Science Societies

2020's Sustainable Agronomy Conference goes digital

By DJ McCauley

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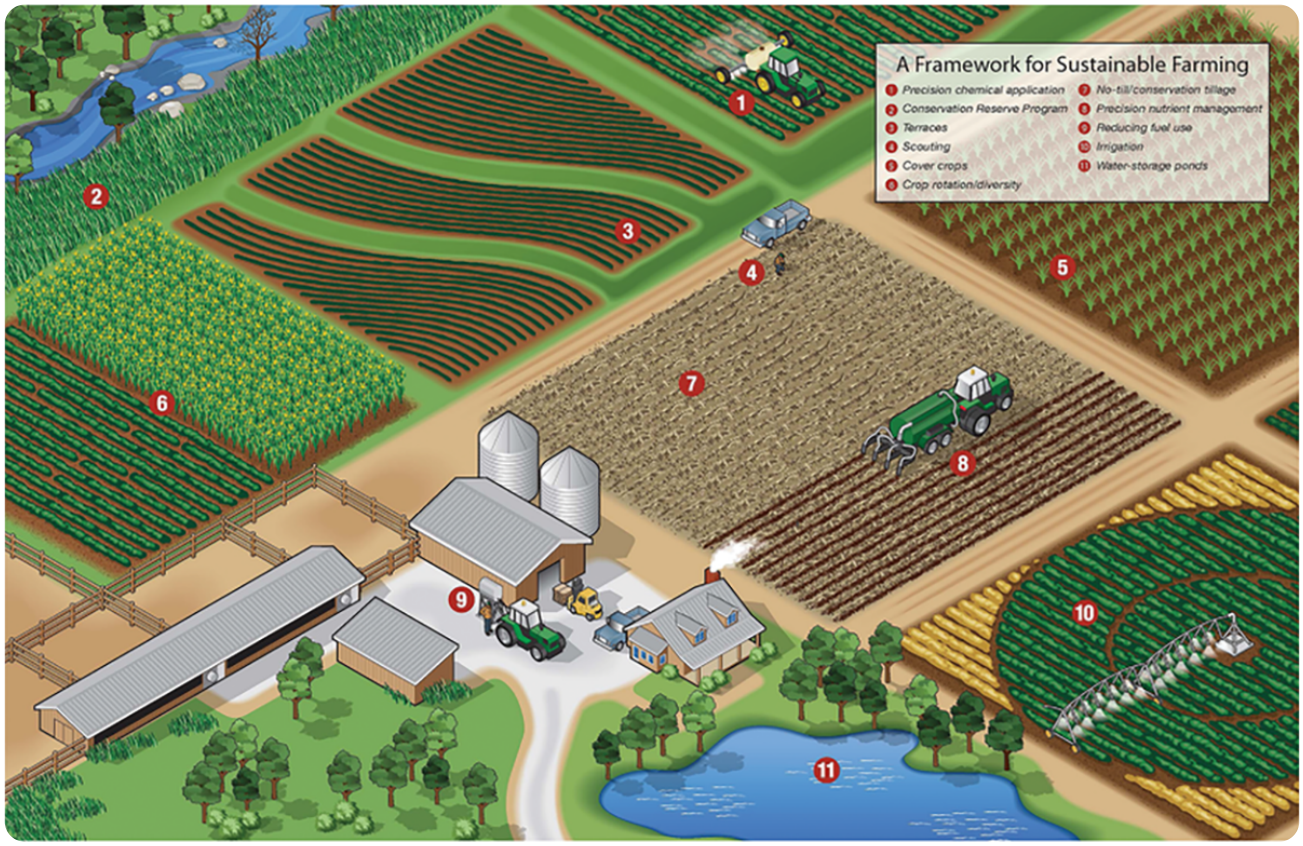


Illustration showing some potentially sustainable agronomic management practices. Source: United Soybean Board.

This year, marked the third year for the annual Sustainable Agronomy Conference, sponsored by ASA and the Certified Crop Adviser Program and held virtually on 18–20 August. Don't worry if you missed it: there's still time to see the presentations and earn CEUs!

The new virtual format saw attendees from across the United States join in for a combination of recorded presentations with live question-and-answer and panel sessions.

There was also a lively student competition (see sidebar next page) with international participation. The first-place winner, Julie Baniszewski from Pennsylvania State University, presented her research on intraspecific diversity in wheat and its ability to suppress disease.

"I would encourage any student to enter a student competition," Baniszewski says. "I always feel like I understand things better after teaching others."

Beyond student participants, the conference brought together professionals across the field of agronomy.

"This conference brings together those on the front lines of agricultural transformation—our Certified Crop Advisers—to address the practical realities of changing dynamic agricultural systems to improve sustainability," says Nick Goeser, CEO of ASA, CSSA, and SSSA.

The presentations were both practical and dynamic. From discussions of the economic impacts of sustainability, to talks about the practical, long-term implementation of cover crops, to providing ecosystem services and biodiversity on the farm, soil health improvement and measurement, and the 4Rs of nutrient

stewardship, the lineup of speakers was engaging. They covered many of the most pressing issues in sustainability today.

“What I like about this conference is that it has presentations that weave sustainable practices into each of the four main areas for a CCA,” says conference attendee, Amy Asmus, an agronomist and CCA. “They touched on areas with pest management, crop management, and soil and water and nutrient management.”

The digital format provided a new means of getting the word out. This year saw the greatest number of attendees with 294 researchers, growers, industry members, and certified professionals tuning in.

As Sarah Carlson of Practical Farmers of Iowa puts it, “This conference is such a great opportunity to get important information out to a lot of people!”

Winners of the Sustainable Agronomy Conference Student Competition

By Susan Fisk

Three outstanding students won awards during the Sustainable Agronomy Conference held virtually 18–20 Aug. 2020. The conference is sponsored by ASA and the Certified Crop Adviser Program.

The winners are as follows:

- **First place—Julie Baniszewski**, Pennsylvania State University, for her presentation on “Wheat Intraspecific Diversity Suppressed Disease While Maintaining Yield and Economic Value”

- **Second place—Juniper Kiss,** University of Exeter, for her presentation on **"** Biocontrols Against Banana Pests and Diseases: A Bayesian Meta-Analysis"
- **Third Place—Heba Alzaben,** University of Waterloo, Ontario, CA, for her presentation on "An Inverse Correlation between Crop Surface Temperature and Nitrogen Stress as Predicted by the Exergy Destruction Principle."

Baniszewski has worked with a variety of crops throughout her Ph.D. program. "I found that I really like working with small grains. I thought this [presentation] would be a great way to connect to some other folks who are involved with small grains—either in research, extension, or other aspects of agriculture."

Despite being a graduate student based in the U.K., Kiss knew she could do this presentation due to the virtual nature of the conference. "This competition was a great way to explain my approach and ideas about using biological control products against plant diseases. The competition was a great way to get feedback from the industry's point of view."

Another international student, Alzaben, entered the virtual competition looking for a challenge. "I wanted to challenge myself through answering the judge's questions. It broadens the way I think about my research. I also got new ideas to improve and add to my current research."

The judges were Ryan Sanders, Bayer Crop Science; Lee Briese, CENTROL of Twin Valley; and, Christopher Hight, Betteravia Farms.

"These are brilliant students that did high quality scientific research," remarked Briese. "Many topics have direct practical applications for farm fields." Barrett added: "What a great group of students with great ideas. I look forward to having

them as fellow crop advisers in the field."

The content from the entire 2020 Virtual Sustainable Agronomy Conference will be available for purchase. Visit **www.agronomy.org/education/classroom** to learn more.

Cover Crops with Carlson

Carlson gave a talk on how to plan ahead to practically implement cover crops in a classic Midwest rotation: Corn and soybeans.

"Cover crops are a great intervention for issues with that rotation," Carlson says. "You don't 'farm naked'—Mother Nature doesn't want to be uncovered. So when you implement a cover crop instead of letting a field lie fallow during a corn-soybean rotation, you combat all those economic and agronomic losses that come with bare soil. That's huge."

In her presentation, Carlson laid out the up-front costs and the post-implementation savings farmers can see using a cover crop. She discussed practical means for certified professionals to approach farmers who haven't implemented cover crops in the past, including question trees about their comfort with spring termination and which crop fits best with their field and farming style.

"We just need farmers to get into a three-crop rotation: it confuses the weeds, and after about three years, they can plant early and harvest on time and start growing their cover crops for seed they can use or supply to their neighbors," Carlson says.

She emphasized the importance of "farmers teaching farmers." Community was a recurring theme in her talk.

Fighting Pests with Shaw

David Shaw of Mississippi State University represented a team examining the “human” aspect of pest management. Shaw has been an ASA member and a weed scientist for more than 35 years; now he serves as MSU’s Provost and Vice President for Academics.

Like Carlson, Shaw emphasizes the need for buy-in, both from growers, and from the other stakeholders involved in managing a particular pest.



Cornell University researchers monitoring field plots for the presence of any pests or diseases. Photo by Chathurika Wijewardana.

“A lot of what we learned started with listening sessions,” Shaw says. “We sat down with growers and stakeholders across the United States, and we actually *listened* rather than giving a presentation.”

The team found that we have all the tools and technology to effectively manage weeds and pests, but the “wicked” nature of the problem keeps us from doing so. A “wicked” problem is one that has no easy solution, involves many stakeholders (all with different, conflicting values), and has consequences that are confusing (**https://bit.ly/3aTeax6**).

Shaw’s presentation just took a sliver of the research his team has conducted over the past 11 years together. He presented two case studies: one on codling moth management in the western United States and the other on eradicating the pink bollworm in Arizona.

In both cases, coordinated, consistent, and voluntary cooperation between growers made all the difference in combatting pests. California saw an 80% reduction in use of

pesticides against codling moths in pome fruits. Now the pesticides are more effective when growers do use them.

“We have the tools and the technology to handle weeds and pests,” Shaw says. “Now we just need buy-in from all the different stakeholders involved, and that’s a very human problem. I will tell you that I’ve been working in weed science for 35 years, and this is the most fascinating project that I’ve ever been associated with.”

Alternative Land Management with Bachman

Finally, one other notable talk presented “alternative management plans” for areas of fields with documented underperformance.

Pamela Bachman of The Climate Corporation presented her pilot project that uses data collected with the Climate Fieldview platform to evaluate which parts of a farmer’s field are losing money.

Once at least four years of in-field data are collected, Bachman’s team evaluates which parts of the fields are consistently lower in yield and performance, sorting them into zones and mapping them. They then give the growers these maps and present them with a new option: take some of the land that’s losing money and use it in a new way.

Here, The Climate Corporation partners with a non-profit called Pheasants Forever. If a farmer agrees, then The Climate Corporation connects them with the non-profit. At this point, farmers have the option to convert eligible underperforming acres into habitats that encourage pheasant populations to roost.

Though designed with pheasants in mind, these patches of land also happen to be great for many native species, like all the pollinators that pheasant chicks feast upon

and native grasses and wildflowers that thrive on damaged soils.

“For a lot of farmers, it comes down to economics,” Bachman says. “If we can show them, using their data, that this area of their farm isn’t making money, then maybe we can find something that encourages them to do something different with the field.”

So far, eight farms have participated in the pilot program. Bachman’s dream is to eventually get patches of land across the Midwest in shape for pheasant habitation, creating a corridor for these game birds to migrate.

Across the board, Bachman, Shaw, and Carlson demonstrated just how critical it is for a huge array of stakeholders to participate in the conference. Collaboration sets the stage for certified professionals, researchers, growers, and industry members alike to find ways to increase the sustainability of our agronomic practices.

“There are many stakeholders in sustainability,” Asmus says. “The biggest takeaway for me was that these stakeholders need to work together to share that science and technology…that we use in agriculture to continue to produce food, fuel, fiber, and restore our lands.”

And that’s what sets ASA’s Sustainable Agronomy Conference apart: finding common ground for us to feed the future, one clever collaboration at a time.



During the 2020 Sustainable Agronomy Conference, Pamela Bachman of The Climate Corporation presented her pilot project that uses data collected with the Climate Fieldview platform to evaluate which parts of a farmer's field are losing money.

Dig deeper

If you didn't catch the conference, don't worry! You can still find the recorded presentations in the online classroom: **www.agronomy.org/education/classroom** . Here's the breakdown of the 12 CEU credits you can earn:

- Economics of Sustainable Agronomy—Opportunities for Practitioners: 2.0 CEUs
- Agronomy of Sustainable Agronomy—A Multi-Geography, Multi-Crop Focus on the 4Rs: 2.0 CEUs
- Agronomy of Sustainable Agronomy—Perspectives on Soil Health Measurement and Improvement: 2.0 CEUs
- Practitioners Guide for On-Farm Sustainable Agronomy Success—Insights from Demonstration, Research, and In-Field Implementation Programs: 2.0 CEUs

- Environmental Benefits of Sustainable Agronomy—Stewardship in Action: 2.0 CEUs
- Implementation of Sustainable Agronomy—Science-Based Solutions for Long-Term Success: 2.0 CEUs

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