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EVALUATION OF NEW COTTON MUTANT CULTIVARS FOR ADAPTATION TO CLIMATE CHANGE IN IRAN

In Iran cotton cultivation area is approximately 100 000 hectares and there are some limitations for increasing this area. Several research results reveal that main problems are the fact that the increase in minimum temperatures is more widespread than for the maximum temperature; also, the temperature has risen between 2.5 and 5 degrees centigrade; moreover, the amount of precipitation has also been reduced in Iran. So, cotton production, which is an important source of revenues, has been reduced and our country needs to introduce new cotton cultivars tolerant to abiotic stress. Therefore, two Iranian superior mutant lines (L-M-1425 and L-M-1676) together with two Pakistani mutant cultivars (NIAB KIRAN and NIAB 414) provided through the Regional Agreement Asia project (RAS 5075) were entered in a comparative and adaptation study. The mutant genotypes have been cultivated in four repetitions in Karaj. All the activities were in-farm based under normal conditions and without any additional treatment. In the end of the growing season, some traits have been recorded including plant height, number of branch (sympodia and monopodia) boll number. The fibre extracted from selected mutant lines have been sent to the Cotton Research Institute of Iran after harvest to measure traits related to fibre quality including fibre length (upper half mean length (UHML) and uniformity index (UI)), strain, strength, as well as micronaire index. The results show that strain trait has significantly increased in L-M-1425 to the NIAB 414. Also, NIAB KIRAN had significantly lower branch number of…. and sympodial. In addition, boll number in NIAB 414 was significantly increased compared to L-M-1676. Finally, the mentioned mutant genotypes have not revealed significant different in the most traits, so that the Iranian mutant lines will be used to next processing of mutation breeding and Pakistani cotton cultivars will be cultivated in other places for introduction in Iran.

Country or International Organization

Cotton, temperatures, precipitation, superior lines, Fiber

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