The ASA Presidential Award is given to an individual or group that has had a lasting impact on the agronomic sciences. Last year, 2017 ASA President Jessica Davis presented the award to “All Women Farmers” and honored three women, Ozzie Abaye (Virginia Tech), Fatou Gueye (USAID), and Bineta Guisse (USAID), as representatives to receive the award.

Abaye, Gueye, and Guisse were chosen because of their work with women farmers in Senegal through a USAID-funded project (USAID-ERA), which has focused on animal feed and the introduction of mung bean (*Vigna radiata*) as a new crop. Davis says this award not only highlights the work being done by Abaye, Gueye, and Guisse but is also a way to “bring attention to women farmers all over the world.” Globally, 43% of farmers are women, so outreach, technological advances, and aid should take into account the role of women in their communities. Davis also commented that by focusing on women farmers in Senegal, the recipients had a “direct impact on women and children’s health” by not just growing the crop, but impacting their communities.

Women are typically responsible for the small ruminants that provide milk, meat, and wool. In Senegal, food for these animals can be scarce during the dry season. Teaching women grassland conservation methods, like silage making, provides them with a way to save the feed readily available in the wet season for the dry season. The team has introduced ways to collect and store feed as hay or silage to women, so they have more food available for their animals during the dry season.

Mung bean is a source of important nutrients like protein and minerals and can be used in a variety of cooking methods. Cowpea is the typical legume crop grown in Senegal, but mung bean has the advantage over cowpea in Senegal. Mung bean has a shorter growing season; can be harvested multiple times in a growing season; and most of

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(L to r): Fatou Gueye, Ozzie Abaye, and Bineta Guisse received the ASA Presidential Award as representatives of “all women farmers” at the ASA Annual Meeting in Tampa, FL last year. *Photos courtesy of Ozzie Abaye.*

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• Since the 1950s, maize breeders have focused on increasing density tolerance of hybrids to increase yields.
• Density tolerance genes are independent of genes controlling kernel size and number.
• This research demonstrates that breeders can focus on increasing kernel size or number without altering density tolerance.

hybrids can produce a greater yield plant stand,” Lee says. These flex-ear situations where there was a reduced hybrids that could take advantage of were hybrids known as flex-ear were not a surprise to the team. The results logical mechanisms that control these concluded that the genetic and bio

mechanisms controlling kernel size and number. Traits Controlled by Distinct Mechanisms

From these results, the researchers concluded that the genetic and biological mechanisms that control these two traits are distinct. The results were not a surprise to the team.

“We knew that historically there were hybrids known as flex-ear hybrids that could take advantage of situations where there was a reduced plant stand,” Lee says. These flex-ear hybrids can produce a greater yield than fixed-ear varieties with fewer plants, so the research team had a hunch that the genes for kernel size and number were present and flexible in the commercial germplasm available.

“Genotypes possessing both attributes were easily identified in a segregating population, which is also evidence that genetic variation is still present for yield potential in the commercial germplasm pool,” the authors state in the article. Lee says that these results are “applicable to environments where drought and high temperatures are not the main limitations of yield, which are Canada and the traditional U.S. Corn Belt in most growing seasons.”

The U.S. and Canada are major producers of maize, and while it has not been confirmed that maize has reached a yield plateau in North America, yield increases may be slowing. Research suggests that solar brightening is responsible for 27% of maize yield gains from 1984 to 2013. Additionally, the yield gap has narrowed to less than 25% between observed and potential maize yields. If maize is nearing a plateau, this research will be important information for maize breeders as it demonstrates that breeders can focus on increasing kernel size or number without altering density tolerance to provide a way to continue to increase maize yields to meet future demands.

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all, as indicated by the dietary diversity survey, it is especially popular among women and children. “Due to its relatively short season, mung bean can also shorten the lean, hunger season, which is key to fighting chronic malnutrition,” Abaye says. Also, when families diversify their farm, they may have an opportunity to generate additional income.

Getting to Know the Community

Before encouraging women in Senegal to grow this new crop, Abaye and her colleagues had to take time to get to know the communities they were working with. Through meetings with community leaders and members, they were able to identify the unique needs and production gaps of each village. In interviews with women in Senegal, they spoke of mung bean giving them energy, increasing their milk production, and improving the health of their children. “In societies where women eat last and least, it is of interest to focus on a particular crop women prefer to consume and feed their children,” Abaye says.

The original USAID-ERA project, started in February 2011, will end this year. Abaye hopes to find new partners and continue the work. Currently, she and her colleagues are developing mung bean varieties for Senegal. “The selection of the mung bean lines we are currently screening are based on specific criteria that women requested,” she says, “such as multi-purpose varieties that can be used as vegetables... [or] as livestock feed and cover crops.”

Reflecting on being a representative to receive this award, Abaye says, “It was a tremendous honor, for sure. I have been empowered and honored by the women I have been working with for the last seven plus years in Senegal. I have received by far more than I ever contributed to the community.”