

# FAO/IAEA International Symposium on Plant Mutation Breeding and Biotechnology



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## EVALUATION OF ADVANCED WHEAT MUTANT LINES FOR FOOD AND FEED QUALITY

The main goals of the study were to evaluate agronomic performance of wheat mutant lines; to detect the effect of genotype, location and different fertilizer level on analysed traits; to assess seed and feed quality and to select best performing mutant lines for dual purpose growing. 10 wheat mutant lines were sown on two locations in Macedonia, for evaluation of their agronomic performance. On both locations, grain yield, straw mass, harvest index, nitrogen use efficiency, nitrogen and protein content in seed and straw, nitrogen detergent fibre (NDF) and acid detergent fibre (ADF) in the straw were determined. In order to classify the genotypes based on all analysed traits, two-way cluster analysis was applied. According to their overall performance, at both locations and with the three different fertilization treatments, the mutant lines were classified in two main groups. The first cluster was consisted of mutants 5/1-8, 2/2-21, 4/2-56 and 2/1-5, characterized by very high values for seed yield, straw yield and HI, and high to moderate values for all other traits. Only 4/2-56 had very low values for N and protein content in the seed. One mutant line, 6/2-2, did not belong to any of the groups based on very low seed and straw yield and very high values for nitrogen and protein content in the straw and NDF. By these characteristics it differed from all other genotypes. All other mutants belonged to the second group, with low to moderate yield and moderate to high values for the other traits. Mutant lines with the highest seed and straw yield, as well as the best quality of seed and straw under different management systems were identified and after additional evaluation will be submitted for official variety registration.

### Country or International Organization

Republic of Macedonia

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