

Future Trends in Weed Management: Regulatory Challenges

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This paper will discuss some of the challenges pesticide regulators face as scientific advancements and technology push changes in pesticides and applications, and other laws affect use of pesticides in diverse ways. Some changes may offer environmental benefits but do not necessarily fit into existing frameworks, and may create policy challenges.

Technology Applications: New Chemistry, Precision and Biotechnology

New Chemistry

Reducing pounds of herbicide applied is one of the benefits of some new herbicides. However, from a regulator's standpoint, reducing the total pounds of herbicide applied is not the only aspect of interest. Lower rate, more active herbicides may pose analytical technology challenges, particularly when state regulators don't have the technology needed to carry out enforcement analysis. More active but longer lived molecules may pose challenges for crop rotation. Potential phytotoxicity to nontarget crops pose challenges for managing applications appropriately to avoid offsite movement.

Precision Application

The use of global positioning systems, pattern recognition, remote sensing technology and related technologies has the potential of altering the manner in which herbicides are used. There is potential environmental benefit in targeting herbicide use where it is needed, reducing the overall amount of herbicide used. Because regulators use pesticide labels as the guide on enforcement, how these technologies influence label use directions will become important. California's use reporting system will also need to accommodate this more precise application of pesticides to more accurately reflect use.

Biotechnology

Herbicide tolerant plants derived from recombinant DNA technology are another focus of this discussion. Currently, use of genetically modified herbicide tolerant crops is not wide spread in California compared to other parts of the country, and does not pose a challenge to regulators. The use of herbicide tolerant crops may provide potential environmental benefits of reduced air pollution and groundwater and surface water contamination. Uncertainties about GM crops are driving research to answer various questions, and continue to fuel policy debates.

Other Statutes Affect Pesticides

Pesticide use, including herbicides, continues to be affected by other statutes. While most of the subject statutes are federal, delegated authority to state regulators brings the impacts back to the state level. Coordination amongst different regulators is essential to bring about needed change. Litigation under the Endangered Species Act is driving change at U.S.EPA. Lawsuit settlements will have an influence on use of some products, and future rulemaking will better define U.S.EPA's consultation with the Fish and Wildlife Service and the National Marine Fisheries Service. Changes will affect all aspects of registering products.

The Clean Water Act and the Clean Air Act are impinging on pesticides at various levels. Under the Clean Water Act, development of Total Maximum Daily Loads for impaired water bodies is proceeding, and coupled with the debate over the state agricultural drain exemption, management of pesticide applications and irrigation water containing pesticides will change in some parts of the state. California continues to require National Pollution Discharge Elimination System (NPDES) permits for many aquatic pesticide applications because of federal appeals court ruling. Clean Air Act requirements for regions that exceed air quality standards such as ozone levels will impact pesticides and agriculture increasingly. The Department of Pesticide Regulation has participated in the State Implementation Plan for areas of nonattainment since the mid 1990's, and is developing measures to implement by 2005.