

**2002 RESEARCH SUMMARY**  
**ARKANSAS CORN AND GRAIN SORGHUM BOARD**

**TITLE:** Weed Control Programs in Arkansas Corn

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**CROP:** Field corn

**STATUS:** Funded for 2002 for 3 years.

The objectives of this project are: to explore alternatives to atrazine; determine most effective program for late season morningglory control; identify effective options for controlling triazine resistant pigweeds; define the weaknesses and strengths of each transgenic system; and determine best fit for new herbicides coming into the market. Approximately 25 field studies were established in 2002 in Rohwer, Pine Tree, Marianna, and Fayetteville to help accomplish these objectives. A brief summary of these trials will be presented without excessive elaboration and use of data charts. Complete data summaries can be provided if desired.

Mesotrione, sold under the trade name Callisto, appears to be the closest to an atrazine replacement of all products tested. It is similar to atrazine in grass activity, but is slightly less effective on morningglory. It is very versatile in that it can be applied preemergence or postemergence up to 30-inch tall corn. Currently, it is more expensive than atrazine, but will be an alternative if atrazine is removed from the market or if there is an attempt to limit the use of atrazine by increasing the price. We should continue to search for a tankmix partner for Callisto that will improve performance on morningglory.

Steadfast is a new product containing rimsulfuron and nicosulfuron. Basis Gold also contains these two compounds plus atrazine. However, there is more nicosulfuron (the strong grass component) in the new Steadfast product than in Basis Gold. We have only one year's data on Steadfast and results were somewhat inconsistent. It provided excellent, season-long weed control in southeast Arkansas, but was not as impressive at Pine Tree. It will likely receive a great deal of press this year, but until we get more data, our suggestion is to use Steadfast on a trial basis or in combination with atrazine. This product does offer an alternative to atrazine for control of triazine resistant pigweeds.

Weed control in both the Roundup Ready and Liberty Link transgenic programs was acceptable. However, it may not be possible to completely eliminate a tankmix partner, such as atrazine, from these programs. Morningglories and pigweeds germinating after the last herbicide application may not offer enough competition to reduce yields, but can cause problems at harvest and add to the weed seedbank in the soil. When atrazine was tankmixed with the last application of glyphosate, late-season morningglory control was greatly improved in the Roundup Ready

system. Liberty herbicide is slightly better than glyphosate on morningglory and slightly weaker on pigweed. This pigweed weakness also makes atrazine a good addition in the Liberty Link system. Although it was not the objective of this project to evaluate corn varieties, the varieties currently available in the Liberty Link program seem to yield better than those in the Roundup Ready program.

**Publications:**

Brewer, C.E., L.R. Oliver, and M.T. Bararpour. 2002. Volunteer Roundup Ready corn control in Roundup Ready soybean. *Abstr. Ark. Crop. Prot. Assoc.* 6:6.

Oliver, L.R., Jeff W. Barnes, and M.T. Bararpour. 2002. An overview of mesotrione (Callisto) weed control programs in corn. *Abstr. Ark. Crop. Prot. Assoc.* 6:12.