

Nov 30th, 12:00 AM

Managing Resistant and Other Difficult to Control Weeds

Loyd M. Wax
U.S. Department of Agriculture

Follow this and additional works at: <https://lib.dr.iastate.edu/icm>

 Part of the [Agriculture Commons](#), [Agronomy and Crop Sciences Commons](#), and the [Weed Science Commons](#)

Wax, Loyd M., "Managing Resistant and Other Difficult to Control Weeds" (1995). *Proceedings of the Integrated Crop Management Conference*. 29.

<https://lib.dr.iastate.edu/icm/1995/proceedings/29>

This Event is brought to you for free and open access by the Conferences and Symposia at Iowa State University Digital Repository. It has been accepted for inclusion in Proceedings of the Integrated Crop Management Conference by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

MANAGING RESISTANT AND OTHER DIFFICULT TO CONTROL WEEDS

Loyd M. Wax
Research Agronomist
USDA/ARS,
Urbana, Illinois

Currently, weed control is practiced to a very intensive level of management in the Midwest. Most all acres of corn and soybean production are treated with one or more herbicides, and often with multiple applications of herbicides. And yet weed problems remain that cause concern to the grower, in some instances because of potential losses due to competition and harvest losses, and in other instances because of grower, landlord, and neighbor expectations for near perfect control of all weedy species in growing crops. Some of these greater expectations come as a result of product guarantees and respray programs, which are sometimes implemented when no significant problem really exists.

The appearance of and concern for some of our remaining problems are the natural result of a dynamic weed population, whereby new weed species come in to occupy niches that were left because of excellent management systems that have provided control of the most dominant species over a number of years, and allowed less competitive, but tolerant species to the herbicides being used, to come in and create new weed problems. Also, the trend toward conservation tillage has resulted in the shift of weed species to ones that may or may not be more difficult to control, but at the very least require different and more intensive management systems.

Perennial and biennial weed species, not usually considered a major problem with conventional tillage systems, seem to be increasing in importance with reduced primary tillage and less postemergence cultivation. They also are likely increasing because of the excellent control of most annual weeds that has been provided over the years by modern weed management systems. Most new selective herbicides are targeted toward control of the annual weeds that infest the widest acreage, and very few new herbicides are coming into the marketplace for effective and selective control of troublesome perennials, especially broadleaf perennials in soybeans.

There are many weed species that still cause problems in localized areas and will need attention now and in the future. In no-till, a wide variety of winter annuals, biennials and perennials create problems and need better and more coordinated systems of control. The perennial hemp dogbane is widely found as an escaped species in corn and soybean fields in the Midwest, and no really good method of long term control is readily available. Annual weeds such as wild proso millet and woolly cupgrass fill certain niches and are major unsolved problems in some areas, as they germinate over a wide range of conditions, appear to be more difficult to control than other annual grass species, and present special problems wherever they are found. We receive increasing complaints about the prevalence and intensity of giant ragweed infestations, and the difficulty of controlling this species. Species such as eastern black nightshade appears

sporadically in soybeans and often can cause major problems with harvesting and soybean seed quality.

The appearance of biotypes of weeds that are resistant to certain types of herbicides is becoming more prevalent in the Midwest, as less cultivation is used for backup control and more herbicides with the same mode of action are used in corn and soybean production. Biotypes of several species that are resistant to the triazines have been documented in the Midwest over a number of years. And recently, biotypes of several species that appear to be resistant to several of the ALS-inhibiting herbicides have been reported in increasing numbers. The potential for substantial problems is great unless growers, industry and public sector researchers work together to implement a system of management strategies to reduce the potential for development of resistant weeds.

Management of resistant, tolerant, or just difficult to control weeds in crop production is certainly possible with the current tools available, but will require more intensive management, more persistence in making and carrying out long term management plans, and improved cooperation of all of the weed science community in developing guidelines for control of these species. For any of these special problem weeds, scouting and mapping fields as to types of weeds and any other special characteristics about soils in the area is an essential step. In most instances, rotation of crops and rotation of herbicide modes of action, and use of tank mixtures that control the species in question are extremely important and effective approaches. Where postemergence herbicides are used, the selection and use of the proper adjuvant can make the difference between success and failure in some situations. Non-chemical control with cultivation seems to be fading in popularity, and yet this procedure can be a very important part of a good weed management program, often costing considerably less than a herbicide treatment, and reducing the amount of pesticide load put into the environment. When working with perennial weeds or annual weeds with repeated flushes of germination and long seed dormancy, plans need to be made for persistently attacking the problem over a period of years if substantial progress is to be made. These problems can best be solved by an integrated cropping systems approach, interaction and sharing of ideas with other growers, and by a close working relationship of growers with private and public sector researchers and outreach personnel.