



June 2023 - Issue 65

*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!](#)

## This Month's Stories



### [USask partners with Indigenous communities on renewable energy project](#)

The University of Saskatchewan (USask) and QUEST Canada will be collaborating with Indigenous communities to help reach emission reduction targets by increasing the capacity to plan and implement renewable energy projects such as solar, wind, biomass and geothermal sources.

Dr. **Bram Noble (PhD)** with USask's Department of Geography and Planning in the College of Arts and Science will be leading the university's contributions to the project. The joint project team will work with Frog Lake First Nation in Alberta and two remote Indigenous communities in Northern Saskatchewan governed by Peter Ballantyne Cree Nation.

### [VIDO scientists receive \\$1M to strengthen mpox preparedness](#)

Drs. **Alyson Kelvin (PhD)** and **Angela Rasmussen (PhD)** from USask's Vaccine and Infectious Disease Organization (VIDO) to study mpox (formerly known as monkeypox). The infectious disease re-emerged in 2022, resulting in more than 87,000 confirmed cases and 141 deaths in 111 countries.



Kelvin will lead a project to understand virus transmission at the human-animal interface,

and Rasmussen and her team will use genetically diverse mice to study the host responses to mpox infection that lead to specific disease outcomes.



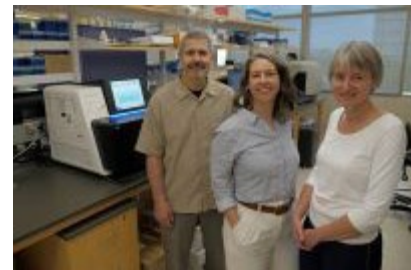
### [USask announces top research award winners for 2023](#)

Recipients of USask’s top honour of Distinguished Researchers for 2023 are Dr. **Wen Jun (Chris) Zhang (PhD)**, and Dr. **Cheryl Waldner (DVM, PhD)**, internationally recognized experts in their fields who have contributed their talents to USask for more than two decades.

USask has also recognized Dr. **Ben Hoy (PhD)**, and Dr. **Kate Congreves (PhD)** with its New Researcher Awards for this year. USask’s four major annual research awards—awarded in conjunction with USask convocation—honour significant contributions to knowledge or artistic creativity by members of the university’s research community.

### [USask launches world-first clinical trial to improve ovarian cancer treatment](#)

A new clinical trial led by USask gynecological cancer physicians aims to improve the quality of life for ovarian cancer patients while also reducing associated costs.



Co-led by Dr. **Laura Hopkins (MD)**, provincial lead for gynecologic oncology at USask’s College of Medicine and the Saskatchewan Cancer Agency, USask gynecologic pathologist Drs. **Mary Kinloch (MD)**, division head of anatomic pathology with the Saskatchewan Health Authority, and USask molecular pathologist Dr. **John DeCoteau (MD)**, the trial will test the tumours in patients for a range of mutations that will help predict responses to a new class of drugs.

The goal of the trial is to create more accurate and personalized information for patients about their cancer, which will lead patients to be able to make more informed choices about their care and the benefits of the new drugs.



### [USask student satellite to be launched to the International Space Station](#)

A student-led USask team has worked for nearly five years to develop a “cube satellite” named RADSAT-SK that was launched to the International Space Station (ISS) on June 3. The student team believes it is the first made-in-

Saskatchewan satellite sent into space.

The June launch is the culmination of a project that began in fall 2017 with a small group of students and their faculty advisor **Dr. Sean Maw (PhD)**, Jerry G. Huff Chair in Innovative

Teaching, in the Graham School of Professional Development (SOPD) at USask's College of Engineering.

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

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### [Theatre, art, and water security central in international USask exhibition](#)

A team of USask artists and students travelled to Prague, Czech Republic to help represent Canada in an international art exhibition and competition with a project focused on Canadian water security and sustainability.



Professor **Carla Orosz**, head of USask's Department of Drama in the College of Arts and Science, was one of three curators from across Canada helping prepare students for the [Prague Quadrennial of Performance Design and Space \(PQ\)](#), a prestigious event to recognize theatre design and artistic work. USask students and recent graduates worked with an artistic team featuring representatives from 14 post-secondary schools across Canada on the large-scale physical and performing arts piece that bridges the gap between artistic work and scientific research.



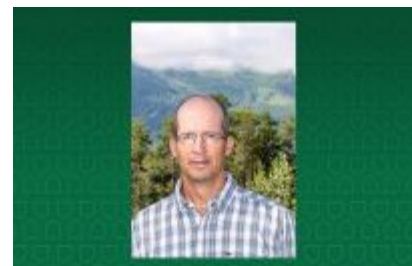
### [USask a leader in higher education sustainability rankings](#)

USask has earned a top-100 worldwide rank in the Times Higher Education (THE) Impact Rankings, with top-20 rankings in two key areas. The university was ranked 67th overall around the world, even with the addition of more than 180 universities to the THE Impact Rankings bringing the total number of participants to nearly 1,600.

THE measures the performance of institutions around the world against the Sustainable Development Goals (SDGs) set out by the United Nations.

### [USask recognizes Natcher for community-engaged research](#)

USask is honouring Dr. **David Natcher (PhD)**, a cultural anthropologist in the agricultural and resource economics department at USask's College of Agriculture and Bioresources, with its 2023 Publicly Engaged Scholarship Team Award (PESTA) for research that engages governments, Indigenous groups, companies, and multidisciplinary academics in collaborative efforts to



address social, environmental, and economic impacts of resource development.

His research on the impacts of oil and gas development in the Peace River region, in particular an area that spans the British Columbia and Alberta border, as well as his research with the Arctic Council on water, energy, and food security, are two of Natcher's career highlights since joining USask in 2007.



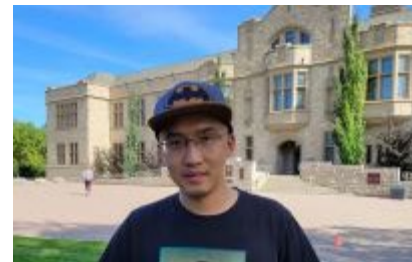
### [Taking the stress out of growing corn](#)

A team of USask researchers are investigating how the first frost impacts corn varieties, in the hopes of finding new ways to maximize crop yields.

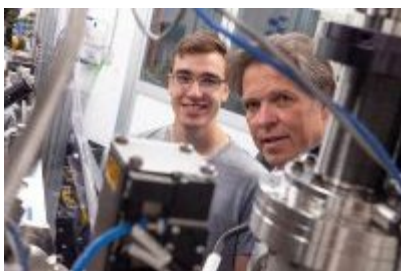
Dr. **Karen Tanino (PhD)** with the College of Agriculture and Bioresources and her team are interested in the cuticular layer of the plant, a defensive barrier that acts like the plant's skin. If the cuticular layer is more water repellent, it is full of waxy compounds that allow water to run off the plant. The researchers used Mid-IR beamline at the Canadian Light Source (CLS) to examine the plants without destroying them.

### [Improving taste, lowering cost of cheese can be possible with enzyme additives: USask research](#)

Research by USask graduate student **Shangyi Xu** in the College of Agriculture and Bioresources is looking for ways to improve the taste and lower the cost of cheese using a scientific process that alters how enzymes work during the fermentation process.



He notes that insufficient fermentation time will leave the final products with a displeasing bitter taste, and the increased storage and maintenance costs during the aging process are often added to the price of the final products for the consumer. To speed up this process and to allow for less bitterness to make it into the final product, Xu has been studying the workflow of the enzyme prolidase using technology at the CLS to determine where the process could be more efficient.



### [USask research uncovers new insights into nitrogen, phosphorous and their neighbours](#)

A research team led by USask College of Arts and Science researcher in physics and engineering physics, Dr. **Alexander Moewes (PhD)**, Canada Research Chair in Materials Science with Synchrotron Radiation, is investigating a brand-new compound—potentially leading to new material properties such as ultra-hardness and luminescence.



Research collaborators at Ludwig-Maximilians-University Munich (LMU) succeeded in creating a new, never-before-seen compound by ramming together nitrogen and phosphorous with germanium—a hard, lustrous, grey element related to silicon and carbon.

Moewes' research team, including post-doctoral fellow Dr. **Tristan de Boer (PhD)** and undergraduate student Cody Somers, then analyzed this new compound experimentally at the team's beamline at USask's Canadian Light Source (CLS) synchrotron.

### Cool Beans: How Ana Vargas chose the Crop Development Centre for her life's work

PhD candidate **Ana Vargas'** work focuses on pulses—those grain crops that can form symbiotic relationships with soil bacteria to fix nitrogen to the soil.

During her time at USask working with the Crop Development Centre (CDC), Vargas has worked on a variety of pulse development projects at the CDC all with one central purpose: to develop a diverse range of new varieties that meet the needs of growers and consumers. One such initiative addresses the pressing issue of nitrogen fixation, which, simply put, is the process of capturing and converting atmospheric nitrogen in the soil which can be easily taken in as nutrients for crops.



### Closing gaps in water access to 'leave no one behind'



### Quantum revolution

### CDC milling oat variety bred to endure



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## Stay connected with USask research news



Make sure to follow the USask Research [Twitter page](#) to stay in-the-know, with exciting research news delivered right to your newsfeed. Don't forget to follow [USask Research on LinkedIn](#), [@VPR\\_USask](#) and [@USask](#) on Twitter 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.

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**ICYMI: [This year's TEDxUniversityofSaskatchewan videos are now available!](#)**

USask is home to pioneers in discovery who are improving lives, expanding opportunities, strengthening social cohesion and protecting the environment. In the spirit of ideas worth spreading, they took to the TEDx stage in January with compelling stories of ambition and achievements, sharing their voice and vision to be what the world needs.

Whether you missed the event or just want to re-watch the amazing talks, [find all the videos online](#).

Learn more [about the event](#).

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## In the *Conversation...*

### [The 'good fire': Prescribed burning can prevent catastrophic wildfires in the future](#)

By Dr. Eric Lamb (PhD), USask Department of Plant Science

Today, small but active groups of ecologists and land managers on the Canadian Prairies are [using fire to renew and rejuvenate grassland ecosystems](#), enhance biological diversity and even to prevent catastrophic wildfire.



## Upcoming events



### Livestock & Forage Centre of Excellence (LFCE) Field Day

Join us on Tues., June 20, for a full day of livestock and forage research results, and tours featuring USask scientists from various disciplines.

The 2023 LFCE Field Day will take place from 9:30 a.m. to 3:30 p.m. on Tuesday, June 20 at the Livestock and Forage Centre of Excellence - Beef Cattle Research & Teaching Unit

- [LFCE Excellence Field Day – Tuesday, June 20](#)

### Toxicology Centre 40th Anniversary Celebration

The USask Toxicology Centre is celebrating its 40th anniversary with a program that will recognize current and former researchers, and prominent USask alumni.

The event will also feature the presentation of Lifetime Achievement Awards to prominent contributors to the Toxicology Centre and guided tours.

The anniversary program runs from 10:45 a.m. to 12:15 p.m. on Tuesday, June 20 at Marquis Hall



- [Toxicology Centre 40th Anniversary Celebration - Tuesday, June 20](#)

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## *In the news*

- June 12 – Saskatoon StarPhoenix – [COVID-19 in Sask. Cities' wastewater remains low: U of S lab](#)
- June 9 – CBC Radio – [Researchers at the University of Saskatchewan have embarked on a clinical trial that could help personalize treatment for ovarian cancer](#)
- June 9 – MSN Weather, CBC News – [Experts express concerns over less rainfall, early snowmelt in Alberta](#)
- June 6 – CBC News – [Mental health toll can linger long after wildfire evacuees return home](#)
- June 2 – Toronto Star, The Conversation – [Could the secret to happiness involve four legs, soft fur and an open heart?](#)
- May 31 – Global News – [Saskatoon groups listen to senior voices regarding COVID-19 effects](#)
- May 29 – MSN Video, Global News, National Post – [First Saskatchewan-made satellite to](#)

## [Launch Saturday with SpaceX](#)

- May 25 – Global News – [USask's VIDO receives \\$1 million for collaborative mpox research](#)
  - May 24 – CBC News, The Weather Network – [Sask. experts give advice on helping bees in and out of cities](#)
  - May 23 – MSN News, CBC News – [Despite Sask. government fears, experts say net-zero emissions by 2035 possible and beneficial](#)
  - May 18 – Western Producer – [New U of S researcher tackles forage](#)
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Banner image photo credit: **Meet Your Local Backyard Buddy** - By **Georgiana Antochi-Crihan**, Plant Sciences masters student

Images of Research 2023 - *Runner-up, More than Meets the Eye*

Did you know that there are an estimated 7 million insect species on our planet? Insects play many roles in our ecosystem, including pollination, pest control, and nutrient recycling. This little friend is a thistle tortoise beetle (*Cassida rubiginosa*). They are very effective at reducing Canada thistle (*Cirsium arvense*) populations and are found locally in our backyard! Interestingly, this beetle was unexpectedly found in the middle of a wheat field. Despite the vast quantity of insects worldwide, little is known about their distribution throughout Saskatchewan. My project aims to fill this knowledge gap by inventorying the insect diversity of our prairies. By gaining insight into the true distribution of insects across the prairies, we can better implement insect management strategies.

Funders: MITACS, Ducks Unlimited Canada, SaskWheat



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