

Agronomic innovation to protect wheat from droughts and heat waves

The initiative strengthens wheat resilience in Argentina and Uruguay against droughts and heatwaves caused by climate variability.



+1100
Beneficiaries reached in technical workshops



14
Commercial wheat varieties evaluated in the field



+16
Experimental sites monitored in network



3
Technical dissemination products validated



3
Graduate and undergraduate students in training



2500
Target beneficiary producers and technical advisors



Strengthening wheat cultivation

Initiative

The project seeks to mitigate damages caused by thermal and water stress. The intervention articulates physiological research with field validation, evaluating the performance of various commercial wheat varieties. Through partnerships with farmer

groups, this knowledge is transferred directly to decision-makers. Demonstration plots and simulation models allow the identification of climate adaptation attributes that guide current practices.

Agronomic simulation and phenotyping

Tech solution

The technological solution integrates predictive modeling with controlled physiological experimentation. Simulation models are employed to quantify the potential impacts of climate variability across different phenological stages of wheat, processing historical meteorological data and future scenarios. Experimentally, mobile rain-out shelters are implemented to restrict water availability in a controlled

manner, along with portable polyethylene tents to induce artificial temperature increases in the crop canopy (exceeding 5°C above the control). These tools facilitate the precise measurement of yield components, biomass, and water capture efficiency. Additionally, the effect of the photoperiod sensitivity gene (Ppd-D1) on heatwave tolerance is investigated, providing functional biomarkers for the cultivars.

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