Spraytopping as a management tool to reduce seed production in Chilean needle grass infestations

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Summary Chilean needle grass is a perennial exotic stipoid grass which produces panicle and cleistogene seeds. The effectiveness of glyphosate (127.5, 255 and 510 g ha^{-1}) and 2,2-DPA (2.22 and 3.7 kg ha^{-1}) in reducing Chilean needle grass (*Nassella neesiana* Trin. & Rupr.) panicle seed production was tested in a field trial at Geelong, Victoria. Herbicide applications were made from the vegetative stage (1 September 2003) to panicle emergence (27 October 2003) at fortnightly intervals and the panicle seeds were harvested on 10 December 2003. All the herbicide treatments significantly reduced panicle seed production (including filled and empty seeds) compared to the untreated control. Glyphosate at 255 and 510 g ha^{-1} was significantly better than both the 2,2-DPA rates in reducing panicle seed production. Glyphosate at 127.5 g ha^{-1} was inferior to the medium and high rates but similar in effect to the 2,2-DPA rates. After disregarding the 13 September application, which may have been affected by rain that fell immediately after spraying, time of application had no significant effect on the performance of either herbicide. However, there was a tendency for glyphosate at 127.5 g ha^{-1} to be more effective when sprayed at panicle emergence or just prior to panicle emergence compared to early spring applications. The number of filled and empty panicle seeds decreased with increasing rates of 2,2-DPA and glyphosate. However, the medium and high glyphosate rates did not differ significantly, with both effectively reducing panicle seed production.

Keywords Chilean needle grass, spraytopping, glyphosate, 2,2-DPA.