The American Society of Agronomy (ASA) created the Water Security for Agriculture Task Force at its annual meeting in San Antonio, TX, in 2011. The “Task Force” was proposed by the ASA Science Policy Committee as follows:

**ASA Science Policy Committee Proposal**

Globally, agriculture consumes approximately 70% of the fresh water used by humans (Baroni et al., 2007). In the United States, approximately 50% of crop production comes from the 15% of cropland that is irrigated. Some estimate that by 2025 more than half of the world population will be facing water-based vulnerability (Kulshreshtha, 1998). Water security and food security go hand-in-hand. To offset undesirable impacts, significant improvements in water conservation and water management are urgently needed to meet the food, feed, fiber, and fuel needs of a growing world population.

Drought and flooding have historically shaped our approach to water management. Threats to agricultural water resources are increasing. Threats include: depletion of groundwater sources; climate change-induced shifts in water availability; competition between urban, wildlife, and rural uses; and reduced water quality from both point and non-point source pollution. Recent examples of subtle (and not-so-subtle) threats to agricultural water security include:

- Shallow groundwater flooding in Wisconsin
- Sink holes developing from extensive groundwater withdrawal in Florida
- A “grab” of arable land to control community water rights in Colorado
- Protection of fish habitat in the Pacific Northwest
- The decline of Ogallala Aquifer in the Great Plains
- The ongoing need to increase the capacity of municipal and industrial wastewater disposal, and geographic transfer of water through trans-basin diversion

The ASA Science Policy Committee believed it was essential that ASA be engaged in the policy issues related to water security. ASA can provide information to help develop informed policy that may mitigate undesirable outcomes and plan for the future. The ASA Science Policy Committee wishes to form a workgroup that would (1) identify the key policy issues facing the agricultural sector; (2) develop a strategy for using agronomic science to inform the dialogue associated with the issues, and (3) determine outcomes that we wish to achieve through our activities.

**References**


**Water Security for Agriculture Task Force**

The ASA Board accepted the proposal and created an ad-hoc, short-term task force to develop position statements. The Task Force was charged to keep agriculture and the role of the agronomist in the forefront. Agronomy is not a commodity, but is a skill or skill set with a process. The process involves inquiry and research, expressed by education (both academic and extension), resulting in application and implementation.

Board appointees to the Water Security for Agriculture Task Force were: Fred Vocasek (Servi-Tech), Chair; Karl Anderson (ASA Science Policy); Bob Beck (Winfield Solutions); Jim Gaffney (DuPont Pioneer); Neil Hansen (Colorado State Univ.); Bill Heer (Kansas State Univ.); Bruce Knight (Strategic Conservation Solutions); Gary Peterson (Colorado State Univ., retired); and John Sadler (USDA-ARS). The Task Force met in Baltimore, MD, in January 2012 to develop a strategy. Initial discussions included representatives from the USEPA, USDA-NRCS, and USGS.

The discussions were broad, including rainfed agriculture, climate change, genetics, water capture in soil, soil quality, carbon management, salinity, irrigation efficiency, drainage, water productivity, and water footprint/life cycle analysis. The Task Force agreed that these issues fit into three categories:

1. Water shortage (competition, climate change, groundwater depletion)
2. Water excesses (climate change, erosion, drainage, development)
3. Water quality (nutrient management, salinity, subsurface nitrogen, off-site losses)
The Task Force sharpened the focus by addressing the question: “What is the role of agronomists regarding these issues?” They concluded that agronomists intervene at the following points in the system:

- Stopping water at its highest point in the watershed
- Capturing precipitation in the soil rather than allowing runoff
- Using the water soon after it is received to improve efficiency
- Moving excess water to areas of shortage in space and time
- Creating nutrient management plans
- Educating both the agricultural sector and the general public about the critical nature of water security

The Task Force concluded that we have sufficient research data to address most of the problems, but are lacking in adoption of practices. It was agreed that the general public needed to be made aware of the critical nature of agricultural water security.

The Task Force focused on how ASA could improve adoption of practices at the farmer/user level and how to create public awareness. One action was to prepare written communications that summarize our knowledge regarding the three pressing needs categories. Questions remained regarding who the appropriate audience would be, who should author the papers, and how many papers were needed. Obviously the publications needed to be placed where they could be found by the appropriate readership. The ASA has excellent venues for scientific papers, but they usually do not reach the user level, or the general public. A multi-pronged approach was obviously needed to reach the identified audiences.


Following the symposia, the Societies’ science communication staff produced several articles based on interviews with the symposium speakers. Articles included “Three Shades of Water: Increasing Water Security with Blue, Green, and Gray Water”; “Reusing Wastewater for Crop Irrigation in Kansas”; and “Subsurface Drip Irrigation.” The articles were published in the CSA News magazine, which is distributed to all ASA, CSSA, and SSSA members, and in the Crops & Soils magazine, which is distributed to 13,000 Certified Crop Advisers (CCAs) in the United States and Canada. Many CCAs are employed by retail or wholesale agribusinesses and work directly with producers. Further outreach to the user community was attained by live-casting the 2013 ASA symposium for CCA continuing education credit. ASA continues to offer soil and water management training through a full-time Agronomy and Soil Science Education Manager. Educational offerings include webinars and self-paced, self-study modules.

The Task Force also decided to prepare a series of scientific papers, to be published in Agronomy Journal, which would be the basis for future “one-pager” documents. The one-pagers would be used to communicate with congressional delegations and government agencies. Rattan Lal (The Ohio State University) was selected as the lead author for these papers. The Task Force, in conjunction with Dr. Lal, invited selected authors to write papers addressing the following specific issues:

1. Definition of water security
2. Global water resources
3. Water resources and food security
4. Blue water demand for sustainable intensification
5. Managing green water in dryland agriculture
6. Environmental impact of water use in agriculture
7. Towards achieving water security in agriculture
8. Legal constraints on conserving water in the western United States
9. Research and development principles

The authors have done an excellent job in summarizing the various aspects of our knowledge of water security in agriculture, and we thank them for their efforts. The remaining step is to develop impactful “one-pager” documents to use in communication with the general public.