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Efficacy of the Rodenticide Bromethalin in the Control of *Microtus arvalis* and *Nesokia indica* in Alfalfa Fields

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Abstract: Rodents cause huge losses to agricultural crops annually. During outbreaks, this pest can cause irreversibly high damage. Solely non-chemical control measures have not been successful in reducing the population of this pest; therefore, the use of chemical rodenticides, especially on crops like alfalfa, is unavoidable. Bromethalin is a neurotoxic, acute, single-dose rodenticide with high efficacy, and since it is mostly used in wax formulation it is not attractive to non-target organisms, and hence is not very dangerous. Bromethalin 0.01% was tested in alfalfa fields of west Azerbaijan, Tehran, and Kerman provinces in completely randomised treatment blocks with 4 treatments (bromethalin wax block, bromethalin pellets, 2% zinc phosphide baits, and control) and 4 replicates. Efficacy was calculated using the Henderson and Tilton formula and the results were analysed by SPSS. The results show that bromethalin with pellet formulation had the highest efficiency in controlling *Microtus arvalis* and *Nesokia indica* in the alfalfa fields, followed by bromethalin with wax block formulation, and the least efficient was zinc phosphide baits (2% Zn_2P_3 mixed with wheat and oil) in W. Azerbaijan. In the alfalfa fields of Kerman and Tehran provinces bromethalin wax was more effective than bromethalin pellets. Considering the ready-made bait formulation of bromethalin, it is much safer and easier to use than zinc phosphide bait, which has to be prepared on the farm, and this can cause higher contamination and poisoning risk to the environment and the applicators.

Key Words: *Nesokia indica*, *Microtus arvalis*, efficacy, bromethalin, alfalfa, Iran

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