides

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Abstract

Globally, the use of biopesticides is growing annually while the use of traditional pesticides is on the decline. North America uses the largest percentage of the biopesticide market share at 44%, followed by the EU and Oceania with 20% each, South and Latin American countries with 10%, about 6% in Asia and India. Although biopesticide growth is projected at 10% annually, it is highly variable among the regions constrained by factors such as regulatory hurdles, public and political attitudes, and limitations for market expansion. Microbial biopesticides have been registered in Canada for 35 years, but the number of registrations for commercial, restricted-industry and

domestic uses has significantly increased over the past 10A years. The early Canadian biopesticides registered by pest control category were *Bacillus thuringiensis* in 1972 as the first bioinsecticide, *Agrobacterium radiobacter* in 1989 as the first biobactericide, *Colletotrichum gloeosporioides* f.sp. *malvae* in 1992 as the first bioherbicide, and *Streptomyces griseoviridis* in 1999 as the first biofungicide. Between 1972 and 2008, the Pest Management Regulatory Agency approved registration of 24 microbially active substances with 83 formulations. The majority of the registrations (55/83) occurred since 2000 and at the beginning of 2008 there were 10 new products (a combination of new active substances, strains, formulations, and uses) under regulatory evaluation. This paper examines the evolution of microbial biopesticides in Canada illustrating how the actions of the government, the people, and the industry have led to changes in legislation, policy, and programming that spurred momentum for new microbial pest control products in recent years and created a model system for future microbial biopesticide discovery, development, and implementation that could be adopted throughout the world.



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Keywords

Biopesticides; Microbial products; Bioherbicides; Biofungicides; Biobactericides; Bioinsecticides

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