

FARMING SMARTER

FALL 2020 EDITION



**Results driven
agriculture research » 5**

**AAFC ag research hampered
but not ham-strung » 12**

**Conference keynote
Timothy Caulfield » 17**

Farming Smarter Fosters Life-long Learning



1 Every growing season at Farming Smarter, 8 -15 students start a Learning Adventure in agriculture.

2 Farming Smarter makes a serious effort to uplift these students and set them up for success.

3 It doesn't always work out the way anyone plans – some students are just goofy!

4 But in the end, all the students learn something and come out stronger.

*These photos don't contain the seven Digital Media Students that worked remotely due to Covid-19.

**Farming Smarter also had to cancel two international students from France in 2020

Lewis Baarda presenting to a small crowd in June 2020.

PHOTO: FARMING SMARTER



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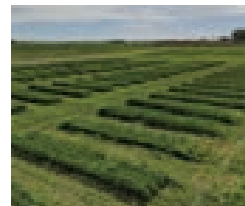
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COVER PHOTO:
Farming Smarter 2020 precision planted durum plots.
PHOTO: FARMING SMARTER

One step ahead of inevitable change

BY RYAN MERCER



We change the way people farm. Farming Smarter adopted this as its mission statement during the strategic planning process in 2019. It is a recognition that, if we do our job right, southern Alberta farmers will thrive in an ever-changing global market and unpredictable future.

Our job, as we see it, is to ensure southern Alberta has a framework of education, research and outreach that supports farmers. This job will fall increasingly on organizations like Farming Smarter as the provincial government moves further and further from operating agricultural research programs. Among all the things 2020 brought, perhaps one of the most lasting impacts will be provincial divestment from agriculture research and support.

The government gave this responsibility to Results Driven Agriculture Research (RDAR); “an arm’s-length non-profit organization dedicated to farmer-led research.” Its responsibility is to “guide Alberta’s agriculture research priorities to ensure they reflect the needs of farmers, ranchers and others in the agriculture industry.”

Because Farming Smarter understands the importance of government relations and community cooperation, it banded together with five other research associations in 2019 and created FarmRite. In 2020, Alberta’s three major agriculture colleges joined FarmRite – Lakeland, Olds and Lethbridge colleges. FarmRite has a seat on RDAR through SARDA Research Executive Director Vance Yaremko. We will be at the table as RDAR settles into its role as a major grant funding organization in Alberta.

RDAR represents a huge change for Alberta’s agricultural sector but Farming Smarter spent the past decade building its community support to weather storms that inevitably come. If 2019 ended as a tropical storm at Alberta Agriculture, 2020 turned into a full-blown hurricane. It would be foolish to ignore the implications of economic impacts from the pandemic. Every pillar in our communities sustained some damage and recovery will be slow. Now is a crucial time for communities to pull together and preserve our foundations.

This is the motive behind the new

initiatives of Smart Partners and Smart Subscribers. Smart Partners are businesses that support farmers and sign up to do so through becoming a Farming Smarter partner. Smart Partners also support farmers directly through the program by providing useful discounts Smart Subscribers can access. Smart Subscribers buy into the program with a small fee that gives a nod to the value they see in the knowledge, networking and opportunities available through Farming Smarter.

On a global scale, we have a small network of people focused on maintaining a solid foundation for agriculture in Alberta. Progress is necessary; stagnation is not an option. But progress requires attention, effort and buy-in by this community and we’re proud to do our part.

Farming Smarter will continue fostering strong relationships with RDAR, the commodity commissions, agricultural colleges and other research associations. We’re growing our cooperative efforts all the time and always with the mantra we change the way people farm. —

Executive Director's Message

In chaos, science will prevail

BY KEN COLES



We all want to be relevant, heard and appreciated in some way. I think this is because we need to feel valid and to have meaningful purpose. Most often we get this through family and friends but there is also a strong need to extend this to our community, our country, and our world. For this reason, those of us in agriculture are very proud. I am particularly proud of working in research and extension. A place where I can use my mind, my love for science and my desire to learn and to share.

I’m very fortunate to lead an agriculture non-profit organization that wants to change the way people farm. Preferably for the better. However, we all know

that change is difficult and, frankly, so are people - myself included.

I started my career with a love for science. Our natural world is so interesting and complex. Science gives us a process to study it and generates a growing body of knowledge. Who doesn’t like a little clarity and structure once in a while? As I mature as a person and in my role, I have a growing, let’s say appreciation for people and their behaviours. I guess this is pretty common as years of life experience start building into a little wisdom. So, if we lovers of science want to be more impactful and relevant, I know we need to spend a little more time and energy understanding or at least communicating with

people. I know, it sounds rough and it is!

The end goal of science shouldn’t be to publish a paper in a journal. Yes, there is value in the purest way but guess who reads those? Scientists often receive accolades based on the number of articles published rather than the impact of their work on society. This creates a chasm between practical doers and the stereotypical lab rat chasing ideas aimlessly through time. This isn’t the whole story, but at least in agriculture there is push for practical and relevant research that helps farmers succeed. So, is this chasm growing and what can we do to bridge the gap?

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Many often turn to technology and boast that the internet of things, artificial intelligence and machine learning will solve our problems. I'm a skeptic. While communication technologies are powerful, we have some major hurdles. For example, twitter expanded from 140 to 280 characters a while back, but most tweets and other social media posts have remained below 140 characters. This suggests that we are not truly engaging in meaningful dialogue but rather broadcasting thoughts and ideas. I fear that divisions are widening, and we are understanding less.

So how do we come together as a community and communicate what really matters to an audience with a shrinking attention span? Well, if we think science matters and we're already lack luster at communicating then, Houston, we have a really big problem! To top it off, we're going through some pretty wild times with politics, a pandemic and a massive battle between facts and alternative facts; perceptions, and realities.

The universal COVID experience forced many of us to reflect on what really matters in our lives. To face fears, anxiety, prejudice, and people. And while most of us have never had to face hunger, for the first time we saw supply issues, hoarding and empty shelves. We've had to balance a wave of conflicting advice driven by political, social and business agendas.

So, I will ask, does science have an agenda other than the pursuit of knowledge? Do scientists? I suppose it can and it does, because after all we are only human. But with all the chaos and confusion, mistrust and malaise, I am loyal to science as the best tool we have to bring balance and to inform decisions. It's not perfect and its often wrong, but I would encourage everyone in agriculture to support it, to value it and to keep it valid. -



Ken Coles
Executive Director, Farming Smarter

Farmers tasked with managing ag research

BY MADELEINE BAERG



Agriculture research requires specialized equipment and big work crews. PHOTO: FARMING SMARTER

March 30, 2020, after months of consultation with farmers, ranchers and other stakeholders, Alberta's Minister of Agriculture and Forestry announced that the management of provincial ag research funding in Alberta would be done by farmers, for farmers.

Specifically, Minister Dreesen announced the creation of Results Driven Agriculture Research (RDAR), an arms-length non-profit tasked with establishing ag research priorities, evaluating funding applications, and allocating the Alberta government's ag-specific research funding.

"One of the platforms that the Conservatives put out [before the last election] was: 'We are going to listen to you, farmers.' What RDAR shows is they're saying: 'Okay, we heard you loud and clear: government is not the place to be achieving results.' They're putting the money forward as sole funder; now we have the autonomy as farmers to deliver the results," says David Chalack, RDAR's interim board chair. "RDAR brings more accountability, responsibility, transparency, flexibility, and the ability for producers to have more direct input or control over agricultural research."

It's been a busy few months since the formal establishment of RDAR in April. In six months, RDAR successfully established its policies, governance structure and direction. It is in the stages of finalizing its grant-ing agreement with the Province.

It also completed a whole lot of consultation.

"It was made very clear by the Minister, both when he set RDAR up and in conversations with me, that really consulting stakeholders – the producers – is paramount. We took that very seriously and have had an exhaustive process of reaching out and really listening," says Chalack.

During June, it held six consultation webinars with almost 200 stakeholders to capture input on the new organization's direction, structure, scope and priorities. Following the large-scale consultation, RDAR brought together 50 key stakeholders as an advisory committee to further refine operating plans and goals.

Based on the results of the consultation process, RDAR established four key research areas. They include: enhancing profitability and competitiveness; improving agriculture's sustainability; responding to changing market demands including building ag-advocacy and public trust; and extension and knowledge transfer.

"Our goal is that our efforts benefit primary producers first and foremost," says Chalack.

Now, the organization is in the process of finalizing its research agenda and preparing for an initial call for proposals. By the end of 2020, it expects to begin granting funds.

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Chinook Applied Research Association

BY KRISTI COX



Left to right: Diane Westerlund, Braeden Peers, Daniel Niwa, Dan Rude, Olivia Sederberg, Christine Kilpatrick, Garret Peers, Lizanne Booker, Karen Raynard, Jennifer Dick, Charity Logan, Jerry Pratt, Brendan Logan, Ksenia Stromsmoe, Gabe Logan. Missing from the photo: Dr. Yamily Zavala, Shelley Norris, Lacey Gould. PHOTO: CARA

The Chinook Applied Research Association (CARA) was the first broad focus research association in Alberta. Established in 1979 in Oyen, CARA performs a robust array of applied research, shares that knowledge through extension, and collaborates with other organizations. The recent addition of a soil health lab rounds out the portfolio of what they offer producers in their region, the province and beyond. As an organization with similar aims and interests, Farming Smarter works as a partner with CARA on various programs and initiatives.

“We followed the path of a couple of forage associations that had been organized prior to CARA getting started,” explained Dianne Westerlund, Manager and Forage Agronomist at CARA. “Our local producers felt there was a gap in the research that applied to the conditions in our part of the province - semi arid with a lot of problem soils. They wanted to see some applied research and demonstration activity in the local area.”

The association is a farmer-led, non-profit focused on applied research relating to areas of producer concern. Study areas include annual crops, forage crops, novel crops, fertilizer trials, and perennials for forage, stored feeds and grazing.

CARA established a soil health initiative when Dr. Yamily Zavala joined the organization in 2013. The program focuses on soil related research projects, as well as a benchmark project.

CARA’s program also has a conservation aspect to it.

“We have a few things focused specifically on the environment - pest monitoring, biological pest control, riparian health - those kinds of things,” said Westerlund.

Getting the results of research into the hands of those who can use it is critical. CARA offers seminars and puts out reports and moved to offering webinars so participants can attend remotely.

Direction for research comes from local producers, the board of directors and CARA’s staff, but outside organizations play a role as well.

“We get requests from industry and ideas from other groups such as Farming Smarter, commodity commissions and other partners that have come into the program,” said Westerlund. “We also do a limited amount of custom projects. Some of those are proprietary, so it’s not information we can share with local producers, but it helps us out with our revenue stream.”

Revenue stream is an ongoing challenge. Some core money comes from Alberta Agriculture, and CARA works together with other organizations like Farming Smarter to preserve that funding. Local municipalities, the Special Areas Board and MD of Acadia also provide financial support as well as expertise, storage space, vehicles and equipment.

For CARA’s soil health lab, the response from ag industry and producers came in the form of a significant donation of equipment, cash donations from farmers, and labour to renovate the building.

“The support for the soil health lab has been really overwhelming,” said Westerlund. The lab facilitates research projects and a critical benchmark project.

“The soil health benchmark project intends to establish a database of soil health parameters throughout the province, including biological and physical health components rather than just the chemistry,” said Westerlund.

Farming Smarter is one of 11 producer organizations that started gathering soil samples in areas across the province in 2019. The current information will establish a picture of soils in the province and then in years 4 and 5 partners will re-sample some sites.

“We’ll be able to monitor the changes in soil health and link it to the management practices that have occurred in the fields during that time frame,” said Westerlund. The results can help inform best practices for improving overall soil health in different regions.

Another key project that Farming Smarter participates in with CARA is a perennial forage trial.

CARA established sites in 2016 under a three-year project funding agreement with Alberta Beef Producers and the Alberta Live-

stock and Meat Agency. In 2019, they established a new proposal for the CAP program, and Farming Smarter joined the project.

“This was really valuable because we did not have any trial sites south of our site CARA at Oyen,” said Westerlund. “Farming Smarter was able to give us a location down in the southern part of the province.”

This research is unique in that it is looking at mixes.

“Typically forage research focused on single species or varieties, so the evaluation of mixes of grass and legumes is valuable information for the producers,” said Westerlund.

Some equipment used for research plots is different than standard farming equipment. CARA was able to loan Farming Smarter their forage harvester because the harvest takes place at different times in the two locations.

Collaboration also helps when seeking research funding. Funders prefer to see one cohesive project rather than several individual ones spread over the landscape. Putting the study and results together makes it easier for producers to use the information.

“One of the biggest benefits that we have from working with Farming Smarter is sharing expertise and the collaboration on advocacy,” said Westerlund. “Just by working together we have a little louder voice and are able to make connections with some of the people who can influence the funding and hopefully will continue to do so in the future.”

Ken Coles, Farming Smarter Executive Director, agrees.

“We’ve worked a lot together on the bigger picture advocacy over the years,” said Coles. “It’s also nice to have the opportunity for the managers and executive directors to get together to talk about common issues. With every exchange we learn a bit about how one another does things, and it adds value to each of the organizations. I really appreciate that.” Farming Smarter and CARA look forward to continued work together.

“In today’s world, it takes many working together, pooling resources and expertise to get the most benefit out of the work we do for producers,” said Westerlund. —

► RESEARCH from page 5

RDAR is currently operating with an appointed board and interim management team. The board will be replaced with an elected board at RDAR's first AGM, likely in February 2021; staffing positions will be filled with permanent staff over the coming months. Once the board shifts to an elected board, at least seven of the 11 board members will be required to be primary producers.

The Province allocated set-up funding that financed RDAR's incorporation and initial organizational development. Looking forward, the Province will provide RDAR a budget of \$37M/year. These funds are in addition to dollars already committed by government for research at academic institutions over the next three years.

RDAR will report to two classes of membership: 33 Class A voting members that represent various commissions, producer organizations and applied research groups, and Class B non-voting members.

"Farm Rite [which represents six Albertan applied research associations, including Farming Smarter] is a voting Class A member. We got a position, as did ARECA and AFIN. All applied research associations are on the advisory committee, plus colleges and universities too. So, we definitely feel that we have a voice," says Farming Smarter's Executive Director, Ken Coles.

Coles does have reservations about how this funding model might impact long-term and/or coordinated research efforts.



"Help each other and help us make this work. Ag is not known for its collaborative efforts generally, but we're stronger together."

DR. DAVID CHALACK

"One thing I am concerned about is capacity. Funding is one thing; capacity to actually do the research is another."

Specifically, he's worried about program based-funding disappearing, given that RDAR appears (at least at this early stage) to only be tasked with project-based allocation.

"A breeding centre is not a project, it's a program. All of us applied research associations aren't projects, we're programs. It's always easier to fund a project, but is that the most efficient and effective use of funds? It's great that, through RDAR, we're building a little home for ag. There's a lot of logistical value in that alone. But I do think we also need some continuity in agricultural research, and I'm a believer in a more coordinated approach."

That said, Coles says he is in favour of the more arms-length, industry led funding model. "I'm very hopeful it'll be an effective organization. I'm on board with the premise."

Chalack's key message to farmers as RDAR gets rolling? Here's your chance.

"Help each other and help us make this work. Ag is not known for its collaborative efforts generally, but we're stronger together. Put aside all your little individual wants and needs and take this broader view of things. We'll still be looking after issues for specific [sectors] but we need a broader sense of who we are and how we can advance ag together. This is our chance to do something better than it has been done before." —



Initial research often takes place in small plots that require individual attention. Projects can be labour intensive. PHOTO: FARMING SMARTER

New committee targets wild oat resistance

BY LEE HART

A new version of an old committee makes an appeal across Canada that all hands be on deck in the coming weeks, months and probably years to deal the increasing and certainly tenacious problem of herbicide resistance in wild oats.

Researchers, farmers, agronomists and crop protection retailers and manufacturers are all called upon by a relatively new Wild Oat Resistance Action Committee to get involved in not only raising awareness of the issue, but also to actively participate in finding a solution.

“We are reaching out to all sectors of the industry to help in dealing with what appears to be an ever increasing problem,” says Eric Johnson, chair of the action committee. Johnson is a weed scientist and researcher with University of Saskatchewan, department of plant science.

He says the most recent field surveys show about 70% of wild oats tested show some degree of herbicide resistance. Looking at some earlier Alberta herbicide resistance survey’s as an example, in 2001 wild oat herbicide resistance levels were about 11%. That increased to 39% in 2007 and 50% in 2014.

Among wild oats tested, about 62% of resistance is to Group 1 herbicides, while 34% are resistant to Group 2 herbicides and 27% are resistant both Group 1 and 2 herbicides. To a lesser extent, they’ve seen some herbicide resistance to Group 25 herbicides and most recently in Group 8 (triazine) products. Some weed specialists predict it is just a matter of time before they find wild oat resistance to glyphosate.

“So the objective of the Wild Oat Resistance Action Committee (WORAC) is partly to get the word out to farmers to be aware of the resistance risk, to watch for it, and to hopefully test for it,” says Johnson. “While another important objective is to develop the



Wild oat patch in Farming Smarter canola crop. PHOTO: FARMING SMARTER

proper research to help control or reduce the spread of herbicide resistance.”

WORAC follows in the very long shadow of the original Wild Oat Action Committee that operated in western Canada between 1972 and 1983. Wild oats were an increasing problem then, with the committee charged in part with conducting research into wild oat biology.

Fast forward about 35 years and farmer, Ken Eshpeter, Daysland, AB and Neil Harker, retired Agriculture Canada weed scientist, shine a light on the increasing problem of wild oat herbicide resistance today. A pitch was made to the Weed Science Society of Canada (WSSC) (website at: weedsociety.ca) and that organization created the ad hoc WORAC.

The new action committee, chaired by Johnson, has a 12-member steering committee made up of researchers, farmers, agronomists, and crop protection retailers and manufacturers. The steering committee created two sub committees — one to coordinate extension and education programs and one to focus on research.

One of the first things the extension and education subcommittee developed are four infographic panels on wild oat resistance that are on WSSC website and provide some information on how to stop the spread of resistance and the mechanics of collecting wild oat seed samples to have them tested for resistance.

“We hope that, if farmers suspect a resis-

stance issue, they will actually collect seed samples and have them tested,” says Johnson. As well, the committee hopes to establish community or regional committees of farmers and other local interests to raise awareness and perhaps help develop herbicide resistance management strategies.

Charles Geddes, weed researcher with Agriculture and AgriFood Canada at the Lethbridge Research Centre is a member of the action committee’s research subcommittee.

One of the first jobs of the research subcommittee is to review the considerable research completed by the original committee on wild oat biology, says Geddes and from there develop a plan of new research needed.

“An important part of the process will be to involve farmers to get their advice on what research needs to be done and what would be most useful to them,” says Geddes.

Johnson says engaging with farmers is important in all aspects of the action committee. “We want to hear from farmers on how they are managing wild oat resistance on-farm,” he says. “And we also want to hear from farmers who perhaps don’t have problems with wild oats and herbicide resistance and find out what they are doing that’s helping them avoid the problem.”

Information on action committee activities will be posted on the WSSC website at: weedsociety.ca and you can connect with the committee by following them on Twitter at: @RWildOat. —



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Alberta Agriculture through the years

BY KRISTI COX



Sunset on these bales and on Alberta Agriculture dominance in counties and farmers lives.

Since the inception of the Province of Alberta in 1905, there has been a Ministry of Agriculture. While the Ministry has changed over time to meet the evolving needs of producers, it remained a critical piece of the success of agriculture in the province. Various programs, initiatives, offices and individuals ensured producers had all the tools they needed to get the most productivity out of the land.

John Knapp, former Deputy Minister of Agriculture, started out as a District Agriculturist (DA) in 1977. At the time, Alberta Agriculture had a large physical presence on the rural landscape. There were 65 district offices across the province hosting about 100 DAs, 60 District Home Economists (DHEs) and about 80 specialists who supported those out of six regional offices.

“The technology in agriculture in the 50’s, 60’s and early 70’s was a more general technology base; herbicide and fertilizer use, breeding programs, and nutrition for cattle, that kind of thing,” said Knapp.

“The District Agriculturist’s role was to understand the needs of his or her rural community. (DAs would) sit down with individual farmers and talk about technology changes, breeding changes, livestock, fertilizer placement, herbicide use and all the different technologies. It really began to help us produce more per acre.”

Having the DAs and DHEs based out of those district offices had a large impact on their efficacy.

“They understood their community and they understood what individual issues were on their minds,” said Knapp.

Knapp explained that DAs shared knowledge in three key ways: Farmers would come to their offices with questions, farmers requested on-farm visits, and DAs organized independent, expert speakers who answered questions that came from area producers.

“DHEs worked with farm families, aiding with home design, family foods and nutrition, or clothing and textiles,” said Knapp. “All things that were part of farm families at that point. They listened, made cold calls and brought in speakers.”

Sometimes they went together on farm visits. The DHE would be farm family focused, and the DA focused on the business and technology side. It was a unique partnership that addressed the needs of the entire farm family in a time where information wasn’t easy for the general public to access.

In those years, having knowledgeable DAs enabled quick, effective resolutions to problems.

John Kolk of Kolk Farms Conrich Ltd grew up on a farm and now runs a specialty crop and irrigation farm with his family. In the 1970’s Kolk’s dad purchased a piece of land one spring with about 50 acres of salinity. The DA helped him determine the best process to remediate the land from start to finish. By that fall, they had permits in place and implemented the plan.

“Three to four years later, it was producing crops like the rest of the land,” said Kolk. “You don’t forget those things.”

Alberta Agriculture also offers crop insurance funded through the federal and provincial governments. This is amalgamated with a lending program under the Alberta Financial Services Corporation.

“Those programs also sat in the district office,” said Knapp. “You could go to talk to your DHE about home design, you could talk to the DA about a beef ration for the winter, you could talk to the loans officer about expanding your farm and you could talk to your crop insurance officer about crop insurance for the next year.”

With these services all in one place it was truly one stop shopping for farmers.

As technology progressed through the 80’s the DAs frequently referred farmers to more specialized individuals.

When Kolk sought to expand into an alternative income source for his farm in the early 1980’s, he was considering getting sheep, and accessed Alberta Agriculture’s services.

“We knew nothing about sheep, so we went to see the sheep specialist,” said Kolk. This sheep specialist happened to be (then) DA John Knapp.

Knapp told Kolk what was working for other sheep producers, advised on breeds and warned of potential pitfalls. They spent about six hours together over two meetings. Considering Knapp’s experience and advice, Kolk determined the best route forward to pursue sheep production on his farm.

“There was a level of trust in the information that was provided that gave me confidence,” said Kolk.

“If someone wanted to talk about dairy rations, you’d contact the dairy specialist,” said Knapp. “If someone wanted to talk about

seed varieties for the coming spring, you'd transfer them to the crop specialist.

By the early 90's it was clear that we needed to convert our service into specialists on the front line."

At this point, DAs evolved again from the role of referral agents to specialists themselves in areas like beef, crop, engineering, and agricultural economics. Just a decade later in the early 2000s, with information more readily available to producers, there was yet another shift.

"At that stage, the department decided to take on more of a train the trainer role," said Knapp. "They retained many of the specialists, they still had large numbers doing research and supporting the specialists, but they began to move away from front line extension."

A call center took on the role of front-line extension, at its height fielding about 50,000 calls a year.

While the DAs, DHEs and their evolved forms were key to farm success in Alberta, other components of Alberta Agriculture had significant impact as well.

In most provinces, research was undertaken by a combination of the federal government and universities, but Alberta Agriculture took on a lot of research themselves.

As technology progressed through the 80's the DAs frequently referred farmers to more specialized individuals.

"Good things came out of that," said Knapp. "For example: the barley varieties developed out of Lacombe; beef genomics work where we're breeding more efficient cows; much more efficient poultry rations; some great work on peas, breeding for fungal resistance; and Alberta Ag was part of developing that great modern plant called canola out of what used to be rape seed."

Alberta Agriculture also administered various programs for disaster relief, such a drought or flood, or in response to crises.

Alberta Agriculture had a significant part in mitigating the 2003 BSE crisis. When the price of cattle fell from \$1.23 to \$0.22/pound in half an hour, Knapp explained that the Province faced a terrible crisis. Nobody would take our beef outside of Canada.

"The Agriculture Minister at the time, Shirley McLellan, pulled the ag industry together and they recommended several programs to help increase consumption," Knapp explained. "At the same time, she told the truth and her staff in the department told the truth and the public began to gain confidence in the safety of our system."

Knapp said Albertans consumed more beef during the BSE crisis than ever before or since. Partly because it was a good price, and partly because it was managed in a way that built trust and confidence.

"It's an example from seventeen years ago of what we can do today if organizations pull together and focus," Knapp said.

The Farmers' Advocate Office is yet another initiative under Alberta Agriculture that had a positive impact on farmers. It helped farmers understand their rights and responsibilities around things like fence lines or stray animals and was particularly beneficial educating about surface rights.

"When the Alberta energy industry was doing seismic work, or drilling for oil or gas, or putting pipelines through, the farmers began to know what payments were reasonable and what their rights and opportunities were," said Knapp.

Knapp points out that there are niches the private sector can never fill.

"The private sector can't make public policy," Knapp said. "They can certainly have input into public policy, but the government is always going to need analysts and people to develop policy options for the minister and cabinet to look at."

While Alberta Agriculture has evolved over the years, Kolk thinks it is still relevant today.

"Alberta Ag has been good on the whole sustainability file," said Kolk. "Whether that's water efficiency, irrigation efficiency, reduced tillage, reduced chemicals, or the four Rs of fertilizer- that sort of stuff is where there was a public need, a public good, and no natural seller."

Kolk finds Alberta Agriculture important for information exchange and distribution through conferences like the Irrigation Update and the Agronomy Update. He also thinks they are key in surveillance with issues like pests and challenges like clubroot and fusarium.

Recently, when Kolk was investigating subsurface irrigation, one of the first things he did was to sit down with the people at Alberta Ag's irrigation sector. When he wanted to streamline weekly moisture soil checks, he worked with Alberta Ag first for guidance with moisture sensors. From there, they consulted with Dr. Appels at Lethbridge College.

"It takes a village," said Kolk. "It was critical to talk to people that I had a lot of trust in because they had expertise and they weren't trying to sell me anything. They were there to say, 'This is what we've learned, and this is what you should be careful of.'"

"If your agronomist is also working for an input supplier, he's not your agronomist," said Kolk. "Alberta Ag has been, and I hope in the future will continue to be, that respected source of information from a neutral party." —



AAFC ag research hampered but not ham-strung by COVID-19

BY MADELEINE BAERG

If in January you'd asked Agriculture and Agri-Food Canada (AAFC) researchers how they'd spend this spring and summer, likely all their predictions missed the mark. As it did to Canadians across the country, COVID-19 turned AAFC researchers' best laid plans upside down. In Alberta's AAFC labs and research plots, ag research scaled back significantly in scope and scale. All year-one field-based research projects were postponed to at least 2021. How COVID-19's impact on ag research will ultimately affect farmers may take years to fully show itself.

"I think it has had a huge impact and I don't think we've yet realised its full impact," says Lauren Comin, director of research with the Alberta Wheat and Alberta Barley Commissions.

That said, she adds, "We're still committed to fund the work. And, researchers across the board are very committed to getting the work done for farmers: they're passionate about it. We hope to do what we can to minimize the impacts."

Dr. Francois Eudes, AAFC's research, development and transfer (RDT) director in Lethbridge assures that important work did continue throughout the pandemic.

"I do appreciate that there is a perception that much less has occurred [at AAFC research centres] this year because we have not been as visible as in the past. We don't have co-op students in our fields. We didn't send scientists to any research field days. But our work is ongoing. It's getting done, but differently," says Eudes.

Eudes says the team's focus was on ensuring scientific integrity within the constraints of the pandemic.

"Field-based activities went ahead, though we reduced the amount of work in order to reduce the physical presence and not be part of the spread of the virus in our communities. We may have reduced the number of sites of some experiments. We may have reduced the scale of data we collected. But the work is still scientifically sound. The 2020 year of scientific experiment will contribute to past and future years of what can be published," he says.

While the work may be publishable, Comin has concern with the depth and strength of the findings for larger scale projects.

"Some projects that continued, continued in a limited capacity," she says. "If you had a large agronomy project with multiple years, multiple sites, multiple analyses, we need to make sure the data is robust and that we can still tell the story to producers that we want to tell. If we lose too many site years and analyses, we may lose the robustness of the data."

Eudes isn't yet certain how much the changed workload will impact how many research dollars are spent this year. That said, he believes the



Dr. Surya Achyra is one of the AAFC scientists Farming Smarter works with in better times. PHOTO: FARMING SMARTER

total commitment will ultimately be invested, though some dollars are deferred to 2021.

"When we made decision not to start new projects this year, we communicated with funders. It was the right decision for a number of projects because there was way too much uncertainty. We could not tell funders with certainty that all the work would be done and that moving forward would be the best use of the funds. Our funders were okay with that decision and remain committed."

In some cases, additional funds may be required to complete certain projects.

"We still don't know the status of all projects," says Comin. "Some projects that we had already started, we know they were delayed. A lot of scientists who couldn't go into their labs, couldn't spend time in greenhouses will need extensions. Some of those will be no cost extensions – [we'll] just move the funds around – but some may require extra funds. We haven't navigated that yet. We'll do our very best to accommodate and make sure we have amendments drawn up because it's obviously work we want to see continue."

Comin is particularly concerned with variety development.

"If Ag Canada wasn't able to plant a generation of a variety they are developing or wasn't able to harvest it to put it into a winter nursery, we do miss out on one or two years of the cycle. We're extending the amount of time it takes to develop a variety: that's an impact we'll feel many years later."

While some AAFC staff continued to work from AAFC facilities, the majority of staff worked from home-based offices. The home-based

work format offered challenges in some cases, but also unexpected opportunity, including an acceleration in digitalization. Additional 'thinking' time may ultimately translate to a bump in scientific creativity.

"During this time of working remotely, scientists have put quite a lot of work into the thought process to develop new ideas. I think we'll see more year one projects coming soon because of that," says Eudes.

One major human resource change forced by the pandemic related to students. Typically, AAFC research centres rely on many summer and co-op students to conduct field work. This year, very few students were able to contribute. The University of Lethbridge, for example, expressly forbade students to work in-person because of the pandemic. While some, such as technicians and collaborators within the entomology program, contributed remotely, far fewer participated overall. The reduced support meant many scientists had to carry their research efforts alone this year.

"In some cases, [scientists and support staff] had to do even more than they've done in past years because they had no students to help them. For some individuals, there was certainly challenge and stress due to the volume of onsite work because they didn't have access to the additional help they usually have in the summer," says Eudes.

While Eudes is proud of how the AAFC team made the best of a challenging spring and summer, there's no question he's looking forward to normalcy returning to AAFC labs and further expanding crop and livestock activities, he says.

"We're all looking forward to being back in the fields and the labs." —



In 2019, a group of AAFC scientists toured Farming Smarter's hemp plots just before harvest. PHOTO: FARMING SMARTER

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Hard work and fun amidst global pandemic



Above: AGM dinner was delicious! Join us for a pig roast Mar 3, 2021.



Left: New equipment this year includes this Amazone sprayer and tractor

Below: Cypress Conference took place just days before COVID-19 hit Canada!





Above: The bandits from Farming Smarter

Right: Summer students can find a way to have fun even when rouging

“I think we did a good job of meeting the challenges of a fast paced industry in the face of Covid adversity.”

JAMIE PUCHINGER



Above: Open Farm days brought families out to learn about agriculture

Below: Summer field tours added digital attendance with our mobile production unit



Creating our future...

BY TREVOR LEWINGTON, CEO ECONOMIC DEVELOPMENT LETHBRIDGE

Peter Drucker noted, “the best way to predict the future is to create it.” There is no question that a global pandemic and the resulting economic crisis played havoc with businesses both large and small. It is sometimes tempting to listen to the doom and gloomers hiding behind keyboards on social media. Southern Alberta is not immune to the effects of the coronavirus, but we stay focused on the future and choose to create a path forward.

Alberta Premier Jason Kenney visited Lethbridge June 30 to announce a major investment of \$27.8 million in the Agri-food Hub at Lethbridge’s expanded and modernized Exhibition Park. The City of Lethbridge subsequently backed the project with both a \$25 million capital investment and further 30-year loan for the remaining funds required. The \$70 million+ project will see the creation of a world class 268,000 square foot facility to showcase the products, producers and technology of our region. More importantly, the project will create a destination where innovators, educators and leaders in agriculture can collide to build on the existing powerhouse that is agriculture in southern Alberta.

The province also announced several investments across the region for irrigation system rehabilitation and expansion. There were also hints of more significant investments to come if provincial negotiations with the federal Canada Infrastructure Bank (CIB) succeed. Investments in irrigation infrastructure made many decades ago was foundational to the value-added processing sector. Strengthening irrigation provides opportunities for new acres and additional specialty crops.

Still further announcements target highway twinning and other upgrades. In particular, the much-anticipated twinning of highway 3 from Taber to Burdett will alleviate traffic congestion associated with potato and sugar beet movements. Continued investment in our roadways is key to improve access to markets and ensure the quick and efficient movement of crops to both shipping facilities and value-added processors around the region.

Both major post-secondary institutions in our region continue to lead the way in terms of focus and support for agriculture. Lethbridge College conducts applied research for the agriculture industry and has for over 30 years. The research and development services take place across the campus in state-of-the-art facilities. The Aquaculture Centre of Excellence (ACE) features a bio secure isolation facility, water recirculation equipment, water quality testing equipment, and a molecular laboratory. It also includes a 3,000-square-foot greenhouse and the newly built Centre for Sustainable Food Production, which is a 10,000-square-foot greenhouse with an analytical lab. Lethbridge College also has a 7,000-square-foot Innovation Space designed to foster collaborative research with industry. The Mueller Applied Research Chair in Irrigation Science uses this space.

There is rapid expansion in the Advanced Post-Harvest Technology research program. The college recently received funding from the Natural Sciences and Engineering Research Council (NSERC) to establish the Integrated Agriculture Technology Centre (IATC). The IATC connects the agriculture industry with technologies and research expertise at the col-



Trevor Lewington EDL CEO Photo: EDL

lege, offering small- and medium-sized enterprises applied research and innovation services to solve challenges, as well as specialized training on the latest equipment and emerging technologies.

The University of Lethbridge continues to explore and implement creative means to increase the impact of its agricultural programming to benefit the southern Alberta community and beyond. In addition to the programming in Agricultural Studies and Agricultural Biotechnology in the Faculty of Arts and Science, and the programming in the Dhillon School of Business focuses on the entire scope of business activities in the agri-food sector, from inputs and production through to the consumer, the University of Lethbridge will expand its capacity and capability to directly address a number of applied research areas in the agri-food sector. You can expect to hear more about these initiatives in the fall of 2020.

With all of these great investments, I remain optimistic that as our region continues to work together collaboratively to promote a consistent message to government, investors and industry – we can continue to grow our economy while helping to feed a hungry world. —

Stewardship

Building on fifteen years in the watershed



BY JON MARTIN

This year marks the 15th anniversary of the Oldman Watershed Council (OWC). Since our formation as the OWC (as a result of an Oldman River Basin Water Quality Initiative and Oldman Basin Advisory Council merge), we accomplished so much in terms of improving watershed health and environmental literacy for all those who live, work, and play in our region.

While an anniversary of this sort is a great opportunity to reflect on accomplish-

ments—like the creation of our flagship Watershed Legacy Program that provides funding and support to rural agricultural producers for environmental stewardship projects—it is an even better opportunity to look to the future. A large part of what makes the OWC so successful is our ability bring many area voices together, work with partners from all sectors, and use ingenuity,

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planning, and hard work to tackle the big challenges of the future.

This year, we have a few exciting projects in the works. The first is facilitating Canadian Aquatic Biomonitoring Network (CABIN) in our watershed. CABIN monitoring is a specific type of environmental monitoring where benthic macroinvertebrates (insects that live on the bottom of creeks/rivers) are collected and used as a bioindicator to measure the health of a water body. The presence—or absence—of these invertebrates helps us identify and understand what is in our water. Samples are collected over time and added to a database to supplement other forms of testing. For example, an unknown contaminant or chemical reaction could be present in a water body and go unnoticed, but an observed decline in a particular type of invertebrate allows us to recognize that something is wrong. Think of it as a complimentary addition to standard water testing, one that helps paint a more complete picture of water health.

This example is one of the many uses of CABIN technology; the more we grow the data set for the Oldman region, the greater the short- and long-term benefit to the health of our region. While its benefits are not as immediately obvious as something like a headwaters riparian restoration or off-stream watering project, the knowledge is essential for making effective decisions that affect the long-term health of the water we use for food production, consumption, recreation, and industry.

We started a Uniting Rural Producers and Urban Consumers project this year. The goal of this three-year, comprehensive program is to inform urban consumers about food production, establish and grow relationships between food producers and consumers, and build public trust in food systems. To do this, we identify knowledge gaps regarding food production in the urban population and create a range of informative communications pieces. We plan to create a two-season web series where we share meals with food producers, hold in person and Meet the Producer events. While COVID forced us to rethink some of the content, we are very excited about the long-term benefits the project will create and the stronger sense of community it will foster.

We invite you to join us on our journey to a healthier, more resilient watershed in the next chapter of the OWC. We are all better off when we work together and create a future that supports everyone in the watershed. —

Highlights from the past 15 years at the OWC are in our 2019-2020 Annual Report, at oldmanwatershed.ca/annualreports. The report features a year by year photo spread with hundreds of pictures showing a small portion of the good work that directly benefits all those who call the Oldman watershed home.

Set the record straight

BY NATALIE NOBLE

The world of agriculture is swarmed by myths and misinformation. Whether it be fad diets, attacks on GMO or misrepresentation of the industry in the media, getting the truth out there is a challenge. With that, there could not be a better reason for Timothy Caulfield, myth debunker, to make a (virtual!) visit to Lethbridge and help set the record straight.

When Farming Smarter invited Caulfield to take on the role of keynote speaker for this December's conference, neither party knew yet just exactly what 2020 had in store. However, in the midst of a pandemic and unprecedented amounts of misinformation circulating, the timing couldn't be better.

"We talk about misinformation and the impact it has on so many dimensions of Canadians' lives – from nutrition to food debates constantly going on," Caulfield said. "But in the context of COVID-19, holy cow has the issue health misinformation ever intensified over the months. This will definitely be a big component of my talk."

The University of Alberta professor in the Faculty of Law and the School of Public Health and research director of the Health Law Institute is certainly well-prepared to tackle this issue. Also a Canada Research Chair in health law and policy, Caulfield writes extensively to debunk myths and assumptions around health science and innovation as well as authored two best-selling books: *The Cure for Everything: Untangling the Twisted Messages about Health, Fitness and Happiness* and *Is Gwyneth Paltrow Wrong About Everything?: When Celebrity Culture and Science Clash*. He also hosted and co-produced the award-winning documentary TV show, *A User's Guide to Cheating Death*, now streaming on Netflix.

"I hope to talk about the myths around COVID, and how this is an interesting time in history where we can really dig into what the research



Farming Smarter Keynote Speaker Timothy Caulfield: Energizing the Ag Community to Constructively Debunk Myths and Misinformation.

PHOTO: SUBMITTED

says around how misinformation has a tangible impact on all of us," he said.

"The other thing I hope I can do is energize everyone to become part of the "go science team" to help debunk those myths in a constructive way," Caulfield said. "I hope to give everyone pointers as to how they can do that and really be part of the broader conversation."

It's no surprise that Caulfield has engaged with the agriculture community in the past, and he always enjoys it. "I hope to have the opportunity to talk to this community not just as experts in this area, but as professionals and business individuals that are part of the broader community. They play such an important role in what I call the health economy," he said. "I have been working in the area of misinformation and there's so much of that relevant to this community. And I know that this community also gets really frustrated by it."

He added that myths around agri-food products and the role food plays in people's health have a measurable impact on the economy and agricultural markets. "And it matters," he said. "Engaging this community is increasingly important to the topic of the spreading of health misinformation." —

Olds College ramps up

BY ALEXIS KIENLEN

Olds Smart Farm is now more than a farm. It's a living lab, a place where students can learn and researchers can test new and innovative agricultural technologies. Established in 2018, it now operates as a smart agriculture ecosystem, said Joy Agnew, Associate Vice-President of Applied Research at Olds College who will speak at Farming Smarter's December conference.

The farming operations have come to encompass applied research, academic programming and extension through the Smart Farm's flagship event every August, the AgSmart expo.

The Smart Farm has grown its number of strategic partners to 50 and has ambitions to create a pan-Canadian Smart Farm network this fall. The new network will link with other research farms or Smart Farms, to test more technologies across the country and across various cropping systems.

Agnew said the Smart Farm acts as a testing ground for agricultural technologies that may be commercialized or pre-commercialized.

"We can operate or use them in an actual farm setting in western Canadian conditions to optimize or help further develop technologies for farm implementation," she said.

Some of the technologies at the farm are fairly new or have only been adopted by a few farmers. Testing out technologies at the Olds farm enables researchers to evaluate which technologies might work well for Alberta.

At this point, the farm has optical spot

spraying technology, variable rate technology and autonomous equipment as well as the DOT platform. This year, operators at the farm were able to seed, spray and spread using autonomous farming equipment. The farm also has six sensors to measure soil, climate and plants.

"Sensor clusters installed throughout our farm allow us to compare and let us look at functionality, connectivity and accuracy of the data, and the usefulness of the data for farm management decisions," said Agnew.

The farm supports both Olds College students, who are involved in the data and hardware of the operations, as well as applied research activities. Plot or field trials can be set up.

The farm has 18 current applied research projects, and completed five projects. To date, it secured just under six million dollars for applied research.

Agnew said the response to the farm has been extremely positive.

"Producers especially are excited about having somewhere to go for independent third-party information on new technologies and how well they work for us and what we've learned about their functionality and connectivity etc. We haven't really hit the maximum benefit yet because we've just five projects under our belt. Once we start having a critical mass of producers and outcomes every year to share and showcase, it's going to be really valuable for producers," she said.

"Technology providers are already benefiting from the Smart Farm because they can ground truth and proof of concept test

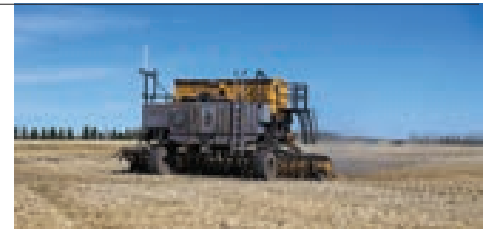


PHOTO: SUBMITTED BY OLDS COLLEGE

technologies in a real farming situation," she said.

The Smart Farm has held several open houses. Their showcase event is AgSmart, a two-day outdoor expo. The first one was held in 2019, with the August 2020 event cancelled due to COVID-19.

COVID-19 did not slow down the activity at the Smart Farm. They continued to test autonomous equipment and compare how it operates in comparison to conventional equipment.

"This will be ongoing for a number of years," said Agnew.

Another project involved optical spot spray technology WEED-IT, which is a green on brown optical spot spray.

"So, it means real-time, in the field looking for green and spraying only green," said Agnew. This could be useful in both pre-seed or post-harvest applications.

Researchers at the farm also did a variable rate fungicide project, with a map generated by satellite imagery alone.

The farm also has a livestock component and researchers doing work in artificial intelligence for animal identification, health monitoring, and technologies for remote grazing.

Some technology only works well in certain areas, said Agnew, and the Olds College Smart Farm helps researchers and producers determine if the technologies can truly work in Alberta conditions. —

Learning adventures wherever you want

BY ALEXIS KIENLEN

From now on, you will always be able to catch Farming Smarter Learning Adventures from wherever you have access to the internet. Farming Smarter made the transition to streaming live events and it's a change it plans to keep.

"We talked about doing the digital or online for years, so we could expand our audience," said Jamie Puchinger, assistant manager of Farming Smarter. "People who

normally wouldn't be able to attend our events, and are interested in the research that we do, will be able to get that information."

"This year, with COVID-19, that was a giant shove to make sure it actually happened. Now that we've got it established, it's something we will do with all of our events going forward," she said. We plan to make improvements, so it's better every year."

In compliance with Alberta Health and Safety regulations, Farming Smarter hosted four public field events in 2020. They had in-person visitors and live-streamed plot tours in June and July including Eighty-four people attended the in-person tours, and 65 attended online. The online people tuned in

from across Alberta, Saskatchewan and the United States.

"We had some really great questions coming from our online audience and some good interactions, so that was nice to see," said Puchinger.

Getting the audio-visual equipment needed to stream live events proved challenging.

"With the international situation the way it was, there was a shortage of equipment," she said. Due to COVID-19, China was not shipping audio visual equipment, and North American companies were sold

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out. Finally, Farming Smarter found a rental unit available in Calgary and the owner sold it to them.

Farming Smarter hosted its events on Microsoft Teams, which allows the organization to keep files within the group or the chat, said Puchinger.

“If speakers have things they want to share, Microsoft Teams allows the participants to see those documents,” she said.

Farming Smarter also wanted to make sure they had the capability for multiple camera views in the livestream. They bought a giant switchboard that allows different cameras to feed into it for more flexibility. Morton Molyneux of K2 Communications provided and set up the videography.

“We were really happy with the fact that we could make it actually work the way we wanted. We could incorporate the high-quality video component to the stream and the audio eventually got there,” said Puchinger. The group did lose picture or audio a few times but are still fine tuning the system.



Live streams from the field required lots of team work! On camera left Tianna Ell. On camera right Cassidy Langridge. In mobile trailer Morton Molyneux and Jamie Puchinger. PHOTO: FARMING SMARTER

During field schools, they were able to zero in on treatment shots and do closeups.

“It’s a little more challenging when we’re doing live as well, because then there are people standing around who sometimes get in the way, or step on the camera cables running across the ground. We’re trying to accommodate both the people who are in the field and the online audience so everyone gets the value,” she said.

“It will get better. We will continue to

make things more seamless and production value will be better,” she said. She is still researching live-stream platforms and some of them are evolving to meet increased demand for interactive digital learning.

The December Farming Smarter Conference & Trade Show will be online with potentially even more opportunities for participant interaction. Watch for details or register for the conference on farmingsmarter.com —

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Why alternative retail options are likely here to stay

BY MADELEINE BAERG

Online sales; home delivery; drive-through farmers' markets; chef-curated ingredient boxes; pop-up mini-stores; restaurant prepared meal-kits; CSA boxes that include recipes, sauces, even wine or craft beer: consumers are turning to all sorts of new ways to shop and eat these days. The (multi) million-dollar question, of course, is how much of consumers' new buying behaviour is likely to stick?

"Nobody knows," says Jo-Ann McArthur, president and CEO of Nourish Food Marketing. "I can say it is absolutely the hardest time in history [to make predictions on food-use trends] because if you look at any research that was done pre-pandemic, it's not going to be predictive going forward."

Several factors are aligning to spur on unprecedented change.

Pre-COVID-19, CSA boxes, farmers' markets and farm gate sales were already gaining popularity, pushed by growing consumer interest in all things local and burgeoning 'foodie' culture.

Once the pandemic forced everyone home, those trends accelerated exponentially. Uncertainty encouraged people to buy local, both because consumers became suddenly aware of supporting their neighbours and because buying direct from producers felt safe. Too, cooking took off: in fact, says McArthur, consumer trends show cooking from scratch has been the number one activity increase during the pandemic in Canada.

Producers are also pushing the change.

"When the whole food service side collapsed, all those farmers who were supplying restaurants lost their markets, so they had to pivot quickly and find any place to sell those items," says McArthur.

Forced into change by necessity, farmers came up with all kinds of creative selling opportunities. Many turned to online sales, building websites of their own for direct-to-consumer sales or working through larger existing channels like Spud.ca, TruLocal.ca, MochaLocal.ca and many more to move product.

Now that the pandemic's initial crisis stage has passed, farmers, retailers, and food industry crystal-ball readers like McArthur are catching their breath and looking to the future. While McArthur cautions that much remains unknown, she says there are certain clear indicators for what's ahead.

First, she points out, traffic patterns have changed now that so many are – and are likely to continue – working from home.

Second, now that people cook and eat more at home – and in many cases enjoy doing so – McArthur questions whether they would choose to go back to eating as they did pre-pandemic, even if they could.

"They say it takes three weeks to form a new habit. We're at over six months now," she points out.

And, she thinks the move towards local – preferably next-door but at least Canadian – will stick.

"It was already trending up and this acted like an accelerant: like putting gas on a fire," she says.



Websites and social media are the new grocery stores.

While consumers may long for farm-gate interaction, that won't be possible for the majority, especially urban-dwellers. Therefore, McArthur expects a lot of relationships between producers and consumers to move permanently online.

Marc Lafleur is already making the most of exactly that shift.

Four years ago, the ex-door-to-door meat salesman unveiled a very new kind of meat-shopping experience to Canadian consumers. Founder and CEO of TruLocal, his company was among the very first to offer from-your-couch ordering convenience and home delivery of local, value-added meat products (think pasture-raised chicken, grass-fed beef, etc.).

"The whole TruLocal model is that when someone goes online in Ontario, they're going to see producers, processors and butchers only in Ontario. When they go online in Alberta, they'll see only Albertan-produced product. They can build a box of exactly what they want, and it'll get shipped the next day," says Lafleur.

"We understood what people cared about: the transparency and trust they needed to build. There was no one in the market doing that online four years ago."

Two years into the business, TruLocal expanded into software with TruLocal Connect, allowing producers and farmers to sell their own branded products through their own online shops.

"Think Shopify, but only for farmers and producers," says Lafleur. "That's where I see so much opportunity."

In addition to benefiting from TruLocal's brand and existing reach, farmers using TruLocal Connect get the benefit of simplified logistics via an easy-to-use software platform and, when necessary, TruLocal Connect's warehouse and delivery service too.

While COVID proved difficult for many bricks-and-mortar retailers, it has been a huge boon for online retailers like TruLocal. That said, Lafleur believes COVID isn't forcing people to change; it's only speeding up adoption that would have ultimately happened anyway.

"There is a lot of fear [among online retailers] that this is a spike; that it's not going to stay. I think that's totally unrealistic," says Lafleur. "If you look at e-commerce adoption, the Bank of America shows a

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16% adoption pre-COVID. In the course of six weeks [in March and April], we jumped to 27%. We weren't supposed to hit that kind of e-commerce penetration 'til 2030. All those people who wouldn't have touched online for five, six, seven years were forced to do it. And when they did it, low and behold, it worked: they went online, ordered their box, entered their credit card, got a delivery the next day. Even if we lose half of the new adopters – say we're at 20% adoption – that's still millions and millions more people now trusting online."

Lafleur believes e-commerce is the new form of retail, and more producers need to use online opportunities to sell direct to consumer.

"If you look at any business, direct to consumer is a must-have. It's good to have a third-party channel too, but when you only rely on the third party, they have all the power and all the control over the customer experience," he says. "If you're not building a one-to-one relationship with your consumer, someone else is going to."

Whether online or via other alternatives, McArthur believes COVID-19 is translating to new and better options for Canadian farmers.

"There is real potential. Canadians want Canadian farmers to do well, and they trust Canadian farmers. Farmers' markets haven't been easy to shop at [through the pandemic] and people are lined up around the block to get in because there is that desire to connect with our food. This seems to be the time to really start leveraging those direct-to-consumer relationships." —



360 Learning with Farming Smarter

BY NATALIE NOBLE

Farming Smarter knows that learning requires engagement and works at providing farmers experiences that help them farm.

"There needs to be active engagement with the audience to assist with long-term retention and adoption of practices," says Jamie Puchinger, Farming Smarter assistant manager. "Farming Smarter has had tremendous success in this area and wants to develop new techniques for learning"

Enter Farming Smarter's Growing Knowledge Immersive Experiences. A combination of 360 degree and virtual tour experiences Farming Smarter created for farmers, agronomists and other ag stakeholders. Lethbridge College students, and anyone generally interested, are also using this technology to learn through real world practical experience.

"Now more than ever, people see the value of virtual tours and VR experiences," says Lyle Ruggles, digital learning specialist at Lethbridge College. "In a world where there's no guarantee you'll be able to visit a place or experience something in person, the Farming Smarter experiences give farmers and . . . the public a chance to take a field trip from the comfort of their own homes at any time."

So far, users can immerse themselves into three virtual tours. "The canola trial tour allows people to digitally walk through plots as they would on a field day," Puchinger says. "They are able to compare different treatments with a click and not have to move anything else."

"Visitors can also move between the canola plots and see the difference a precision planter plays in producing higher yields of canola crop," Ruggles added.

"In the leaf cutter bee tour, visitors find themselves virtually immersed in a swarm of leaf cutter bees," Ruggles says. "It was interesting to see the inner workings of a leaf cutter bee tent and learn about how important they are in the production of hybrid canola. Few have the opportunity to see what goes on in a leaf cutter bee tent, but now they can in VR, without fear of getting stung."

"You can stand in the canola and look

around as well as see inside the bee hut. Most people don't even know what those orange triangle huts in the field are," Puchinger added.

"The third tour is the biobed tour to highlight the simplicity of the biobed set up and to encourage producers to build one," Puchinger says. This tour allows viewers to walk around Farming Smarter's working biobed and study how it's built. You can see notes on suitable sites, building materials and operation of a biobed.

Ruggles says developing the experiences is exciting and even more rewarding is showcasing them to others. "We ran this VR experience at the Farming Smarter conference last year and everyone had good things to say, even if they were afraid of the bees," he says.

Prior to the 2020 conference, the team plans to publish a hemp tour and a crop rotation tour. In addition, five more experiences from this crop year will publish by March of 2021. Users can look forward to experiences based on five Farming Smarter projects around bio-stimulants, cover crops, and precision pulse, corn and durum Puchinger says this platform has the potential to increase the efficacy of Farming Smarter's other educational materials through its ability to promote emotional investment in agriculture, especially in the segment of the consumer base who have little experience touring a farm.

Ruggles added that the work Farming Smarter does delivers information around technological innovation on the farm that can be conveniently accessed at any time. "Nothing can truly replace an in-person experience, but with virtual reality, it's the next best option," he says.

"These experiences make for a more dynamic and engaging learning environment. I look forward to seeing people learning in new and different ways," Puchinger says. "The more we work with AR/VR technology, the more we see what could be done. It is exciting!"

Experience Farming Smarter's virtual tours anytime on their website farming-smarter.com/growing-knowledge-immersive-experiences. —

Upgrades to irrigation in Alberta create jobs and boost economy

BY KRISTI COX FOR ALBERTA IRRIGATION DISTRICTS ASSOCIATION

Every dollar spent improving irrigation in Alberta brings improvement to the economy. This investment ensures stable, efficient water delivery, creates job opportunities, and provides a high rate of financial return for every dollar spent.

Thirteen Alberta irrigation districts provide water to end users. Water is diverted from rivers according to license agreements with the Government of Alberta and moves through a network of 8,000 km of canals and pipelines.

Irrigation districts work together with the Government to ensure water is delivered efficiently. Upgrades to the systems are executed according to a plan developed by assessing current infrastructure and looking to future water needs.

In 1969, the Government of Alberta established the Irrigation Rehabilitation Program (IRP). In this cost sharing program, the Government provides 75% of the cost of capital projects to improve on infrastructure while the Districts provide the balance. Many Districts go beyond this, investing additional funds to accelerate the improvements.

Improvements include decreasing water seepage by lining open canals with impermeable liners, lowering erosion by stabilizing banks, increasing water capacity by enlarging canals, or eliminating water losses entirely by installing pipeline systems for water delivery. These projects carry a large price tag, but the returns on those investments are substantial. For example, the Raymond Irrigation District's (RID) 2019-2020 IRP construction project was to install approximately 8 km of PVC pipeline located north of the Town of Raymond. This pipeline will help ensure the efficiency and stability of water delivery to over 1900 irrigated acres on this system, as well as home yards, feedlots and a cemetery

that rely on its water. This is part of a two-year project that will cost approximately \$1.76 million in total.

"IRP funding last winter enabled us to hire three people for six months and maintain an additional three full-time staff who would be seasonal otherwise," explained Gordon ZoBell, Manager of the RID, "If the IRP program did not exist, our staff in the winter would be 1.5 people with three people hired seasonally to assist with water delivery and maintenance. This would create a huge concern for a district our size, as it would be difficult to get the same people to return."

A variety of local companies and firms also benefit from the demand for supplies, equipment and services needed for the projects. For example, IPEX Inc., an Edmonton-based company, manufactures the PVC pipe used by Alberta irrigation districts. The demand from rehabilitation projects, including those funded through IRP, increases the amount of pipe they produce.

"The RID alone receives over 20 semi-trailer loads of pipe each year," said ZoBell. The 2015 study, "Economic Value of Irrigation in Alberta", commissioned by the Alberta Irrigation Districts Association (AIDA), shows that every dollar invested in irrigation by the Government of Alberta, generates \$3.00 in revenue is for the governments of Alberta and Canada combined.

The Western Irrigation District (WID) undertook construction this past winter on two IRP projects. One was to complete installation of an impermeable liner covered with gravel in a canal on its North Cluny system. The IRP invested approximately \$3.67 million in this project, and it could generate \$11 million in revenue for the governments. This IRP investment also generates five full time equivalent jobs in the WID.

"These rehabilitation projects happen every year in part because of the commitment of the Government of Alberta to the IRP program," said Margo Redelback, Executive Director of the AIDA. "There is consistent employment for quite a few people in southern Alberta and around the province to supply the services and supplies needed. Irrigated agriculture and irrigation rehabilitation have been very consistent over the past 40 years."

The economic benefits of investing in irrigation do not stop there.

"We've designed a system where more acres can be serviced and converted from dryland to irrigation," explained David McAllister, WID General Manager. "The expanded productivity generated by irrigation increases the volume of value-added processing. More jobs are then created by the increased value-added processing."

The 2015 Economic Study indicated that irrigated agriculture contributed \$3.6 billion to the provincial GDP each year. Over \$102 million of this came from maintenance and improvements to irrigation infrastructure.

"The Economic Value of Irrigation in Alberta shows that irrigation operations and maintenance combined with irrigation infrastructure rehabilitation create about 1400 full time equivalent positions," said Redelback, adding that most are in southern Alberta. "That's significant when it's consistent year after year. When we add in things like value added processing and equipment suppliers, irrigation creates about 56,000 FTE positions and \$2.4 billion in labour income."

The Government of Alberta's Budget 2020 estimates a \$34 million investment in IRP projects over the next three years.

The Alberta Irrigation Districts Association (AIDA) represents Alberta's thirteen irrigation districts on matters of shared interest. —



Irrigation Rehabilitation Project in the Raymond Irrigation District. PHOTOS: RAYMOND IRRIGATION DISTRICT



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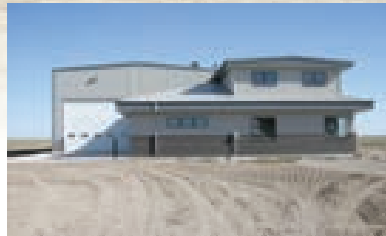
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