

My view

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In the July–August issue of *Weed Science* (*Weed Science* 45:465, 1997) Dr. W. Dyer took professional societies and the agrichemical industry to task for their stance on the issue of including the mechanism of action (MOA) of an herbicide on the label. Dr. Dyer's view is that "short termers are in control of the situation and that any efforts towards resistance management that goes beyond mere lip service will be met with a less-than enthusiastic response." The Herbicide Resistance Action Committee (HRAC), which is a committee of technical representatives from major agrichemical companies, does not agree with Dr. Dyer's interpretation of industry's apparent reluctance to include herbicide mechanisms of action on the label and suggests that the agrichemical industry is taking a proactive approach to resistance management. We agree with Dr. Dyer that the goal is to prevent resistance from starting in the first place and to manage resistance if it has already developed in order to preserve effective herbicides.

The agrichemical industry does not oppose labeling herbicides by their mechanism of action if doing so will truly help resistance management. However, there are several potential disadvantages of labeling herbicides with their MOA.

1. It's too simplistic. Rotating herbicides with a different MOA is only one way to help manage resistance. Herbicide resistance management requires an integrated approach that includes all biological, cultural, and mechanical methods for weed control in addition to herbicides. Furthermore, labeling herbicides by MOA does not address metabolism-based resistance; we could make a problem worse rather than better. If we give a message to farmers that rotating MOA is all that is required, we will be doing them and ourselves a disservice.

2. It may be confusing. Many herbicides are now sold in mixtures rather than as single products. Part of the reason for this is to increase the spectrum of the weeds controlled and part is for resistance management. An example of a confusing situation is when mixtures are used in the first year and the farmer attempts to rotate MOA the subsequent year as prescribed by resistant weed management guidelines. Which MOA is to be rotated? Herbicide A? Herbicide B? Both herbicides?

3. There may be unexpected legal ramifications. The herbicide label in the U.S. is a legal document and all changes have to be approved by the EPA. With the new Food Quality Protection Act, there are new requirements for registration and labeling that include the influence of the mechanism of action of a pesticide on risk assessment. The EPA is still working to determine how they will imple-

ment this act. Putting the mechanism of action on the label for resistance management may have some unanticipated effect on registration requirements, such as delaying the registration of a new herbicide that shares the same site of action as other herbicides but controls a different spectrum of weeds in a different crop, thus depriving the farmer of an effective weed management tool.

In two countries, Canada and Australia, the MOA of a pesticide appears on the label. In Canada, putting the MOA on the label is voluntary and was just recently implemented. In Australia, such labeling is mandatory and has occurred over several years. HRAC is commissioning a survey in Australia to determine how effective labeling herbicides by their MOA has been in resistance management and to determine the positive and negative aspects of this practice. Once this survey is complete, we will have a better understanding of the strengths and weaknesses of labeling herbicides by MOA for resistance management, and we will be better able to determine what will work best in managing resistance in the U.S.

HRAC was established in 1989 to facilitate the effective management of herbicide resistance by fostering understanding, cooperation, and communication between industry, government, and farmers. To fulfill this mission, HRAC has spent more than \$300,000 on research in the U.S., Canada, Australia, and Europe on resistance management and on supporting various symposia (e.g., International Weed Control Congress, Pesticides '97 Conference, and the 1995 Weed and Crop Resistance to Herbicides meeting in Cordoba, Spain). HRAC has helped establish herbicide resistance working groups in Latin America, Europe, and India. We have also produced educational material on herbicide resistance management and testing and, in cooperation with WSSA, established the "Classification of Herbicides According to Their Mode of Action." HRAC helped establish and continues to support a database developed by Dr. Ian Heap on herbicide-resistant weed occurrences throughout the world. This database is on the internet (<http://www.pioneer.net/~heapian/index.html>) and is continuously being updated as new occurrences are confirmed.

HRAC is very supportive of any action that will help improve resistance management. We want to make sure that whatever we do will benefit the farmer and herbicide resistance management: funding research, sponsoring symposia, establishing working groups, publishing educational materials, developing and supporting comprehensive databases, creating a global classification of herbicides "Mere lip service?" We believe not!