



January 2025 - Issue 84

Discovery Digest is a glimpse into how University of Saskatchewan research, scholarly and artistic work is making a difference for Saskatchewan, Canada and the world. Curated by the Research Profile and Impact unit, Office of the Vice-President Research. [Feedback welcome!](#)

NEW - USask Signature Series Podcast



World-leading research and innovation - right in the heart of Canada.

The [USask Signature Series Podcast](#) explores the cutting-edge research taking place at the University of Saskatchewan across the university's Signature Areas of Research.

Listen today! Streaming online or wherever you get your podcasts

- Episode 1: [Are your pets good for your health?](#)
 - Episode 2: [How will Saskatchewan lead the energy transition?](#)
 - Episode 3: [How will quantum technology change our lives?](#)
 - Episode 4: [What makes Saskatchewan farmers so efficient?](#)
-

This Month's Stories

[Government of Canada backs tech entrepreneurs at the University of Saskatchewan](#)

In 2022, the University of Saskatchewan (USask) created Opus, a new startup incubator and pre-accelerator program for the USask community. Opus addresses the unique needs



of founders developing deep tech innovations, including faculty, students, alumni and staff associated with USask, and helps smooth the way for bringing research-backed innovations out of the university and into the world.

One such innovation born at Opus is a revolutionary crop disease diagnostic tool developed by PathoScan that enables farmers to perform real-time crop pathogen testing anywhere, without requiring any technical background.

The Honourable Terry Duguid, Minister for PrairiesCan, announced federal funding of \$988,100 for USask to expand the Opus startup incubator, providing additional entrepreneurship training and support services to new founders and innovators within the university’s research and development network.

USask crop research projects receive lion’s share of ADF funding

Twenty-three crop and cropland-focused research projects at USask have received \$4.18 million in support from the provincial government through the Agriculture Development Fund (ADF).



A total of 53 crop projects received funding from the 2025 ADF. USask’s 23 projects are the most of any organization to receive support from the ADF. Projects funded range from soil science research to health benefits of plant proteins to exploring different varieties of wheat and pea crops.



USask explores innovative soil carbon mapping research

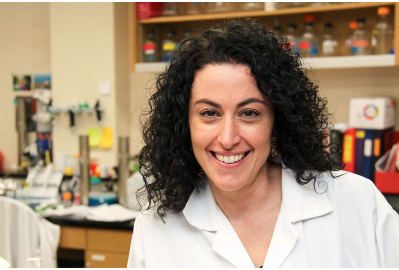
When it comes to crop production, soil is vital for plant health, nutrient supply and water retention. Two soil science projects dedicated to the future of mapping carbon levels in Saskatchewan soil have received support from a major government fund, allowing researchers to create a better roadmap of soil health for the province’s producers.

Led by **Dr. Angela Bedard-Haughn (PhD)**, the dean of the USask College of Agriculture and Bioresources, these projects – supported by the Government of Saskatchewan-administered 2025 ADF – will help Saskatchewan producers better understand and predict the carbon

distribution in soil.

USask researchers paving the way to better HIV treatments

The human immune deficiency virus (HIV) first entered public consciousness in the early 1980s, after cases of unfamiliar and deadly illnesses began to overwhelm medical centres across North America.



The lab of **Dr. Linda Chelico (PhD)**, head of the Department of Microbiology, Immunology and Biochemistry in the College of Medicine at USask, studies immune responses to HIV, particularly a family of proteins called APOBEC3 which cause mutations in the HIV virus. Her research and others’ show that the virus uses a counterattack that breaks down APOBEC3’s defences, helping HIV win and establish an infection.

Chelico and her colleagues, including USask post-doctoral fellow **Dr. Amit Gaba (PhD)**, have discovered previously unknown interactions between APOBEC3 and Vif proteins which offer a better map for drug design. Their findings were recently published in the American Microbiology Association’s Journal of Virology.



USask researcher honoured with Order of Canada for hydrology breakthroughs

Dr. Jeffrey McDonnell (PhD), distinguished professor with the School of Environment and Sustainability (SENS) and associate director for the Global Institute for Water Security (GIWS) at USask, has been made an Officer of the Order of Canada, one of the country’s highest civilian honours.

McDonnell was recognized for his decades of innovative work in watershed hydrology and his contributions to new scientific knowledge linked to water security. Since 1972, about 2,000 Canadians have been recognized with the level of Officer (OC) recognizing achievements and merit of a high degree, particularly in service to Canada or humanity.

Looking for more research stories? [Visit Discovery Digest online.](#)

USask weed control research receives funding from Saskatchewan Pulse Growers

USask researcher **Dr. Steve Shirtliffe (PhD)** has received

\$2.47 million to develop a weed management program for pulses.

On December 11, Saskatchewan Pulse Growers (SPG) announced funding for five new weed science research projects focused on pulse crops, a total investment of more than \$3.67 million.

Shirtliffe's project titled "Framework for a collaborative kochia management program in pulses" received more than \$2.47 million of the announced funding.

Kochia is a salt and drought-resistant tumbleweed prolific throughout most of the cropped area of Saskatchewan. Working collaboratively with other researchers, Shirtliffe will build off previous research to test and develop weed control systems that utilize both cultural methods such as weed seed management through mowing and chemical methods like herbicide layering to better deal with the weed.



[Canada's pork industry renews financial investment in USask swine welfare chair](#)

A group of Canadian pork industry partners have committed more than \$1 million over five years to extend the critical research role of a swine welfare chair at USask.

Dr. Yolande Seddon (PhD), an associate professor in swine behaviour and welfare at the Western College of Veterinary Medicine (WCVN), was named the renewed USask Chair in Swine Welfare on Jan. 8 during the annual Banff Pork Seminar in Banff, Alta.

Seddon served as the first Natural Sciences and Engineering Research Council of Canada (NSERC) Industrial Research Chair in Swine Welfare at USask from 2018 to 2024. The \$2-million research program was supported by NSERC and 14 industry partners—one of the largest partnerships of its kind in Canada.

[Global Institute for Water Security at USask celebrates International Year of Glacier Preservation](#)

GIWS at USask is joining many other water communities around the world in 2025 to celebrate and highlight the crucial role glaciers play in sustaining our planet's freshwater supply.



The International Year of Glacier Preservation (IYGP) is a United Nations-led effort proposed

by the President of the Republic of Tajikistan to raise awareness of the role glaciers play in our daily lives. The goal is to highlight the detrimental impacts of glacier recession around the world. Deglaciation, or the melting of glaciers, is a real threat that will impact communities throughout Canada, including Saskatchewan.

GIWS is one of more than 30 partners in the Canada IYGP, and a member of the National Steering Committee, supporting the year by raising awareness, promoting research, connecting and sharing events and art inspired by the year, and celebrating the earth’s cryosphere – water in all its frozen forms.



Bringing more technology to ranch country

When cow-calf producers head out to buy a young bull at auction — an animal crucial to the herd’s success for years to come — they really don’t know what they’re getting.

Knowing the bull’s genomic information is critically important because, on average, 75 per cent of a calf crop’s genetics come from bulls used in the last two generations, 50 per cent from the current sire, and 25 per cent from the maternal grandsire.

Dr. Bart Lardner (PhD) with the College of Agriculture and Bioresources thinks it’s time to apply better technology so producers can make informed decisions about the future of their herds.

Lardner is hoping to improve the selection process by building on a genetic evaluation tool called the Expected Progeny Difference (EPD), which compares the heritable efficiency or genetic worth of a sire to pass onto its calves within or across breeds, for traits of economic importance.



Most memorable USask news stories of 2024



President Stoicheff focused on future of USask in final year



[Making solar cells more weatherproof](#)

Stay connected with USask research news



Make sure to follow the USask Research [Twitter/X page](#) to stay in-the-know, with exciting research news delivered right to your newsfeed. Don't forget to also follow [USask Research on LinkedIn](#), and [@VPR_USask](#) and [@USask](#) on Twitter/X for more of the latest research and university news.

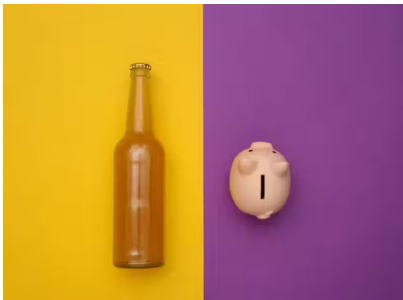
Use the hashtag **#USaskResearch** when sharing USask-related research findings, publications or achievements on social media.

In The Conversation

[Want to live longer and save money? Online app can help calculate your benefits from cutting back on alcohol](#)

By: **Dr. Peter Butt (MD)**, USask College of Medicine and Dr. **Timothy Naimi (MD)**, University of Victoria

Dry January is a time when many people think about taking a break from alcohol and giving their liver a rest. But what does that look like in terms of individual benefits? What if you knew how many minutes of life you could potentially regain by skipping that last drink, or how your weekly alcohol intake measures up compared to smoking cigarettes?



Upcoming events



TEDxUniversityofSaskatchewan 2025

On February 2, USask faculty, staff and students will take to the TEDxUniversityofSaskatchewan stage to ask tough questions, push boundaries and inspire impact for meaningful change with and for our communities. Meet the 2025 speakers and performer [here](#).

- TEDxUniversityofSaskatchewan – February 2, 2025 – Leslie and Irene Dubé Theatre

Opus Innovation Expo

We are thrilled to invite you to our annual Opus Innovation Expo—a special event dedicated to celebrating the incredible work and achievements of our i2Build founders over the past 10 months. You can expect networking, startup pitches, a founders' showcase, and of course light food and beverages. Register for the event [here](#).



- Opus Innovation Expo 2025 – January 21, 2025, 5-8 p.m. – 121 Research Drive



Women Plus Water: Water-Climate Crisis in Small Island States

Women Plus Water is excited to host a conversation on the water-climate crisis in small island states, including the critical role of women and gender-diverse voices in addressing the unique challenges faced by these communities. All are welcome to attend! For more information and to register (free), please visit www.womenpluswater.org/conversations. Register for the event [here](#).

- Women Plus Water – January 23, 2025, 12:30-1:30 p.m. – Online via Zoom

NEW - Information for researchers

Start gathering your images: USask's 11th annual Images of Research contest is coming soon!

Knowledge is beautiful and USask researchers know it better than anyone! With the 2025 Images of Research contest just around the corner, we invite USask students, staff, faculty and alumni to begin collecting images of their research, scholarly and artistic works for a chance to win cash prizes. View the 2024 winning images and watch for contest dates [here](#).



Nominations open for USask Internationalization Recognition Awards

As part of the University of Saskatchewan Blueprint for Action, the International Office announces the J.W. George Ivany Internationalization Award, Global Research Leadership Award for Faculty, Global Research Leadership Award for Students and International Engagement Service

Award for Staff. These awards are to recognize the achievements of faculty, staff and students who provide outstanding contributions to the internationalization of USask. Nominate a deserving colleague for an Internationalization Award.

Nomination deadline: March 31, 2025, 4 pm CST/SK time

Visit internationaloffice.usask.ca/awards for details.

Opus i2Build Applications

Applications for the Opus 2025 i2Build cohort program are now open! Learn what it takes to launch your deep tech startup and receive access to entrepreneurial programming, infrastructure and a network of mentors and coaches to help you successfully build your venture on campus.



Programming will begin in mid-March for future founders who are current USask students, staff, or faculty with technology in a STEM-related field. To [apply](#) and for more details on the program and application, visit opus.usask.ca. **The application deadline is February 7, 2025, at midnight.**



Save the date for PAW 2025 at USask

Join us for the People Around the World (PAW) 2025 International Congress taking place at USask October 22-24, 2025. PAW 2025 will bring together local and international experts in health, environmental sciences, sustainability, food, energy and water, digital technologies and the social sciences to explore reliable, creative and accessible solutions to support planetary health. The congress theme of *Healthy people, healthy planet: Driving innovation with data* will examine the benefits of shared perspectives, highlighting solutions to support local and global communities guided by data-driven insights and innovative technologies.

Early-bird registration opens Spring, 2025. Learn more [here](#).

HARVEST Upload Service

The University Library is offering an upload service for HARVEST, USask's open access repository (<https://harvest.usask.ca/>). Make your research outputs open access legally, for free and in compliance with funders. We know you're busy with actual research, and policies can be complicated – let us do this for you!

The service started in July, we expanded the team in the fall, and we've deposited over 150 items. Those include 22 articles that were not open access before. If authors paid the APCs (article processing charges) instead of sharing in HARVEST, it would have cost over \$90,000 CAD.

We send requests as new articles are published, so you may hear from us soon if you haven't

already. We are prioritizing Tri-Agency funded outputs and other research outputs that might not otherwise be discoverable (e.g., technical reports, presentations, posters, and community resources).

Contact harvest@library.usask.ca for more information.

Looking for guidance on how to launch your business idea? Meet researchers who turned their curiosity and ambition into a thriving new company!

Join the [Canada Foundation for Innovation's](#) first "Future You: Transforming research instincts into a successful business" webinar February 11 at 2 p.m. (EST) and meet four successful researchers-turned-entrepreneurs who will discuss the challenges and opportunities that exist in becoming a business owner. Get tips on how to start your own entrepreneurial journey, discover the benefits of mentorship and access expert advice for your future career.

[Save your spot today!](#)

If you have any important information for USask researchers, please contact research.communications@usask.ca!

Submitting to Discovery Digest

If you would like to submit a research-focused event or news item for consideration for Discovery Digest, please submit a link and a description of no more than 150 words to research.communications@usask.ca with the subject line "Submission – Discovery Digest," along with the month and year you are submitting for.

Please indicate whether your submission is a recommendation for a news item, event or information for researchers. If you would also like to submit a photo, please make sure it is a 3:2 aspect ratio image.

The Discovery Digest goes out on or as close to the 15th of each month as possible. **Please ensure any submissions are sent in by at least the 8th of each month to be considered for inclusion.**

In the news

- Jan. 12 – The Cool Down – [Researchers make surprising discovery that could level up next-gen solar technology : '\[It's\] the magic of science'](#)
- Jan. 9 – Microsoft – [The pasta puzzle: Decoding durum wheat's DNA for a sustainable future](#)
- Jan. 7 – The National Post – ['A failure': Here's how eight prominent analysts assess Trudeau's time in power](#)
- Jan. 5 – CBC News – [Sask. won't get any new wild boar farms, but expert says](#)

[population still out of control](#)

- Dec. 31 – MSN News, CBC News – [All that glitters is microplastics this New Year's Eve, Waterloo researcher warns](#)
 - Dec. 30 – CBC News – [Saskatchewan saw plenty of extreme weather in 2024](#)
 - Dec. 28 – Global News – [Alberta snowpack in 'a great spot,' says researcher](#)
 - Dec. 26 – PBS News, CNN, MSN News – [How America lost control of the bird flu and raised the risk of another pandemic](#)
 - Dec. 19 – The Globe and Mail – [How Canadian startups are using AI to transform how we shop](#)
 - Dec. 17 – CBC News - [U of S synchrotron testing next-gen EV batteries that could go 25x longer before replacement](#)
-

Banner image photo credit: **Winter Embrace: Cattle Swathgrazing in Snow** -

by **Somtochukwu Obiora**, M.Sc Student, Department of Animal and Poultry Science, College of Agriculture and Bioresources

Images of Research 2024 - *Runner-up, Research in Action*

I see cattle having fun doing what they know best: grazing. While most animals and we humans would love to stay away from the winter cold, these cattle are grateful to be in the field provided there is forage. Traditionally, they would have been fed in barns, but years of continued research have made it possible to continue grazing into the winter months. Having groups of these cattle graze on swathes of monoculture oat and other groups on polycrop mixture (oat, forage pea, and brassicas) tells a lot about the direction of this research aimed at comparing forage systems (monoculture or polyculture) for a successfully extended grazing.



BE WHAT THE WORLD NEEDS

We want your feedback! [What do you think of Discovery Digest?](#)

You are receiving this email because you are a student, faculty or staff at USask. Questions? Comments? Send an email to [Research Profile and Impact.](#)
