

January 2019 - Issue #13



Discovery Digest

Highlights of U of S research news

In this issue: USask-led GWF launches six projects with Indigenous partners, GWF gets UN recognition, researchers turn alcohol waste into brain food, year-round HVAC comfort possible thanks to USask collaboration, and even more!

Every month, USask Research Profile and Impact highlights research from across campus. *Discovery Digest* is a glimpse into how U of S research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world.

[USask-led Global Water Futures launches six projects co-led with Indigenous partners](#)



In a unique approach to improving water security through western science and Indigenous knowledge, the USask-led Global Water Futures (GWF)—the world’s largest university-led freshwater research program—on Jan. 22 launched six new co-led projects across Canada to address urgent and growing water quality issues for Indigenous communities.

The projects will build on the strengths of Indigenous communities to address water quality issues including land reclamation in mining and gas industries, health and quality of freshwater fish, encourage young peoples’ engagement as stewards of the land and water, and affect policies and governance that will support sustainable water quality. [Read the story here.](#)

[See a list of the projects.](#)

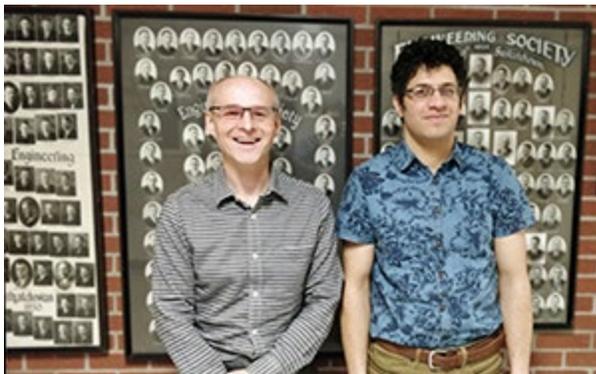
[USask research turning ethanol waste into Alzheimer meds, industrial products](#)



Efforts to extract protein from more than a billion litres of annually produced wastewater (called thin stillage) at Saskatchewan’s ethanol plants by a USask research team led by Dr. Martin Reaney (PhD) has yielded something far more valuable—a compound used in many countries to slow cognition loss in Alzheimer patients.

That compound is sold as a pharmaceutical drug for Alzheimer patients in Korea, Russia and some eastern European and South American countries, and as a cognition enhancer (nootropic) in North America.

[USask-led novel heating and cooling control system means year-round home comfort](#)



USask post-doctoral fellow Farid Bahiraei is working with mechanical engineering professor Dr. Carey Simonsen (PhD) and industry partner Soheil Akbari of SenergyK Innovative Creations (SIC) to develop an affordable solution to a problem affecting many Canadians—home heating, ventilating and air conditioning systems (HVAC) that leave basements and upper-floor rooms too cool or hot. The novel climate control technology (www.uctupus.ca) will enable people to control the temperature in individual rooms or zones in a home, increasing their comfort and even saving money.

[USask-led Global Water Futures earns U.N. recognition](#)



USask-led Global Water Futures has been designated as one of only three Regional Hydroclimate Projects (RHP) in the world by the GEWEX (Global Energy and Water Exchanges) project of the United Nations World Climate Research Programme. RHP status will make global modelling and satellite information more available to GWF and help GWF get its scientific results out to international policy and decision policy makers. [Read more about the distinction.](#)

[Research grants to USask advance Indigenous agriculture, safe water, reconciliation](#)



USask researchers Drs. Melissa Arcand, Keith Carlson, Robert Patrick, (PhDs) and Dr. Alexandria Wilson (EdD) have been awarded a total of more than \$160,000 in SSHRC Connection Grants for projects aimed at revitalizing agriculture on Indigenous lands, ensuring safe water supplies, designing sustainable communities, and fostering reconciliation.

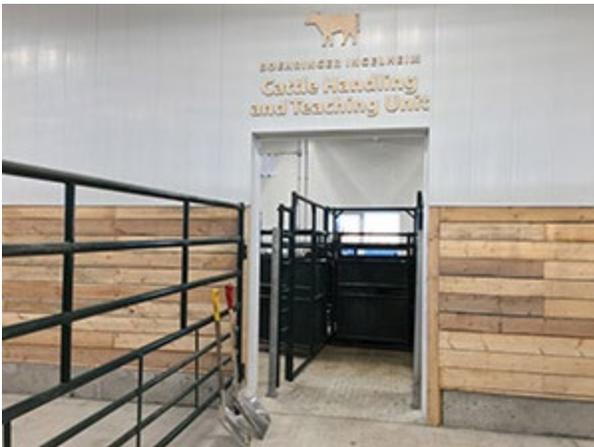
The awards were announced by Canada's Minister of Science and Sport Kirsty Duncan at a Jan. 14 event with USask President Peter Stoicheff at Wanuskewin Heritage Park. The awards aim to strengthen Indigenous research capacity and reconciliation, and are part of \$5.6 million for 116 projects across the country. [Read the story here.](#)

USask researchers awarded \$15.7M in SK Agricultural Development Fund grants



Fifty-four USask research projects have been awarded a total of \$15.7 million by the Saskatchewan Ministry of Agriculture Agriculture Development Fund. This represents the greatest number of successfully funded USask ADF projects in the last five years. The funding also includes a new \$2.4-million strategic research initiative project named Pea Protein 'Omics Determination (P-POD) led by Dr. Tom Warkentin (PhD), SK Ministry of Agriculture Strategic Research Program (SRP) Chair in Field Pea Breeding and Genetics, as well as more than \$3 million in contributions from industry.

[Five-year partnership with Boehringer Ingelheim Canada in support of Livestock and Forage Centre of Excellence](#)



USask has announced a five-year partnership and \$250,000 contribution from research-driven pharmaceutical company Boehringer Ingelheim (Canada) Ltd. that will support advancements in innovation and leadership at the Livestock and Forage Centre of Excellence (LFCE).

The partnership will support cow-calf research and critical data collection in animal safety and handling techniques at the newly named Boehringer Ingelheim Cattle Handling and Teaching Unit. The company will also provide the LFCE with technical expertise related to research protocol review and modernization in the areas of pain management, animal well-being, and disease prevention.

[USask study shows more snow, earlier melt will challenge Arctic communities in future](#)



USask researchers with the Global Water Futures (GWF) program have provided the first detailed projections of major water challenges facing Western Arctic communities such as Inuvik and transportation corridors such as the Dempster Highway by the end of this century.

Dr. John Pomeroy (PhD), Canada Research Chair in Water Resources and Climate Change, and senior author of the recent paper in the American Meteorological Society's prestigious *Journal of Hydrometeorology*, predicts a tipping point will be reached for those communities in the coming decades. [Read the release.](#)

Canada's Science Minister Kirsty Duncan delivers inaugural Women in Science talk

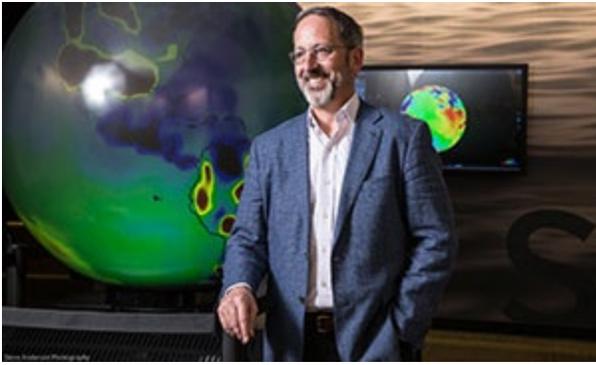


Canada's Minister of Science and Sport Kirsty Duncan gave the inaugural talk of the **Women in Science Speaker Series**, organized by the Johnson Shoyama Centre for the Study of Science and Innovation Policy, on Jan. 14 in Convocation Hall. Duncan's talk on the theme of equity, diversity, and inclusion in research attracted more than 200 people.

Minister Duncan also hosted a roundtable discussion with invited members of the USask community on the subject of equity, diversity, and inclusion.

Making headlines

[USask researcher quoted in San Francisco Chronicle on U.S. government shutdown](#)



USask professor Dr. Jay Famiglietti (PhD), former senior water scientist at NASA's Jet Propulsion Laboratory and current executive director of the Global Institute for Water Security, was interviewed regarding the potential impacts of the current U.S. government shutdown on water security science. The impacts are "inconvenient at best, and dangerous at worst," according to Famiglietti, resulting in things like degrading the weekly drought maps upon which local and state governments base water supply decisions. [Read the article.](#)

[USask glacier research featured on CBC TV, radio, online](#)



USask professor Dr. John Pomeroy (PhD)'s research into the impact of ash deposited from wildfires on glacier absorption of solar radiation has been featured in a recent series of CBC reports for CBC News: Calgary, [CBC's national The World This Weekend radio program](#) (beginning at 19:44), and [the CBC News website](#). While deposits of ash on the surface of glaciers appear to increase the amount of radiation absorbed, the total net effect of the wildfires is complicated by smoky skies. Pomeroy is USask's Canada Research Chair in Water Resources and Climate Change and director of Global Water Futures program.

[USask researcher, alumni named to Saskatchewan Agricultural Hall of Fame](#)



Dan Prefontaine, president of the Saskatchewan Food Industry Development Centre (the Food Centre), has been named to the Saskatchewan Agricultural Hall of Fame. Food Centre was born out of the USask Saskatchewan Food Innovation Program. The Food Centre has helped over 300 agri-food companies develop and launch over 800 new product lines using Saskatchewan ingredients.

Also named to the Hall of Fame were USask alumni Dr. Neil Shantz (DVM '82), Arnold Petracek (Ag '65) and Roger Pederson (Ag '73). [Read more.](#)

Health Research

[USask VIDO-InterVac contributions to health include six world-first vaccines](#)



USask's Vaccine and Infectious Disease Organization-International Vaccine Centre (VIDO-InterVac), a global leader in protecting human and animal health, has commercialized eight vaccines, six of them world-firsts, and two more vaccines will be licensed soon.

Dr. Andrew Potter (PhD), who retired recently as director and CEO of VIDO-InterVac, says the financial impact of these vaccines on Saskatchewan alone has exceeded \$1.2 billion over a 10-year span.

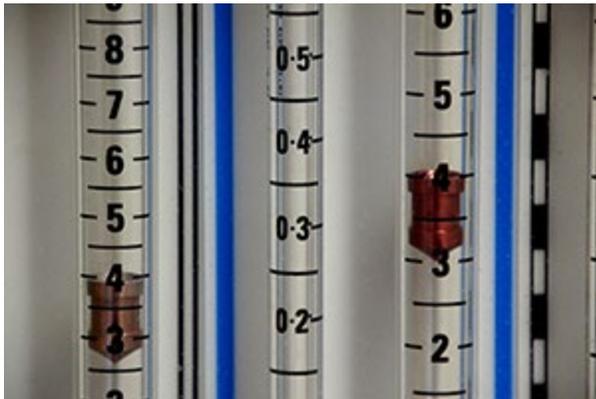
The world-firsts include two vaccines against calf scours, a form of potentially fatal diarrhea. Potter was instrumental in developing two other vaccines to protect cattle against shipping fever—a type of pneumonia. These vaccines were the first created through genetic engineering, and helped stem annual losses of more than \$1 billion in the cattle industry.

Other world-firsts were a vaccine against a fatal intestinal bleeding disease in turkeys, and

one co-developed in 2008 with UBC researchers to reduce the spread of E. coli 0157 bacteria by cattle.

[The story is highlighted as one of USask's "Discoveries with Impact."](#)

[Inaugural USask Anesthesiology Research Engagement \(DARE\) Awards granted](#)



Six anesthesiology projects led by USask researchers have been awarded a total of \$37,500 from the College of Medicine by the USask Provincial Department of Anesthesiology, to conduct novel pilot, feasibility, or quality improvement studies across the province.

The awards are intended to stimulate academic and intra-provincial engagement from a wide group of anesthesiologists practicing within all areas of the Saskatchewan Health Authority. The projects will be conducted over two years, concluding in December 2020, and findings reported once completed. [Here's a list of projects and awardees.](#)

A "Green and White" Globe

[Planetary Health: Connecting Food, People and Planet \(PAW2019\) – March 12-13](#)



The USask International Research and Partnership Office will host the second annual People Around the World (PAW) conference in March, 2019. The conference, co-led by the School of Public Health, will focus on the theme of planetary health – the interdependence of human health and the health of the planet – and bring together health, environment, Indigenous, and policy researchers, as well as community and industry partners with a goal of improving human health outcomes in a manner that is respectful to Earth's ecosystems and inhabitants. Visit <https://www.usask.ca/internationaloffice/paw-2019.php> for conference details.

Telling your research story

[How are we doing?](#)



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<https://www.surveymonkey.ca/r/DiscoveryDigest-Jan2019>

Images of Research 2019 - opens March 6



Get your shutters clicking now! The USask *Images of Research Photo and Imaging Competition* enters its fifth edition in 2019. With cash prizes in four categories, plus prizes for Best Description, Viewer's Choice and a grand prize of \$500, now is your chance to show the world what research looks like from your perspective.

Learning to make technically accurate, interesting images can be an asset to your scientific career! [\(Frankel, F. \(2019\). *Every scientist should learn to make strong visual images of science \(opinion\)*. \[online\] Inside Higher Ed.](#)

If a photo is worth 1,000 words, how much is a one-minute video worth? Show us how your research has impact in a one-minute video and you could win a cash prize of \$300!

The competition **opens March 6, 2019**. [See previous winners for inspiration.](#)

[Do you want to be our next SSHRC Storyteller?](#) - **Deadline Jan. 31st**



For a **chance to win \$3,000**, tell your SSHRC-funded project story in a three-minute video or 300 words. Submissions are accepted until **Jan. 31, 2019**. The [SSHRC Storytellers contest](#) (now in its seventh year) challenges university students from across the country to show Canadians how SSHRC-funded research is affecting our lives, our world and our future prosperity. Read more about [rules and regulations](#).

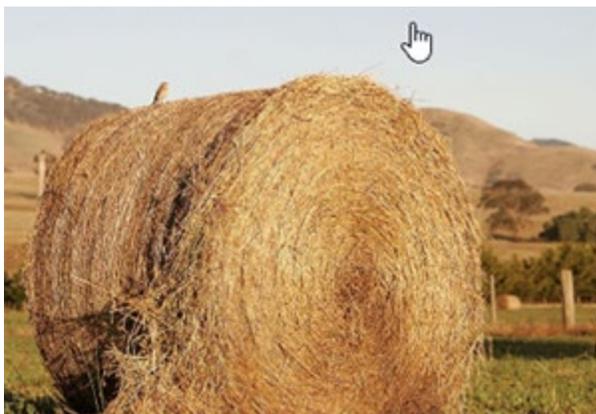
[CFI's #IamInnovation Twitter contest](#)



Are you a student or post-doc doing CFI-funded research? Tweet a creative video or photo showcasing your research using the hashtags *#IamInnovation* and *#Contest* to @InnovationCA. The winning entrants will win a trip to Ottawa, where they will participate in a science communications workshop and attend a networking event with other students, researchers and decision-makers. The most popular entries will win up to \$500 in cash. [Read the details](#) - [See last year's submissions](#)

Featured in **THE CONVERSATION**

[Stoking conflict between farming and conservation hurts everyone](#) – Philip Loring, (University of Guelph), Sarah Minnes, (University of Saskatchewan), and Valencia Gaspard, (University of Saskatchewan)



Agriculture and the environment don't need to be at odds with each other. They are more closely interdependent than we realize.

[Transparency and privacy: Empowering people through blockchain](#) - Ajay Kumar Shrestha



Blockchain technologies can support users in controlling access to their data through smart contracts that both empower and protect users.

[The global race for groundwater speeds up to feed agriculture's growing needs](#) - Grant Ferguson, and Jennifer McIntosh (University of Arizona)



Groundwater supplies around the world are under threat as drilling companies bore deeper and deeper wells.

[Understanding apocalyptic events through literature](#) - Sheheryar Sheikh,



The apocalypse has a special quality: that of distilling what is important from what is superficial and unnecessary.

[Write about your own research in The Conversation](#)

Want to reach a broad audience with your research? Consider submitting an item to the Conversation, an academic journalism hub of which USask is a founding member. [Wondering where to start? Read a short explainer on how to write for the Conversation Canada.](#) [Read previous USask articles here](#) and [get in touch with Daniel Hallen.](#)

Commercialization

[AimDay– Internet of Things](#)



The next AimDay event, hosted by USask Innovation Enterprise, will be held Mar. 27 at Innovation Place, in collaboration with University of Regina and Saskatchewan Polytechnic. The event, the fifth AIMday held in North America, will focus on specific challenges within Internet of Things (IoT) research. Some estimates anticipate the Internet of Things has the potential for a \$10-\$15-trillion contribution to global GDP in the next 20 years (https://www.frontier-economics.com/media/1167/201803_the-economic-impact-of-iot_frontier.pdf). Questions will be divided among five main areas: connectivity, sensors, analytics, regulatory, and security and privacy.

AIMday -- Academic Industry Meeting day -- is a series of workshops where questions submitted by industry partners are discussed by academics from diverse disciplines. [Industry can submit question until Feb. 18, when registration will open for researchers.](#)

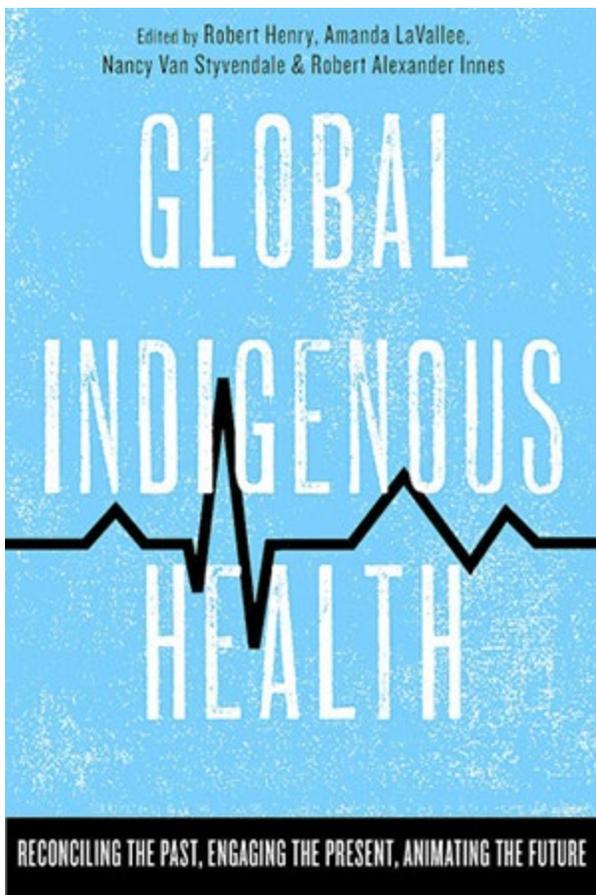
Humanities and Arts

[USask professor collaborates on large, temporary sculpture in New Orleans](#)



USask painting and drawing professor Alison Norlen collaborated with University of Alberta art professor Jesse Thomas to create a new large-scale sculpture out of corrugated plastic for the New Orleans Jazz Museum during the LUNA Fete, an annual festival of light, art, and technology, and New Orleans' 300th birthday. [Read more here.](#)

[Global Indigenous Health: Book Launch and Panel](#)



Saskatchewan Indigenous Mentorship Network hosted a book launch for *Global Indigenous Health: Reconciling the Past, Engaging the Present, Animating the Future* on Jan. 18. The event included a roundtable discussion with book contributors and editors University of Calgary professor Dr. Robert Henry (PhD), USask post-doctoral fellow Dr. Amanda LaVallee (PhD), University of Alberta professor Dr. Nancy Van Styvendale (PhD), and USask professor

Upcoming events

[Thinking: RSAW Collaboration Collider – January 22](#)



Researchers from across the College of Arts and Science will explain their research, scholarly and artistic work at a special film screening next week. This event is the first in a series of planned “collaboration colliders” with the goal of helping faculty and their students find others with similar research, scholarly and artistic work interests. [Watch a trailer for the event.](#)

Details: Tuesday Jan. 22, 3:30 p.m. – 5 p.m., Neatby-Timlin Theatre (Arts 241). RSVP to leanne.mack@usask.ca

[USask hosts 1st International Wheat Congress – Deadline for Abstracts: Feb. 1](#)



On the heels of successfully sequencing the complex genome of wheat, the inaugural International Wheat Congress comes to Saskatoon July 21-29, 2019. Dr. Curtis Pozniak (PhD) chairs the local organizing committee for the event which is expected to bring in 700 scientists from around the world. Read more here. [Abstracts can be submitted via the conference website until Feb. 1, 2019 in one of six categories:](#)

- Wheat Diversity, Evolution, and Genetic Resources
- Structural and Functional Genomics of Wheat and Wheat Relatives
- Wheat Improvement: Breeding, Physiology, and Enabling technologies
- Wheat Production Systems: Environment, Sustainability, and Management
- Protecting Yield: Resistance to Biotic and Abiotic Stresses
- Wheat Uses: Functionality, Nutrition, Safety and Human Health.

Indigenous Storytelling Afternoon – Feb. 6



As part of Indigenous Achievement week activities, join Dr. Daniel Heath Justice (PhD), Canada Research Chair in Indigenous Literature and Expressive Culture at the University of British Columbia, and local Indigenous writers and storytellers for an afternoon of performance and conversation.

The event is free and open to the public and will be held 1:30 p.m. to 3:30 p.m. at the Gordon Oakes Red Bear Student Centre.

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