



SMART
Farm

2021 IMPACT REPORT

 EST. 1913
OLDS COLLEGE



A STORY OF AGRICULTURAL TRANSFORMATION & EXPANSION.

In the summer of 2018, Olds College launched the Smart Farm, an exciting transformation of the College's existing farm into a farm of the future.

By incorporating the latest technologies aimed at improving productivity, while efficiently and sustainably using resources, the Smart Farm has evolved and expanded quickly into a cutting-edge learning, applied research and demonstration environment for students, life long learners and industry partners.

In Alberta, Canada, and around the world.



TABLE OF CONTENTS

- 1** Transformation
- 2** Expansion
- 4** Purpose
- 5** Message from the President
- 6** Living Lab
- 9** People and Technology
- 10** Partnerships
- 12** Field Crop Development Centre
- 14** Farm Autonomy
- 16** Sensors
- 18** Data and Digital Strategy
- 20** Technology Development and Validation
- 22** Regenerative Agriculture
- 24** Technology Access Centre for Livestock Production
- 26** Field to Fork
- 28** Ag Tech Learning Hub

THE OLDS COLLEGE SMART FARM

Learning, expanding, making an impact

The Smart Farm has changed. And so has farming and livestock. Because in Alberta, they depend on each other—for innovation, demonstration, validation and commercialization of smart-connected agriculture technology through industry partnerships.



So, what's changed on the Smart Farm exactly?

It's still a world-renowned living lab for hands-on learning.

An innovative venue for the development, validation and commercialization of new technology.

A cutting-edge learning environment for students and producers representing the future of agriculture.

2,800 acres of interconnected agriculture operations and commercial scale applied research.

And a trusted space for the College and our partners to collaborate and move agriculture forward.

Thanks to the remarkable success of the Smart Farm, we've expanded towards an even brighter future—for our students, our partners and Canadian agriculture.

Let's start by acknowledging the generous gift of expansion we received for the Olds College Smart Farm:

320 acres of farmland from the estate of George and Marge Steckler of Didsbury, Alberta, including an endowment fund for student bursaries to be awarded to eligible students enrolled in our agriculture programs.

316 acres of farmland from the estate of Willem Pitstra of Carstairs, Alberta.

The land is valued at over \$2,000,000. Through these gifts, they are transforming agriculture education and research by allowing Olds College to expand the Smart Farm.

This past fall we received another generous donation—10 purebred Red Angus heifer calves from the Canadian Red Angus Promotion Society for the purpose of studying production efficiency, animal health and welfare and environmental sustainability. The herd is now managed by the College's Technology Access Centre for Livestock Production (TAC), who provide resources and services to move the livestock industry's technological needs forward.

We also received an expansion from the Alberta Government—as they moved the Field Crop Development Centre in Lacombe to Olds College, including a provincial operating grant of \$10.5 million. The transfer of the program from the government demonstrates the important role that the College plays in leading and transforming agriculture and advancing Alberta's economy.

From concept to delivery—this is also the year we launched two groundbreaking ag tech programs through the new Werklund School of Agriculture Technology. Both the Precision Agriculture – Techonomy Diploma and the Agriculture Technology Integration Post-Diploma Certificate link emerging technologies to today's real-world agriculture environments for a college experience that is relevant, in-demand and future-focused.

We are leading the Pan-Canadian Smart Farm Network, a network of Smart Farms committed to sharing data and expertise.

Olds College is proud to announce our participation in this collaborative framework among Canada's Smart Farm initiatives—designed to provide leading edge training and learning opportunities for producers, agronomists, technology developers and students to accelerate the development and adoption of agriculture technologies.

Which gives us even more opportunity to expand our expertise by collaborating with and attracting some of the world's brightest minds in agriculture technology—working with students to solve productivity, profitability and sustainability challenges in machine autonomy, on-farm data collection, data utilization and regenerative agriculture.

Learning, expanding, making an impact.

IN 2020, DESPITE AN UNPRECEDENTED GLOBAL PANDEMIC,

We covered:

- 767 acres for crop production (feed, silage and cash crops)
- 923 acres of forage production (hay, forage and pasture)
- 54 acres of dedicated research plots
- 110 head cow calf operation
- 130 head sheep flock
- 1,000-head capacity feedlot

And for the 2021 growing season, we installed:

- 11 weather stations from five different suppliers—measuring air temperature, RH, rainfall, wind speed, wind direction, evapotranspiration, radiation, NDVI, growing-degree days and more
- 50 additional sensors from five different suppliers—monitoring soil moisture, soil temperature, electrical conductivity, soil nutrients, soil aeration and soil respiration
- Insect traps and crop cameras—monitoring pest pressure and crop staging
- 160 livestock sensors and tags—monitoring water levels electric fence voltage, as well as cattle behaviour and location



FROM BIG IDEAS TO WORKING PRODUCTS.

*From challenges in agriculture
to real world solutions. Smart.*

The purpose of the Olds College Smart Farm is to:

- Establish the most efficient way to collect and implement the world's best digital agriculture technologies on the Smart Farm,
- Demonstrate increased efficiency of farming operations through implementation of smart technologies and practices, and
- Utilize the Smart Farm infrastructure and engage a global agriculture technology ecosystem for education, demonstration and applied research.

Working together with our partners and producers, Olds College continues to evolve the Smart Farm and respond to the changing needs of the agriculture sector.

Together, we are addressing the gaps and removing roadblocks related to agriculture technology development, adoption and data utilization. We are producing skilled personnel and developing an innovative ecosystem for the rapidly growing agriculture technology sector.

Above all, we're transforming agriculture by advancing the education of tomorrow's agriculture leaders.

MESSAGE FROM THE PRESIDENT

EVERYTHING WE DO

*is aligned to our purpose of transforming
agriculture for a better world.*

Innovation. It's the driving force behind the Olds College Smart Farm. At Olds College we know that in order to achieve our social purpose of transforming agriculture for a better world we need to create space for students, researchers, industry partners and producers to come together to explore the challenges and opportunities facing the Canadian agriculture and agri-food industry.

The Smart Farm provides a living lab for us to validate, test and demonstrate technologies, and the response from both the agriculture and technology industries has been wonderful. In 2020-21, we worked with over 100 partners on the Smart Farm, worked on 63 active research projects and grew our research team to 45 people.

In May 2021 we expanded our applied research team by 12 summer students, including our first PhD student from McGill University who is completing his PhD candidacy at Olds College. Being able to offer students work-integrated learning opportunities in agriculture technology is one of our primary goals of the Smart Farm and our applied research program at Olds College.

The Smart Farm provides our students, the future leaders of agriculture, exposure to the latest technologies and opportunities to address some of the greatest challenges facing our industry. To continue to grow these opportunities, Olds College signed a memorandum of understanding with Lethbridge College in May 2021 and with Loyalist College in June 2021. These commitments allow us to continue to build a strong network of post-secondaries committed to supporting agriculture education and positioning Canada as a leader in sustainable agriculture.

As home to Canada's first Smart Farm (launched in 2018), Olds College is pleased to also now be leading the Pan-Canadian Smart Farm Network. A \$2.9 M initiative, the Pan-Canadian Smart Farm Network, which includes Glacier FarmMedia Discovery Farm and the Lakeland College Student-Managed Farm – Powered by New Holland, is a network committed to sharing data and expertise that will help farmers, industry and developers better understand, use and develop smart agricultural technologies to strengthen Canadian agriculture.

In the spirit of information sharing, I proudly present the *2021 Smart Farm Impact Report*. Sourced from a series of partner and stakeholder interviews, the material in this report aims to capture and celebrate the impact we've made in Alberta and beyond.



Stuart Cullum,
President, Olds College

AS YOU CAN SEE, THIS IS ONE SMART FARM.

Launched in the summer of 2018, the Olds College Smart Farm has become a cutting-edge learning, applied research and validation environment for students, life-long learners and industry partners.

Farm management software platforms that gather, store and visualize production and management data



Data analytics and machine learning that turn data into information and information into knowledge



Improved connectivity with the 5G network capabilities in Olds and a 4G/LTE Solar Repeater Tower on the Pitstra Farm which boosts and extends coverage to reduce dead zones



2,755 acres of land for crops and forage production, including 1,117 acres on main campus at Olds, 418 acres across Highway 2, 308 acres at Pitstra Farm west of Carstairs, 312 acres at Steckler Farm west of Didsbury and 600 acres at the Field Crop Development Centre in Lacombe



A space for ag innovation, demonstration, validation and commercialization of smart-connected agriculture technology through industry partnerships



Projects, training and networks that align with the Olds College Social Purpose— transforming agriculture for a better world— by helping to advance agriculture's value chain and global competitiveness



New credentials for the new future of ag— starting with a precision agriculture techgonomy diploma and agriculture technology integration post-diploma certificate

Techgromomists who use technology to analyze data and integrate it with agronomic principles to improve productivity, profitability and sustainability



World class expertise in subjects that matter, including data science and agronomy, instrumentation, telematics and GIS/GPS, project management, ag business management, soil science, plant science, entomology, remote sensing technology, machine automation, and agricultural engineering

A 2,800-ACRE LIVING LAB

SMART Farm

for hands-on student learning and applied research



Exciting new internet cloud technologies include the LoRaWan low-power wide-area network protocol— ideal for connecting farms to hourly data streams from soil monitors, digital weather stations, autonomous equipment, wireless grain bin sensors and more



The Werklund School of Agriculture Technology including programs that link emerging technologies to today's real-world agriculture environments—for a college experience that is relevant, in-demand and future-focused



A bright new vision of the future where agriculture is highly valued, respected and continues to lead globally— through the use of technology, data science, machine automation, communications, health, nutrition and more



View our interactive Smart Farm map with this QR code or go to oldscollege.ca/smartfarm



ANOTHER SIGNIFICANT ACCOMPLISHMENT AT OLDS COLLEGE:

We've attracted a truly remarkable group of experts to teach our students—and to help Olds College lead the agriculture sector.

Through the Smart Farm, we've, in fact, become a magnet for talented instructors and staff. And our expertise continues to grow around the Smart Farm, with over 70 folks contributing directly to its evolution.

And this will be tough for any organization to replicate—from its physical infrastructure to our awesome human resources to the connections we've established with other agencies and organizations who express a vested interest in our social purpose:

Transforming agriculture for a better world.

The result of this alignment has been exponential: a talented internal team connected to unprecedented global expertise in an unduplicatable Smart Farm environment.

All of which make Olds College a world-class agricultural institute with Smart Farm leadership in the following fields:

- Data science and agronomy
- Telematics and GIS/GPS
- Plant science and entomology
- Machine automation
- Instrumentation
- Agricultural engineering
- Soil science
- Project and ag business management
- Remote sensing technology

In fact, our growing team of managers, scientists and technicians—with notable PhD, M.Sc., B.Sc., Diploma, P.Ag., P.Eng., MBA designations—are supported by an equally committed group of staff, student interns and subject matter experts.

Together, this team provides our foundation for achievement. Because, as we like to say at Olds College, the Smart Farm doesn't run itself. *Yet.*

Here is our dynamic leadership team of professionals and experts who collaborate with industry in the ongoing governance and development of the Smart Farm:

Thought Leader in Smart Agriculture
Art Froehlich

Associate Vice President, Applied Research
Dr. Joy Agnew

Dean of the Werklund School of Agriculture Technology
James Benkie

Manager, Smart Farm Partnerships
Jason Bradley

Chief Technology Officer, Digital Ag
Dr. Alex Melnitchouck

Industry Advisor Agronomist
Steve Larocque

Manager, Crops and Environmental Stewardship
Ike Edeogu

Manager, Technology Access Centre for Livestock Production
Sean Thompson



PARTNERSHIP PROFILES:

Producer Panel features discussions with influential Canadian producers on how Canada’s agri-food industry will help shape the country’s global role in a post-pandemic decade by adapting to next-generation technology. This partnership with producers has never been so timely and valuable.

Olds College has signed an agriculture applied research and programming (MOU) agreement with Loyalist College in Ontario. This collaboration will establish new and enhanced integrated learning opportunities for students between the two institutions.

Olds College launched the Pan-Canadian Smart Farm Network—a network of Smart Farms committed to sharing data and expertise that will help farmers, industry and developers better understand, use and develop smart agricultural technologies.

Olds College has signed an (MOU) agreement with Lethbridge College to address key issues and opportunities through collaboration and information sharing in support of Alberta’s agriculture industry and our province’s economic recovery—and to embrace our roles in leading and enhancing agriculture for the benefit of our industry, our institutions and our students.

WORKING IN PARTNERSHIP

to solve agriculture’s important challenges— it’s our ultimate measure of success.

Since 2018, our growing list of partners has made a significant impact on the Smart Farm by participating, through collaboration and funding, in our product trials and demonstrations, access to research and innovation, industry connections and more.

And they’ve had a major influence on our Olds College students, the future brain power of agriculture—including a competitive recruitment advantage.

Our Olds College Smart Farm partnerships include:

- 100+ small-to-medium size enterprises (SME’s)
- 8 donors
- 14 industry networks
- 13 research collaborators
- 16 sponsors

Together, our goal is to move the industry forward. In return, the Smart Farm offers our partners the time, space, technology and creativity to find transformative solutions to today’s agricultural challenges—including a long-term investment opportunity in a venture that’s nearly impossible to duplicate.

The result of our partner contributions are sustainable outcomes in farm practices, technology, jobs, the economy and profitability— on the farm, to the farm, from the farm.

Best of all, the Province of Alberta is also in lock step to help businesses and industry flourish through their support for the Smart Farm and these participating stakeholders.

In fact, the entire country is ready for this platform. While the application is different for every farm and every region, the Smart Farm has become the source in Canada for the sharing of information, data, technology and best farm practices in agriculture.

It’s a collaborative mandate that’s not only setting a high standard for agriculture in Canada, it’s an influence that’s felt around the world.

100 SMART FARM PARTNERS THAT MAKE US EVEN SMARTER.

Our growing list of collaborators, influencers and contributors is available at oldscollege.ca.

PHENOTYPES, COLOUR, LODGING, YIELD.

*We're streamlining the breeding process—
and transforming the learning process.*



Our world-class Field Crop Development Centre (FCDC) quantifies it all.

- In 2021, we are planting, analyzing and harvesting 40,000 plots in four Alberta locations
- We currently collaborate with research institutions in over 30 countries
- To date, we've released 50+ barley and triticale varieties

In collaboration with the Olds College Smart Farm, the FCDC is a world-class research facility with the ultimate goal of streamlining the breeding process to develop better barley and triticale varieties, faster.

In fact, we're identifying and measuring every characteristic we can, using all types of technology—from molecular markers to Near Infrared Spectroscopy (NIRS).

And while conventional and contemporary plant breeding techniques are used, all of it is cutting-edge science, focused on attaining high yield, improved disease resistance and superior end use quality characteristics.

FCDC's plant breeding programs are supported by our pathology, biotechnology and quality laboratories, which use different technologies more efficiently and effectively target specific disease resistance and quality characteristics—allowing us to cut the time it takes to release a new, improved variety.

This is the kind of transformative research that makes the Smart Farm a worthy investment—in time, space, creativity and application—for the advancement of agriculture.

DID YOU KNOW?

The Field Crop Development Centre has officially transitioned from Alberta Agriculture & Forestry to Olds College. The centre is in Lacombe, Alberta and has been developing enhanced cereal varieties for feed, forage, malt, food and bio-industrial uses since 1972.

FARM AUTONOMY HAS ARRIVED.

*And with it, a complete re-imagining of agriculture.
But it didn't get there by itself.*

To learn more about
this project visit
oldscollege.ca/smartfarm

The Olds College Smart Farm has a significant role to play in the automation of farm operations. That's because there are as many opportunities for Canadian agriculture as there are challenges.

On the Smart Farm, research is underway to look at how autonomous equipment will compare to traditional equipment—with respect to capital and operating costs, environmental impacts (i.e., compaction), labour requirements, training requirements, efficiency, troubleshooting, and regulatory hurdles.

A successful 2020 season.

- In March 2020, Olds College secured and purchased an OMNiPOWER™ platform (previously named DOT) with three compatible implements: SeedMaster 3015 DSR Seeder, Pattison Liquid Systems Connect PLU S120 Sprayer and New Leader NL5000 Nutrient Applicator
- Main objectives of the multi-year research project are to study the technical, economic, environmental and social factors associated with operation of autonomous farm equipment
- Partnerships with Carlson Ag (to increase available acres) and Pattison Farms (to increase observable data)
- The Olds College OMNiPOWER™ completed 34 missions during the 2020 growing season, seeding 125.6 acres, spraying 2078.6 acres and spreading 240.7 acres

New 2021 benchmarks have been calculated.

- The plan for 2021 is to increase the number of acres, while performing more advanced research on fuel consumption, field efficiency and productivity
- New systems will be installed and utilized to collect real-time machine performance data from the equipment
- As the team becomes more experienced, and the equipment receives continual software updates and product improvements, field operations and fuel efficiencies are expected to increase, and downtime is expected to decrease

OMNiPOWER™ operations experienced and overcame many challenges with the equipment and software throughout 2020—with assistance and training from Raven Autonomy and Pattison Liquid Systems, plus a large and robust team dedicated to operations, logistics, transportation, product tendering, data collection, mechanical support and software/GIS support.

SENSORS.

Our Smart Farm sensors, monitors and drones—measuring climate, light, soil, nutrients, staging, pests, more—now have the power to unlock predictive analytics that have never been unlocked before.



On-farm data collection relies on climate, soil, crop and weather monitors and sensors. The applied research at Olds College is focused on evaluating the functionality, accuracy, reliability and connectivity of pre-commercial and commercial sensors and understanding the value the data can provide to producers.

- Implementation of a multi-sensor cluster to evaluate and compare performance and functionality of several types of soil, climate and crop sensors
- Measuring the effect of method of installing soil sensors on accuracy of soil moisture data
- Validation of real-time soil nutrient sensors
- Evaluation of a novel microclimate sensor

And, of course, Olds College Smart Farm is also a major stakeholder in assessing the challenges that come with it all:

How do we (and the farmer who uses it) manage it all? Because there is lots to consider, including connectivity, robustness, quality of data, accuracy of data, value of data, applicability of technology for western Canada, effect of method of installation on readings, required density of sensors for accurate management decisions.

And there as many types and brands of sensors as actual things to measure: from live-camera property feeds to sensors that capture physical characteristics and spectral/geothermic images.

Another thing our students and partners learn on the Smart Farm: Make sure you collect the right information with the right sensor.

A man with a beard, wearing a blue and white plaid shirt and blue jeans, stands in profile looking at a large digital display table. The table shows various data visualizations, including maps and charts. In the background, there are several computer monitors displaying data. A white mug is on the table in the foreground.

DATA AND DIGITAL STRATEGY.

The Smart Farm is getting good at putting data to work—for better input recommendations and reduced input costs.

As a living lab, the Smart Farm is progressing at an enormous rate. This is especially true in data collection and analyses, simply because smart and precision agriculture are so heavily reliant on data.

So, everything new and exciting in data that's being used in agriculture today is accessible to students, literally hands on.

And while the data challenges are significant:

How can on-farm data and imagery be managed and utilized?

- For on-farm decision-making
- Development of predictive algorithms
- Validation and ground truthing of new technologies or practices
- Quantification and verification of processes such as carbon sequestration
- Scouting, yield and profit analytics

The learning opportunities that students and partners are presented with are game-changing:

Which data tool is the best fit for the different needs and applications of the farmer?

That's why research at Olds College is focused on developing and optimizing ways to collect, manage and utilize on-farm data for evidence-based decision-making.

- Hyper-layer data concept development, including generation and utilization of multiple layers of geospatial data (since 1984) for the creation of predictive algorithms, mapping plant-available soil nutrients, identification of yield limiting factors and grain protein maps
- Development of a user guide that outlines prescription mapping methods from different service providers and the corresponding file formats
- Using as-applied data to assess overlap reduction with sectional control technologies
- Compilation of training data sets and specific data layers to validate and optimize novel soil and crop mapping techniques
- Evaluation and summaries of farm data management platforms



TECHNOLOGY DEVELOPMENT AND VALIDATION.

The Smart Farm is a coveted space for validating new technology, and getting it commercialized and adopted in Alberta, for Alberta.

See for yourself at
www.oldscollege.ca/research

New technologies for agriculture require in-field testing and validation in the setting of an operating farm. Optical spot-spray technology, such as Weedit. On-combine NIR for real-time grain constituent analysis. In-bin drying sensors (accessible from your smart phone).

Olds College applied research supports refinement and optimization of technologies and provides manufacturers and users with information on functionality, accuracy and value of technologies.

Here are just some of the technologies that we validate on the Smart Farm, often on behalf of our partners, to move it through the innovation chain—and into the hands of farmers and producers:

- Preliminary development of cattle facial recognition for cattle identification, lameness detection, etc.
- Evaluation of variable rate prescription mapping using satellite imagery
- Development and testing of an automated and remotely monitored in-pasture weighing system
- Assessment of performance, accuracy and cost effectiveness of optical spot spraying in western Canadian conditions
- Validation of a novel sensor and algorithm that predicts when grain reaches “average” dry during in-bin drying

The real-world challenges are varied:

- What is the chemical use reduction/accuracy and performance of spot spray technology for western Canadian conditions?
- What is the long-term economic and environmental advantage of optical spot spray technology adoption?
- How can georeferenced protein content data be used to drive agronomic and marketing management decisions?
- How can the accuracy of airflow rate estimation be improved to better determine water balance during in-bin grain drying?

But the Smart Farm validation team knows agriculture—and what it will take to develop the technology for it to work, particularly in Alberta stubble, soil and climate conditions.

And then how to build a business case for it. Smart.



REGENERATIVE AGRICULTURE.

It's novel, smart and transformative.

It's also a new management approach that's already making an impact on our students.

Overgrazing is a constant variable when managing cattle, but what if it could be cut out of the equation entirely?

Regenerative agriculture benefits are well known—yet they haven't been very well researched and they're not accessible to producers.

With the Regenerative Agriculture project, the Olds College Smart Farm is utilizing a side-by-side grazing strategy (continuous versus rotational grazing on duplicate 30-acre pastures), a drone with a spectral-imaging camera, various ear, fence and land sensors, as well as controlled irrigation (natural and equipment).

By taking a new management approach, we should be able to improve the plant matter and feeding capability of this ground. This should allow for greater feeding times in pasture and less time for cattle in confined feeding operations. It also allows us to be more economic by moving cattle to the feed source instead of bringing more feed to the cows which takes more time, labour and equipment.

And it's applied research like this that results in a more holistic management approach—cropping and livestock systems that improve overall soil health, biodiversity and sustainability of food production.

It's also a living lab for evaluating the kind of technologies that support and quantify the benefits of regenerative agriculture practices, including remote grazing management, intensively managed versus conventional grazing and novel crop cocktail blends.

STUDENT ACCESS TO WORLD CLASS EXPERTISE IN LIVESTOCK MANAGEMENT.

Our Technology Access Centre for Livestock Production (TACLP) continues the legacy of smart at Olds College.

TACLP is one of 60 technology access centres (TAC) in Canada supported by the Natural Sciences and Engineering Research Council (NSERC)—and the only TAC (and TAC-grant recipient) that deals directly with both agriculture and livestock management.

Established in 2016, the TACLP is dedicated to improving animal health and welfare, increasing production efficiency and enhancing environmental sustainability for beef and heep production.

The TACLP initially focused on providing feed efficiency testing services to Canadian producers with the intent of achieving genetic improvement, reducing feed requirements and decreasing the environmental footprint of beef cattle.

Since then, the TACLP has flourished and broken into multiple different areas of livestock research, while partnering with a wide range of clients to achieve their research goals. The centre has also provided significant opportunities within Olds College's educational programs.

The TACLP team is currently providing connections to industry partners for Agri-Business Applied Degree students for real world experience projects.

Olds College's Agriculture Management and Animal Health Technology programs have also benefited from the TACLP's involvement with over 5,655 student hours contributing directly to TACLP research projects.

Student interns also play an active role in the development of applied research projects. "Seyed 'Ali' Goldansaz is currently a student intern with the TACLP, supporting our sheep research activities," said TACLP manager Sean Thompson. "He brings with him specific expertise related to sheep research and industry priorities, along with an extensive network of producers and fellow sheep researchers."

And all of this applied research and technology? Requires third-party validation from such clients as:

- Growsafe Systems Ltd.—developers of an in-pasture weighing system that collects data on individual animal performance and transmits that data directly to a wireless network.
- Canadian Hereford Association, the Canadian Gelbvieh Association, the University of Alberta, and over 20 other ranchers from across Alberta, Saskatchewan and Manitoba in our field efficacy testing.

Ceres Solutions Ltd. is another client of the TACLP who is working on the development of an environmentally efficient livestock feed called Mycopro. "The TACLP priorities for improving sustainability and increasing productivity are shared with Ceres in our efforts to produce a food product with zero waste," said Alex Villeneuve, founder of Ceres Solutions Ltd.



The TACLP is currently involved in researching the remediation of feedlot runoff water, in collaboration with the Environment & Wetland research team, to quantify the benefits of using floating island technology to naturally filter runoff water for reuse. In addition to this, the Regenerative Agriculture project funded by Alberta Innovates integrates both Smart Ag Research and the TACLP research teams to quantify the economic and environmental benefits of novel grazing systems while demonstrating the use of technology for remote grazing management.

Though it has primarily focused on cattle, the TACLP plans to increase sheep activities through upcoming applied research projects. Two of these prospects include designing and implementing blood kits for efficient parasitic infection testing and pregnancy detection technology that can be used to determine the number of births within a flock.

Visit www.oldscollege.ca/research/areas-of-focus/livestock-meats/index.html for more.

By expanding its applied research track record, the TACLP continues to deliver first-rate services to its partners, while enhancing our academic programming.

"The TACLP is key to implementing research-impacted education at Olds College," said Dr. Joy Agnew, associate vice president of applied research. "The research results and expertise of the team have created the opportunity for classes to include leading edge information on the technology and best practices of livestock management."



FROM FIELD TO FORK TO TRANSFORMATIVE LEARNING OPPORTUNITY.

Here are highlights of the Olds College Agri-Food Production 'Learning Enterprises'.

This is where our students get a chance to integrate with (and learn from) the selling side of agriculture—'bringing the community to our campus' through our brewery, retail meat store and horticulture programs weekly sale.

We call this program, 'Learning Enterprises'. It's a series of work-integrated experiences that put our students on the front lines of the entire production-to-retail process. Ultimately, they gain experience in the crucial role they're about to play in transforming raw ingredients into value-added products that consumers will (and do!) want to consume.

Introducing our Horticulture Program's newly acquired FarmBot—featuring demos from Dr. Ken Fry. An amazing new smart tool, this robot can seed, water, and remove weeds with incredible precision. Click and drag software, moisture sensors, remote cameras and more gives students ultimate knowledge and control of the entire growing process. It's also Open Source, which means students and faculty can explore innovations and modifications through coding and 3D printing. Look for FarmBot to be fully operational in time for 2021/22 programs.

From field to glass at the Olds College Brewery.

- Based on a Diploma that covers 'everything there is to know' about beer making, marketing and sales
- All beer products brewed from 1.3 metric tonnes of barley
- Built in 2013 and open to locals and tourists on Monday-Saturday
- Introducing the Barley Trail block Chain Project—featuring labels with 2-D bar codes that allow brewery customers to track the beer they're drinking on FieldtoGlass.ca
- Results in MASTERY of the beer-making process, including how to choose the barley to brew our wonderful Olds College beers that teach students how to compete in today's highly competitive craft beer market

From slaughter to sale at the Olds College Retail Meat Store.

- Based on a one-of-a-kind, 14-week Certificate in either Slaughter or Full-Service Retail
- Trains butchers from live animals off the Smart Farm to value-added retail cutting
- A smart way to increase the student experience—they get to see the products they produce go into the store and then leave the store
- Results in CONFIDENCE by applying their training to selling

From fresh to preserved at the Olds College Famous Greenhouse Sale.

- Based on two Diplomas and two Applied Degrees
- Weekly sale that occurs every Friday during lunch hour
- Trains students to sell fresh, while preserving and turning the rest into highly marketable jams, jellies, pickles, relishes, fermentations and beauty products
- Results in LEADERSHIP and ENTREPRENEURIAL experiences as students learn how to innovate with live and preserved horticulture products and utilize the entire plant life cycle in a way that meets consumer demand

And who knew? Albertans LIKE to support our Olds College students and the unique, locally sourced products we produce—and that you can't get anywhere else in the world!

REVOLUTIONIZING THE LEARNING ENVIRONMENT. ACCELERATING EDUCATION. TRANSFORMING AGRICULTURE.

Introducing our newest Olds College expansion: the Ag Tech Learning Hub.

Our Olds College community is driven to transform agriculture for a better world. And to do that, we've had to modernize our learning environment, starting with the Olds College Smart Farm in 2018.

In August 2022, we're opening the Ag Tech Learning Hub—an experiential gathering facility where architecture and agriculture are united under the theme of 'celebrate place'. And where students, faculty, growers, companies, researchers and the public are integrated in an open, transparent learning environment.

It's a unique and inspiring space, designed by Gibbs Gage Architects to help teaching, research and innovation come to life and collide in a way that challenges traditional learning. And where everyone can understand immediately how quickly agriculture is expanding to include ecosystems, environment and sustainability—simply by looking and listening at any number of demonstration areas, mechatronics labs, living labs and open classrooms.

The coolest new tech creation will live here. Our Green Automation Lab will leverage real growth opportunity in a space where anyone can watch. Both students and faculty will be free to take on today's challenges in technology, climate, soil, water and more—in an environment that welcomes new thinking and real-world idea generation.



Above all, the Ag Tech Learning Hub is a living tribute to David Werklund—acclaimed Canadian entrepreneur who believes in 'empowering people and teamwork' to overcome challenges. As such, it's an architectural extension of the Werklund School of Agriculture Technology at Olds College, which reflects his highly regarded dedication to continuous learning and 'what happens when you surround yourself with talented, progressive people.'

A hub for students and faculty with ingenuity and purpose—a magnet for people who see a better future for agriculture.

Where will tomorrow's jobs in agriculture come from? Likely, they'll evolve from opportunities that are being recognized today—many of which are the surprising result of new remote-learning models inspired by the recent global pandemic.

From our Olds College Remote Ag Ecosystem (OCRAE) to cloud-based seeding, spraying and fertilizing to sensor-based imaging and data measurement platforms—institutional learning and workplace culture is being redefined in a way that has opened many doors to accelerated learning.

How we connect and learn has changed. Traditional learning has given way to students with a mindset to create, fail, learn and succeed—at an impressive rate. Information has become easily consumable, and students want to get to hands on as quickly as possible, with no restraints.

The Ag Tech Learning Hub answers that call, preparing Olds College for the student body of the future—local, national, global, transparent, integrated and very, very smart.





Seeding Our Future.

Experience the innovation.

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