



Secure Food Solutions, Inc. Awarded Competitive Grant from National Science Foundation to Develop and Test Aflatoxin Detection Technology

Martin, Tennessee, December 21, 2016 – **Secure Food Solutions, Inc.** (www.secure-food-solutions.com) has been awarded a National Science Foundation (NSF) Small Business Technology Transfer (STTR) Phase 1 grant for \$225,000 to develop and test a specialized high resolution imaging system for rapid batch screening of aflatoxin in corn. The project will commence in January 2017.

Aflatoxin is a carcinogen that affects 25 percent of global crops, including corn, the most widely produced grain in the world. Current testing for aflatoxin is done with chemical test kits, used by over 16,000 grain elevators, feed mills and food manufacturers in the U.S. These test kits are slow, suffer a high sampling error and provide no way for rejected truckloads to remove the contaminated corn and protect the value of the clean corn. In developing countries around the world, where chemical tests for aflatoxin are rarely used, aflatoxin is a major threat to public health and food security. It has been linked to higher rates of liver cancer in Africa and Asia, as well as extremely high rates of childhood stunting in these same regions. Even with chemical tests in the U.S. aflatoxin still causes hundreds of millions of dollars a year in crop loss, sometime much more than that. Aflatoxin favors high heat and drought conditions. In 2012 record heat and drought affected much of the U.S. corn belt, leading to extremely high contamination levels and over \$1 billion in estimated losses.

Secure Food Solutions' (SFS) patented technology will help farmers and grain handlers around the world to manage the growing threat of aflatoxin. The technology, developed by scientists at Mississippi State University (MSU) and USDA-ARS, is rapid, reliable, non-destructive to corn kernels and easily automated for unlimited testing. It's based on the unique spectral fluorescence of contaminated corn. With a processing time of just a few seconds, the technology allows the testing of more corn, faster. The heart of the technology is the detection algorithm. With the NSF grant scientists with SFS, MSU and USDA-ARS will embed this algorithm into software that will be integrated into a prototype high resolution batch screener to expand the capacity of grain handlers around the world to test more corn for aflatoxin without disrupting operations. The research team will test the device will commercial samples of corn to demonstrate its ability to achieve very high levels of accuracy, at processing speeds fast enough to fit into commercial grain handling operations without disruption.

SFS expects to launch the first generation rapid batch screener in 2018 upon completion of next year's prototype development and testing. Other opportunities for the detection software include continuous flow optical sorters to screen and remove contaminated corn, handheld devices, and units integrated into combines. By enabling rapid and unlimited testing, these devices will reduce exposure to contaminated corn in the food and feed supply chain, and save farmers and grain handlers thousands of dollars a year in market loss.

"The National Science Foundation supports small businesses with the most innovative, cutting-edge ideas that have the potential to become great commercial successes and make huge societal impacts," said Barry Johnson, Director of the NSF's Division of Industrial Innovation and Partnerships. "We hope that this seed funding will spark solutions to some of the most important challenges of our time across all areas of science and technology."

"We are very excited about the potential of this technology," said Chris Ramezanpour, President of Secure Food Solutions. "I was working in Kenya in 2004 when aflatoxin contaminated corn there led to the deaths of over a hundred people. I have also spoken with plenty of farmers and grain handlers in the U.S. who face the threat of aflatoxin every year. It will be great to provide a tool that can help these people to protect the food supply from contamination."

About the National Science Foundation's Small Business Programs: *NSF is an independent federal agency with a budget of about \$7 billion that supports fundamental research and education across all fields of science and engineering. NSF awards nearly \$190 million annually to startups and small businesses through the Small Business Innovation Research/Small Business Technology Transfer program, transforming scientific discovery into products and services with commercial and societal impact. The non-dilutive grants support research and development across almost all areas of science and technology helping companies de-risk technology for commercial success. The NSF is an independent federal agency with a budget of about \$7 billion that supports fundamental research and education across all fields of science and engineering.*

About Secure Food Solutions, Inc. *SFS is a biotech startup located in Martin, Tennessee. The company is developing technology solutions to detect dangerous pathogens in the global food supply. SFS collaborates with scientists and researchers at university and government labs to develop and commercialize these technologies. For additional information please contact Chris Ramezanpour, President, at chris.ramezanpour@secure-food-solutions.com.*