



**Sustainable alternative to control a glyphosate-resistant Barnyardgrass biotype on Enlist E3™ Soybean in Argentina.**

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*Echinochloa colona* is present in every crop production regions of Argentina and biotypes identified as glyphosate-resistant (GR) are common. The current practice of Argentinean growers to control GR grasses in soybean crop is the utilization of ACCase herbicides (HRAC group A), which are considered highly susceptible to resistance development. The Enlist™ weed control system that includes Enlist E3™ soybean (tolerant to glyphosate, 2,4-D and glufosinate) provides growers with a useful and sustainable tool to manage glyphosate-resistant weeds by enabling post-emergence applications of glufosinate. Five trials were conducted in 2014 through 2016 crop seasons in Tucumán and Córdoba provinces of Argentina. Herbicide treatments in each trial were: 1) haloxyfop (120 g ae/ha) (single application); 2) clethodim (240 g ae /ha) (single application); 3) haloxyfop + glufosinate (120 + 600 g ea/ha); 4) clethodim + glufosinate (240 + 600 g ae/ha); 5) haloxyfop (120 g ae/ha) followed by (fb) glufosinate (600 g ae/ha) (Double Knockdown, 7 days between applications); 6) clethodim (240 g ae/ha) fb glufosinate (600 g ea/ha) (Double Knockdown, 7 days between applications); 7) glyphosate (1200 g ae/ha); and 8) Untreated. The weed size was 2 to 4 tillers. Percent control was estimated visually (0 to 100% scale) at 28 days after application. Double knockdown treatments 5 and 6 provided 93%, and 96% *Echinochloa colona* control, respectively, that was significantly ( $P < 0.05$ ) greater than control with single application of treatments 1 (79%) and 2 (89%). Furthermore, tank mixing glufosinate with haloxyfop or clethodim reduced control to 55 and 60 %. The Double knockdown treatment proved to be an effective alternative to control GR *Echinochloa colona* biotypes and to be an excellent option to mitigate resistance generation.

**Palavras-chave:** Glyphosate resistant *Echinochloa colona*; glufosinate; double knockdown; Enlist weed control system; A