



Science
Societies

New advances, opportunities call us to action

By Ole Wendroth, SSSA President University of Kentucky, Lexington

owendroth@uky.edu

| January 28, 2020



Participants in the 2019 Congressional Visits Day (CVD) meet with Sen. Jim Inhofe (OK, middle).

It is an exciting time to be a soil scientist. A lot of research opportunities exist in soil science and related disciplines where our members' scientific competency is important. Responsible use and sustainable management of resources remains one of the largest challenges and leads us to numerous questions that need to be addressed.

Will there be enough food for the growing world population? As the demand for clean water is increasing by private households, the industry, and agriculture, how can we maintain the function of soil as an essential filter system to secure clean water for everybody? How do metabolites and other substances retained in soils behave in the environment? How are soils affected by more frequent wildfires and floods? What can we do to increase soils' capacity to withstand high-intensity rainfall events? How can we better manage soils to minimize the release of climate-relevant gases, and how do soils contribute to mitigate effects of climate change? How do soil microbiological processes affect important exchange processes at the land surface? How do we disentangle the processes affecting soil health? What can we do to protect one of our most precious resources, soils, against erosion and landslides?

The list does not end there. While we know a lot about our soils, many processes and functional relationships are still far from being fully understood. We need to remain creative in many ways to secure a flow of resources that are essential to making new discoveries.

New Technology Leads to New Insights, Opportunities

Over the past three decades, soil science has been revolutionized by a plethora of new technologies. These have created new avenues to study soils at spatial and temporal scales that were previously unexplored as evidenced by tremendous progress in the field of nano-technology and by the near-daily satellite images we can now receive from the earth's surface to mention two extremes. Our San Antonio Annual Meeting theme, "Embracing the Digital Environment," was an impressive testimony to the new observations, insights, and big data analytical opportunities under way. New professional opportunities have arisen for our graduates with degrees in the fields of soil science, agronomy, crop science, and related disciplines.

With these advances come a new perception of what we observe. Do we simply measure known variables in new ways, or do we have to approach, learn, and accept the existence of new variables that do not necessarily need to be calibrated to fit into old paradigms but have their own meaning? Similarly, we need to think of new ways to conduct our experiments. Advances in computation are being made. An increasing number of scientists are using integrated system analysis through ecosystem process models, allowing the improvement of scenario analyses and supporting better experiments. With all of these new opportunities, we are called to action.



For the first time, boards of directors from our three Societies met in 2019 to discuss develop a joint grand challenge as well as new strategic plans for each Society. Pictured here is ASA Board Member Jim Ippolito giving some input while ASF Board Member Tabare Abadie (left) and ASA Board Member Paul Carter listen.

Science Advocacy, Communication

Although soils were not mentioned and soil scientists were not included in the United Nations' definition of Sustainability Development Goals, we as soil scientists have to continue to point to soils as essential for life on earth and human society as they contribute to a functional environment and help regulate our climate and provide clean water and air and sufficient food for everybody. We will continue to inform the public and our policymakers that soil science has greater impact than currently recognized.

Over the last decade, the pressure on scientists to actively advocate for their disciplines has grown tremendously. This is not an easy task because scientists in general are trained to advance knowledge

but not to defend science, including soil science, to policymakers. Fortunately, there are excellent staff members in our headquarters in Madison, WI, and the Societies' Science Policy Office in Washington, DC, who are experienced in political advocacy and in communicating scientific matters to many audiences, including those without a science background. The Science Policy Committee of our three Societies plans advocacy activities and drafts statements, leveraging our members' expertise for the development of new policies and decision making that will affect our members well as

society in general. In our three Societies, there is fortunately a great acceptance and involvement of scientists to make their voice heard at different events and through statements in various formats. One of our largest advocacy events, the annual Congressional Visits Day, always turns out successfully. Funding through the Agriculture and Food Research Initiative (AFRI) has steadily increased over the years, even in times when the federal budget is tight.

When considering all these opportunities and developing our plans, we also need to analyze the obstacles that stand between us and our goal to enhance science and education of the next generation to improve life and sustain the environment. Our creativity is needed to identify and suggest efficient ways for distributing federal funding resources and to reverse the lack of support for numerous academic and scientific programs at universities and research institutions. A thorough analysis of our current situation and wise suggestions to our policymakers will be necessary to optimize the efficiency of scientists and the time that they spend on acquiring the financial support for their programs to educate the next generation of scientists and to create and keep pathways open for new discoveries.

Grand Challenge, Strategic Planning

What do we envision for SSSA? Where do we stand and where do we want to go? For the first time, boards of directors from our three Societies met in 2019 to develop a joint grand challenge as well as new strategic plans for each Society. At the first-ever ASA-CSSA-SSSA town hall meeting during the San Antonio meeting in November, an update on the grand challenge and strategic plans was given to our members by the three presidents. The next step—putting these initiatives into place—will involve direct input and engagement from our membership. The more members become involved, the better the Societies can serve their needs.



For the first time, SSSA met separately from ASA and CSSA in January of 2019. Some SSSA members would like to have another stand-alone meeting of SSSA while others prefer meeting together with ASA and CSSA. This will be a point of discussion by the board this year.

Another important task on the SSSA Board of Directors' agenda will be the discussion of ways in which we will hold scientific meetings in the future. For the first time, SSSA met separately from ASA and CSSA in January of 2019. This meeting was a great success. For some time, the desire has been expressed by a part of our membership to have another stand-alone meeting of SSSA while another part of our membership prefers meeting together with ASA and CSSA. We will need to resolve this obvious conflict of opinions. Special topic conferences will play an essential role because these can target specific issues such as solving particular environmental problems, and scientists inside and outside our three Societies will feel called to contribute. Regardless of how and with whom we meet, mutual respect of each other's interests remains essential in this decision process. I am optimistic that we will find ways for a

path forward.

Summarizing, the challenges ahead of us are tremendous. We have the capability to turn them into opportunities because of each member's engagement, creativity, and expertise and through partnerships within and beyond our Societies.

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