TOLERANCE OF THREE MILLET TYPES TO SAFLUFENACIL. Phillip W. Stahlman*, Patrick W. Geier, and Leo D. Charvat, Professor and Assistant Scientist, Kansas State University, Hays 67601, and Biology Area Development Manager II, BASF Corporation, Lincoln, NE 68523.

Few herbicides are registered for use in grain and forage-type millets. A field experiment in Kansas in 2006 indicated postemergence-applied BAS 800H (now saflufenacil) caused severe foliar necrosis in white-seeded proso millet and hybrid pearl millet and severely reduced the stand of foxtail millet. However, both the proso millet and pearl millet recovered and grew normally suggesting saflufenacil might have potential for use in millets if applied to soil either preplant or preemergence. Field trials were conducted at Beaver Crossing, NE and Hays, KS in 2009 to evaluate the tolerance of 'Sunrise' white-seeded proso millet, 'Elite II' hybrid pearl millet, and 'German Strain R' foxtail millet to preemergence applications of saflufenacil at 36, 50, and 100 g/ha. Both sites were silt loam soils. Within seven days after application, 28 mm of rainfall was received at the Beaver Crossing site and 68 mm of sprinkler irrigation and rainfall were received at the Hays site. Crop response generally was greater at Beaver Crossing than at Hays suggesting the greater amount of water received at Hays may have diluted the amount of herbicide in and above the seeding zone. Millet types at both sites exhibited differing tolerance to soil-applied saflufenacil and crop response generally increased with increasing saflufenacil rate. Foxtail millet at both sites was much less tolerant to saflufenacil than either proso or pearl millet, and pearl millet exhibited greater tolerance than proso millet, especially at the Beaver Crossing site. Saflufenacil at 36 g/ha reduced foxtail millet stand by 40 to 70% and by more than 90% at the 100 g/ha use rate. In comparison, at Beaver Crossing stand reductions of proso millet and pearl millet were 24 and 0%, respectively, at the 36 g/ha use rate and 33 and 5%, respectively, at the 50 g/ha use rate. At the Hays site, stands of proso and pearl millet were reduced by 6 and 22%, respectively, at the 50 g/ha use rate. Differences in proso millet forage yields at Beaver Crossing and grain yields at Hays between 36 g/ha saflufenacil and untreated control treatments were not significant, but yields at both sites were reduced by saflufenacil at 50 and 100 g/ha. However, the forage yields of pearl millet were not reduced at any of the three rates at either site. These results confirm that saflufenacil has potential for use in proso millet and pearl millet but additional studies are needed to refine use rates and optimum times of application.

2009 North Central Weed Science Society Proceedings 64:127.