

WEED MANAGEMENT IN CORN AND SORGHUM WITH SAFLUFENACIL. Caren A. Judge*, Steven J. Bowe, Leo D. Charvat, Troy D. Klingaman, and Walter E. Thomas, Biologists, BASF, Research Triangle Park, NC 27709.

Saflufenacil (BAS 800H) is a selective herbicide currently under development by BASF for preplant and preemergence broadleaf weed control in field corn and grain sorghum. In field research trials across the US from 2005 to 2008, saflufenacil provided residual control (> 80%) of many small- and large-seeded broadleaf weeds including common cocklebur (*Xanthium strumarium*), common lambsquarters (*Chenopodium album*), common ragweed (*Ambrosia artemisiifolia*), giant ragweed (*Ambrosia trifida*), morningglory species (*Ipomoea* spp.), pigweed and waterhemp species (*Amaranthus* spp.), and velvetleaf (*Abutilon theophrasti*). Optimal residual weed control was obtained when at least 1.3 cm of rain and/or irrigation was received prior to weed emergence. Rates of saflufenacil that have been evaluated were based upon soil texture, organic matter, and length of residual weed control desired ranging from 50 to 125 g ai/ha. In a planned two-pass weed control program, lower saflufenacil rates have provided excellent residual broadleaf weed control until a postemergence herbicide application (such as glyphosate). At higher rates, saflufenacil has provided sufficient residual broadleaf weed control until canopy closure. For broad-spectrum residual weed control, a combination of saflufenacil with dimethenamid-p was evaluated and provided excellent control of many broadleaf, grass, and sedge weeds.

In addition to the residual weed control obtained at the rates described herein (50 to 125 g ai/ha), saflufenacil has also provided preplant burndown control of emerged broadleaf weeds when applied in reduced tillage or no-till crop management systems. However, for burndown weed control, saflufenacil required the addition of adjuvants such as crop oil concentrate or methylated seed oil plus ammonium sulfate. For broad-spectrum burndown weed control, glyphosate was the tank-mix partner most often evaluated and provided excellent control of emerged broadleaf and grass weeds with no observed antagonism. Additionally, low rates of saflufenacil (< 50 g ai/ha) have also been evaluated in corn and many other crops for preplant burndown of broadleaf weeds, with limited or no residual weed control.

In research, corn and sorghum have demonstrated excellent tolerance to applications of saflufenacil made prior to emergence; however, injury has resulted from saflufenacil applications made after crop emergence. Tolerance of sweet corn, popcorn, seed corn, and specialty sorghum to saflufenacil is currently under evaluation. Overall, saflufenacil has demonstrated utility for residual and preplant burndown broadleaf weed control in conventional or reduced-till production, herbicide-tolerant corn or conventional corn and sorghum, and planned one-pass or two-pass weed control programs.