Inheritance of Glyphosate Resistance in Rigidum Ryegrass (Lolium rigidum Gaud.) (C05-bughrara071846-Poster)

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Abstract:

Glyphosate resistant rigid ryegrass had been collected from California in 1998. Magnitude of glyphosate resistance in collected ryegrass varied from one to 10 fold. Past research has not elucidated the inheritance of glyphosate resistant in rigid ryegrass. The objectives of this study were to determine the inheritance of glyphosate resistance trait in California rigid ryegrass. Selection for four generations segregated the progeny into the glyphosate resistant and susceptible biotypes of rigid ryegrass. The resistant biotype was phenotypically similar to rigid ryegrass (Lolium rigidum), where the sensitive biotype resembled annual ryegrass (Lolium multiflorum). This evidence indicated that the original collection was the hybrid between rigid ryegrass and annual ryegrass. Crossing of resistant biotypes to a known-sensitive cultivar of ryegrass was performed successfully in greenhouse. Populations generated from the back cross of F1 to the known-sensitive parent were evaluated for sensitivity to glyphosate at 1.12 kg ai ha-1. The results showed a 1/1 ratio between glyphosate sensitive and the resistance with X2 = 1.60 less than P0.05 = 3.84. This evidence suggests that the glyphosate resistance involved one gene.

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