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INDUCED MUTATIONS IN DURUM WHEAT (TRITICUM DURUM) FOR IMPROVE PRODUCTIVITY COMPONENTS TRAITS

Although durum wheat is the major field crop, old cultivars and landraces are still the predominant planting materials of farmers in Palestine. A sharp decrease in productivity has been noticed over the last few decades. New cultivars are required which would be early maturing, high yielding and drought resistant. Mutation breeding provides a good opportunity to achieve this goal in two-four years breeding programme period.To induce mutation, seeds of durum wheat landrace namely Kahla (M0) were treated with Gamma ray (200 Gy) at the FAO/IAEA's Plant Breeding and Genetics Laboratory, Seibdersdorf, Austria. M1 seeds were planted for seed multiplication only. In the next two growing seasons (2015/2016 and 2016/2017), 27,000 of M2 plants, and 315 of M3 mutant wheat lines were grown and subject to selection for earliness, number of tillers/plant, number of grains/spike, number of spikelets per spike and plant height. The mean value for selected M3 lines showed higher values for number of tillers/plant (7.27), number of grains/spike (55.17), and number of spikelets per spike (20.6) than the parent, Kahla. There was a range of values in the M3 families for number of tillers/plant was (1-15), number of grains/spike (21-82), and number of spiklets/spike (14-26). Around 29 lines exhibited earliness in heading compare to Kahla. Currently, 110 mutant lines (M4) were sown in the field using the spike-row method for a further round of selection. Two to four new Palestinian wheat mutant lines adapted to harsh conditions (early) are expected to be released as varieties.

Country or International Organization

State of Palestine

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