



Increasing genetic variability in black oats using gamma irradiation

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ABSTRACT. The black oat (*Avena strigosa* Schreb) is commonly used for forage, soil cover, and green manure. Despite its importance, little improvement has been made to this species, leading to high levels of genotypic disuniformity within commercial cultivars. The objective of this study was to evaluate the efficiency of different doses of gamma rays [⁶⁰Co] applied to black oat seeds on the increase of genetic variability of agronomic traits. We applied doses of 0, 10, 50, 100, and 200 Gy to the genotype ALPHA 94087 through exposure to [⁶⁰Co]. Two experiments were conducted in the winter of 2008. The first aimed to test forage trait measurements such as plant height, dry matter yield, number of surviving tillers, and seedling stand. The second test assessed seed traits, such as yield and dormancy levels. Gamma irradiation seems not to increase seed yield in black oats, but it was

effective in generating variability for the other traits. Tiller number and plant height are important selection traits to increase dry matter yield. Selection in advanced generations of mutant populations can increase the probability of identifying superior genotypes.

Key words: *Avena strigosa* Schreb.; Mutagen; Mutant populations; Biomass production; Dormancy