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Crops under stress: can we mitigate the impacts of climate change on agriculture and launch the 'Resilience Revolution'?

A theme issue compiled and edited by Ron Mittler, Rumyana Karlova, Diane C Bassham and Tracy Lawson

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About this issue

Climate change is altering our environment, subjecting crops to an increased frequency and intensity of multiple abiotic stress conditions such as heat, drought, flooding, salinity, cold, and their potential combinations. These stresses impact crop yield causing losses of billions of dollars to agriculture, and in extreme cases lead to famine, migration, and even wars. As the rate of changes in our environment has dramatically accelerated in recent years, more research is urgently needed to discover new ways to increase the resilience of crops to abiotic stress conditions. In this theme issue, we discuss new studies addressing the responses of crops to different stress conditions, and outline different biotechnological applications aimed at increasing crop yield under our changing climate.

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Front image: Uncertainty in our future - thriving agricultural fields or floodings and desertification. Photographs credit Ron Mittler.

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