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AN OVERVIEW ON PLANT MUTAGENESIS IN CROPS IMPROVEMENT

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ABSTRACT

The initial stage in plant breeding is to find appropriate genotypes with the required genes among existing kinds, or to develop one if none exist. Mutations are the primary cause of diversity in nature, and plant breeding would be impossible without them. In this context, the primary goal of mutation-based breeding is to create and enhance well-adapted plant types by altering one or two key characteristics to boost production or quality. In order to induce mutations in seed as well as other planting materials, both physical or chemical mutagenesis are employed. The first generation is then used to select for agronomic characteristics, with the majority of mutant lines being eliminated. The agronomic characteristics are verified in the second and third generations by phenotypic stability, with additional assessments taking place in future generations. Finally, only suitable mutant lines are chosen as a new variety or as a parent line for cross breeding. Rice is grown in Vietnam, Thailand, China, as well as the United States; durum wheat is grown in Italy and Bulgaria; barley is grown in Peru throughout Europe; soybeans are grown in Vietnam or China; wheat is grown in China; and leguminous food crops are grown in Pakistan & India. This article brings together data from across the globe on the effect of mutation breeding-derived crop varieties, highlighting the promise of mutation breeding

as a flexible and practical technique that can be used to any crop if the right goals and selection procedures are employed.

KEYWORDS: *Crop Improvement, Genetic, Mutation, Mutagenesis.*

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