ITEMS FROM ARGENTINA

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Genetic progress after 10 cycles of recurrent selection in bread wheat.

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Seed samples of 11 segregating and recombinant populations corresponding to 10 cycles of a recurrent selection program (C_0 to C_{10}) performed under rainfed condition were sown in 2009 at the Experimental Farm of the College of Agriculture (Córdoba National University). Fifty seed/population were seeded directly with 0.20 cm between populations. Those plants with a minimum number of fertile tillers were threshed to obtain enough seed for the next S-derived family evaluation (four/population) in one-row plots with replications and using a seeding rate of 150 seed/m^2. In 2010, the material were directly seeded using a completely randomized design replicated twice. From a random sample of 15 plants/plot, we measured or estimated plant height (cm), harvest index/plant (%), 1,000-kernel weight (g), seed/spike, seed/spikelet, and grain yield/spike (g). Table 1 gives the statistical analysis of the C_0, C_2, C_4, C_6, C_8, and C_{10} data.

Table 1. Statistical analysis of populations corresponding to 10 cycles of recurrent selection. The means in each column followed by similar letter(s) are not significantly different at a 5% probability level using the DGC Test.

Cycle	Plant height (cm)	Harvest index/plant (%)	1,000-kernel weight (g)	Seed/spike (g)	Seed/spikelet (g)	Grain yield/ spike (g)
C_0	104.3 b	28.3 a	38.8 b	22.4 a	1.20 a	0.87 a
C_2	99.0 b	25.5 a	32.3 a	26.8 b	1.29 a	0.84 a
C_4	93.6 a	31.1 b	36.5 b	28.8 b	1.43 b	1.02 b
C_6	91.8 a	31.2 b	37.1 b	28.3 b	1.40 b	1.04 b
C_8	98.0 b	31.6 b	38.6 b	27.8 b	1.25 a	1.08 b
C_{10}	98.0 b	33.0 b	38.3 b	31.0 b	1.50 b	1.14 b

These preliminary results give us a clue about the changes in the original genetic pool. Contrary to the results obtained by Maich et al. (2007), after six cycles of recurrent selection where none of the variables analyzed in the present study varied significantly, we observed some of the physiological and physical yield components were moving in the desired direction. A significant, positive, and linear (R^2= 0.47) association between grain yield/spike and the cycle of recurrent selection performed was detected (b = 0.03).

Reference.

Maich R, Ortega D, Masgrau A, and Manera G. 2007. Genetic achievements under rainfed conditions. *In:* Wheat Production in Stressed Environments (Buck HT, Nisi JE, and Salomón N, Eds), Proc 7th Internat Wheat Conf. Springer, New York, NY. Pp. 321-329.