The American Cranberry Crowned Jewel of the Bog at the 2014 U.S.A. Science & Engineering Festival

By Eric Wiesman, Brandon Schlautman, Eduardo Covarrubias, and Juan Zalapa

WASHINGTON, D.C—For researchers in Dr. Juan Zalapa's Cranberry Genetics and Genomics Lab, part of the USDA-ARS Vegetable Crops Research Unit at the University of Wisconsin-Madison, cranberries are more than a side dish on their Thanksgiving tables, they are the main course in their daily studies. The majority of these little red super-fruits come from the state of Wisconsin, which produces 60% of the nation's cranberries. Daily tasks of the Zalapa lab include using modern molecular genetic tools combined with classical breeding strategies to improve the fruit yield and other qualities of cranberries, making them part of a healthy diet while at the same time helping Wisconsin cranberry producers grow more cranberries in increasingly sustainable ways to ensure that Wisconsin continues to lead the nation in production. In addition to their work in the lab, the Zalapa group has been actively involved in making their cranberry research available to the public through outreach events, serving over 4,000 people in nine diverse events over the past year alone. Due to this commitment to outreach, Dr. Zalapa's lab was recently sponsored by the National Science Foundation as an exhibitor at the USA Science & Engineering Festival in Washington, D.C. on April 25-27. This was a four day extravaganza at one of the largest science, technology, engineering, and math (STEM) festivals in the world with over with over 325,000 attendees and 3,000 hands-on exhibits.

The USA Science & Engineering Festival engaged the greatest minds in science as well as the most dynamic leaders in business, technology, government, education, and culture. Moreover, the exhibitors, performers, speakers, partners, sponsors, and advisors at this festival are a "who-is-who" of STEM disciplines in the United States. Some of the biggest names in STEM and the arts gathered in our nation's capital for the festival including television icons such as Jamie Hyneman and Adam Savage from Mythbusters, Mike Rowe of Dirty Jobs, Bill Nye the Science Guy, and renowned scientists such as Michio Kaku, author of the book "The Future of the Mind," and Dr. William Phillips, Nobel Prize winning Physicist. Participants from the Zalapa lab included USDA-ARS Technician Eric Wiesman and UW-Madison graduate students Brandon Schlautman and Eduardo Covarrubias.

The festival brought science out of the laboratories and into the streets to educate a large, diverse audience of all ages and backgrounds, from professionals to novices, from science enthusiasts to the merely curious. In many cases, the hands-on experiences presented at the festival can be best described as "magic," but the science and engineering concepts acquired by the attendees are actually the best way for them to learn how science impacts almost every part of our daily lives, from the simplest to most complex tasks. Whether interested in learning the fundamentals of science or wanting to become a scientist or engineer, the festival allowed the public to learn or re-invigorate their interest in science while inspiring the next generation of STEM professionals. Thousands of young minds were fascinated by the STEM exhibits and enjoyed the opportunity to meet "real scientists" at the festival. Parents were not left out of the festival fun, as they were also involved in the activities. Some parents even wondered how they can get their children interested in science without being an expert themselves. Events like this are a great way to introduce science to people who may not get the chance to experience it. The United States, land of the "American Dream", is a place full of tremendous possibility. The festival provided kids a feeling of what it is like to be a U.S. scientist and gave them the ability to dream big regardless of the challenges they might face.

At the festival, visitors of the Zalapa Lab's display learned how the cranberry was crowned jewel of the bog. Multiple experimental stations such as "Sink or Swim" and "Cranberry's Colorful Acidity" allowed the public to observe some of the unique adaptations which have allowed cranberry to thrive in an otherwise foreboding place, the bogs of North America. Specifically, audiences learned how unique cranberry physiology such as floating helps them disperse their seeds in their native environments and how that same ability to float continues to help farmers grow and harvest cranberries today! In addition, we taught attendees how a variety of phytochemicals can show a range of colors in nature depending on the pH of the fruit and other chemical cell properties. These chemicals, including anthocyanins, are responsible for many health benefits that consumers experience by eating cranberries. Finally, many people also took the opportunity to take a picture of themselves harvesting cranberries from a Wisconsin cranberry bed. Attendees really enjoyed learning about cranberries, as described by one of the attendees, Jackie Giraldo-Smith: "Great exhibitors! I love how the cranberries are harvested. This was a fun and informative booth at the USA Science & Engineering Festival."

We hope this great exposure on a national stage will help the cranberry, "the most American of all fruits", expand its role as a Thanksgiving staple to become an iconic and uniquely American fruit worth eating and talking about all year long! We are proud to be living our "American Dream" as members of the USDA-ARS VCRU Cranberry Genetics and Genomics Lab heeding the advice President Obama gave us at the USA Science & Engineering Festival, "Make the discoveries that will allow us to live longer, healthier lives; that's not just the power of science, that's the promise of America." In the meantime, we will continue to help increase public awareness of the importance of science in our everyday lives and contribute to a strong educational foundation for the next generation of STEM leaders through science outreach!