Science Societies

More Will Be Asked of Agriculture in 2023 and Beyond

ASA's Communities, Programs Can Help Us Meet This Challenge

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Digital agriculture is emerging as one of the best strategies to de- tect what the crop needs and deliver the right amount of water, nutrients, and other inputs to the crop at the right time and in the right place. Here two lab technicians install a soil water potential sensor in the ground. Photo by Sayantan Sarkar.

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Greetings! I hope your new year is off to a great start! The days are getting longer, and you may already be anticipating the end of winter. We are already looking for early signs—migratory birds returning from the south, spring crocuses emerging from the frozen soil, and Collembola (also known as snow fleas) jumping on the snow on warm days…

Many of us spent the winter months analyzing, interpreting, and reporting last year's data.

Now our thoughts turn to plans for the coming field season. We take stock of our accomplishments and try to build upon successes even though we know the weather and economic conditions in 2023 will be different from past years. Agronomy often seems to me like the science of planning for an uncertain future. Still, I believe that global trends give us some measure of certitude about the challenges, and opportunities, that lie ahead for ASA members, and for our fellow agronomists worldwide.

Here is my prediction for 2023 and beyond: Agriculture is going to be asked to do more.

Produce More Nutritious, Affordable Food

Agriculture is going to be asked to produce more nutritious, affordable food to provide a secure food supply for the global population to eliminate world hunger. The greatest need is in Africa, which spent US$50 billion on its annual food imports in 2022, and this is expected to more than double, to US$110 billion in food imports by 2030.

I have been learning about Africa's food security challenge firsthand, during my sabbatical in North Africa at UM6P, the Mohammed VI Polytechnic University in Ben Guerir, Morocco. Three points stand out: (1) the low yields of staple crops like wheat, rice, soybean, and other oilseeds cannot meet local demands in Africa. (2) It is easier to purchase food from the international market than via intra-African trade. Only about 20% of African countries' food imports comes from other African countries. And (3) climate change has made agriculture more difficult in Africa. Lack of water is the most limiting factor for agriculture on the continent.

Interested in international agriculture? Want to help with global food security issues? Please consider joining a community within the Global Agronomy and Agronomic Production Systems sections of ASA (agronomy.org/membership/sections-communities). Your contributions are most welcome as we continue to seek practical agronomic solutions to help vulnerable communities worldwide break the cycle of hunger and poverty.

Be More Environmentally Friendly

Agriculture is going to be asked to be more environmentally friendly. In 2021, the Food and Agricultural Organization of the United Nations (FAO) together with The Nature

Conservancy released a three-part report on “Nature-Based Solutions in Agriculture.” These reports explain how traditional knowledge in agriculture, combined with new skills and training, will guide the design of resilient agroecosystems for food production for healthy people and animals. Simultaneously, the design should be effective in protecting the environment: the air, land, water, all layers of the atmosphere, all organic and inorganic matter and living organisms, and their interactions.

Nature-based farming is an intrinsic feature of robust agricultural landscapes. Conservation areas—riparian buffers, prairie strips, and hedgerows—add to the diversity in rotations with annual and perennial crops. Agronomists contribute to agricultural resilience by selecting interventions that support crop growth, such as integrated pest management, water-saving irrigation methods, soil conservation, and 4R nutrient stewardship. These practices save money, energy, and resources for farmers, but it can be challenging to deploy these practices effectively on larger farms. Digital agriculture is emerging as one of the best strategies to detect what the crop needs and deliver the right amount of water, nutrients, and other inputs to the crop at the right time and in the right place.

Have you got a great idea to reduce the environmental footprint of agriculture? Looking for an innovative technology to make better, timely decisions about a specific agronomic problem? Would you like to meet, connect with, and share your knowledge and experience on these topics with like-minded professionals? I am confident you will find your community within the Environmental Quality, Biometry and Statistical Computing, Climatology and Modeling, or Land Management and Conservation sections of ASA (agronomy.org/membership/sections-communities).

Provide More Services to Society

Agriculture is going to be asked to provide more services to society. Everyone knows about global climate change and loss of biodiversity, often associated with land use change. We have committed to reduce, recycle, or avoid waste since uncontrolled release of contaminants can pollute our air, water, and land.

In response to the global climate change challenge, many countries have committed to net-zero emissions to decarbonize their economies. This could involve new carbon taxes, carbon credits, or carbon-trading markets. You may have heard of "low-carbon labels" for agricultural commodities and of "carbon farming." What does this mean in practice? How does one qualify for a label or to be certified as a carbon farm?

Decode 6 (www.decode6.org) can answer these and other questions about carbon and ecosystem services. Supported by ASA, CSSA, and SSSA together with the Agronomic Science Foundation, the Decode 6 platform is a one-stop shop that provides unbiased, science-based answers to your questions about carbon and ecosystem service markets.

I really encourage you to view and share the free scientific content in the articles, podcasts, and videos with your students, colleagues, and clients!

Are you working on decarbonization or ecological services and have knowledge to share? We would love to hear from you! Decode 6 is an excellent venue to communicate your exciting scientific findings with the farming community, conservationists, policymakers, investors, and the general public. Please contact DJ May for more information at Send Message.

A very sincere "thank you" for your trust in me and your ASA Board of Directors, who are here to serve and represent your professional agronomic needs. Please do not hesitate to contact me and the other members of your ASA Board, as well as your

Section Leaders and Community Leaders, with your ideas, comments, questions, and concerns. We look forward to hear from you!
