COMBINED EFFECTS OF BIOSTIMULANT AND HERBICIDE APPLICATION ON *MEDICAGO SATIVA* L.

M. A. Iepan[1*], S. F. Lele[1], F. Morariu[1], B. A.-M. Sîrbu[1], C. B. Sîrbu[1], I. B. Peț[2], N. F. Popa[3], I. Peț[1]

[1]University of Life Sciences "King Mihai I",Timisoara, Romania
[2] "Victor Babeș" University of Medicine and Pharmacy, Timișoara, Romania
[3]Colegiul Economic "Francesco Saverio Nitti", Timișoara, Romania
**e-mail: maria.ferencz@usvt.ro*

Abstract

Ambrosia artemisiifolia L. is an invasive weed species with major negative agronomic, economic and health impacts, reducing crop yield through intense competition for resources and producing highly allergenic pollen with harmful effects on human health. Alfalfa (Medicago sativa L.) is most vulnerable in the first developmental periods, when biomass accumulation is slow and seedlings cannot effectively compete for resources, leading to significant loss in stand density and productivity. The presence of A. artemisiifolia in M. sativa forage pastures is problematic, as it has no nutritional value and may even be harmful to livestock. The aim of this study is to evaluate the efficacy and selectivity of halauxifen-methyl and imazamox, applied individually and in combination with biostimulants, in a M. sativa forage field infested with A. artemisiifolia population. While halauxifen-methyl is not currently registered for use on this crop and no official data exists regarding its application with biostimulants, imazamox is approved and is the comparative standard for this trial. This study seeks to highlight the potential of halauxifen-methyl as a treatment for alfalfa, as well as the role of biostimulants in reducing herbicide-induced stress and enhancing M. sativa tolerance to herbicides during its early developmental stages. The mixture of halauxifen-methyl and biostimulants provided the highest control levels, ranging from 70 to 95% during the trial period. Control of A. artemisiifolia reached 90 - 95% at 28 days after application, compared to 85- 90% without a biostimulant. Alfalfa injury symptoms in the variant treated with halauxifen-methyl and biostimulants were transient, consisting mainly of slight to moderate chlorosis, with the plants fully recovering by the third assessment, at 42 days after the application. This study confirms that the post-emergence application of halauxifen-methyl at 1 L/ha combined with biostimulants, provided excellent control of A. artemisiifolia. These results demonstrate that the combination of herbicides and biostimulants offer a promising option for an efficient and sustainable chemical control.

Key words: *halauxifen methyl, biostimulant, alfalfa, chemical weed control, herbicide efficacy*