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LOSSES IN GRAIN YIELD AND QUALITY OF CHILEAN *TRITICUM DURUM* PRODUCTION. IMPACT OF CLIMATE CHANGE?

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In season 2016/17 in Chile, the national area cultivated with durum wheat was 28,178 hectares, concentrated between 32°55'S and 37°28'S, with some planting in 38°40'S y 40°51°S. Until 2015/16 the national production of durum wheat kept a sustained growth increasing from 98,690 Tons in 2011/2012 to 200,929 Tons the season 2015/16. Nevertheless, the seasons 2015/16 and 2016/17 the production suffered important losses 36% of grain yield and a quality decay reflected in a decrease of semoline color.

This study investigates, the effect of climate fluctuations, temperatures and precipitations, registered along the growth period of crop, in three representative sites of Mediterranean area: Hidango (34° 11' 00''S; 71° 46' 00'' West; 269 m.a.s.l.s), Chillan (36° 36' 00''South; 72° 07' 00''West; 124 m.a.s.l.), and Los Angeles (37°28'S 72°21'W; 139 m.a.s.l), where the temperature during grain filling exceeded 32°C, during 2016/17 and 2017/18. We evaluate duration of vegetative and reproductive phases, plant height, hectoliter weight, semoline color, vitreous, protein content and grain yield in four national durum wheat varieties Llaretta-INIA, Corcolén-INIA, Lleuque-INIA and Queule-INIA.

Considering that the climate projections to the Chilean production area, indicate important temperature increases and decreases in rainfall during crop growth, the study proposed is important to formulate new strategies associated to the breeding process that allow obtain varieties that have good grain yield and quality, under abiotic stress conditions.