



nurturing new ideas | annual report 2020-21



Who would have predicted that we would spend more than a year responding to changes brought on by the pandemic? Like so many others, Ag-West Bio has had to adapt and innovate to carry out our business. Saskatchewan has many examples of adapting and shining during this time.

president's message | innovate, adapt, shine



The Vaccine and Infectious Disease Organization (VIDO) has been recognized as being vital to the Canada's pandemic resiliency and has secured funding to enhance its vaccine manufacturing facilities. ZYUS Life Sciences has shown that vaccine ingredients can be manufactured in plants. Agriculture and food production came into the spotlight as food security grabbed consumers' attention, leading to a host of initiatives to address the issues.

Ag-West Bio has built a strategic roadmap to navigate this uncertain landscape and find a pathway to grow the bioeconomy. Our plan focuses on our core strengths for catalyzing connections and enabling commercialization. We know that working together we can equal more than the sum of our individual parts and partnerships will be key to our success in supporting the innovation ecosystem.

Adapting to connecting online was one of our first hurdles last year. Of note was the launch of our ABIC Speaker Series last fall as a hybrid event (virtual and in-person) featuring Brent Zettl, president of ZYUS Life Sciences. Hybrid events will be a permanent feature, as they allow us to connect across the country and attract thought leaders who can join from afar, such as our fall 2021 ABIC speaker, Nobel Peace Prize recipient Dr. Jennifer Doudna.

In partnership with Innovation Place, we are launching the Ag-West Boffins Innovation Series. We will be managing a wide variety of events at Boffins that benefit our members.

An exciting new initiative to advance innovation in Canada is soon to be launched in Saskatoon. The newly created Global Agri-Food Advancement Partnership (GAAP) is an incubator and unique investment vehicle to support new agriculture and agri-food business and increase commercialization success. GAAP is the result of a partnership between Ag-West Bio, Global Institute for Food Security, Innovation Place and the Saskatchewan Food Industry Development Centre.

It has been a year of wins for Ag-West Bio and for that I must thank my amazing team that comes to work each day with so many great ideas; and an equally amazing board of directors that offers time, advice, and guidance to help us select which ideas to pursue. I also want to thank the Saskatchewan Ministry of Agriculture and Agriculture and Agri-Food Canada for funding. Your continued commitment allows us to put our ideas into practice and grow Saskatchewan's bioeconomy. ■

Dr. Karen Churchill

letter from the chair

rising to the challenge



There were many firsts for Ag-West Bio during the 2020-2021 year. It was the first full year with our new Chief Executive Officer, Dr. Karen Churchill, and the first for me as the Chair of the Board of Directors. During the unprecedented public health emergency caused by COVID-19, we ushered in new employees and four new board members.

Karen and the rest of the team at Ag-West Bio rose to the challenge, developing a new strategic plan which the

Board of Directors approved. The strategy supports Saskatchewan's Growth Plan and builds bridges to key stakeholders within the province, across Canada, and around the world.

COVID-19 has reinforced the importance of both innovation and the agri-food sector—globally and locally. The sector is critical to Saskatchewan and Canada's economic recovery from the pandemic. We have witnessed the positive impact that increased exports and value-added processing have had on the province. Innovation has played a key role in the development of new vaccines to prevent COVID-19 infections. It will play an even more important part in the

economic and environmental growth and the sustainability of the agri-food sector.

Ag-West Bio itself has been instrumental in catalyzing growth, innovation and resiliency in the agriculture and food ecosystem across Canada. As I look back over the year, I appreciate the agility shown by the team who quickly moved operations and interactions online, continuing engagement and connecting with even more participants from across Canada. Thank you to Karen and all Ag-West Bio staff for your commitment.

I want to thank outgoing Board member and former Chair, Robert (Bob) Tyler, for his unyielding service to the Board and his much-appreciated support during my first year as Board Chair.

Thank you also to all our funders, particularly the Government of Saskatchewan's Ministry of Agriculture, for unwavering support to the Association, especially during this eventful year. I also want to thank our many partners who worked with us over the year to meet our goal of growing biobusiness in the province and helping to move research to market. Finally, and most importantly, thank you to my fellow Board members for your consistent dedication to this organization.

There are great things in store for Ag-West Bio, including a new partnership to grow early-stage agricultural technology. I am very confident that together we can help fulfil our entrusted mandate to strengthen the bioeconomy industry in Saskatchewan. ■

Dr. Steven Webb



Vision: Saskatchewan is a world leader in bringing agricultural bioscience innovation to commercialization.

Mission: Accelerating innovation and enabling companies to commercialize research in agricultural and food biosciences.

Mandate: To provide leadership, as a catalyst, to link existing capabilities and resources in order to strengthen the bioeconomy industry in Saskatchewan.

Ag-West Bio Board of Directors

Chair: Steven Webb – Global Institute for Food Security

Vice Chair: Erin Armstrong – Independent
Drew Britz – Independent

Shawn Gibson – Saskatchewan Ministry of Agriculture

Rick Green – KeyLeaf Life Sciences

Shannon Hood-Niefer – Saskatchewan Food Industry Development Centre Inc.

Danya Kordan – Innovation Saskatchewan

Leah Olson – Prairie Agricultural Machinery Institute

Chris Masich – McKercher LLP

Kate Sanford Mitchell – Acadian Plant Health

Bob Tyler – University of Saskatchewan

Kirk Westgard – Saskatchewan Ministry of Trade and Export Development

Lee Whittington – Four Oaks Investments, and Coaching Excellence Organization

Ag-West Bio Staff

Karen Churchill – President and CEO

Brad Bly – Director of Commercialization

Boni Dorish – Chief Financial Officer

Tara-Lee LaRose – Marketing and Innovations Coordinator

Erin Matthews – Communications Intern

Lana Mollard – Corporate Secretary and Executive Assistant to the President & CEO

Jackie Robin – Director of Communications

Jay Robinson – Director of Agri-Food Innovation

Bev Stangeland – Director of Industry Relations

Pamela Warren – Administrative Assistant

Industry Overview

Over the last 20 years the agricultural ecosystem in Saskatchewan has developed with a focus on distributing Saskatchewan's research results and food technologies to the world. As a result of building capacity in research, production and product development, the province has attracted international attention.

A global agri-food innovation hub with Saskatchewan at the centre

Ag-West Bio President and CEO Karen Churchill says Saskatchewan has long been a powerhouse in primary agricultural production and agri-value is the logical progression. "We need to fully utilize what we produce, and export more processed ingredients, finished food and bioproducts."

The world has a growing need for what Saskatchewan has to offer: sustainable agriculture production and agri-value products. To capitalize on this, Ag-West Bio, the Global Institute for Food Security (GIFS), the Saskatchewan Food Industry Development Centre (Food Centre), Innovation Place, and



private sector partners have joined forces to create the Global Agri-Food Advancement Partnership (GAAP).

GAAP is an agri-food business incubator designed to provide a soft landing for early-stage technology and rapid growth stage companies within all areas of agriculture and food, and from anywhere in the world. "It not only provides a soft landing for companies looking to expand into Canada, but also fantastic programs for Canadian companies looking to expand into overseas markets," Churchill says.

Below: L-R: PhD candidate Maryam Honari and GIFS Research Associate Joanne Ernest studying plant specimens in the GIFS lab. (Photo taken before the pandemic). (Credit: David Stobbe)

"This is going to give businesses a huge leg up," she adds. "Approximately 80 per cent of start-up companies that receive this type of support are likely to be successful over five years—which is much higher than entrepreneurs who go it on their own."

Why Saskatchewan?

Penny McCall, Assistant Deputy Minister, Regulatory and Innovation in the Saskatchewan Ministry of Agriculture says this province is the natural place to develop field-to-fork products.

"Saskatchewan is a leader when it comes to value-added agriculture. Our value-added sector has doubled over the last 15 years, from \$2.3 billion to an estimated \$5.6 billion, and we look forward to even more growth."

McCall outlines Saskatchewan's strengths for building the agri-value industry as three-fold:

1. Our farmers and ranchers and the abundance of diverse quality crops they produce;
2. Research and innovation, which is a thread that ties together the entire value chain from seed genetics to production systems, to processing and ingredient innovations; and
3. The people behind the partners in this cluster, at the University of Saskatchewan, the Food Centre, Agriculture and Agri-Food Canada (AAFC) Saskatoon Research and Development Centre, GIFS and Ag-West Bio.

Ag technology start-ups face unique challenges. The Global Agri-Food Advancement Partnership (GAAP) is designed to address and resolve those challenges.

People from other places come here and they are **stunned by how much we have to offer the world** in terms of our ability to innovate, partner and bring forward tools and technologies.

It's time to do a better job of advertising that.

"I would say the heart of the cluster, that keeps it beating, is Ag-West Bio. These people bring passion and vision to what they do, they truly believe in the opportunities, and that attracts like-minded people," McCall says.

Stepping up innovation performance

Agriculture accounts for almost one-third of Saskatchewan's provincial economy. When faced with the challenges of COVID-19, the sector has remained resilient—illustrating that Saskatchewan's agricultural advantage will be a key driver of post-pandemic economic recovery.

Canada still has some growing to do and Ag-West Bio wants to assist with agricultural innovation. "Canada's innovation performance is under-achieving with a less than impressive track record. We're ranked ninth in research dollars spent, but 30th in outcomes achieved, and 60th in innovation efficiency," Churchill says.

Ag-West Bio's partners are eager to support innovation in agri-food, through programs like GAAP. Steven Webb, CEO and Executive Director at GIFS says GAAP aligns with his organization's mandate to spur innovation in the agri-food sector. "Ag-West is trying to pull opportunities up the innovation pipeline and

at GIFS we are trying to *push* innovations up the innovation pipeline, so we both have important roles to play.”

Meeting the specific needs of agri-value start-ups

When compared to other industries, ag technology start-ups face unique challenges. GAAP is designed to address and resolve those challenges, which include longer development timelines and complex regulatory pathways and market frameworks.

“Unlike other industries, there is no pre-competitive space in the agri-food market,” Webb says. “Challenges of scale come up right away in agri-food. You

may have excellent technology, but if you can’t scale it, you can’t bring it to the marketplace.”

As a business incubator focusing on agri-food, GAAP offers:

- customized relationships of one to three years (longer than typical incubators),
- investments of up to \$500,000,
- a focus on advancing the technology through the innovation pipeline,
- leveraging the strengths of Saskatchewan’s ag-innovation ecosystem to commercialize, agricultural technology,
- addressing scale-up opportunities head on.

Below: GAAP offers greenhouse, lab and office space at the beautiful Innovation Place science and technology park in Saskatoon, SK (image courtesy of Innovation Place)



What is GAAP?

The Global Agri-Food Advancement Partnership (GAAP) is a new entity resulting from collaboration between Ag-West Bio, the Global Institute of Food Security, the Food Centre, Innovation Place, and private sector partners. GAAP was created to support early and rapid growth stage companies within all areas of agriculture and food.

GAAP combines the benefits of significant investment capital (up to \$500,000), long-term incubation in a world-class facility (up to three years, with access to laboratories, greenhouses, and offices), along with guidance and training from sector-specific experts.

- 1) **Early-stage technology companies** – companies working on promising disruptive technologies in the early stages of development (post proof of concept) with application in agriculture, food, or food processing.
- 2) **Rapid growth stage companies** – companies that have already demonstrated large scale commercial application for their technology; often they have been successful in securing a considerable amount of investment, and in many cases, they are already generating revenue.

In most instances these companies are located and operating outside of Canada or North America (but not exclusively) and have traction and/or success in overseas markets. GAAP allows them to access the North American marketplace with lower entry costs, reduced capital expenditure, tailored concierge services, and an expedited path to market.

GAAP can increase the success rate of portfolio companies, strengthen the ecosystem, and build a foundation of success, even when venture capital investment may be lacking within the sector.

We offer a novel platform designed to address the unique challenges of agri-food companies and technology developers during the start-up/expansion phase.

Benefits include:

- **Access to state-of-the-art greenhouses, laboratories, and office space for up to three years:** This means portfolio companies do not have to spend money on renting, operating, and maintaining such facilities and infrastructure. Instead, they can allocate their capital towards innovation and commercialization building tangible value.
- **Up to \$500,000 in investment capital:** Many early-stage companies have limited access to capital, in part due to high upfront costs and a long timeline to market entry, and revenue generation typical in this sector. By providing significant investment we enable the most promising companies to focus on technology progression and market adoption.
- **Commercial volume scale-up opportunities:** Most early-stage and rapid growth stage companies encounter considerable hurdles when looking at mass production. Many face the daunting task of financing their own build, along with operation and maintenance. GAAP provides scale up opportunities, offsetting the need for capital.
- **Training and mentorship:** GAAP provides mentorship from sector-specific experts who provide firsthand advice on business development, regulatory pathway, product development, fundraising, marketing, logistics, export, and more. Entrepreneurs can also access training on specialized equipment (such as qCPR).

All this helps companies avoid costly and time consuming mistakes, expediting the path to market and lowering the capital requirements.

In addition to its founding partners, GAAP has and continues to work with other global leading organizations, corporations, and institutions to leverage synergies both across Canada and internationally. Through bilateral agreements, GAAP not only provides a landing for companies looking to expand into Canada, but also fantastic programs for Canadian companies looking to expand into overseas markets. ■

GAAP combines physical infrastructure at Innovation Place (greenhouses, lab and office space), food technology support at the Food Centre, marketplace analysis, and access to investors. Agri-value start-ups will be able to go from concept to production all in one place.

Webb says there’s no region in the world that has as much to offer as Saskatchewan: infrastructure, capacity, and the ability to move from the lab bench to the field to the plate.

“People from other places come here and they are stunned by how much we have to offer the world in terms of our ability to innovate, partner and bring forward tools and technologies. It’s time to do a better job of advertising that.”

Innovation to solve the “Grand Challenge”

While innovation success can be measured in a variety of ways—from patents, to licenses, new company start-ups, commercialization, and job creation—agriculture is one of the industries most affected by global issues such as climate change, and the industry in which innovation at every level can have a global impact.

Webb says agriculture is part of the solution, not part of the problem, and innovation can accelerate those solutions. “It has to be economically sustainable, environmentally sustainable and socially accepted. In Canada we can have all three. Ag and food can help Canada not only recover from COVID-19 but also address some of the bigger commitments we’ve set up around greenhouse gases. It’s a fact. We shouldn’t apologize for it.”

Dan Prefontaine, president of the Food Centre, sees GAAP as a way to fast-track technologies that solve global problems. “The GAAP program is raising our level of technology. If we want to be leaders in an industry, we need an ecosystem to put together all the pieces and solve the grand challenges like greenhouse gas emissions and climate change.”



Collaboration is key

Working together is the way forward, and GAAP leverages Saskatchewan's agri-value ecosystem's existing network of support and collaboration.

"Saskatchewan's collaborative community is part of that strong ecosystem. You need that collaboration, and you need that trust," Prefontaine says.

"There is never any shortage of ideas when you put those creative Saskatchewan minds together," says Churchill. "The challenge is actually harnessing them and breaking down the barriers that make the path to commercialization smoother, whether it be operating in silos or overcoming regulatory hurdles."

Churchill says the pandemic has highlighted

Above: The Food Centre is a key player in Saskatchewan's agri-value ecosystem, assisting companies with food and ingredient development, scale-up production, and food safety training.

the importance of food security and local supply chains, and businesses had to be innovative to adapt. It also revealed more opportunities for international collaboration. "I noticed the spark across Canada and global conversations. It's been much easier to host a series of Zoom calls to find out what innovation-to-commercialization support looks like in other countries, and what issues other parts of the world are facing, and the solutions that are needed."

Prefontaine is excited for the potential impact of GAAP and says it will open a whole new

level of interest and innovation. "Any time we have the ability to raise our capacity in technology building, in terms of education and training, it affects everyone. The industry as a whole is exposed to new and exciting ideas along with innovative applications for them. It always gets people thinking and wondering what they can do with it."

An invitation to members

Ag-West Bio's membership will benefit from GAAP and Churchill extends an invitation to participate: "When we're talking about our ecosystem, we mean all our stakeholders and Ag-West members. Regardless of what you have to offer GAAP—ideas, investment, mentorship, networking or advice—we all stand to gain from this next level of innovation." ■

It was a challenging year. The unique economic climate resulted in exceeding some targets we set at the beginning of the year, with shortfalls in others. We were also propelled to assess and alter our services in creative ways.



Commercialization Report

Doing business in these challenging times

by Brad Bly, Director of Commercialization

- Ag-West Bio provided 41 different companies with business planning, input, guidance, opportunity, and gap assessment to accelerate investment readiness and commercialization. While the number of companies we assisted was about average, we provided more depth of guidance due to the abnormal circumstances faced by many businesses.
- We assisted a diverse mix of 23 ag-bioscience, processing, and food value-added companies through the ABIC Beyond Entrepreneurship: Building an Agri-Value Business training program, which addresses industry needs at both the start-up and growth stages. It was especially rewarding to get to know the companies and be part of their growth journey.
- From an investment perspective it was a difficult year. Many sources of leveraged investment were paused. The result was that there were no new investments in Ag-West Bio's Technology Commercialization investment portfolio. But now it is encouraging to see these sources becoming active again with an increased focus toward online opportunities, cloud-based services, and brands that digitally connect farmers to end-users and consumers.
- We wish to acknowledge that two Saskatchewan companies in our investment portfolio achieved

impressive milestones. BioWave Aqua Solutions Inc. (an affiliate of EnviroWay Detergent Manufacturing) and Mother Labs Inc. (formerly Ecobain Naturals) have advanced through Ag-West Bio's Technology Commercialization Investment Fund. It has been a pleasure assisting these companies and witnessing their success.

Faced with the unique commercialization climate over the past year, and an increase in demand for our services, Ag-West Bio has created two new online platforms to provide additional support to Saskatchewan companies.

We look forward to implementing these services this year. We continue to seek creative ways to nurture new ideas and help build the province's agri-value ecosystem. ■



EnviroWay provides high quality cleaning solutions and products, many featuring naturally produced ingredients including beneficial bacteria and enzymes, and surfactants from plant-based sources. Learn more about this innovative company and its focus on cleaning and maintaining a healthy environment at www.enviroway.ca

Mother Labs is a full-service cannabis lab and nursery that finds social and technical solutions to grow better plants. Focusing on advancing bioscience, Mother Labs is supplying a budding industry with high-quality, sustainably grown, pest and pathogen free biomatter. Learn more about this exciting company by visiting www.motherlabs.ca ■



MEMBER PROFILE

Undercover Horticulture

From the very beginning, siblings Chris and Rachel Buhler have operated their business a little differently. Fourteen years ago, they opened a hydroponic greenhouse to supply fresh local produce to Saskatchewan consumers year-round. • Of course, they didn't build a typical greenhouse. Rachel has an MSc in plant science and Chris has a diploma in greenhouse management. Influenced by their technical training, they built a state-of-the-art facility with a lot of added features.

Managed greenhouse space unique to Saskatchewan

Because they prioritize sustainability, they heat the greenhouse using waste wood diverted from the landfill and they grow their produce naturally with minimal intervention.

"We did some things differently when we built our greenhouse," explains Rachel. "It was basically built like a research greenhouse. We put in stuff that we thought would help us use fewer pesticides or no pesticides for growing vegetables." As it turns out, these added features also positioned them well to branch out into an unexpected second venture.

Undercover Horticulture provides managed greenhouse space and support services for researchers. The idea came out of a conversation with Jackie Bantle, Greenhouse and Horticulture Facility manager at the University of Saskatchewan College of Agriculture and Bioresources.

"Jackie told us all of their greenhouses were full and researchers were looking for greenhouse space," Chris explains, "She said we would be a good fit because we have a really nice greenhouse and we have background knowledge that would help them."

Not long after, the plant breeding company Limagrain Cereals Research Canada approached Chris and Rachel about renting space in their greenhouse. Word spread quickly and people kept approaching the Buhlers.

"We realized there was actually a market for this, so we started thinking about it differently," says Chris. "I don't know if we would have known to start it from scratch."

Rachel says they joined Ag-West Bio because it's a place where researchers go to continue their learning and to network and they wanted to join that web of activity. While their relationship with Ag-West Bio is still very new Chris says they're just beginning to see what's possible and they're quite excited about it.

The pair recently completed the Agricultural Bioscience Innovation Centre (ABIC) Building Entrepreneurial Leadership program, which is managed by Ag-West Bio. The training program is designed to help established companies gain new skills and resources.

"Rachel and I are technicians, and we're still learning how to be businesspeople," says Chris. "We're both perpetual students who enjoy learning things. That's one of the things we love about having researchers in our greenhouse—we get to learn about new crops we would never grow on our own and talk with people who are experts in these things. We get to push some boundaries and that's really exciting."

Below: Bees busy pollinating at Undercover Horticulture. The greenhouse company also uses biocontrols to manage pests.

(Credit: David Stobbe)



Left: Chris and Rachel Buhler, cofounders of Undercover Horticulture. *(Credit: David Stobbe)*

Chris says they don't know of anyone else doing exactly what they're doing. When a researcher rents greenhouse space they usually just get an empty space. Undercover Horticulture provides not only the space, but all the infrastructure needed for growing, and it can be customized to meet unique requirements.

He says there's a whole range of models. Some researchers hire Chris and Rachel to do regular checks to make sure the water systems are working and the plants look okay, while others will hire the duo to conduct the whole experiment for them. In some cases, the researchers they work with never even come to the greenhouse.

The greenhouse is equipped with computerized alarm systems to ensure the growing environments are always perfect, and one of them is always within 15 minutes of the greenhouse in case something goes wrong.

"I think we're a fantastic match to work collaboratively with researchers so they can focus on the research questions, the data, and the results, and they don't have to put together a custom growing system," says Rachel. "I think researchers who have been responsible for plants themselves appreciate us the most."

Because they have a small facility and there's no public access to the greenhouse, Undercover Horticulture was able to stay open throughout the COVID-19 pandemic. Their clients could continue their research and didn't have to put projects on hold. Chris says that some projects were able to continue which otherwise might have been stalled if a public institution had to close.

"What's great about being a private business is that we could put in really strict measures to control things as much as possible," says Rachel. "We read all the best scientific advice for how to keep ourselves and our clients safe. So far, we've been able to operate as normal." ■



MEMBER PROFILE

JGL Shepherd Farms

When you think of Saskatchewan farms, fields of golden wheat or yellow canola flowers come to mind. But at JGL Shepherd Farms near Moosomin, SK you will find instead 18-foot-high, vine-covered trellises. • The Shepherd family is the first commercial hops grower in the province. “Doing something different wasn’t a worry for me and ultimately my family embraced it as well.” says Justin Shepherd, president of JGL Shepherd Farms.

Consistent quality translates to trust of the craft beer industry

Hops are native to Saskatchewan and grow wild throughout the province, but there hasn’t been a lot of market demand for the crop until recently.

“We needed craft beer to take off in Saskatchewan because that’s the predominant user,” Shepherd explains.

Craft beer has indeed taken off in Saskatchewan—with consumption more than doubling in the last five years—and JGL Shepherd Farms is intent on serving the burgeoning local industry.

“Unlike a crop like wheat, where there’s always a market for it, we’ve had to work one-on-one with brewers and prove our consistency year-over-year to get them to trust us and use our hops,” says Justin.

To build that trust, they prioritize quality. “It’s not enough to just be local—we also knew we had to create a high-quality product.”

Being a small grower has some advantages when focusing on quality. For example, a large grower needs to dry their product quickly because of their higher volumes, but JGL Farms has the luxury of drying their hops more slowly using dehumidifiers instead of heat.

They designed and built their own custom dryers, which Shepherd says was a learning experience. “The dryer design changed every year for four years, but I think we’ve found a design we like and they’re big enough to handle what we will produce.”

Shepherd says because they don’t cook the aromas off in the drying stage, brewers using their hops end up with aromas they didn’t know were possible.

“A hop is like a flower,” Shepherd explains. “When you add heat to it, it starts to smell—and it smells amazing—but that also means the aroma is no longer in the hops. Our drying shed never gets above room temperature, so you won’t smell our hops drying and those really volatile aroma compounds stay in our hops.”

This is the kind of quality brewers have come to expect from JGL Shepherd Farms.



Above: L to R: Guy, Lori and Justin Shepherd. The Shepherd family is the first commercial hops grower in Saskatchewan.

(Credit: Andrew March)

Being the first grower in the province meant there was a big learning curve.

“We were willing to plant a bunch of varieties to see how they grow and how they work for brewers,” Shepherd explains. “We knew some of those varieties weren’t going to work, but we didn’t know which ones. We wanted to fail quickly and learn from our mistakes.”

He credits some of their success to the strong partnerships the company has built.

“We need to access a lot of specialized equipment, which means we need to bring it in from other places, but we have local farm dealers who work with us. And we have a good local soil and agronomy team that helps us.”

They’ve also received support from the local brewing industry, which Shepherd describes as a tight-knit, fun group of people that live and breathe the concept of local. “Overall, it’s just a fun industry to be in,” says Shepherd.

Shepherd recently completed the Agricultural Bioscience Innovation Centre (ABIC) Beyond Entrepreneurship training program, which is managed by Ag-West Bio. The experience brought a diverse group of entrepreneurs together to learn from one another, which he says was extremely valuable. “They may have totally different business models and have totally different products, but they definitely understand what it means to be an entrepreneur.”

“It was my first opportunity to work with Ag-West Bio, to really lean on their expertise and get access to coaching, get access to their great staff and learn how they can help my business. I wish I’d made an effort to get to know them earlier. It has helped me learn how to be a leader and how to be a champion for value-added agriculture in Saskatchewan,” Shepherd says. ■





MEMBER PROFILE

Emerald Seed Products

It takes an intrepid Saskatchewan farmer to build a business around a crop that most Canadians have never even heard of. • “Fenugreek is not that common in Saskatchewan,” says Nathan Sudom, CEO of Emerald Seed Products. “It comes from India and Pakistan and it’s really not common outside of those two places.”

Fenugreek: a little-known pulse with interesting applications

Fenugreek is used in South Asian cooking, but that’s not what Emerald Seed Products uses it for. Nathan’s father, Blaine Sudom and business partner Cal Kelly launched the company in 1994 to extract fibre from the seeds for use in nutraceuticals.

The idea came from Al Slinkard, an award-winning pulse breeder (now retired) who worked at the University of Saskatchewan’s Crop Development Centre.

“Al Slinkard did the initial development work to bring fenugreek seeds to Saskatchewan,” explains Sudom. “He thought there could be some potential, so he developed two varieties and proposed to my father and Cal Kelly that they start a company to process fenugreek seeds.”

Saskatchewan is now one of the leading producers of Fenugreek outside of India and Pakistan.

While the Emerald Seed Products has been around for a long time, Nathan says the company is “still kind of in start-up mode.”

“It took us a long time to develop a process to remove the fibre from the fenugreek seed in an efficient manner,” Sudom says. “Fenugreek seeds have a really strong odour and bitter taste, so it was a challenge to make sure the fibre didn’t have that flavour profile.”

Fenugreek fibre is said to have many health benefits, from improving gut health, to preventing heartburn, lowering blood

glucose levels, lowering cholesterol and promoting weight loss.

Until recently, Emerald Seed Products was supplying bulk product to companies in places like Europe, Israel, South Korea, Taiwan, Japan, and the U.S., but Sudom says they’re now trying to move up the value chain by selling a range of supplements on Amazon and in select retail stores in Saskatchewan.

“We’re always learning new things about what our products can do,” Sudom says. “I read a lot of research papers. That’s where it all starts.”

The Saskatchewan Research Council has been a great resource and has helped Emerald Seed Products connect with companies that could potentially use their product.

The company has recently focused on animal feed supplements, which it has sold in several countries, including Canada, but their primary markets are in Europe, South Korea, and the U.S.

“Developing the animal feed supplement market was hard because it was a new product and the industry, especially in the U.S., wasn’t accepting of a new natural product,” says Sudom. “But when the regulations changed in the U.S., and the use of antibiotics became more regulated, a lot of companies were looking for something else to fill that gap. We were well positioned to jump into that market.”



Nathan Sudom, CEO of Emerald Seed Products.



Above: Emerald Seed Products facility is located near Avonlea, SK.

It has been an advantage for Emerald Seed Products to be located in Saskatchewan: the company happens to have an industrial product made from fenugreek that is useful for potash production, and Saskatchewan is the number one potash producer in the world.

“Our product is really good for potash,” says Sudom. “They use it in a process called froth flotation, which cleans the potash and creates a more purified product.”

He says he feels fortunate to have great local people to work with and encouragement from the community. “We get a lot of support from our Avonlea community and they really care about the company.”

Sudom says Emerald Seed Products received help from Ag-West Bio in the early days, when his father first started the company and was developing products and manufacturing processes.

Recently, Sudom participated in the Agricultural Bioscience Innovation Centre (ABIC) Beyond Entrepreneurship training program, which is managed by Ag-West Bio.

“Just having access to Ag-West Bio’s networks and getting to know so many other companies has been extremely valuable,” Sudom says. “We’re currently working with another company on a project that uses both of our products, so that’s definitely an opportunity that was created by Ag-West Bio.” ■



Events and Communications

COVID-19 has ushered in significant adjustments for Ag-West Bio, considering that in-person networking events have always been a major part of our activities. Like many other organizations, we went online, starting with our 2020 Annual Meeting last June. *Transformative Technologies for a Changing World: Exploring the role of agriculture in mitigating climate change* invited experts to talk about crop and livestock research as well as energy sources.

New strategies to stay connected

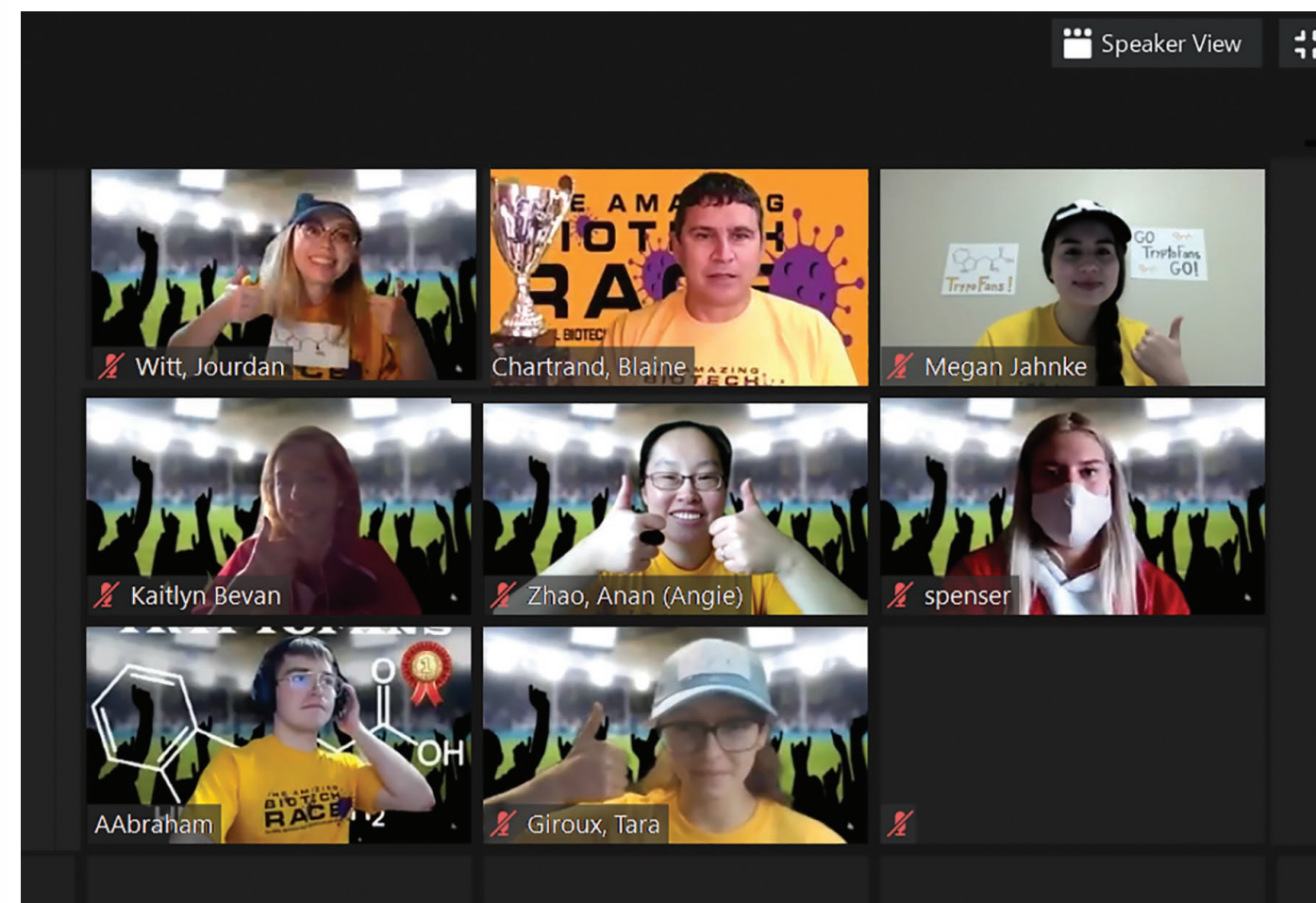
Global Biotech Week

For the first time in the 17-year history of Biotech Week in Canada, all events and activities were streamed online. Ag-West Bio coordinated the activities with the help of a hard-working committee from Saskatoon and Regina. Seven events were held, including virtual versions of the Amazing Biotech Race and Café Scientifique. With events accessible from any computer world-wide, our audience included people from across the country and even overseas.

ABIC Speaker Series

The ABIC Speaker Series includes one business-themed event and one science-

themed event each year. The inaugural ABIC Speaker Series was held in September 2020 and featured Saskatchewan entrepreneur Brent Zettl, president and CEO of ZYUS Life Sciences. Attendees had a unique opportunity to learn from Zettl as he shared his 30-years of knowledge with *Business 101: Start-up Bioscience Companies*. The hybrid event had a small in-person audience and was livestreamed to more than 120 viewers.



The second Speaker Series event, held in April 2021, featured a fireside chat with Maple Leaf Foods president and COO Curtis Frank. He presented a talk entitled *Embracing Innovation: the evolution and strategies of Canada's largest food processing company*. The audience learned how important culture is to Maple Leaf Foods, and how the company restructured during challenging times.

We are excited that Dr. Jennifer Doudna, Nobel Prize recipient and co-creator of the CRISPR gene editing technology will be our fall ABIC speaker. Mark September 21st on your calendar for this virtual event!

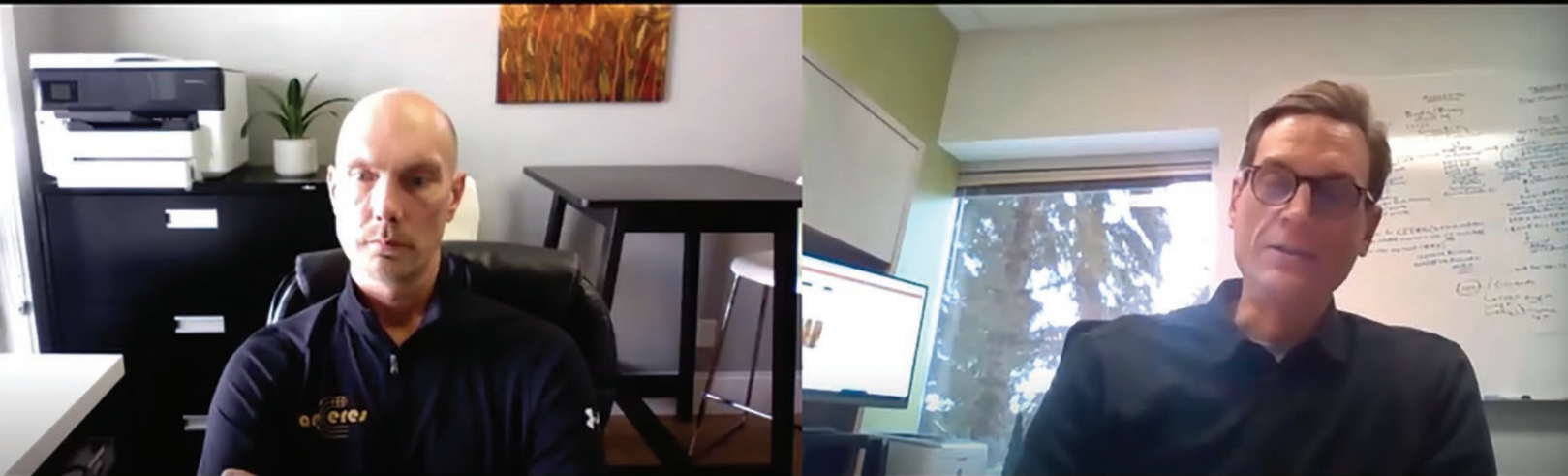
Training for success

Ag-West Bio ran two business training modules in the past year through the ABIC Foundation's Beyond Entrepreneurship: Building an Agri-Value Business program.

Building Entrepreneurial Leadership was developed by Bev Stangeland, Ag-West Bio's Director of Industry. The eight-month program targeted established agri-food entrepreneurs. Content consisted of online workshops, podcasts and webinars and topics included leadership, sales, growth strategies, and human resources.

Building a Winning Plan was developed by Brad Bly, Ag-West Bio's Director of Commercialization. Corey Keith of Keith & Associates served as instructor and the program included seven guest speakers. Participating companies had to be very early-stage and Saskatchewan-based. The week-long workshop gave participants the knowledge and tools to determine the financial feasibility of their ideas and to develop a business plan with impact.

Above: Saskatchewan Polytechnic's 10th annual edition of The Amazing Biotech Race was held online, connecting high school and post-secondary students with local companies for a virtual version of the biobased scavenger hunt.



Agricultural Fractionation 101

Trevor Pizzey and Brad Bly chat during Agricultural Fractionation 101.

What the participants said about the Beyond Entrepreneurship programs:

"I thought the program was amazing...well organized, great topics, great facilitators, amazing speakers and coaches...so many great learnings."

"Taking [the coach's] advice, we are working on improving our account management, narrowing our focus on specific chains, and building a better market and ad spend plan. We are grateful for the experience."

"Thank you so much for this amazing training program. I've learned so much and this will help my business immensely."

"I wanted to once again thank you for the extraordinary workshop last week. Each of you did an amazing job and I feel so lucky to have been able to come and take in all that valuable information!"

Online learning opportunities

In February, we partnered with Saskatchewan Economic Development Alliance (SEDA) to host *Agricultural Fractionation 101*, featuring Trevor Pizzey, CEO of anCeres Processing Solutions. The full-day online workshop focused on practical topics, such as extraction processes, niche opportunities, markets, facility construction and more. It attracted more than 100 participants.

New resources

This spring we launched two new online resources!

AWB StartUP Platform is web-based tool to help Saskatchewan agri-value or bioscience entrepreneurs develop their ideas. The platform helps

entrepreneurs clarify their business concept and generates a printable executive summary to help them explain their business to potential partners and investors. **Visit agwest-startup.ca.**

Sask Agrisource is your link to Saskatchewan's agriculture value-added sector! The database lists hundreds of organizations that offer bioscience or agri-value products and services in the province. **Visit saskagrisource.ca.**

Get connected, stay informed

Sign up for Ag-West Bio's Weekly Update e-newsletter to stay informed about the bioscience industry. We encourage members to submit articles for our quarterly Bio Bulletin. And get social! Follow us on Twitter, Facebook and LinkedIn. ■

Research success despite the pandemic

By Carol Ann Patterson, DFCC Project Manager



It was an eventful year for the Diverse Field Crops Cluster (DFCC). As with all other crop clusters, the COVID-19

pandemic threw a wrench into many of the research activities across the country as organizations scrambled to implement protocols to keep employees healthy while maintaining a semi-active research program.

While there may be challenges in achieving its five-year goals, DFCC fortunately did not lose any research activities, and it looks promising that there will be a 2021 field season and in-house laboratory work.

As DFCC completes the third year of the five-year research program, crop sector members are showing success, despite the pandemic. Mustard 21 Canada Inc. is commercializing two new mustard varieties: the first Canadian hybrid brown mustard; and composite yellow condiment mustard, developed by Dr. Bifang Cheng at the Agriculture and Agri-Food Canada (AAFC) Saskatoon Research Station. AAC Brown 18 has shown a 20 per cent increase in yield over the check variety Centennial Brown and AAC Yellow 80 a nine per cent yield increase over Andante, the check variety. For western Canadian farmers, these are the first varieties with significant yield increases in three decades!

NorQuin is close to releasing three new quinoa varieties with higher yields, increased protein levels and lower saponins. These varieties are also adapted to the Canadian environment. Some of the varieties in the pipeline show unique functionalities that would lend themselves to specific food applications.

Another success is illustrated with canary seed. AAFC scientists Dr. Nancy Ames and Dr. Lovemore Malunga and industry partner InfraReady Products have optimized a thermal processing method to enhance the shelf life of canary seed flours, thus opening markets in the food sector.

DFCC's seven crop sector members are determining research priorities in preparation for another AAFC cluster program. DFCC would welcome enquiries from representatives of other small acreage crops interested in joining these discussions. Learn more about DFCC at www.dfcc.ca ■

Thank you!

We appreciate the support of our members as we work to grow the bioeconomy in Saskatchewan.

Ag-West Bio members come from private industry and public research institutions and range in size from start-ups to multinationals. They are active in ag biotech, value-added food processing, health and nutrition, digital agriculture, environment, and bioproducts.

We have been working hard on developing exciting new offerings for our members. Watch for more information to come!

If your company is active in Saskatchewan's bioscience sector, you should consider Ag-West Bio membership. We will work with you to grow the provincial bioscience sector.

Visit our website to learn more about the benefits of membership and to view member profiles.

www.agwest.sk.ca

Financial statements are available for members upon request.



Saskatchewan

Canada

Photo sources:

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