# **Changes in Drought Tolerance in Maize Hybrids over Five Decades. (C02-edmeades143253-Poster)**

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#### Abstract:

Eighteen commercial hybrids, comprising three from each of six decades (1950 through 2001), were grown in a rain free environment in Chile. Water regimes were a well watered (WW) control and five stress periods of 500 deg Cd duration imposed at different stages from flowering to maturity. Grain vield varied from 13.1 Mg/ha (WW) to 3.8 Mg/ha under stress. Yield increased with selection at 157 kg/ha/yr (WW), but at only 51 kg/ha/yr for grain filling stress. The ratio of yields (stress:WW) increased (0.0040/yr) with selection under flowering stress, but declined (0.0023/yr) under grain filling stress. The anthesis to silking interval declined by 0.09 and 0.14 deg Cd/yr under WW and stress at flowering. Changes in yield were paralleled by changes in barrenness and in weight per kernel, though not in kernels/ear. Modern hybrids showed improved stay green except under terminal drought stress. A significant decline in plant to plant variability with selection was observed in single cross hybrids. We conclude that tolerance to stress at flowering has increased with selection, but gains are less when stress occurs during grain filling.

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