

The world needs more agronomists, crop scientists, and soil scientists

By Marilyn L. Warburton, David Clay, and Ron Turco

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Our members are working to solve complex problems. From l to r: Extracting DNA to be used for genotyping, installing soil water potential sensors, and using modeling to predict yields and soil water and nitrogen dynamics. Photos courtesy of Aduragbemi Amo, Sayantan Sarkar, and Tracy Schlater.



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The world needs more agronomists, crop scientists, and soil scientists because we are facing some wicked problems ahead—problems that are so complicated and difficult, with many dimensions (all the way from social justice and equity to economic to biophysical), that we need all hands on deck, talking to each other and working together.

Jared Diamond, in his book, *Collapse, How Societies Choose to Fail or Succeed* (2011 Viking Press), notes that avoiding failure depends on how well societies adapt to their changing environments. Diamond identified five criteria to assess the risk of failure, which include self-inflicted environmental problems, climate change, problems with trade partners, problems caused by enemies, and societies' own political institutions. Reading this book in light of the issues we face in 2022 gives one a sense that we are at a tipping point. The stories we hear about fake news, how splintered we are politically, and the pandemic can make us all really concerned not only about the near future, but also the legacy that we are leaving for our children and grandchildren.

Our Societies—ASA, CSSA, and SSSA—provide an opportunity to make advances on economic and environmental sustainability issues *now*. Our members are working to solve complex problems by building collaborations between people with different perceptions of the world. Crop scientists are using molecular biology to produce crops that are resistant to pests and plants that can fix their nitrogen. Soil scientists are testing the use of hyperspectral remote sensing, LIDAR, and temporal and spatial changes in soil microorganisms and plant populations to reduce erosion and improve soil health. Agronomists are using machine learning and molecular biology to create new conceptual models and algorithms that improve profitability and yields while reducing greenhouse gas emissions. Our three Societies have communities or divisions focused on these and many other topics.

Diversity Can Result in Scientific Breakthroughs

The membership of each community or division is very diverse and can contain certified crop advisers and soil scientists, crop breeders, agronomists and soil scientists from industry, university instructors and professors, government scientists, environmentalists, molecular biologists, statisticians, and undergraduate and graduate students, among many others. Discussions between diverse members are exciting and can result in scientific breakthroughs. In our personal experience, breakthroughs and new ideas are more likely to occur by changing how the problem is perceived and often occur at the intersection of different disciplines. Our communities, sections, and divisions are designed to embrace the diversity of ideas within our Societies and encourage lifelong learning, collaborations, and problem solving.

Imagine where we would be today if we had molecular, machine-learning, and sensing technologies 500 years ago. Could we have avoided the Dust Bowl of the 1930s or the Greenland Norse society failure of the 1500s? Being involved and active in our three

Societies provides the opportunity to be part of the next food, feed, and fiber production revolution. We need people who have lived or learned different ways of looking at things to share ideas and create new models of seeing the world. People raised on farms, in suburbs, or the middle of big cities all bring useful perspectives on the problems we face in our current food supply system. People of different cultural backgrounds have different ideas on how to interact and promote new ways of thinking, which can help us avoid narrow-minded scientific thought processes.

Please reach out to ASA, CSSA, or SSSA community, section, and division leaders if you are interested in becoming more involved but are unsure if you will fit there. If you know of friends or colleagues interested in food production, agriculture, and environmental sustainability—regardless of their current major, discipline, or membership status—please direct them to our community, section, and division leaders as well (contact info can be found by visiting the websites listed in the sidebar). You can find a professional home with us, and your contributions will be welcome.



Sections, Communities, and Divisions

Your perspectives and contributions are valued, and our sections, communities, and divisions can provide a great opportunity for you to connect with our Societies. Learn more by visiting the sites below:

- ASA Sections Communities: www.agronomy.org/membership/sections-communities
- CSSA Divisions: www.crops.org/membership/divisions
- SSSA Divisions: www.soils.org/membership/divisions

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