TRANSLATION AND EXTENSION OF WEED INTERFERENCE INFORMATION TO THE PRACTICAL END USER. William G. Johnson, Assistant Professor, Purdue University, W. Lafayette, IN 47907.

One of the biggest challenges faced by extension personnel is finding pertinent weed interference information that has practical implications and can be understood by lay personnel. A substantial number of weed interference studies published 1960's, 1970's and 1980's focused on the interference or competitive effects of a single weed with a crop. These studies provided a wealth of information on growth, development, and fecundity of a specific species and their influence on crop yield based on density and/or emergence times (cohort). These studies were typically very labor intensive and allowed weed scientists to evaluate the relative competitiveness and competitive indices of various species. However, the practical application of this information to the crop advisor or farmer was limited because weed densities in these studies were relatively uniform and weed infestations typically found in production fields include a mixture of species and emergence timings.

More recently, many Universities have been involved in studies that have evaluated the influence of weed removal timing of mixed weed populations on crop yields. This effort was driven in part by availability of newer, broadspectrum postemergence herbicides (particularly ALS inhibitors) in the early 1990's and crops resistant to imidazolinone, glufosinate, and glyphosate in the late 1990's. These studies are valuable in that they better mimic real field situations with mixed weed species and emergence timings. They also require much less labor then the single weed studies mentioned above and allowed researchers to collect information from more site-years. The limitation with these studies is that weed densities tend to vary between plots and yield variability within a treatment is typically higher that that observed in single weed interference studies.

The challenge to extension specialists and educators is to assimilate this information into modules, presentations, or publications which can be used to educate lay personnel about the various aspects of weed interference, how weed species differ in their competitive effects on crop yields and environmental influences on weed interference. An informal survey of extension weed specialists revealed the following perceptions and information needs: First, many extension specialists perceive that weed thresholds have little value to the crop advisor, consultant or farmer because of clean-field guarantee programs by basic manufacturers, the expectation that the herbicides applied will control all weeds, and the ease of the glyphosate-resistant crop technology. Second, most felt that that the same individuals could be better informed or could better utilize information about critical periods of control to minimize yield loss rather than late-season field aesthetics. Third, the extension specialists' biggest challenge in extending weed interference information to end-users is the fact that it is somewhat difficult to make this information as interesting as a new herbicide presentations, and the fact that there is little economic incentive for this clientele to learn this information because of farmer expectations and guarantee programs. Several individuals mentioned that computerized weed management decision aids that utilize a bioeconomic yield loss model such as WeedSOFT were very helpful in educational settings. In addition several mentioned that seasoned clientele were interested in how environmental factors, irrigation and row spacing influences weed interference.

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