

Herbicides, How Reliable Are They?

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Pesticide Impact Assessment Program Report

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What is the relationship between weed control and profit? What are the benefits of herbicides? Can combining herbicides increase reliability? In this age of competitive world trade, knowing the answers to such questions give producers a competitive edge.

Proper herbicide combinations multiply the probability of success.

In a recent study funded by the Pesticide Impact Assessment Program (PIAP), "The Use of Aggregated Field Trial Data to Determine the Reliability of Herbicides," weed scientist David Pike, research associate Jerry Hill

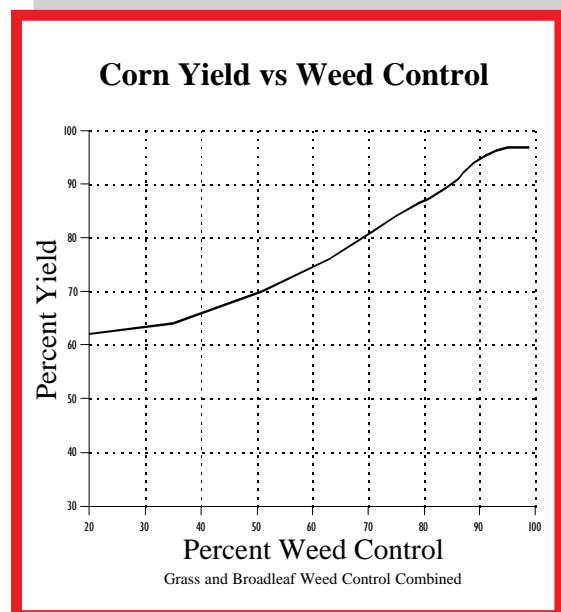
and agronomy professor

Marshal McGlamery re-examine the benefits of herbicide management. Their findings indicate that proper herbicide selection and effective use will increase profits. David Pike, who has worked on the project for three years, says, "The report is most useful as a source of documentation on many aspects of weed control, some more well-known than others. It organizes broad-based information so that new conclusions can be drawn."

The cumulation of data represents numerous tests done on herbicides over a wide range of crop management, soil, and basic environmental conditions. Testing herbicides over a full spectrum

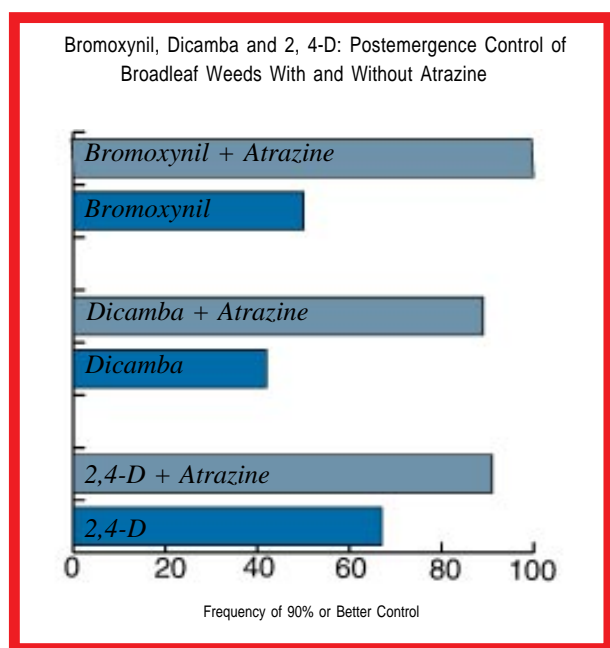
of conditions is useful in determining long-term reliability and the suitability of possible alternative herbicides. It is also useful in determining the effectiveness of herbicides used in combination.

Weed Control Versus Profit. For many farmers an increase in crop yield is the ultimate goal. Efficient and resourceful farm managers are those who produce the highest yielding crops most economically. One important finding of the study was that crop yield does not always increase in direct proportion to weed control. The



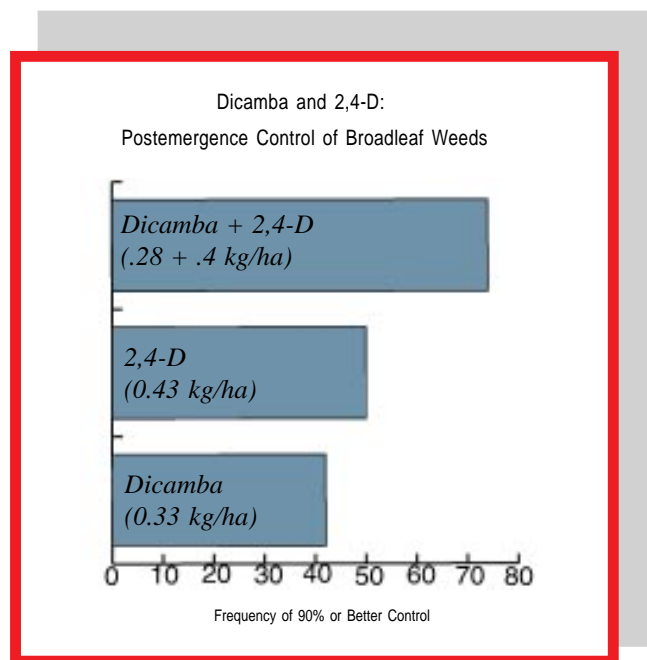
researchers found that although crop yields increase proportionally between 50 to 90% weed control, increases are minimal in field corn when weed control reaches 92% and above. (See figure on reverse.)

Herbicide Combinations. The study also shows how proper herbicide combinations multiply a farmer’s probability of success. As an example of



some of the research findings, the above figure illustrates atrazine as a fierce component in the battle against weeds. When atrazine joins forces with bromoxynil or dicamba, excellent broadleaf weed control is twice as likely. Excellent results also occur when atrazine is combined with 2,4-D.

Another example of an excellent herbicide team is 2,4-D and dicamba. Pike says, “When dicamba and 2,4-D are used together, broadleaf weed control failures seldom occur.” With nearly twice the



eliminating power of its individual components, this combination far surpasses the low frequency of success achieved by either dicamba (42%) or 2,4-D (50%), when used alone. (see chart above)

Reliability. Although the results of this report don’t indicate exactly when or where a herbicide will fail, they do provide a broad-based reliability index by which to judge how often a herbicide will succeed or fail across a range of environmental conditions. Pike says, “It is important that a herbicide be more than just efficacious. It must perform reliably year after year under all soil and environmental conditions.” A copy of the complete report details numerous additional examples of herbicide efficacy and reliability. For a copy contact Dr. Pike at the University of Illinois.

To obtain more information and a complete copy of the report contact David Pike • University of Illinois, Cooperative Extension • e-mail: DPike@piked2.agn.uiuc.edu
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