The Student Voice at NABC 27

Imtiaz Ahmad
Penn State

Patrick Alves
Penn State

Natalie Boyle
Washington State University

Gustavo Camargo
Penn State

Lina Castano-Duque
Penn State

Long Chen
Penn State

Ryan Huffman
Iowa State University

Shan Jin
Penn State

Clair Keene
Penn State

Bastian Minkenberg[1]
Penn State

Jade Newsome[1]
University of Arkansas

Demetra Perry
Penn State

Swayamjit Ray
Penn State

Kelsey Tenney
Penn State

Each year, NABC holds a conference discussing issues of agricultural biotechnology in North America. The 2015 conference was about *Stewardship for the Sustainability of Genetically Engineered Crops: The Way Forward in Pest Management, Coexistence, and Trade.*

An important component of the conference is the Student Voice, a program for graduate students from NABC member institutions. Student Voice participants exchange thoughts and ideas on topics related to agricultural biotechnology that they found of special interest. The following report is a summary of our exchange as participants in the Student Voice.

The first part of our discussion focused on science advocacy and education. We acknowledged that one of the hardest tasks for scientists is to effectively communicate our findings to the public. We know that even when talking to close relatives, like our own families, we have trouble finding the appropriate words to explain our research. Unfortunately, many scientists are intimidated by public communication and instead of learning how to communicate more effectively, they choose to avoid work-related conversations with nonscientists. We feel there is a need to increase communications

[1] Co-presenters of the *Student Voice Reports.*

with nonscientists. The debate about genetically engineered crops during the past few decades shows that we need to better communicate the real dangers and benefits of biotechnology for society. We need to de-mystify science for the public and educate them on the facts behind scientific discoveries. Especially in a time when funding for research is closely connected to the public perception of it, we will only benefit from engaging in these discussions.

Even though we want to encourage our fellow scientists to engage with the public, we recognize that it is hard to explain science and genetic engineering if the audience has only limited knowledge of basic concepts in biology, especially genetics. We therefore agree with a note from Dr. Mallory-Smith's presentation about the importance of early and thorough genetics education for school children. Knowledge in genetics has become more important than ever before. We live in an era where we regularly encounter genetically engineered crops and where gene therapy is becoming an option for treating disease. People are only able to grasp the concepts behind these new technologies if they understand genetics. Education is the first step toward being an informed citizen who is able to make wise decisions about the use or consumption of products or techniques that result from scientific advances. We therefore ask all NABC participants and readers of this report to talk to their children's teachers and other parents about the importance of genetics education and the need to teach this subject to our children and grandchildren.

The second part of our Student Voice workshop discussed the need to change the focus of the current science and discussions about genetically engineered crops. The main body of scientific publication dealing with genetically engineered crops investigated the safety of these crops for human consumption and the danger of outcrossing. These publications were able to alleviate most, if not all, concerns about their safety and showed that people can safely use genetically engineered crops. Considering the wide use of genetically engineered crops around the world, we suggest shifting the investigations away from safety for humans to their effects on other organisms. Currently, major concerns in the scientific community are populations of herbicide-resistant weeds, effects on non-target organisms, and beneficial insects, such as pollinators. We hope to see more discussion about these effects rather than focusing again and again on safety for human consumption, while safety is well-established for the approved genetically engineered cultivars. We especially ask for more collaboration between ecologists, microbiologists, entomologists, and weed scientists to obtain a better picture of these complex effects on multiple organisms.

In addition to our more general suggestions about communicating our science, genetics education, and updating the focus of the discussion, we also have a more specific suggestion for future NABC conferences. We would like to see an even broader array of participants during the years to come. The sciences of agricultural biotechnology and genetically engineered crops arewell established, and we reached a common consent about their safety among scientists. We therefore think that it is time to invite more diverse groups to attend this conference. We need to convey these findings more

effectively to people who are not biologists or working in agriculture. We should work closer with social scientists to find effective ways of reaching out, and the NABC should invite more experts in the media, social sciences, or humanities to participate in the conferences. Maybe it is even time to open the meeting directly to consumers as we need to inform them about our findings and could better cater our research to consumer concerns if we began creating closer ties with nonscientist communities.

At the end of this report we want to thank the NABC for the Student Voice travel grants that enabled most of us to travel to the conference and Dean Gary Thompson from Pennsylvania State University for hosting this year's NABC conference and his great hospitality.