WEED CONTROL PROGRAMS FOR GLYPHOSATE RESISTANT SUMATRAN FLEABANE IN GLYPHOSATE, GLUFOSINATE AND 2,4-D TOLERANT SOYBEANS IN ARGENTINA

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Sumatran fleabane (*Conyza sumatrensis)*, which infested around 10 million hectares in 2016/17 season, has become one of the key weeds in Argentina due to increasing levels of glyphosate resistance and few available modes of action for its control in soybean crops. During 2015/16, 2016/17 and 2017/18 summer seasons, eight field trials were conducted to assess the efficacy of different weed control programs based on pre-plant applications of synthetic auxins in mix with ALS inhibitor followed by post-emergence applications of 2,4-D choline salt and glufosinate over the top of tolerant soybeans (Enlist E3^{TM} soybeans) in comparison to currently available treatments for glyphosate tolerant soybeans. Visual control percentage was evaluated two weeks after the finalization of the programs. Pre-plant applications of glyphosate plus halauxifen-methyl plus diclosulam or a double knockdown strategy with glufosinate followed by an early post-emergence application of glyphosate plus 2,4-D achieved the best results regarding visual control (over 95%). These treatments were statistically different from current control strategies for glyphosate tolerant soybeans (less than 75% visual control) according to Tukey´s HSD ($p< 0.05$). Enlist^{TM} programs delivered yield increase that varied from 10% to 32% versus the most common current standard treatment that consisted of glyphosate, 2,4-D and chlorimuron at pre-plant and glyphosate at post-emergence. These results indicate that the utilization of 2,4-D choline and glufosinate over the top of Enlist^{TM} soybean in combination with effective foundation treatments provides a tool capable of controlling glyphosate resistant *C. sumatrensis*, offering a sustainable solution to manage this weed and protecting crop yields.

Palavras-chave: chemical control, weed management, glyphosate resistance, tolerant soybeans.