Science Societies

Publications Update: New Multi-Journal Virtual Issue

Advancing Resilient Agricultural Systems: Adapting to and Mitigating Climate Change

By Jerry Hatfield, Virtual Issue Lead Editor

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Climate change is one of the major forces affecting our ability to produce a secure and abundant food, feed, fiber, and fuel supply. The direct impacts of climate on agricultural productivity have been studied for decades as have, to a lesser extent, the indirect impacts of climate on pest populations; however, these impacts have not been placed into the context of potential adaptation or mitigation strategies. While not a new topic, the degree to which we are observing climate extremes and the potential impact on agriculture had raised questions about our ability to adapt to or to mitigate climate change. These challenges present an opportunity for agricultural scientists to assume a leadership role in exploring and evaluating strategies and tactics that will ensure agriculture can continue to meet the world demands for food, feed, fuel, and fiber.

In response to this challenge, ASA, CSSA, and SSSA have published a scientific issue that transcends across the portfolio of scientific journals to capture the current state of climate science and our ability to adapt to climate change and mitigate its impacts.

This virtual issue consists of a series of commissioned articles covering a range of topics from our changing climate to genetic and agronomic responses of a range of crops to climate-related stresses. Soil and water management are critical factors in adaptation and mitigation along with the developments in crop modeling to be able to understand and quantify the impacts and potential strategies of coping with climate change in the future. In addition to the commissioned papers, we have published a large number of volunteered papers in this virtual issue. The commissioned articles are published open access to provide this information to a wide audience.

This virtual issue isn't complete with this initial set of papers but is a starting point for an expanding resource highlighting the evolving science through volunteered papers and targeted commissioned papers addressing critical issues. This effort would not have been possible without three major contributors: The Society members for responding to this challenge to make information on agriculture freely available to the world community; the authors in preparing both the commissioned and volunteered papers; and the guest editors who helped shape this virtual issue from a concept to reality.

The virtual issue on climate change is the beginning of a process to capture the science on critical issues and build a community around these issues towards the goal of leading science forward that will benefit all humankind.

Special Thanks to Our Guest Editors

This effort would not be possible without the dedication of the guest editors from the following Society journals:

Agronomy Journal—Jessica Torrion

Crop Science—Irwin Goldman

Soil Science Society of America Journal—Stuart Grandy

Journal of Environmental Quality—Curtis Dell

Crop, Forage, & Turfgrass Management—Ross Braun

Agricultural & Environmental Letters—Peter O'Brien

Agrosystems, Geoscience & Environment—Brian Arnall

The Plant Genome—Rajeev Varshney

The Plant Phenome Journal—Dan Northrup

Urban Agriculture & Regional Food Systems—Muhammad Ahmed Waqas

Vadose Zone Journal—Umakant Mishra

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