Advances in Crop Science and Technology
ISSN: 2329-8863

Short Communication Open Access

Weed Control in White Beans

Jeeyan K*
Department of Crop Science and Research, Soil Ecology, Iran

Abstract

Four field trials were conducted over a three-year period in southwestern Ontario to assess the level of weed control provided by different halosulfuron tank mixes applied prior to transplantation into white beans. . Trifluralin, s-metolachlor, halosulfuron and imazethapyr used alone or in combination caused visible 4% or less damage 1 and 4 weeks after germination in white beans. PPIs applied to trifluralin, s-metolachlor, halosulfuron and imazethapyr provide 80-96%, 84-95%, 83-100% and 75-92% red root; 19–28%, 30–40%, 97–99% and 73–84% control common ragweed; 94–96%, 63–82%, 96–100% and 96–100% control sheep quarters; Rabies mustard control 14-15%, 12-35%, 100% and 96-97%; and foxtail control were 96–97%, 95–97%, 53–56% and 80–82%, respectively. Two- and three-way tank mixes of halosulfuron with trifluralin, s-metolachlor or imazethapyr provide 85-100% control for red algae, 90-98% control for ragweed, 97-100 control % for lamb, 100% for radish and control 93-98% green mink tail. Weed density, weed biomass and white pea yield reflect the degree of visible weed control.

Keywords: Weed control; Weed biomass; Herbicide

Introduction

Ontario is one of the major white bean producing regions in North America. In 2012, white bean growers in Ontario planted 28,000 hectares and produced 68,000 tons of white beans with a farm gate value of about $38 million. White beans are physically small and therefore susceptible to weed interference and subsequent yield loss if weeds are not controlled properly. Yield declines of 59% were attributed to weed interference with dry beans in Ontario, which was significantly greater than that of other crops such as winter wheat (3%), spring cereals (12%)), soybeans (38%) and corn (52%). %). There is only one broadleaf herbicide registered for soil, imazethapyr, for weed control of white kidney beans in Ontario [1]. Imazethapyr provides only marginal control over mutton and ragweed areas and has a low level of safety for dried beans. Further research is needed to identify new herbicide options for annual broadleaf weed management in white kidney beans. Halosulfuron is a newly registered sulfonylurea herbicide for the control of red hairy grass, lamb, ragweed, wild mustard, yellow chestnut, ladybug, velvet leaf and cockle, including genotypes resistant to glyphosate and triazine. However, halosulfuron is weak in controlling troublesome annual grasses such as the species Setaria, Digitaria, Echinochloa and Panicum [2,3].

Trifluralin is a dinitroaniline herbicide that controls several annual grasses including Setaria, Digitaria, Echinochloa and Panicum spp. and some broadleaf grasses such as sheep grass and red hairy grass, including genotypes resistant to acetolactate synthase and triazine. S-metolachlor is a chloroacetanilide herbicide that controls annual grasses such as green foxtail, yellow foxtail, giant foxtail, crabgrass, crabgrass, barn grass, fall millet grass and capillary grass. Mixing halosulfuron in the tank with trifluralin, S-metolachlor and imazethapyr could provide Ontario white bean growers with an herbicide option that provides full-season control of annual grasses and broadleaf weeds. The use of a container mix of herbicides will also reduce selective pressure on herbicide-resistant weeds [4-6]. There is limited information on the safety and effectiveness of a tank containing halosulfuron mixed with trifluralin, s-metolachlor or imazethapyr applied before transplant to control annual and broadleaf weeds in Ontario environmental conditions. . The objective of this study was to evaluate the extent of crop injury and weed control provided by two- and three-way mixtures of halosulfuron with trifluralin, s-metolachlor and imazethapyr.

Crop Injury

ANOVA showed no effect of years or year-by-year treatment interactions on crop damage; data is therefore aggregated and averaged across environments. Trifluralin, s-metolachlor, halosulfuron and imazethapyr used alone or in combination with PPIs caused visible damage of 4% or less at 1 and 4 weeks after germination in white beans. This is similar to other studies that have shown up to 6% damage in white beans when halosulfuron was used alone or in combination with other herbicides. Silvey also found minimal and transient (5%) lesions with halosulfuron in cat beans. In other studies, halosulfuron reduced white bean yield by up to 9% and adzuki bean by up to 68%, but had no effect on seed yield of black beans, cranberries, kidney beans, otebo, pinto and Mexican red beans [7-9]. In another study, halosulfuron applied after germination reduced seed yield in white beans by 21%. However, other studies have shown significant damage using halosulfuron alone or in tank mixtures with other herbicides in adzuki beans. There was no difference in grain moisture between the evaluated treatments.

Weed Control

Trifluralin, s-metolachlor, halosulfuron, imazethapyr, trifluralin + halosulfuron, trifluralin + imazethapyr, trifluralin + halosulfuron + imazethapyr, s-metolachlor + halosulfuron, s-metolachlor + imazethapyr and s-82, sulfuron + 96 99, 95, 97 and 98% respectively. PPIs applied exclusively to halosulfuron had no effect on green mink densities or biomass, but other treatments evaluated a 70-98% reduction in blue mink tail density and an 88% decrease in biomass at 99%. Two-way and three-way tank mixtures of halosulfuron with trifluralin, s-metolachlor and imazethapyr control 93-98% of blue foxtail disease [10]. In other studies, control of some weeds such as E. crus-galli

***Corresponding author:** Jeeyan K, Department of Crop Science and Research, Soil Ecology, Iran, E-mail: jeey@ngmail.com

Received: 03-Apr-2023, Manuscript No: acst-23-96925, **Editor assigned:** 05-April -2023, PreQC No: acst-23-96925 (PQ), **Reviewed:** 19-Apr-2023, QC No: acst-23-96925, **Revised:** 21-Apr-2023, Manuscript No: acst-23-96925 (R) **Published:** 28-Apr-2023, DOI: 10.4172/2329-8863.1000571

Citation: Jeeyan K (2023) Weed Control in White Beans. Adv Crop Sci Tech 11: 571.

increased from 58–96% to 98% when s-metolachlor or trifluralin was used in combination with a broadleaf herbicide such as l imazethapyr.

Conclusion

Trifluralin, s-metolachlor, halosulfuron, imazethapyr, trifluralin + halosulfuron, trifluralin + imazethapyr, trifluralin + halosulfuron + imazethapyr, s-metolachlor + halosulfuron, s-metolachlor + imazethapyr and white s-razethapyr + hamazethapyr transient pethapyr . Trifluralin applied as a PPI at 600 g ai ha−1 provides excellent all-season control of red-root, lamb, and green foxtail, and poor control of ragweed. and field mustard. S-metolachlor used as a PPI at a dose of 1050 g ai ha−1 provides excellent control of green foxtail all season, good control of red-root algae, reasonable control of sheep-farming areas. and poor control of ragweed and field mustard. Halosulfuron applied as a PPI at a dosage of 35 g ai ha−1 provides excellent control throughout the season for sheep, conifer, ragweed and wild mustard as well as controlling wild mustard. good control of blue fox tail disease. Imazethapyr applied as a PPI at 45 g ai ha−1 provides excellent all-season control of red-root grass, lamb and wild mustard, and good control of ragweed and weeds. green weasel tail. Two- and three-way blends of halosulfuron with other tested herbicides provide good to excellent control throughout the season for redhair, ragweed, lamb, mustard and tailgrass green fox. In general, white bean yield reflects the level of weed control. Based on these results, halosulfuron applied as a PPI in a two- or three-way tank mixture with trifluralin, s-metolachlor and/or imazethapyr can be safely used to control annual weeds and broadleaf grass in white beans.

References

1. Anders C, Bargsten K, Jinek M (2016) Structural plasticity of PAM recognition by engineered variants of the RNA-guided endonuclease Cas9. Mol Cell 61(6): 895-902.
2. https://www.cabdirect.org/cabdirect/abstract/19776717221
3. https://www.cambridge.org/core/journals/weeds/article/abs/calculating-synergistic-and-antagonistic-responses-of-herbicide-combinations/D9B25968E0ECF1E11AE7655CF3EB24F7
4. http://ir.msu.ac.zw:8080/xmlui/handle/11408/1660
5. Wilson RG, Yonts CD, Smith JA (2002) Influence of glyphosate and glufosinate on weed control and sugarbeet (Beta vulgaris) yield in herbicide-tolerant sugarbeet. Weed Technology 16: 66-73.
6. Vasel EH, Ladewig E, Märländer B (2012) Weed composition and herbicide use strategies in sugar beet cultivation in Germany. Journal fürKulturpflanzen 64: 112-125.
7. https://agris.fao.org/agris-search/search.do?recordID=US201300727557
8. Ejeta G, Butler L (1993) Host-parasite interactions throughout the Striga life cycle, and their contributions to Striga resistance. Africa Crop Sci J 1: 75-80.
9. https://www.researchgate.net/publication/287346971_Review_of_the_Physiological_and_Biochemical_Reactions_and_Molecular_Mechanisms_of_Seed_Aging
10. McDonald M B (1999) Seed deterioration: physiology, repair and assessment. Seed Science and Technology 27(1): 177-237.