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Assessing Impact, Risk for Agriculture from Severe Weather Threats Could Be Easier with New Statistical Methodology

CHICAGO (August 2, 2016) – With the agriculture sector exposed to a range of extreme weather-related threats that cost local and national economies billions in declining revenue, job loss and higher consumer prices, a new resource is being developed to help farmers, agri-business, market analysts and policymakers forecast the risks of extreme weather on agriculture. Nathaniel Kenneth Newlands, a scientist with Agriculture and Agri-Food Canada (AAFC), will address [advances in statistical modeling of extreme weather events](#) and their impact on agriculture production systems at the Joint Statistical Meetings (JSM 2016) in Chicago on August 2.

Newlands' research features a new statistical methodology that incorporates computer algorithms to extract patterns in large complex data sets. The work, in part, builds upon successes from a Canadian government project that has produced new operational technology forecasting crop yield within growing seasons, integrating satellite and ground-based survey and environmental data. Still in the early planning stages, Newlands anticipates his methodology could lead to the development of a decision-support tool in the next three years.

"As the world's population is estimated to reach 9.3 billion in 2050, agriculture must be able to keep up with human demand. When stakeholders have the ability to benchmark risk and explore adaptation options for minimizing exposure and disaster costs, the financial, environmental and social impacts could be lessened," said Newlands.

Chronicled by his many appointments to government advisory boards, expert panels, scientific committees and editorial review positions, Newlands' dynamic experience and insight will be featured in a book titled "Future Sustainable Ecosystems: Complexity, Risk, and Uncertainty," which is due out this fall.

According to the Canadian Climate Forum, devastating floods in Alberta in 2013 followed by flash flooding in Toronto in 2014 resulted in nearly $4 billion in insurance claims paid out. Excessive snowfall last year caused significant damage to Nova Scotia's maple syrup industry, as 40% of trees could not be tapped for production. Prairie droughts dating back to 2001 and 2002 cost more than $3.6 billion in farm losses and left more than 40,000 people out of work.

JSM 2016 is the largest gathering of statisticians and data scientists in the world. Media can attend for free, but must register in advance by contacting Jill Talley, ASA public relations manager, at (703) 302-1865 or jill@amstat.org.

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About JSM 2016

Occurring annually since 1974, JSM is a joint effort of the American Statistical Association, International Biometric Society (ENAR and WNAR), Institute of Mathematical Statistics, Statistical Society of Canada, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis, Royal Statistical Society, and International Statistical Institute. JSM activities include oral presentations, panel sessions, poster presentations, professional development courses, an exhibit hall, a career service, society and section business meetings, committee meetings, social activities and networking opportunities.

About the American Statistical Association

The ASA is the world's largest community of statisticians and the oldest continuously operating professional science society in the United States. Its members serve in industry, government and academia in more than 90 countries, advancing research and promoting sound statistical practice to inform public policy and improve human welfare. For additional information, please visit the ASA website at www.amstat.org.

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