



Driving the Protein Highway

AG-WEST BIO ANNUAL REPORT 2015-16

PRESIDENT'S MESSAGE

“AWB has been involved in an international initiative focusing on **PLANT PROTEIN** from crops such as **LENTILS, PEAS & CANOLA.**”



During the last 12 months, Saskatchewan's bioscience community has benefited from a number of important new developments. The following are just a few highlights from the many activities taking place in our community that contribute to Saskatchewan's reputation as an international centre of excellence for agricultural bioscience.

The Global Institute for Food Security (GIFS) received \$37M for the Canada First Research Excellence Fund and is thus in a strong position to develop major relevant crop improvement research initiatives. GIFS, in partnership with Ag-West Bio and the ABIC Foundation, organized an international conference on Emerging Technologies for Global Food Security, involving more than 30 international speakers and 350 delegates.

I am pleased to note that Ag-West Bio was a member of a national team that secured \$26M in funding for the creation of Natural Products Canada (NPC), Canada's new Centre of Excellence for Commercialization and Research (CECR), which will provide excellent opportunities for the development of a wide range of natural products. Ag-West will host the Western Canadian node of NPC.

Ag-West has been involved in an international "Protein Highway" initiative, which focuses on opportunities associated with using plant protein, such as lentils, peas and canola,

sustainably cultivated on the Canadian prairies and the northern United States.

Our bioscience community continues to grow: Bayer CropScience and Limagrain Cereal Seeds have recently established wheat breeding centres in the Saskatoon area. As well, the Livestock and Forage Centre of Excellence is in an advanced stage of development, thanks to collaborative efforts of the University of Saskatchewan, the Saskatchewan Ministry of Agriculture, and Agriculture and Agri-Food Canada (AAFC), through its Growing Forward 2 (GF2) program.

Ag-West Bio continues to manage the ABIC Foundation. This fall, ABIC 2016 was held for the first time in the US - in Fargo, ND. We look forward to participating in ABIC 2017 in Winnipeg, followed by ABIC 2018 in Beijing.

I would like to thank the Ag-West staff members for their continued and outstanding efforts in representing the Saskatchewan bioscience community and striving to achieve our strategic goals. We are most grateful to our volunteer board, a group of highly experienced and talented individuals who dedicate a significant amount of their time to providing strategic guidance to our organization.

Finally, we are most thankful for the ongoing operational support from the Saskatchewan Ministry of Agriculture, and its partnership with AAFC's GF2 program, as well as for specific project support from Western Economic Diversification Canada and the National Research Council-Industrial Research Assistance Program. ■

A handwritten signature in green ink, appearing to read "Wilf Keller". The signature is stylized and fluid.

Wilf Keller





LETTER FROM THE CHAIR

“WHEN FEAR SWAYS PUBLIC POLICY, it hinders the development and uptake of technology.”

The world is a fascinating, ever-changing place. We have incredible technological capacity that continues to grow with both new scientific discoveries and new ideas of how to use old discoveries. We undoubtedly “stand on the shoulders of giants,” as the metaphor goes.

Scientific knowledge and capacity is essential. It is the basis for our modern world, from cars to cellphones to the food we eat. But it isn't enough. The knowledge needs to be put to practical use. This requires sound, science-informed policies, and coordinated, responsive regulatory and market systems to get safe and efficacious technologies into the hands of people who can benefit from them.

This leads to one of the challenges we face in the bioscience industry today: a lack of trust of science that is seeping into the general fabric of society. People discuss the health qualities of foods they eat, embrace the idea of supporting 'local' farmers and organically produced foods, and reject what they see as “big corporations” in the production of food (but not in the production of their cell phones or cars). They fear modern foods and GMOs, in spite of an overwhelming scientific consensus on the safety and usefulness of these products.

Ironically, this fear is promoted by multinational ventures, such as Greenpeace, with deep

pockets, huge marketing savvy, and little regard for balanced considerations of both benefits and cost. When fear sways public policy, it hinders the development and uptake of technology. Golden Rice, for example, has been ready for farmers for a decade, but languishes in regulatory limbo while millions of people lose their eyesight, and even their lives, due to micro-nutrient deficiency. This summer, 110 Nobel laureates signed a letter urging Greenpeace to cease its campaign against vitamin A enriched Golden Rice and to end its opposition to genetically modified organisms in general.

Ag-West Bio promotes the development and commercialization of technologies and works with like-minded organizations to illustrate how science benefits our planet. We believe that with the burgeoning global population and the pressures of climate change, bioscience will become ever more important for both the Saskatchewan economy and global prosperity.

I'm pleased to work with the Ag-West Bio team and would like to thank the dedicated staff for helping to foster a strong sense of community in Saskatchewan. I also wish to thank my fellow board members, who work diligently to ensure that the organization is pushing in the right direction. Lastly, I would like to express our appreciation for sustaining support from the Saskatchewan Ministry of Agriculture; this partnership is vital to our mutual success. ■

Peter W.B. Phillips

Vision: Saskatchewan's catalyst for leading Canada's foremost bioeconomy.

Mission: Accelerating innovation and enabling companies to commercialize research.

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

Peter Phillips (Chair) – Johnson-Shoyama Graduate School of Public Policy, UofS

Art Froehlich (Vice-Chair) – Agriview Inc.

Karen Churchill – Cereals Canada

Maurice Delage – Delage Farms

Laurie Dmytryshyn – PIC Investment Group Inc.

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David Gauthier – Business Investment and Technology Commercialization Consulting

Tim Herrod – Potash Corporation of Saskatchewan

Abdul Jalil – Saskatchewan Ministry of Agriculture

Kendra Mueller – FCC Agribusiness and Agri-Food

Robert (Bob) Tyler – College of Agriculture and Bioresources, UofS

Ag-West Bio Staff

Wilf Keller – President and CEO

Pat Pitka – Chief Financial Officer

Brad Bly – Director of Commercialization

Mike Cey – Director of Corporate Initiatives

Boni Dorish – Director of Finance, Administration and Human Resources

Nicola Goosen-Davila – Manager of Event Development

Monica Gordon – Administrative and Communications Assistant

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

Jackie Robin – Director of Communications

Allison Sigstad – Events and Communications Assistant

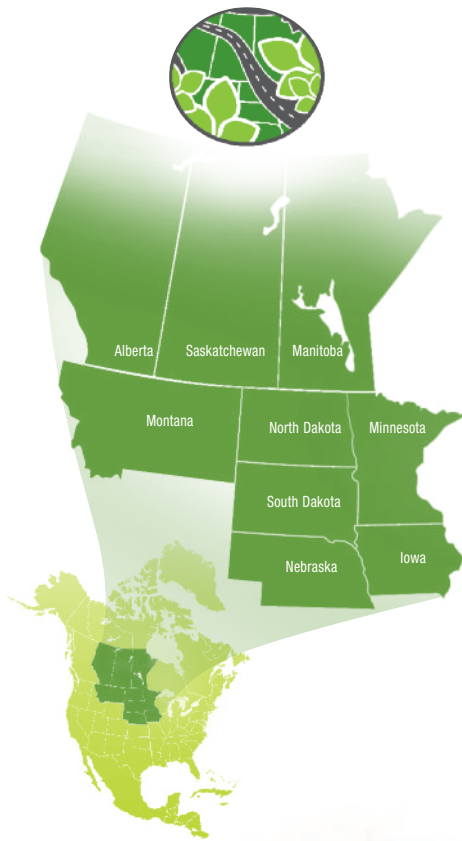
Bev Stangeland – International Business Development

Marin Stefanovski – Research Analyst

Betty Timmons – Administrative Assistant

INDUSTRY OVERVIEW

ACCELERATING ON THE PROTEIN HIGHWAY



The pulse industry in Western Canada is steadily gaining momentum. As the International Year of Pulses winds down, the awareness raised and relationships forged during 2016 will continue. Industry, research and policy leaders are using that momentum to build the Protein Highway, a US-Canada cooperative initiative.

The North American Midwest has long been considered the world's "bread basket." Ag-West Bio's president and CEO Wilf Keller says that an increased global population, along with rising incomes, will lead to a greater demand for protein. With a huge capacity for growing plant-based proteins, this region is poised to become the world's "protein basket."

"Across Western Canada and the northern US, there are well over 100 million acres of land, with fewer than 10 million people living on it. That is an undeniably rich resource," he says.

In the spring of 2015, the Consulate General of Canada in Minneapolis organized a meeting (in conjunction with a visit by the Governor General of Canada) with Canadian and US stakeholders, to discuss opportunities

for the northern United States and Canadian Prairie provinces to work together on agriculture and food initiatives. The working group, comprising representatives from industry, academia, government and investor organizations, explored the need to connect producers, researchers, investors and entrepreneurs to expand the industry, diversify and create value-added products. They naturally arrived at the importance of plant-based proteins.

A whitepaper for creating a regional approach to enable innovative agricultural technology solutions from plant proteins was published in February, 2016. An asset map of research institutions and current projects and expertise is also being created.

Regional assets

The natural resources of the Protein Highway region are the starting point for the initiative. The area included in the Protein Highway has the ideal climate, industrial infrastructure, and breeding and processing research clusters to support it.

Keller says, "There is so much growth in dryland pulses in Canada. We are producing a great variety of peas, lentils and beans. Another major crop, canola, contains excellent protein in the meal, available after the oil is extracted. Soybeans are also grown extensively in the US and shorter season varieties are being grown in Canada."

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six million acres. Carl Potts, Executive Director of the Saskatchewan Pulse Growers (SPG), says “Saskatchewan is the largest producer and exporter of lentils in the world. We export lentils as a staple food to over 100 countries.”

An important pillar of SPG’s strategic plan is to expand the market of pulse crops. They have a firm market share in exporting

pulses as whole foods. But there is also great opportunity in developing markets for pulse-based ingredients in North America and Europe. The health benefits of pulses are just being discovered.

Breeding programs at the University of Saskatchewan’s (U of S) Crop Development Centre have introduced dozens

of specialty varieties to the Prairies. Bert Vandenberg, Saskatchewan Pulse Growers Industrial Research Chair in Genetic Improvement of Lentils, has introduced more than 30 lentil varieties in 10 market classes over the last 20 years. Ongoing projects aim to introduce more genetic variety into lentils, to create more adaptive opportunities.

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Growing populations in India, Pakistan and Southeast Asia, where pulses are a traditional staple, MEANS INCREASED DEMAND

Research on value-added products relies on existing synergies in Saskatchewan's research cluster. Shannon Hood-Niefer, VP Innovation and Technology at the Saskatchewan Food Industry Development Centre (Food Centre) identifies three key players in the Saskatchewan research cluster: the Food Centre, the U of S Food Science faculty and POS Bio-Sciences. "These three organizations link the university research skillset, extraction and fractionation skillset at POS, and ingredient evaluation of the Food Centre," she says. Other universities within the Protein Highway region have similar food research capacity.

Meeting global needs

Building networks and clusters of research, people and expertise will help create demand for pulse crops over time, to diversify markets and return more value to farmers.

Globally, there is an increasing demand for protein in multiple markets:

- Growing populations in India, Pakistan and Southeast Asia, where pulses are a traditional staple, mean increased demand.
- As these countries become more affluent, they also expect to consume more animal protein. Plant proteins, such as peas, make high quality animal feeds that help convert plant proteins to animal proteins efficiently.
- In North America and Europe, there is increased



Left to right: Bob Tyler, Shannon Hood-Niefer, Carl Potts, Bert Vandenberg.

demand for high protein specialty food products. Pulses can be processed into fractions of starch and protein; they can be blended with other foods; and even create vegetable-based meat replacements.

- The growing aquaculture industry will be looking for high-protein vegetable-based fish food.
- Protein crops can also create high quality pet foods as alternatives to those made from meat by-products.

"There's no doubt that there's strong demand for plant protein other than soybean or wheat," says Bob Tyler, Associate Dean of the College of Agriculture and Bioresources at the U of S. "Our philosophy is that anything you can do with soy protein, you can do with pulse proteins. Currently, pea protein processors can't satisfy the demand."

Connecting research, entrepreneurs, and investment

The technology and regional assets are in place, but there are challenges.

In this novel, cooperative approach to sharing expertise, one challenge will be to move beyond traditional resistance, to cooperating with the 'competition'.

With respect to binational competition, Potts says we've been working beyond Saskatchewan and Canadian boundaries.

“We’re already working with the USA Dry Pea and Lentil Council to increase awareness of pulses in North America.”

Mike Nickerson, Ministry of Agriculture Strategic Research Chair, and an Associate Professor in the U of S Department of Food and Bioproduct Sciences, can see the benefits for public researchers to connect with other expertise across the Protein Highway region. “We can work synergistically to tackle bigger issues or bigger problems as a whole. From a research perspective there are huge opportunities.”

Nickerson believes the industry is ready to capitalize on an increase in demand. “Even though the trading companies compete with each other for business and market share, if we can increase the overall size of the pie, then market demand is larger for everyone,” he says.

Tyler agrees. “We have the technology to do whatever we put our minds to. It’s about making it economically viable. The challenges are not technical knowledge—it’s making money, marketing, and the size of the investment versus the pressure from competition.”

The success of the Protein Highway rests in undoing some past habits. Cooperating with competition is one such adjustment; shifting from our commodity and export economy focus is another.

Tyler says we will likely be commodity based in Western Canada for a long time. “But that doesn’t mean we shouldn’t add value where we can.”

Vandenberg says more than just bulk exports will be required to support the Protein Highway. “It took Canada a long time to begin crushing our own canola, and we’re at 50% today. It’s the same with pulses. You have to have a healthy local dehulling industry before you can create value-added products in any great numbers.”

Next steps

The first vehicles to travel the Protein Highway will be ideas and information. The consortium is creating a portal to share among organizations, with branding and website development underway. The Protein Highway will have its official launch at ABIC 2016 in Fargo, North Dakota in September.

What the Protein Highway becomes remains to be seen. Keller says, “It will grow organically, and it will grow as people see a need to work together and respond to opportunities to develop new products. A binational initiative like this could become a model to other sectors trying to do something similar.” ■



COMMERCIALIZATION REPORT

ADVANCING SASKATCHEWAN BIOSCIENCE COMPANIES

As part of our overarching goals to commercialize research and grow biobusiness in Saskatchewan, Ag-West Bio proactively seeks ways to help advance Saskatchewan bioscience companies. On average, we assist 55 companies each year. We do this in many ways, often working closely with companies to help them overcome commercialization hurdles and seize specific opportunities. Our services are centred on four themes: building advisory capacity; building networks and partnerships; provision of resources; and advancing investment readiness.

Building advisory capacity: We continue to work with the Raj Manek Mentorship Program and other partners to link companies to mentors. We also pursue international mentoring and acceleration opportunities, with the goal of building networks and advisory boards, and meeting potential investors.



By Brad Bly,
Director of
Commercialization

Building networks and partnerships: We develop a strong presence at targeted international conferences (such as BIO World Congress on Industrial Biotechnology), where we host meetings and workshops, and facilitate company attendance. We also host local conferences and networking events, welcoming the international bioscience community to our research cluster. These activities ultimately lead to new research and market partnerships, as well as developing a sense of community within the cluster.

Provision of resources: We complement our one-on-one service to companies by keeping abreast of general sector information, resources and trends, and by developing unique workshops and other means to disseminate this information. We continually identify gaps in industry information and then create tailored resources to fill these gaps. An example of this is the comprehensive and interactive *Ag-Bio Technology Research and Commercialization Funding Options* document on our website.

Investment readiness: By providing input and pathfinding, we help companies build business plans and address gaps. Once investment ready, they can obtain both private and public financial capital and market partnerships. This is a key activity that complements all our services. If a technology company can fill the gaps in its plan, it is often well on its way to obtaining the financial capital needed to execute that plan.



Since 1989 we have made or managed 69 investments in 58 companies, **totaling over 13 million dollars** to an average of about **\$225,000 PER COMPANY.**





Ag-West Bio partnered with Alberta and Manitoba to host the Canadian Prairie Biosciences networking reception during BIO World Congress in San Diego, CA in April, 2016.



The Raj Manek Banquet in Saskatoon. Ag-West Bio partners with the Raj Manek Mentorship Program to benefit our member companies.

Where appropriate, we also prepare companies for investment from Ag-West Bio's own Technology Commercialization Fund.

These long-term investments are devised to help promising technology companies meet key development milestones in their commercialization plans. When leveraged with additional capital sources (on average 4X), they result in impressive milestone attainment, job creation, and other success measurements.

In the past year, Ag-West Bio introduced another investment vehicle to complement our existing long-term investment activity. It is designed to make smaller (less than \$50K) shorter-term investments in promising companies that are closer to

commercialization but still not ready to attain venture capital or traditional financing. It is also designed to take a lead role in leveraging private angel investment directed at hitting specific short-term goals to attain a key commercialization milestone, follow-on venture capital, or commercialization itself. The flexibility of this vehicle allows Ag-West Bio to entertain creative ways to propel earlier stage companies toward accelerated commercialization, as part of our overall assistance plan.

In the coming year, we look forward to staying nimble and proactive in all we do. These are success traits required in the bioscience technology companies we work with, and we demand nothing less from ourselves. ■

NATURAL PRODUCTS CANADA

In 2015 Ag-West Bio helped form Natural Products Canada (NPC), a Centre of Excellence for Commercialization and

Research (CECR). NPC is committed to building a Canadian natural products ecosystem that produces sustainable and successful products and companies, and attracts interest, engagement and investment from the global natural product sector.

NPC will focus primarily on leveraging Canada's world-class R&D expertise into commercially-successful natural products – products and processes that have an impact on human, animal and plant health and well-being.

The founding members for this CECR included: PEI BioAlliance (NPC Atlantic), University of Laval – Institute of Nutrition and Functional Foods (NPC Quebec), Ontario Bioscience Innovation Organization (NPC Ontario) and Ag-West Bio (NPC West). These four nodes will act as anchors for the national ecosystem, providing the valuable, on-the-ground expertise and connections needed to overcome commercialization hurdles.

NPC will also partner with other key stakeholders and organizations to invest in exceptional opportunities to bring innovative products to market.

Ag-West Bio will host a Regional Director in its offices who will conduct business development and represent NPC West, ensuring close ties between the organizations and to the broader Canadian natural products ecosystem.

Numerous additional benefits will accrue to the Saskatchewan bioeconomy beginning this year, including:

- Access to new, incremental funds for promising SMEs in the bioscience sector.



Shelley King, president and CEO of Natural Products Canada

- Opportunities to advance commercialization efforts as well as R&D opportunities via connections across the country and beyond.
- Raised profile within and beyond Canada as a location of preference in accelerating natural products commercialization
- Enhanced ability to attract additional capital to the natural products industry to directly support commercialization.

Natural Products Canada holds great promise in complementing and amplifying Ag-West Bio's commercialization efforts, supporting innovative entrepreneurs within Saskatchewan and across the nation. ■

NPC'S FOCUS AND CANADA'S 3 STRATEGIC SECTORS

Health/Life Sciences	Natural Resources	Environmental Sustainability
Nutra & Cosmeceuticals	Bio-based agri-products	Green replacements
Functional foods and food Ingredients	Animal feed ingredients and natural veterinary care	Co-products of renewables production



A photograph of Jack Grushcow, a man with glasses and a blue sweater, sitting on a wooden bench outdoors. He is petting a small, scruffy grey dog sitting on the grass in front of him. The background shows green foliage and a tree.

LINNAEUS PLANT SCIENCES

FOCUSING ON A BRAVE NEW FRONTIER

Jack Grushcow, president and
CEO of Linnaeus Plant Sciences,
at his home in Vancouver, BC.

After Jack Grushcow sold his software business to Bill Gates in 1991 he was left with the kind of question that can only come to a serial entrepreneur: “Wow, that was great – now what?”

The sale of Grushcow’s Vancouver-based Consumers Software was the largest Canadian technology deal of its kind at the time and provided Bill Gates’s expanding software firm with some of the key underpinnings of what today forms Microsoft Outlook. So it’s an obvious question really: what do you do for an encore?

“I loved being in the software business,” says Grushcow. “I had a great run. I had great people. But the fact of the matter is I felt I had accomplished everything that I could and wanted to do in software – so another software project wouldn’t get me out of bed in the morning.”

“I get bored easily,” he jokes.

So Grushcow turned his curiosity, focus, business acumen and vision – primordial traits of every savvy entrepreneur – to what he knows to be the next big thing: the infinite mysteries of plant biology. “At the time,” he says, “I felt intuitively that molecular biology was a brave new frontier. I’m a technology entrepreneur. And I wanted to paint with a different palette.”

So Grushcow’s Linnaeus Plant Sciences (LPS) and affiliate Smart Earth Seeds has been championing *Camelina sativa*, pioneering the next generation of oilseeds that will grow, fuel, feed and sustain a fragile planet. About a dozen years ago, Grushcow set up his plant biology lab in Saskatoon, focusing on the development of highly sought-after essential fatty acids found in unique and promising plants such as camelina. The company has conventionally bred some of the top lines of camelina in the world, and has begun contracting production acres with farmers in Saskatchewan.

“Saskatoon had the infrastructure and talent pool to hire from and if you want to be a leader in oilseeds, this is the centre



Staff in Linnaeus Plant Sciences' Saskatoon greenhouse, left to right: Christina Eynck (PhD), Plant Breeder, Debbie Puttick, Oilseeds Research Team Leader, Carlene Sarvas, Oilseeds Biotechnology Specialist

of the universe,” says Grushcow, explaining why he set up shop in Saskatchewan. He says Ag-West Bio’s current president and CEO Wilf Keller was tireless in promoting Saskatchewan as a centre for technology firms such as Linnaeus Plant Sciences | Smart Earth Seeds. “Wilf Keller basically did the sales job on me 15 years ago.”

“Everything he said turned out to be true. The people and business atmosphere is fantastic. If you’re in oilseeds, you’ve got almost 40% of the arable farmland in Canada in Saskatchewan. But you’ve also got a provincial government that supports innovation. By far this is the best provincial government for that in Canada. They have been phenomenal.”

Grushcow says Ag-West Bio has provided invaluable business advice and made important connections on behalf of LPS | Smart Earth. He says Mike Cey, Director of Corporate Initiatives, has basically been a conduit for all things Saskatchewan. “If he doesn’t know somebody, he knows somebody who knows somebody, across the board: infrastructure, shipping, processing.”

Those connections have helped LPS | Smart Earth reach the point where suddenly, there is more demand for valuable camelina oil and meal products than there is supply. That’s because as research into camelina continues at a fast pace across various lines, there’s mounting evidence that this particular oilseed is one of those overlooked wonder plants. Grushcow believes camelina presents a once in a generation crop development opportunity, and rural Saskatchewan is poised to benefit.

Camelina oil is already used in biofuel, bioplastics, lubricants, paints, cosmetics and cooking oil. Researchers are finding high value and important human health uses for the oil. Concurrently the company is working to develop markets for the meal, which has been approved as feed for Canadian broiler chickens. Feed markets are anticipated for laying hens, pending an arduous Canadian Food Inspection Agency approval process. “We have just started dairy feeding trials, and with the help of Rex Newkirk [Ministry of Agriculture Endowed Research Chair and Feed Processing Technology] and his team at the University of Saskatchewan, we expect to develop some unique, value added dairy products based on camelina meal.”

“There’s renewed interest in high-omega healthy oils,” says Grushcow. “In aquaculture there’s a pressing requirement to replace fish oil, which is not renewable. It turns out that camelina oil represents a marine-free terrestrial source that can reduce fish oil usage.”

The superior camelina cultivars that have been bred by the LPS | Smart Earth team, so well adapted to the Canadian prairies, have put Saskatchewan at the forefront of new agricultural technology.

Now, says Grushcow, is time to build the infrastructure – camelina meal processing facilities for example – to support that. “So the benefit is going to be in rural renewal. Elevators are closing and there have been numerous changes in agriculture, which has affected rural life in Western Canada. So we’d like to create and support local jobs and build more business opportunities by providing local markets and hence value-added opportunities for camelina meal and oil.”

So, poised on the verge of satisfaction with this latest technology venture, does Grushcow have any advice for aspiring young entrepreneurs? “My advice would be to simply follow your passion. Don’t compromise.” ■



QUANTUM GENETIX CANADA

TURNING GENETICS INTO DOLLARS

Quantum Genetix Canada is a leader in ag-tech, using biotechnologies to support producers and industry clients across North America

Ask any chef and they'll tell you that the key to a great steak is in the quality of the beef — the higher the quality, the better the steak. As tastes become more refined, a growing demand for tender, well-marbled, high-quality beef adds a lot of pressure on the cattle industry to respond. That's where Quantum Genetix steps in, providing biotechnologies that have a significant impact on the industry's bottom line.

President and company founder, Leigh Marquess, is a pioneer in the ag-tech industry. He combines his life as a cattle farmer with his education in molecular genetics to help producers improve efficiencies and grow their wealth.

"I have always been passionate about agriculture, and my education gave me a perfect opportunity to go down this path," says Marquess. "Biotechnology is making strides at offering improvements to animal and crop agriculture."

Quantum Genetix is in the business of identifying and taking advantage of economically important variations in genetic



materials, called SNPs (single nucleotide polymorphisms, pronounced “snip”). These SNPs help the producer determine which animal will gain weight faster, gain fat faster, or have the highest marbling. The total sum of these insights translates into opportunities for producers to sell their beef at premium rates.

The company offers a series of complex genetic services to a variety of farmers, including being able to test for a gene known as Leptin, associated with growth characteristics. As a result, the majority of staff need to be trained laboratory professionals.

“Human resources are always an issue. Finding skilled and talented individuals is an ongoing job. But overall, the research park and environment at Innovation Place in Saskatoon has been quite accommodating for this,” says Marquess.

Marquess says support from Ag-West Bio helped the company find a solid foundation for success and continues to be a support for networking and access to more funding.

“Ag-West helped fund the startup of Quantum with its commercialization loan,” says Marquess. “The research cluster has enhanced Quantum’s business opportunity. It has provided easy access to highly trained labour, specialized lab space, and funding sources such as IRAP [Industrial Research Assistance Program] and other programs.”

As the ag-tech industry continues to grow, new companies are cropping up and designing their own biotechnologies, creating a competitive market that Marquess is happy to see.

“Competition is always good for the marketplace. Consumers need and demand choice, and so new entrants into the space is always healthy,” says Marquess. “We feel confident that our product offering definitely brings value and can withstand competition.”



Marquess is quick to add that competition breeds innovation, which is something Quantum Genetix is meeting head on. A subsidiary, Quantum Biosciences, was launched to develop their biotechnologies for use in the agri-food industry. They also offer GMO (genetically modified organism) testing to farmers. By taking advantage of this service, farmers can comply with international import or labelling regulations and grow their market beyond Canadian borders.

As the company looks into the years ahead, Marquess says the future is exciting. They have recently expanded their technology to help farmers with early identification of critical diseases in canola, soybeans and corn.

“We are expanding our product offering into crop diagnostics for in-crop disease identity and reporting. When it comes to agriculture, almost everything we are involved in has DNA as a component, and as such I think this area will continue to expand rapidly,” says Marquess.

As the company continues to grow and find success in new industries and in new countries, Marquess has advice for those looking to put their ideas to work.

“It is likely there will be big challenges along the way, but the most important key to success is not giving up.” ■

Delegates at the Emerging Technologies conference enjoy an evening of entertainment in the Delta Bessborough Gardens.

COMMUNICATION AND EVENTS

GROWING WORLD CLASS OPPORTUNITIES



Looking back over the year, it becomes clear why the time has gone by so quickly at Ag-West Bio: we tend to pack the calendar with activities!

In the fall of 2015, National Biotech Week was loaded with outreach and industry events: a lecture by Rob Saik drew an audience of 200; the Amazing Biotech Race hosted 75 students and nine companies; and more than 100 people attended Biotech and Beer. At print time of this publication, we will be in the midst of the first Global Biotech Week: BIOTECCanada has managed to coordinate Canada, Europe, Australia and the United States in an international effort to draw attention to the benefits of biotechnology.

Ag-West Bio, working closely with community leaders, successfully hosted the Manning Innovation Awards Dinner in October 2015, which served as a showcase of local innovation. Around 450 people attended the event at Prairieland Park.

World-class speakers, solid teamwork and community support MADE THIS AN EXCEPTIONAL EVENT



John Langridge, Barbara Burlingame, Jennifer Thomson and Mark Lynas (podium) take part in a debate moderated by Rex Murphy (middle), during the Emerging Technologies conference in June 2016.

We continue to host the Canola Industry Meeting and Canola Innovation Day, initiated more than 40 years ago by Saskatchewan's own Dr. Keith Downey. This annual event typically draws over 250 people to discuss new developments, challenges and opportunities. We are currently organizing the 2016 event, scheduled for November 30th to December 1st.

Creating networking opportunities has been a significant part of our work. In the 2016 calendar year we brought the community together for more than 20 information sessions, bootcamps, panel discussions and luncheons. Innovation Place was a valued partner for a number of these events.

Our "magnum opus" this year was the premier Emerging Technologies for Global Food Security conference in June, co-hosted with the Global Institute for Food Security and the ABIC Foundation. World-class speakers, solid teamwork and community support made this an exceptional event. With 350 people in attendance from 25 countries, the event earned rave reviews.

The theme of the conference was "Mobilization to the Developing World." It was clear from the presentations that the researchers working in this area take this task to heart. They believe this requires financial resources, science-based policies and solid (but reasonable) regulations. According to a number of presenters, Africa should be allowed to find its own way to food sustainability through technology, without 'neocolonialism' hindering the process.

Ag-West has earned a reputation for delivering professional conferences. We are careful to select only those that fit our mandate and benefit from our unique skill set. It was our

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Top: Ruth Oniang'o travelled 13,420 kms to speak at the Emerging Technologies conference. She started an NGO that works to empower female farmers in Kenya. **Bottom:** Maurice Moloney, Executive Director of GIFS, congratulates poster winner Kamwe Ogero from the International Potato Center, Tanzania.



pleasure to manage the registration details for the 2016 International Rangeland Congress, which took place in July with more than 600 attendees.

The industry is calling on communicators for help with a growing and
PERVASIVE ANTI-SCIENCE MOVEMENT

Ag-West Bio once again represented the Saskatchewan bioscience community at BIO International in San Francisco and BIO World Congress in San Diego, as well as attending the International Food Technologists conference (IFT) and ABIC 2016, held for the first time in the United States – in Fargo, ND. Funding from Western Economic Diversification Canada allowed us to collaborate with the Prairie Provinces to host networking receptions at these events.

Community collaboration

Ag-West Bio was involved once again in Agriculture in the City, at the Lawson Heights Mall in Saskatoon, an annual outreach event to enlighten urban dwellers about the role of agriculture in our daily lives. Led by Agriculture and Agri-Food Canada, the

Innovative food technologies, such as nonbrowning Arctic™ apples, developed using advanced gene editing techniques, face many challenges on the way to market.



The Amazing Biotech Race has become an annual event at Innovation Place

one-day event is co-organized by Saskatchewan commodity groups and ag research organizations. Ag-West Bio hosted the Science Zone, which featured table-top activities and



Above: Agriculture in the City Science Zone was a hit at the Lawson Heights Mall in April, 2016.

displays developed and manned by volunteers from our bioscience community. The Science Zone is a fun way to raise awareness of the important role science plays in agriculture.

A communications conundrum

The bioscience industry is calling on communicators for solutions to the pervasive anti-science movement. Ag-West Bio's activities in this area include hosting an expert blog, monitoring and engaging in social media conversations, as well as responding to articles and letters in mainstream media.

We also participate in the Biotechnology Coalition, led by CropLife Canada, as well as a local Ag Biotech Issues Management group that meets to discuss current events and determine what actions should be taken. Staff took part in an outreach event, Table for Twenty, hosted by CropLife in July, and attended the Public Trust Summit, hosted by Farm and Food Care Canada in Ottawa. This event featured the launch of the Canadian Centre for Food Integrity.

We would like to thank those in the community who help with this effort. A few examples: Stuart Smyth (Assistant Professor and Industry Research Chair in Agri-Food Innovation at the U of S) who created the SAIFood blog; and SaskCanola, who released the video documentary "License to Farm" early this year. It is also exciting to have a Saskatchewan chapter of Farm and Food Care; and we applaud (and partner with) the Ag More Than Ever cause initiated by Farm Credit Canada. The Saskatchewan Ministry of Agriculture's Ag Awareness program is also a valuable resource. Congratulations to everyone who is working to fill the world-wide-web with facts to offset the misinformation out there!

Be sure to follow us on Twitter, like us on Facebook, read our blogs, and sign up for our quarterly electronic publication, the Bio-Bulletin. ■

Become an Ag-West Bio member!

We would like to thank all of our members for supporting our activities. By working together to grow the provincial bioscience sector, we strengthen Saskatchewan's economy in general.

Visit our website to view member profiles.

Financial statements are available upon request.

Growing Forward 2 

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