HERBICIDE EFFICACY ON FIELD HORSETAIL IN NO-TILL CORN. Bryan M. Jensen, Chris M. Boerboom, and Tim L. Trower, IPM Program Manager, Professor, and Senior Outreach Specialist, University of Wisconsin, Madison 53706.

No-till corn growers report that infestations of field horsetail are increasing and that this perennial weed is not controlled with standard burndown herbicides such as glyphosate or 2,4-D. Previous research indicated flumetsulam applied as a burndown treatment or postemergence treatments that include a mixture of an ALS-inhibiting herbicide with a growth regulating herbicide provide better field horsetail control. Based on this information, a field study was conducted to evaluate several burndown and postemergence treatments at two sites, located in Monroe and Columbia counties, WI. Burndown herbicide treatments for field horsetail control included flumetsulam at 0.05 lb ai/a and saflufenacil at 0.07 lb ai/a applied alone and in combination compared against glyphosate at 0.75 lb ae/a plus 2,4-D at 0.5 lb ae/a. Postemergence treatments included rimsulfuron:nicosulfuron at 0.01:0.02 lb ai/a plus dicamba:diflufenzopyr at 0.13:0.05 lb ae/a; rimsulfuron:nicosulfuron at 0.01:0.02 lb/a plus flumetsulam:clopyralid at 0.05 lb/a:0.13 lb ae/a; dicamba:diflufenzopyr at 0.13:0.05 lb/a plus glyphosate at 0.75 lb/a; halosulfuron:carfentrazone at 0.03:0.008 lb ai/a; dicamba:halosulfuron at 0.13:0.03 lb/a; and tembotrione plus atrazine at 0.08 lb ai/a and 0.5 lb ai/a. Sequential treatments of flumetsulam followed by glyphosate and saflufenacil followed by glyphosate were also evaluated. All treatments included label recommended adjuvants. These treatments were selected to evaluate active ingredients from six different modes of action. Burndown treatments were applied on May 14, 2009 at Monroe County and May 11, 2009 at Columbia County to field horsetail sterile shoots that were up to 10 cm tall. Postemergence treatments were applied on June 9 and 12, respectively, to 20 cm tall shoots when corn was at the V3 stage. All treatments included preemergence residual herbicides to control annual weeds.

In the burndown treatments at Monroe County, flumetsulam suppressed field horsetail growth by 55% at 2 weeks after treatment (WAT) and control increased to 70% by 8 WAT. Saflufenacil caused horsetail shoots to become necrotic with 80% control at 2 WAT, but control decreased to 13% control by 8 WAT. The combination of both herbicides increased control to 94% at 2 WAT, but control declined to 49% at 8 WAT. Control from the standard treatment of glyphosate plus 2,4-D declined from 50% at 2 WAT to 0% at 8 WAT. All burndown treatments were less effective at the Columbia County site than at Monroe County despite some early suppression. Flumetsulam and saflufenacil gave 13 and 0% horsetail control at 8 WAT at Columbia County.

The postemergence rimsulfuron:nicosulfuron plus dicamba:diflufenzopyr treatment at Monroe County provided excellent (98%) horsetail control at 4 WAT. Rimsulfuron:nicosulfuron plus flumetsulam:clopyralid, dicamba:diflufenzopyr plus glyphosate, and dicamba:halosulfuron provided moderate suppression of horsetail that ranged from 63 to 76% at 4 WAT. Halosulfuron:carfentrazone and tembotrione plus atrazine only gave minimal horsetail suppression. Postemergence treatment with glyphosate after a burndown application of flumetsulam did not increase control compared to flumetsulam alone at 8 WAT, but a postemergence glyphosate treatment after saflufenacil moderately increased the suppression over saflufenacil alone. While the postemergence treatments at Columbia County followed the general pattern of efficacy as the treatments at Monroe County, they were significantly less effective and no treatment gave greater than 40% control by 4 WAT.

Corn yields with the most effective burndown and postemergence treatments at Monroe County were 140 bu/a after flumetsulam and 120 bu/a after rimsulfuron:nicosulfuron plus dicamba:diflufenzopyr and exceeded the 59 bu/a corn yield of the control treatment. Corn yields did not differ among treatments at the Columbia County site, which was likely a result of the poor control. The reason for the greater efficacy at Monroe County is unknown. It may relate to a difference in biotypes or in the age of the infestation where the Monroe County site may be younger and more sensitive. Weather differences between the sites may have existed although significant differences did not seem apparent. The more successful field horsetail treatments should be evaluated in future years to determine their consistency.

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