

# From Resistance to Resilience: Enhancing Sunflower Performance Under Biotic and Abiotic Stresses

Sunflower (*Helianthus annuus* L.) is a major oilseed crop increasingly challenged by both biotic and abiotic stresses that threaten yield stability worldwide. Traditionally, research and breeding efforts have focused on single stress factors, such as resistance to diseases, pests, broomrape (*Orobanche cumana* Wallr.) or tolerance to drought and heat. While these approaches have delivered important advances, they do not fully reflect field conditions, where multiple stresses frequently occur simultaneously or sequentially. This highlights the need to shift from single-trait resistance toward integrated resilience, combining resistance, tolerance, and adaptability, is therefore essential to sustain sunflower productivity and stability.

This Research Topic invites contributions addressing the complex interactions between biotic and abiotic stressors in sunflower. We welcome studies exploring physiological, genetic, molecular, and agronomic responses of sunflower to single and combined stresses. We encourage submissions that integrate field and controlled-environment studies, as well as modelling and predictive approaches.

## Topic editors

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## Submission deadlines

Summary: 14 September 2026  
Manuscript: 20 January 2027

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