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Abstract

Plant and Seed Mortality of Fireweed *Senecio madagascariensis* Following Herbicide Application †

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† Presented at the Third International Tropical Agriculture Conference (TROPAG 2019), Brisbane, Australia, 11–13 November 2019.

Published: 7 April 2020

Abstract: Fireweed (*Senecio madagascariensis* Poir), is a weed of National significance and one of the worst weeds of coastal pastures in South Eastern Australia. Chemical control has been found to be effective in killing plants but there is no information on the effect of herbicides on the seeds that may be present on plants at the time of application. Consequently, a study was undertaken to determine the effect of five selective herbicides (1) on plant mortality at different life stages and (2) on the viability (as assessed by germination) of fireweeds seeds at different stages of maturity. Potted plants of the required growth stages were obtained through several collections of different sized seedlings from a field site near Brisbane. Before herbicide application, in the mature plant cohort the inflorescences were tagged according to their maturity as being either immature (IM) or intermediate (INT). Plants were sprayed with either fluroxypyr/aminopyralid (HotShot™) (A), bromoxynil (Bromicide® 200) (B), metsulfuron-methyl (Brush-Off®) (C), triclopyr/picloram/aminopyralid (Grazon™ extra) (D), triclopyr/picloram/aminopyralid (Tordon™ regrowthMaster) (E) at the recommended rates with untreated control plants of the three growth stages also included for comparison. All herbicides killed fireweed seedlings and juvenile plants, but only treatments A, D and E gave high plant mortality (>80%) of mature plants. All herbicides also caused nil germination of seeds collected 30 days after spraying, except for a small percentage (8% germination) of mature seeds from Bromoxynil treated plants. These results have identified several herbicides capable of killing mature fireweed plants and minimizing replenishment of soil seed reserves.

Keywords: fireweed; herbicide; germination

Author Contributions: First author, K.W. carried out the research, setup the experiment and collected data. J.V. helped to spray herbicides, S.A. and S.C. helped to implement the experiment and guided throughout the experiment.

Funding: The University of Queensland and the Department of Agriculture and Fisheries, Brisbane for providing funds for this project.

Acknowledgments: Financial assistance from the Department of Agriculture and Fisheries, Brisbane is gratefully acknowledged.

Conflicts of Interest: The authors declare no conflict of interest.