EFFICACY OF FALL AND SPRING APPLIED BAS 800 ON GLYPHOSATE-RESISTANT HORSEWEED (*CONYZA CANADENSIS*). Glenn R.W. Nice*, Vince M. Davis, William G. Johnson, Greg R. Kruger, Bryan G.Young, Stevan Z. Knezevic and Troy D. Klingaman; Purdue University, West Lafayette, IN 47906; Southern Illinois University, Carbondale, IL 62901; University of Nebraska, Concord NE 68728; BASF Corporation, Mahomet, IL 61853.

Glyphosate-resistant horseweed (*Conysa canadensis*), also known as marestail, has become a troublesome weed in Indiana no-till systems. Producers that are dealing with this in their fields are anticipating the development of tools to combat the problem. New and already available products are being positioned in the market to provide these tools to manage glyphosate-resistant horseweed while providing different modes of action to reduce the potential of resistance development. A new herbicide from BASF, BAS 800 [purposed common name of saflufenacil], was investigated for its residual activity on populations of glyphosate-resistant horseweed. Studies were conducted from 2006 to 2008 by Purdue University and Southern Illinois University in two locations; Butlerville, IN and Murphysboro, IL. Six herbicide treatments at four timings were investigated. The four timings were early fall (Oct. 15^{th} - 30^{th}), late fall (Nov. 15^{th} – 30^{th}), early spring (Mar. 15^{th} – 30^{th}) and late spring (Apr. 15^{th} – 30^{th}). Herbicide treatments were BAS 800 at 50 and 100 g ai/ha, chlorimuron-ethyl + tribenuron at 35 + 11 g ai/ha, respectively, flumioxazin at 72 g ai/ha, simazine at 1120 g ai/ha, and 2,4-D at 560 g ai/ha. Glyphosate at 840 g ae/ha + 257 g/1 L AMS was added to all treatments. Horseweed density was collected twice a month from late March to early July.

When treatments were applied early fall, chlorimuron-ethyl + tribenuron reduced horseweed density 76% at the early July timing. All other herbicides with residual activity, including both rates of BAS800 were comparable to the untreated check. However, the non-residual glyphosate + 2,4-D treatment had densities greater than the check. In the locations used for the study, horseweed predominantly emerges in the spring. Residual herbicides that are applied in the fall have to be active at high enough levels to have a large impact on horseweed in the spring. In the check there was horseweed suppression due to competition with uncontrolled winter annuals resulting in some suppression of horseweed in these checks. In these sites where horseweed predominantly emergences in the spring the controlling of winter annuals in the fall without any residual activity remaining in the spring can lead to higher horseweed numbers.

When applied in the spring the high and low rates of BAS800 decreased horseweed density 87% and 78% from the untreated check in the early July timing, respectively. When the applications were postponed to the late spring the high and low rates of BAS800 decreased horseweed 98% and 96%, respectively by late July. This study suggests that for effective horseweed control in regions that experience predominantly spring emergence, BAS800 would be best utilized in the spring. Only early fall application of chlorimuron-ethyl + tribenuron were effective. The uses of a non-residual herbicide in the fall might increase horseweed numbers due to lack of competition from winter annual weeds in the spring.

2008 North Central Weed Science Society Proc. 63:26.