Evaluation of Saflufenacil on Glyphosate and Paraquat-resistant Hairy Fleabane (*Conyza bonariensis*)

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Hairy fleabane is a problematic weed in California. This problem has been further aggravated by the discovery of glyphosate-resistant (GR), paraquat-resistant, and glyphosate + paraquat resistant (GPR) hairy fleabane biotypes in the Central Valley. New herbicides are being sought to control these resistant biotypes. The objective of this experiment was to evaluate the effect of temperature on the efficacy of a fairly new herbicide, saflufenacil (Treevix ®), on glyphosate-susceptible (GS), GR, and GPR biotypes of hairy fleabane at different temperature regimes. Potted hairy fleabane plants were treated at the 5-8 leaf stage with either saflufenacil (1 oz/ac), glyphosate (28 fl. oz/ac), or a mixture of saflufenacil (1 oz/ac) + glyphosate (28 fl. oz/ac). The experimental design was a split-split-plot. Prior to treatment, the plants were kept for 3 days in growth chambers programmed at 15/10° C (sub-optimum), 25/20° C (optimum), and 35/30°C (supra-optimum) day/night temperatures. Immediately after treatment, plants were returned to the respective growth chambers and kept there for 7 additional days before being returned to the greenhouse set at 25°C with ambient lighting for additional 23 days (30 DAT). Results showed that saflufenacil alone and saflufenacil + glyphosate were equally effective at controlling all three biotypes at 15/10˚C and 25/20˚C. However, at 35/30˚C, the saflufenacil + glyphosate treatment controlled 100% of the plants, but saflufenacil alone provided only 20%-25% control of GS and GPR biotypes and 0% control of the GR biotype. Glyphosate-alone provided 100%, 60%, and up to 50% control of the GS, GPR and GR biotypes respectively at 15/10˚C and 25/20°C. At 35/30°C, glyphosate-alone provided no control of the GPR and GR biotypes and only 60% control of the GS biotype. In conclusion, during warmer periods, using a tank mix of saflufenacil and glyphosate may provide better control of hairy fleabane.