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A Moosomin area farmer says that sometimes farmers have no choice but to drain wetlands, in response to comments from the Watershed Stewards

McCorriston says farmers often have no choice but to drain wetlands

BY KEVIN WEEDMARK

In the November issue of Ag News we ran an article submitted by Alice Davis of the Lower Qu'Appelle Watershed Stewards on the drainage of wetlands and drought. The article included a quote that "farmers have not helped themselves by draining wetlands across the province" and looks at the approval rate for drainage permits.

Mark McCorriston, a Moosomin area farmer, says Davis missed the fact that expanding cities, and even expanding towns like Moosomin have led to the draining of wetlands as well, and says that farmers need to drain wetlands to remain economically competitive. He said programs designed to preserve wetlands are not flexible enough to work for every farmer.

"Nobody factors in that we've got to keep up with the changing times, we have bigger equipment and the costs of overlap when you go around these wet areas," he says.

"She doesn't ever comment on what you'd call urban sprawl. Cities are growing and eating up the farmland just as fast as I feel the farmers are and, for example, nobody seemed to mind when the marshland disappeared for A&W and the new hotels in Moosomin. There's a huge drainage cut that runs along the highway to let that water go and that's what they call acceptable."

He said that despite farmers' best efforts to preserve wetlands, programs aren't always flexible enough to make that possible. "I just don't feel that us as the farmers should have to carry all the responsibility," he says. "I bought a quarter section of land three or four years ago and it was roughly 70 acres of bush and marshland, 80 acres of cultivated land and 10 acres of wasteland. I contacted Ducks Unlimited to see if they would be interested in a long-term lease on my land and they would only lease full quarter sections.

"I said, the rest of it I've already been renting and now I've purchased it. It's grain land and productive but they wouldn't help me with taking care of the rest of the land. I would have left it if they would have taken that land, but I have bills to pay, so I had to hire a bulldozer and flatten the trees and drain the land and open it up so I could make a living."

He said the economics of farming dictate that every available acre has to be farmed.

"It all boils down to why we farm" he said. "It's a job, we try to make money, it's a living that we're trying to make and I just don't feel that we should have to carry the onus alone.

"The value of land is incredible—that article says 29,000 acres are being drained roughly in Saskatchewan or cleaned up every year. Well that's $60 million of gained value in the value of the land alone. And then if you factor in overlap—if it's $200 an acre for fertilizer, $70 an acre for seed, $70 an acre for spray, plus whatever rent you pay if you don't own the land, or taxes, that land produces a lot of revenue. If you have two or three acres of overlap, you're looking at $600 or $800 that you're losing by overlap alone."

He said the increasing value of farmland makes it imperative that the maximum revenue is derived from the land.

"When my dad bought land in the '90s it was $30,000 a quarter, maybe $25,000 a quarter. Now it's $300,000 to $400,000 a quarter. So we're forced to make that land pay, otherwise we can't buy it and take it on."

McCorriston said it's fairly easy to get approval for drainage projects.

"Depending on what area, if you have good co-operating neighbors, they'll almost push you to drain your land because they don't want it trickling through their property if they're downstream. They want to have two or three inches of rain, let the water go and then let the crops continue to grow. We've done some drainage and had approvals done and it seems like an easy process. There's a few people you can get ahold of, a few emails, a few pictures of what it looks like from an aerial photograph, and permits are usually approved."

McCorriston said the Moosomin area has some naturally poorly drained land.

"The Moosomin area, depending on which direction you go from town, there's definitely some poor land around town and then if you go certain directions there's some naturally better land. Our area does have a fair share of poor quality land, but as everyone works to improve it, it slowly seems to be opening up and becomes more viable. As it becomes more viable, then it creates more revenue. The RM sees it, they up your taxes and you pay more taxes. It's an economy in itself."

McCorrison said that once land is drained for agriculture, it becomes very productive within a few years.

"Within two to three years I would say it's as productive, if not more productive, because as you open up new land it hasn't experienced the poorness of the past, it hasn't experienced the Dirty Thirties where they over-tilled and didn't have the modern practices that they have now, it hasn't experienced somebody shorting it on fertilizer. I would say the areas that are opened up are better producing and they stay better producing because of the modern practices of zero-till.

"We don't work the land like we once did. Farming since I was a kid in the '80s has changed drastically. At one time we tilled the soil before we started, then we'd go and put in anhydrous, then we'd run it through with the press drills again and then we would harrow it after and it was four passes and land was essentially like powder and you had to pray or keep your fingers crossed that you got a rain to soak it and pack it and get the crop growing. Now, for example, last year we had zero moisture going into the spring. We did all of our fall prep work so we didn't have to dry out the land again and we just direct seeded in and our crops were lower than average because of the drought, but not near what it was in the '80s and it's all because of modern practices."

McCorriston says it is difficult to farm around sloughs and marshes with modern farm machinery.

"It's the fact of your air seeder going back and forth on straight passes," he said "All of a sudden you come up to a slough, it's two or three headlands around the slough and you have to do shorter passes until you get past it and back to longer passes again. It's time consuming.

"The easiest way to put it is when I seed in the Moosomin area our land is a little bit poorer than some of the land I rent up Rocanville way. I can seed roughly 250 acres a day in Moosomin. I get up near the community of Rocanville where it's tabletop flat and wide open, I can seed 300 acres a day. So if you start thinking three or four days of Rocanville, well it's an extra 50 acres a day, and it adds up. It's efficiencies, it's less diesel fuel, it's less time, it's less manpower. It adds up quickly."

McCorriston said he was upset when he first read Davis's comments.

"It bothered me and I lost quite a bit of sleep over it," he says.

"I just felt like it was a personal shot from her at us farmers.

"We're just trying to create value in our land, we're trying to create efficiency with our land and we're also trying to create value with our land, and I just don't feel that us personally should be responsible for it."

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Agriculture ministers announce funding of $9.1 million for crop-related research projects in Saskatchewan

by Sierra D'Souza Butts
Local Journalism Initiative reporter

On Jan. 11, Canada's Minister of Agriculture and Agri-Food Marie-Claude Bibeau and Saskatchewan Agriculture Minister David Marit, announced a total of $9.1 million in funding towards new crop-related research projects in 2022.

This year's funding will support 55 crop-related projects in Saskatchewan through the province's Agriculture Development Fund (ADF).

Minister Marit spoke with The World-Spectator about why the provincial government invested into ongoing crop-related research projects.

Why is it important for the government to invest into agriculture and crop-related research projects?

It's very important to us as a province, if we want to really grow the ag- sector here in the province of Saskatchewan. When you look at the over the $9 million we invested this year in 55 different agriculture-related research projects, it just shows the diversity of the issues in the ag- sector here in the province of Saskatchewan.

How much of an impact does research have towards agriculture?

It has a huge impact, if you look back in history just in the past few years about what we've done, we're getting higher proteins than grains, we're seeing what probably will be the biggest thing that's happened in the canola industry—which was straight cut canola varieties early and maturing—drought tolerable varieties as well.

But we're also finding ways to deal with diseases and that's what some of the projects this year will do as well. There's mitigating root rot in peas, which is becoming a predominant issue and concern as well. Another project we approved was removing undesirable characteristics of protein ingredients from canola, hemp and flaxseed.

There's a number of different projects and I've been to the university and seen the stuff going on there. It's exciting to see these young researchers from around the world and I think that's another thing that should really be stated, is that with this kind of investment that the province is making, the government is making along with the federal government, it allows us to attract top researchers from around the world. I can't go without saying this is also in collaboration with the commodity groups who are partners in this as well, that have invested into $4 million into these projects as well.

In addition to commitments from the federal and provincial governments, approximately $4.1 million was contributed by the following industry partners in support of these projects: Western Grains Research Foundation (WGRF), Saskatchewan Canola Development Commission, Saskatchewan Flax Development Commission, Prairie Oat Growers Association, Saskatchewan Pulse Growers, Saskatchewan Wheat Development Commission, Alberta Wheat Commission, Manitoba Crop Alliance, Mustard 21 and Results Driven Agriculture Research (RDAR).

The announcement of the funding also stated that support for these and other ADF projects, are awarded each year on a competitive basis to researchers focusing on areas of importance to Saskatchewan agriculture producers and industry partners.

What's the process of deciding which research projects, should receive funding from ADF, for the year?

The selection is made by a committee which we call the ADF Advisory Committee and it's made up of producers and experts around the province that we've appointed to this board, because we know the research projects always get over subscribed, and there's probably hundreds

Following the announcement of contributing $9.1 million of funding to support 55 agriculture projects in 2022, Saskatchewan's Agriculture Minister David Marit, talks about why it's important for the provincial and federal government to invest into crop-related research.

of projects that were submitted and narrowed down to 55.

It takes a lot of reading, a lot of work, and I wanted to take the opportunity to really thank all the members of the committee. It really takes it away from a government point of view, and really puts it on what the priorities are of the agriculture industry, here in the province of Saskatchewan and what their concerns are.

How has science helped improve crop yields over the last 50 and 100 years?

Well if you go back that far and want to go back that far, you just need to look at where lentils came from, lentils came from the university as well. There's things like that, but if you look at different varieties of grains, durum is a good example where they've come up with a new varieties and higher proteins.

Even on the lentil side, the canola side, just about all of them, they've improved disease tolerance, drought tolerance, higher yielding, higher proteins. Things like that, it's incredible what's been done at the research centre there. Over the last 30 to 40 years it's been incredible with the changes we've seen, and even the different types of crops that have come out of there as well.

Why is it important for Canada's future to continue crop research?

It's really important, seeing that we are obviously an exporting province. We have a gross target for 2030 to get to 45 million metric tons of production, you're going to do that in collaboration with research. You'll find new ways of crop rotation, new ways of inter-cropping, you're going to find new varieties of higher yielding and what it really comes down to then, is us as the government, to work with the Ag industry and promote that on a global base.

You work with our trading partners and our business community around the world to show them what we have, and that's really what it comes down to. At the end of the day our global customer is looking at wanting higher proteins, wanting consistency, wanting this and wanting that. That's where it comes to planning and working with the researchers to find that, and work with both the customer and the researcher, and at the end of the day the primary producer who's going to produce this crop, because he or she sees a higher return for their product.

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Governments of Canada and Saskatchewan announce extension for livestock water project applications

The governments of Canada and Saskatchewan have announced an extension to the Farm and Ranch Water Infrastructure Program (FRWIP) deadline for livestock producers planning to access the previously-announced temporary enhanced FRWIP funding.

Along with the drought conditions experienced in 2021, producers also found it is difficult to source materials and contractors to construct their water development projects. Due to these circumstances, the governments have adapted FRWIP to allow livestock producers who plan to claim over $50,000 in rebates to submit a preliminary application by March 31, 2022 to complete their project(s) and submit for rebate by September 30, 2022.

"The past year has been a harsh reminder of how important water reliability is to agricultural producers," said Marie-Claude Bibeau, Minister of Agriculture and Agri-Food. "By extending the Farm and Ranch Water Infrastructure Program, we are giving farmers more time to complete projects such as dugouts, wells and pipelines, that will help to ensure a better supply of this essential resource for livestock."

"The government of Saskatchewan recognizes the challenges producers are facing with availability of contractors and materials," Agriculture Minister David Marit said. "It is important to provide more time for producers to complete their water projects so they can take advantage of additional funding to develop secure and sustainable water sources to meet the needs of their operation and help them mitigate the impacts of future dry conditions."

On July 14, 2021, the government of Saskatchewan announced changes to temporarily increase the maximum funding a livestock producer can receive from the Farm and Ranch Water Infrastructure Program for dugouts, wells and pipelines. For the period April 1, 2021 to March 31, 2022, the maximum rebate, for livestock producers only, increased to $150,000. The first $50,000 is based on a 50-50 cost-share and the remaining $100,000 is a 70-30 government-producer cost-share.

The Farm and Ranch Water Infrastructure Program is funded through the Canadian Agricultural Partnership, a five-year, $3 billion commitment by Canada's federal, provincial and territorial governments that supports Canada's agriculture, agri-food and agri-products sectors. This includes a $2 billion commitment that is cost-shared 60 per cent federally and 40 per cent provincially/territorially for programs that are designed and delivered by provinces and territories.

Winter calves and winter sports

Now that we are well past Christmas (and oh how wonderful it was to gather together with family), I know I have to set my focus on those dreaded farm books and finishing up our year end. I am pretty sure there's a puzzle somewhere that will allow me to procrastinate on this for awhile longer.

Meanwhile, down on the farm, calving season has begun. I received a message from the twins (10 years old) the other morning just before they were to get on the bus: "You guys had two calves this morning." Hhmmmm, I wondered to myself, does that mean one cow had twins or two cows each had one. We only have two cows so there were only two options and I obviously wouldn't hear back from the boys until after school, though I would find out from hubby when he got home from chores.

The answer to my "twins?" question was answered after school (from the man of few words): "Yup." I countered with: "I need to buy more cows if we only have two left. I will never make any money with just two cows." His response? "Two cows and three calves is good money." Well, I guess he has a point, though by the time these two babies get some supplemental milk via the good old bottle I have my doubts.

Of course my contribution to the whole cattle business (of which we have nearly zero lol) is to wish my hubby a good morning when he leaves the house every morning to help with chores. It seems I like the coziness and warmth of home much more than those minus 30 days we had.

Minus 30 and high wind chills on many days doesn't stop the twins from their love of the outdoors. A stop at the farm on a bitterly cold day saw them out playing fetch with the dog, a hilarious game of both dog and boys looking for the ball in a foot or more of snow. While they did come in to warm up for a couple of minutes, they certainly didn't take my advice to stay in, so back out they went, never at a loss of things to do. From snowmobiling to their love of hunting to their love of being outdoors all the time, I am reminded of the little boy I raised in that same farmyard so long ago. It's like seeing two minis of my son.

My question to the boys when they finally came inside about the number of calves they had so far was met with two different answers, different by not one but two. And so to the calf record book they went to confirm the exact number. And the debate was settled in short order!

Life on the farm continues with its daily duties, regardless of the cold or snow. And no small amount of snow either. It may present its own set of problems on the farm or at the very least lots of snow plowing, but if nothing else, it's so pretty and the grandkids absolutely love it. As for the wind—yeah, well there's nothing pretty (ever) about that!

On a recent visit to see my youngest grandchildren in Regina, my grandson (7) came running to me with a huge smile and asked, "Do you know what the coolest job in the world would be?" Of course, I had NO idea. He continued with, "To work for the government!" He was just beaming and I didn't want to burst his bubble by saying I would check with his dad on that. And then he added, "Or to be a mayor." He thought being a mayor would be even better, so I said, "What about premier? That would be an awesome job!" He nodded happily as I once again thought to myself, "Hhmmmm, I wonder if Scott Moe thinks the same." If this 7-year-old were mayor, he says, he would make sure everyone gets two birthdays a year—one at the one-year mark and one at the half-year mark!

This winter has brought an opportunity we didn't have much of last year—to be able to watch our grandkids in their sports activities. I love that some of them are curling and I am often reminded of my growing up years in the forests of Northwest Ontario, where the old two-ice wooden rinks could be found in every community, big or small. Now my grandkids are learning the game in the beautiful curling facility in Whitewood with its bright lights and padded spectator chairs. But no matter where you play or played the game, it's the best game out there!

As for hockey, we've seen a few games and practises from the youngest's (7) to the older ones (10). In fact, Grandpa told the boys the other day as they prepared to play against a team known to be a bit more formidable than their team, to be sure to score at least three goals each. Their response, considering their next game was to be against a team a bit less formidable than they, was for both to say (at the same time of course) "Next game maybe!"

Well, it's time to move a little closer to the fireplace. It may be sunnier and warmer out today but as the wind blows and swirls the snow off the roofs, it seems like the kind of day I don't have any intention of going out in.

So to all our farmer friends out there, don't let the cold seep into your bones—or your heart for that matter. We live in interesting times and if you are like me, I don't really wish to be reminded that we are but a few weeks off from the two-year mark of when this pandemic hit our province and we are all so tired of it. It's been a LONG time. Still, we soldier on, and if we can tackle life with a bit of humour and lots of positivity, then we will be better off for it. Take care out there on the farm, folks—you are an integral part of our rural communities!

Investments in USask livestock research fuels innovation, protects animal health

University of Saskatchewan (USask) researchers have been awarded $4.2 million to develop livestock-related innovations that range from improving forage feed to advancing work on vaccines to tackle the global spread of African swine fever (ASF).

Funding through Saskatchewan's Agriculture Development Fund (ADF) was awarded to 19 researchers to support 23 projects.

"USask research continues to play a foundational role in establishing Saskatchewan's reputation as a force in the global agricultural sector," said USask Vice-President Research Baljit Singh. "This investment will power discovery that builds improved food security for the world, and economic prosperity for Saskatchewan."

ADF is supported through the Canadian Agricultural Partnership, a five-year, $3-billion investment by federal, provincial, and territorial governments to strengthen and grow Canada's agriculture, agri-food and agri-products sectors. This includes a $2-billion commitment cost-shared 60 per cent federally and 40 per cent provincially, with a $388-million investment in strategic initiatives for Saskatchewan agriculture.

The ADF livestock research projects also were awarded additional industry co-funding by: Saskatchewan Cattlemen's Association (SCA) $447,956; Saskatchewan Forage Seed Development, $3,500; and Sask Milk, $31,500.

Recipients

• **Andrew Sharpe, Global Institute for Food Security (GIFS) at USask** ($764,130 in total, plus SCA co-funding): In the first project, awarded $392,391 by ADF, Sharpe and co-principal investigator Sampath Perumal of GIFS propose to develop new genomic resources to better understand salt and drought tolerance mechanisms in alfalfa, an important legume forage crop.

"Alfalfa cultivation is not only economically important in North America, it also offers the potential to use marginal lands affected by salinity, and improve the quality soil by fixing nitrogen," said Sharpe.

Researchers will use new sequencing technologies to develop high-quality genome assemblies currently unavailable in Saskatchewan-adapted germplasm. These new reference assemblies will be used as a foundation for genomic analysis of alfalfa and for application in plant scientist Bill Biligetu's alfalfa breeding program at USask's Crop Development Centre.

The second project, awarded $371,739 by ADF, has Sharpe, co-principal investigator Biligetu and their team developing new foundational genomic resources for hybrid wheatgrass, a palatable, perennial grass forage crop.

"We will use state-of-the-art applied genomics to create the first extensive molecular breeding resources for hybrid wheatgrass and its parental ancestors," said Sharpe. "This project will generate genome assemblies, identify markers to assist breeding, develop accurate predictive models for the breeding process, and explore the wealth of genetic diversity available in gene banks to introduce new gene variants that combat abiotic and biotic stresses."

• **Suresh Tikoo, Vaccine and Infectious Disease Organization (VIDO)** has been awarded $140,000 by ADF to develop a continuous porcine cell line to grow African swine fever virus, a devastating viral disease that causes nearly 100 per cent mortality in pigs.

Currently there is no effective vaccine or treatment for ASF.

"The lack of porcine cell lines is a barrier to the development and commercialization of ASF vaccines," said Tikoo. "This cell line could be used to evaluate virus-host cell interactions and support the commercial production of ASF vaccines to help protect the world swine population."

ASF is endemic in Africa and spreading through parts of Asia and Europe. It also has recently been found in the Dominican Republic and Haiti, causing heavy economic losses to the pig industry.

Although ASF has not been detected in Canada, it is a significant threat to Canada's pork industry—for both pig health and for the devastating impact a positive case could have on international market access.

VIDO is the first non-government organization in Canada with permission from the Canadian Food Inspection Agency to work with ASF virus in its containment Level 3 facility.

Other awarded projects

• **Wolfgang Köster, VIDO** ($300,500 plus co-funding from Sask Milk): Köster's team is developing a new vaccine to enhance protection of calves against disease caused by Salmonella Dublin, a zoonotic pathogen spreading in Saskatchewan and Alberta. The disease caused by this bacterium can be quite severe in young calves and transmitted to humans through undercooked meat and unpasteurized milk.

• **Heather Wilson, VIDO** ($210,000): Wilson, co-principal investigator Azita Haddadi and their team is researching administering vaccines directly into the sow uterus at breeding to promote immune responses by transferring antibodies to suckling piglets. This project tests several vaccine formulations to augment immune responses to fully protect sows against reproductive diseases and piglets against neonatal diseases.

• **Yanyun Huang, Prairie Diagnostic Services (PDS)** ($198,261, plus co-funding from SCA): Huang's team from the Western College of Veterinary Medicine (WCVM) and Simon Fraser University is developing a genomics-based diagnostic tool to combat reproductive failures in cattle, estimated to cost Canadian ranchers $280 million annually.

• **Sarah Wood, PDS** ($149,000): Wood's team aims to determine effective therapeutic doses of antimicrobials for control of the bacterial disease European foulbrood in honeybees in Western Canada. They will test various antimicrobial dosing regimes for treatment of the disease in honeybee larvae, adults, and colonies using previously established laboratory and field models of the disease.

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Investments in USask livestock research

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• **Dan Columbus, Prairie Swine Centre (PSC)** ($273,202): This project examines how dietary protein quality affects gut health in young pigs. To accomplish this, Columbus's team will use a variety of techniques to identify key factors related to diet that affect gut health, validate these factors in young pigs, and examine dietary strategies that support optimal gut health.

• **Jennifer Brown, PSC** ($56,000): Brown and her team aim to determine whether providing environmental enrichment to pigs early in life will have a lasting impact on their later behaviour, thus promoting better health and reducing damaging conduct. Specifically, they want to observe if enrichment reduces aggression and tail biting or increases the growth rate.

• **Bernardo Predicala, PSC** ($186,950): Predicala's team is investigating novel methods to reduce the emergence and spread of antimicrobial resistance in swine production. Researchers will evaluate the economic benefits and recommend applying intervention measures in commercial pig barns.

In a second project, which was awarded $151,800 by ADF, his team will conduct optimization and field validation of a rapid diagnostic test kit for Porcine Epidemic Diarrhea virus (PEDv) under Canadian conditions. Accurate detection of PEDv is essential for implementing rapid control measures for the disease, which has caused significant economic losses to the Canadian swine industry.

• **Jon Bennett, College of Agriculture and Bioresources (AgBio)** ($289,483): A team led by Bennett will examine how harvest frequency and different plant species affect the integration of native forage varieties into tame pastures. By incorporating native species, they aim to improve late summer forage quality, and carbon sequestration.

In a second project, awarded $335,588 by ADF, Bennett's team will work to improve control of leafy spurge, an important noxious weed. They will combine different herbicides and fertilizers to suppress the weed and alter the soil microbiome to reduce leafy spurge's ability to compete with forage grasses.

• **Tim Mutsvangwa, AgBio** ($155,832, plus co-funding from Sask Milk): Mutsvangwa's team will evaluate the effects of applying leaf fungicides to forage barley that's resistant or susceptible to fungal diseases. The aim is to determine how it impacts the ensiling characteristics and nutritional quality of barley silage, and performance of dairy cows fed the silage.

• **Eric Lamb, AgBio** ($30,650) Recovery of grassland productivity following fires appears to be linked to post-fire weather conditions. Lamb and his team will determine if this is the case by assembling and analyzing data from past studies of grassland fires. Identifying how post-fire weather is linked to future forage productivity will allow ranchers to forecast productivity and plan their operations accordingly.

• **Kathy Larson, AgBio** ($44,000): Testing the nutritional quality of feed to develop a balanced ration for livestock is a recommended practice, yet only 40 per cent of western Canadian cow-calf producers annually test their feed. Larson, co-principal investigator Emma Stephens (AAFC-Lethbridge) and their team will survey producers to learn their motivations, barriers and alternatives to feed testing, leading to meaningful tech transfer and the development of standardized protocols.

• **Peiqiang Yu, AgBio** ($118,100): To provide support for establishing feasible methane mitigation strategies and reduce nitrogen excretion in ruminant livestock, Yu and his team will test, develop and evaluate environmentally friendly, high-value blended feed pellets. They will use a combination of pulse screenings, co-product from bio-oil processing, and commercially available and affordable plant-based extract as a feed additive.

• **Mika Asai-Coakwell, AgBio** ($68,587, plus SCA co-funding): Gestation length can influence other economically important traits such as birthweight and calving ease in the cattle industry. Asai-Coakwell and her team will conduct genome wide association analyses of sires to identify genomic loci and genes involved in gestational length. This will aid in understanding the genetic regulation of reproductive pathways and result in a new tool to enhance reproductive management in beef herds.

• **Murray Jelinski, WCVM** ($96,446, plus co-funding from SCA): Lameness is the second most common disease of feedlot cattle, with septic arthritis being one of the most difficult types of lameness to treat. This research, with Jelinski as principal investigator (PI), seeks to determine which antimicrobial therapy is the most efficacious for treating septic arthritis.

Jelinski and co-PIs Tony Ruzzini (WCVM) and Tim McAllister of Agriculture and Agri-Food Canada were awarded $103,848 plus SCA co-funding for a project that makes their team the first to investigate the horizontal transfer of antimicrobial resistant genes between isolates of Mycoplasma bovis, a key bacterium involved in chronic pneumonia in feedlot calves' isolates.

• **Susantha Gomis, WCVM** ($165,000): Finding alternatives to antibiotics in the poultry industry is a priority. Gomis and his team will investigate the novel and industry-feasible use of probiotics during embryonic life of broiler chickens. The aim is to reduce diseases of neonatal broiler chickens by controlling intestinal bacteria, with the goal of using this as a tool to enhance immune responses of poultry vaccines.

• **Jaswant Singh, WCVM** ($163,602, plus SCA co-funding): To develop a roadmap for implementing remote technologies in the Saskatchewan beef industry, Singh and his team will develop, test, validate and benchmark smart farm technologies such as solar-powered GPS ear tags, feed-bunk proximity sensors in corrals and multi-spectral 3D cameras in pastures and animal handling barns. This enables real-time data gathering and will be key to understanding physical attributes of economically important traits.

• **Diego Moya, WCVM** ($208,346): Aligned with Saskatchewan's goals for improving livestock industry competitiveness while also improving animal health and welfare, this project aims to optimize bison feeder performance to sustainably meet the growing demand for bison meat. A multidisciplinary team led by Moya and Gabriel Ribeiro will assess the effects of dietary starch on bison growing performance, rumen health, feeding behaviour, carcass traits, and meat quality and nutritional composition.

USask crop researchers receive $5.7 million

by Sierra D'Souza Butts
Local Journalism Initiative reporter

On Jan. 11, twenty-five researchers from the University of Saskatchewan (USask) were awarded more than $5.7 million to develop crop-related innovations, in support of 34 ongoing agriculture projects.

The funding came through Saskatchewan's Agriculture Development Fund (ADF), a provincial government program that was created to fund research in order to help farmers and ranchers become more successful.

ADF focuses on providing funding for "basic and applied agriculture research projects in crops, livestock, forages, processing, soils, environment, horticulture and alternative crops," according to the Government of Saskatchewan.

USask researcher and professor of plant sciences Karen Tanino, was awarded $435,531 to further develop her research on heat and frost avoidance in crops, and focus on the importance of the plant cuticular layer.

"The cuticular layer is like your skin, but it's a waxier layer on the plant. It's usually composed of various types of waxes and is the outer layer of the plant and the first line of the stem," said Tanino.

She said that the more waxy or hydrophobic the cuticular layer is, the less chance the plant has of freezing.

"We've heard about super hydrophobic products where the water just runs right off. The more hydrophobic the cuticular layer is, the less water that is hanging around, and the less water that is hanging around, the less freezing that can occur. So if there's no water on the leaves, then the ice wouldn't be able to freeze on the plants."

Her research focuses on abiotic stress, on how droughts, salinity, low or high temperatures, and other environmental extremes, impact crop yields.

"The bottom line (of our research) is avoidance of stress, avoiding frost and avoiding heat. What we learned is that the plant is better to avoid stress rather than really deal with it. It takes a lot more energy and a lot more tools for the plant to deal with the stress, than it does to avoid the stress."

A drone above USask's Kernen Crop Research Farm, Summer 2019.
Steve Ryu photo

The funds awarded for her research will go towards further studying how the cuticular layer of a plant, can help prevent heat or frost from impacting the crop.

"Our research is to first validate that the cuticular layer plays a key role, secondly, to identify those key genes that will improve both frost avoidance, and heat stress avoidance, so that breeders can then use that into their breeding programs for selection."

Research associate Tawhidur Rahman says he and Tanino have already tested their research of the cuticular layer, on model plants that are similar to canola.

"This particular membrane around the plant (cuticular layer), can actually help the plant overcome multiple environmental stress conditions, like drought, freezing weather and heat conditions," he said.

"If we can do that for canola, canola is one of the sensitive crops in Saskatchewan's weather because it needs a lot of water and it takes a longer duration to grow, so if we can modify the membrane layer for canola, then it might be a game changer for the whole thing."

Tanino said the research on the prevention of plant abiotic stress, can help current and future farmers gain more product from their harvest.

"If we can either identify an inexpensive and affective spray, it would help. Also, we can help breeders to develop new cultivars that can better avoid frost and better avoid heat stress. Those cultivars and varieties will then get passed on to the farmers and they'll be able to better get through some of these uncertain climate changes that we have," said Tanino.

"It's basically helping the plant to become more resilient to different stresses. Especially in the fall, there's usually a first fall frost, and then we get two to three weeks of nice growing weather, if we can just get through that first fall frost, we can easily extend our growing season even more."

Tanino said the research of the heat and frost avoidance in crops, and focus on the importance of the plant cuticular layer, has the potential to benefit Saskatchewan's overall agriculture industry.

"This would be useful for the farmers but also homeowners too, because a lot of people have gardens and they're growing tomatoes or cucumbers, all these sensitive crops. If we can somehow avoid frost on these crops just by a spray, then maybe it will enable the home owners to produce more crops."

Overall, their research will focus on the genetic improvement of plants in environmental stress conditions, in Canada.

Preventing wheat midge and other wheat dilemmas

Another USask researcher Pierre Hucl, was awarded $312, 737 from ADF, to further develop his research on three research studies regarding wheat. The first research study focuses on the field evaluation of next field Evaluation of next-generation solid-stemmed CWRS Wheat.

The second study focuses on new source of resistance to Fusarium Head Blight (FHB): wheat-thinopyrum derivatives, and the third is about the trait stacking to maximize resistance to the wheat midge.

Continued on page B12 ☞

Home Design OF THE MONTH

Type: RTM
SQ FT: 1864
Stories: 1
Garage: 3 car

Bedrooms: 3
Bathrooms: 2 1/2
House width: 61'
House depth: 30'

SOUTH PRAIRIE RESIDENTIAL DESIGN

House Plan provided by
South Prairie Design
www.southprairiedesign.com

FCL, AGT to build canola crush facility next to renewable diesel plant north of Regina

Federated Co-operatives Limited (FCL) has announced its plans to develop an Integrated Agriculture Complex (IAC) north of the Co-op Refinery Complex in Regina. The IAC will include a renewable diesel facility, as well as a new canola crushing plant in partnership with AGT Foods.

The FCL renewable diesel production plant alone represents a nearly $2 billion investment for the province and is expected to create more than 2,500 construction jobs and 150 permanent operating jobs. The entire IAC is estimated to have direct and indirect economic benefits of approximately $4.5 billion.

"This is a tremendous opportunity for Saskatchewan and for FCL and AGT Foods that will bolster the sustainability and economic goals of these companies and the province," Premier Scott Moe said. "Our province has the food, fertilizer, and fuel the world needs, including renewable energy from canola grown and processed here, which speaks to the heart of our plan for economic recovery and growth as we work to build an independent, strong and sustainable Saskatchewan."

The FCL-AGT canola crushing facility will ensure Saskatchewan exceeds its 2030 Growth Plan goal of processing 75 per cent of the canola grown in the province. It also supports the Growth Plan goal of increasing agriculture value-added revenue to $10 billion.

The FCL renewable diesel plant will have a production capacity of 15,000 barrels per day, or about 1 billion litres per year. The FCL-AGT canola crush facility will use 1.1 million tonnes of canola seed to produce 450,000 tonnes of oil, supplying approximately 50 per cent of the feedstock required for the renewable diesel plant, with the remainder of the supply being contracted from other canola crush facilities.

"We know the synergies between transportation fuel production and agriculture will play a vital role in Western Canada's transition to the low carbon economy," FCL CEO Scott Banda said. "We believe our Co-op Retailing System is well-positioned to integrate and capture the full agricultural value-chain in the production of fuel and value-added products. We are excited about our partnership with AGT and ultimately what this announcement means for value-added agriculture in our province."

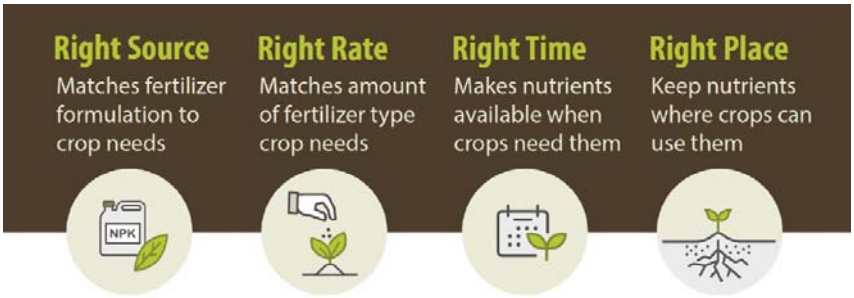
"I applaud the leadership Scott and the team at FCL have shown in working together to pursue this exciting opportunity," said Murad Al-Katib, President and CEO of AGT Foods.

"Agriculture is at the forefront of many global challenges and is providing societal solutions to global protein requirements, food and renewable fuel supplies. This project demonstrates Saskatchewan's leadership in plant-based Foods, Fuels and Feeds and brings together two Saskatchewan companies with the shared goals of decarbonizing our economy and adding value to Western Canadian crop production. We believe that AGT's capabilities in grain logistics and plant protein ingredients combined with FCL's strong history in energy and farm inputs creates a powerful partnership that will benefit the communities in which we operate."

"This is a very exciting announcement, and I am pleased to see FCL and AGT Foods continuing to invest in our city and our province," Mayor of Regina, Sandra Masters said. "This investment will provide Regina and area with new value-added opportunities, assist the city's long-term sustainability goals, and reinforce Regina's position a global leader in agriculture."

With facilities and outlets in 249 communities in Saskatchewan, FCL and local co-ops employ more than 10,000 workers across the province.

Five agronomy priorities for canola



Above: 4R nutrient management, with principles based on the right fertilizer products applied at the right rate, right time and right place, can improve yield, reduce nutrient losses and increase profits.

BY CLINT JURKE

The Canola Council of Canada's five agronomy priorities, when implemented fully in every field, will improve canola yield and profitability, and will help to ensure success with the crop.

Use 4R nutrient management practices

All farms will benefit from applying the right fertilizer products at the right rate, right time and right place to improve yield, reduce nutrient losses and increase profits. These are the 4Rs of nutrient management. One-pass seeding into standing stubble, a fairly common practice, is an excellent foundation for 4R. Canola Council of Canada (CCC) agronomy specialists also encourage farmers to use soil tests and set fertilizer rates based on soil-test recommendations. Canada's canola industry has a goal to see 4R practices utilized on 90 per cent of canola acres by 2025. Go to canolacouncil.org/4R for more details on the goal and on 4R practices.

Choose the best seed traits for each field

Try new cultivars all the time. Yield lost to incorrect cultivar choice may be a greater risk than yield gained by choosing the highest-yielding cultivar. The best seed traits can include disease resistance specific to risks for each field, maturity to match crop establishment and harvest timing goals, and pod-shatter resistance to harvest more of the crop. Use the tool at canolaperformancetrials.ca to compare cultivars.

Achieve a uniform 5 to 8 plants per square foot

Hybrid canola studies in Western Canada show that a stand with five to eight plants per square foot is best to maintain the yield potential of canola. Uniformity is also key. To simplify pest management and harvest timing, try to achieve the target population across the field and have all plants at the same growth stage. To set seeding rates that will achieve the target stand, use the calculators at canolacalculator.ca. For more agronomy tips, read the Plant Establishment chapter at canolaencyclopedia.ca.

Identify and manage the top yield robbers

Canola growers can find all kinds of pests and problems in their fields. The key is to focus time and inputs on the most important yield loss factors. Scout regularly to see what pests, environmental factors or mechanical issues (seed placement, sprayer settings, etc.) cause the greatest loss for each field. Find scouting and management tips for flea beetles, sclerotinia stem rot and all other major pests in the Diseases, Weeds and Insects chapters at canolaencyclopedia.ca.

Every seed is sacred: Deliver them all

We want canola growers to deliver every seed at No.1 grade, and leave none behind. To do this, growers have three steps: One, give all seeds time to mature. Two, harvest with minimal losses. And three, store canola without spoilage. Grower survey results suggest that canola growers, in general, may achieve yield improvement through later swathing. The survey also showed that straight combining is associated with higher yields in the southwest Prairies. The Harvest and Storage chapters at canolaencyclopedia.ca have tips for all three steps.

Clint Jurke is director of agronomy for the Canola Council of Canada. Email jurkec@canolacouncil.org.

USask crop researchers receive $5.7 million

☞ *Continued from page B7*

"There are three projects that were awarded funds that I'm listed on. Two of them have to deal with insect tolerance in spring wheat, and the third project is to deal with disease resistance, a disease called Fusarium Head Blight (FHB). It affects wheat and other cereals like barley and oat," says Hucl.

He explains how the insects that are attracted to the wheat plants affect crops, and harms farmers yield overall.

"Imagine a wheat plant growing during the summer, the soft flies leave the eggs inside the stem and they basically feed off the inside of the stem, as they go up and down the stem."

"Then in the fall, they basically nibble the inside of the stem and then cover themselves with it, until the winter. What happens then is that the stems fall over and it looks like they're being sawed off."

As a result from insects finding their way inside plants and damaging them, Hucl says producers tend to take a loss from their yields. However through his research, Hucl hopes to prevent that from happening.

"One way to that is stemmed wheat, instead of having a hallowed straw, it's filled with something called tick. This actually forms a physical barrier for the harvest so that the insects can't physically travel inside the stem and they starve to death," he says.

"It's a mechanical way, a quite effective one, of damaging insects. The insect will be in the plant but it won't be able to travel up the stem and feed properly."

Hucl says that there's a gene in wheat grass that you can transfer over to spring wheat to add the trait.

"We're trying to bring in tolerance from any source that we can find because there's limited variabilities within wheat species. There are no species that is immune, but there are different genes present in other species that we can bring in."

"Basically what we're trying to do is stack different sources of resistance into one variety and it can be from close relatives of wheat, you know points of some of the ancestral species of wheat, or it can be things that lay outside that are distantly related, like wheat grass."

For his third line of work, wheat midge, Hucl says his research is trying to select higher yield so that wheat is economically competitive against other crops.

"With wheat midge we've been fortunate to have work done on it about 25 years ago. They were able to identify a single gene that gives resistance to wheat midge," he says.

"We're working with one gene and one of the things is that gene resistance tends to break down over time, whether it's for insects, or for fungi or bacteria, and so over the last few years researchers have been trying to find alternate sources of tolerance resistance to the wheat midge. To either protect the SM1 gene, or rebase it, if it breaks down."

With all three projects combined, Hucl says his research will overall help the agriculture industry economically and help farmers get higher yields.

"At this point we're talking economics of the crop, that's the bottom line. In terms of the work we're doing is either trying to protect what we already have or in the hands of what we have, to increase our competitiveness in the international markets. Since we basically export three quarters of what we grow, it's important that we satisfy importers of our product."

Manitoba Agriinsurance dollar values reach record highs

Manitoba Agriculture is advising dollar values for many crops insured in Manitoba are mostly higher than the previous year and have reached record levels in many cases, Agriculture Minister Derek Johnson announced.

Total AgriInsurance coverage for 2022 is expected to exceed $4.66 billion on 9.8 million acres. This means the average coverage is estimated at $463 per acre, compared to $321 per acre in 2021. This substantial increase in coverage reflects the expectation of continued strength in commodity prices into the 2022 crop year.

"With a widespread drought throughout the province, 2021 was a difficult year for many Manitoba farmers," said Johnson. "We're proud to increase our support to the agricultural sector as we value its strength as a driving force to our economy."

AgriInsurance premium rates have increased by about 10 per cent due to the reduced program surplus as a result of record payments in 2021. Premiums per acre will also be higher for most crops due to the increased coverage.

Based on industry and producer feedback, several other program enhancements for 2022 include:

- The introduction of a new Polycrop Establishment Insurance that will provide financial assistance to Manitoba farmers if an eligible polycrop fails to establish. Polycrops are a mixture of two or more annual crops other than greenfeed that are grown simultaneously on the same acreage for the purpose of livestock feed, soil restoration or green manure.
- An increase in the indemnity level for table and processing potatoes destroyed prior to harvest from 85 per cent to 90 per cent, resulting in a better reflection of current potato harvesting costs.
- The vegetable acreage loss insurance has been updated to reduce the minimum required acres for the program to one-half from three. This will provide smaller commercial producers with an effective risk management tool.

The AgriInsurance program is a risk management tool for Manitoba farmers to protect against production shortfalls and quality losses caused by natural perils. The program is administered by Manitoba Agricultural Services Corporation (MASC).

Under the Canadian Agricultural Partnership, AgriInsurance premiums for most programs are shared 40 per cent by participating producers, 36 per cent by the Government of Canada and 24 per cent by the Manitoba government. Administrative expenses are paid 60 per cent by Canada and 40 per cent by Manitoba.

The hail insurance program, administered by MASC outside the scope of the Canadian Agricultural Partnership, will also see increased coverage levels for 2022. Maximum hail dollar coverage is increasing to $400 per acre from $300 per acre, based on higher expected gross revenue for most crops. The 2022 premium rates are the same for most risk areas and expected coverage will increase to $1.5 billion from $1.1 billion.

Ag ministers announce funding for crop research

☞ *Continued on Page B2*

Through that, we're achieving all of our goals. We're hitting our gross targets, the farmers are getting a better return on their investments, and the customer is pleased at the end of the day."

How will this investment into crop-related research projects benefit current and future farmers?

The big benefit is number of things, obviously it's a higher return per acre, per investment, whether it's high yielding, whether it's crop rotation, whether some of the research is getting into inter-cropping now, where growing two-crops in one, things like that.

At the end of the day the producer is going to be looking at it that way, they're going to ask how's this going to better fit my operation, how am I going to get a higher return on his or her investment and I think that's the bottom line.

That's what we're trying to do with the governments, we're trying to figure out the research dollars, how to optimize that, how we can get our gross targets to where we want to get them to, and also satisfy the customer at the end of the day and provide high quality, consistent product, and that's what the customers are looking for.

•

Although unable to participate in an interview, federal Minister of Agriculture and Agri-Food Marie-Claude Bibeau, stated the following a statement:

"Canada's crop sector has navigated a challenging year marked by extreme climate events with resilience and determination. Together with the Government of Saskatchewan, our federal Government is committed to investing in science and innovation through critical initiatives like the Agriculture Development Fund. Investing in science is essential to give our farmers the tools they need to realize our vision of a sustainable agriculture sector in Canada."

FARMLAND NEAR McAULEY FOR SALE BY TENDER

The Marshall Family is tendering four quarters of farmland just South of McAuley, Manitoba. Bids will be considered on individual quarters or on all quarters. No mineral rights are included in the sale.

LAND DESCRIPTION:
NW ¼ 3-14-29 WPM
NE ¼ 10-14-29 WPM
NW ¼ 10-14-29 WPM
SE ¼ 10-14-29 WPM

A package of information is available from the law office by email request to glen@mhmlaw.ca. Persons tendering are advised to conduct their own due diligence and verify all information and title status.

Tenders are to be submitted in a sealed envelope to the law office of McNeill Harasymchuk McConnell, Box 520, 243 Raglan Street W., Virden, Manitoba, R0M 2C0, Attn: Glen Harasymchuk; accompanied by a cheque for 5% of tender payable in trust to the law firm to form the deposit on any successful tenders. Highest or any tender not necessarily accepted. Cheques for unsuccessful tenders will be returned. Please include name, mailing address and phone number. The successful bidder(s) will be required to complete an agreement covering terms and conditions of sale. Please note "Marshall Tender" on envelope.

Tenders close Tuesday, March 1st, 2022, at 12:00 noon.

TERMS AND CONDITIONS OF SALE:

1. Closing to be on or before March 15, 2022.
2. In addition to the deposit, the balance of the accepted tender must be paid on or before closing. If the balance is not paid by closing or on terms acceptable to the Vendor, the deposit may be forfeited as liquidated damages and not as a penalty.
3. Purchasers will be responsible for municipal taxes after December 31, 2021.
4. Purchaser shall be responsible for payment of GST or shall self-assess for GST.

18:3c

FARMLAND FOR SALE BY TENDER

Tendering nine quarters of farmland, suitable for hay or pasture land in the RM of Wallace-Woodworth. Bids will be considered on individual quarters or on any combination of quarters. Note both the SE and SW ¼ 1-12-28 WPM must be sold together. There is a Ducks Unlimited easement registered as a caveat on all nine quarters. No mineral rights are included in the sale.

LAND DESCRIPTION:

SE 1-12-28 WPM	SE 7-12-27 WPM	NE 22-11-28 WPM
SW 1-12-28 WPM	SW 7-12-27 WPM	SE 22-11-28 WPM
NW 5-12-27 WPM	NE 35-11-28 WPM	NE 15-11-28 WPM

- Currently seeded to well established perennial forages
- Perimeter fence with cross fence and dugouts with offsite watering for rotational grazing
- Full year of forage growth remaining from the 2021 growing season
- Oilfied facilities on the NE ¼ 22-11-28 WPM generating annual surface rights compensation

A package of information is available from the law office by email request to larissas@mhmlaw.ca. Persons tendering are advised to conduct their own due diligence and verify all information and title status.

Tenders are to be submitted in a sealed envelope to the law office of McNeill Harasymchuk McConnell, Box 520, 243 Raglan Street W., Virden, Manitoba, R0M 2C0, Attn: Larissa Sosnowski; accompanied by a cheque for 5% of tender payable in trust to the law firm to form the deposit on any successful tenders. Highest or any tender not necessarily accepted. Cheques for unsuccessful tenders will be returned. Please include name, mailing address and phone number. The successful bidder(s) will be required to complete an agreement covering terms and conditions of sale. Please note "Kliever Tender" on envelope.

Tenders close **Friday, March 11, 2022, at 12:00 noon.**

TERMS AND CONDITIONS OF SALE:

1. Closing to be on or before April 14, 2022.
2. In addition to the deposit, the balance of the accepted tender must be paid on or before closing. If the balance is not paid by closing or on terms acceptable to the Vendor, the deposit may be forfeited as liquidated damages and not as a penalty.
3. Purchasers will be responsible for municipal taxes after December 31, 2021.
4. Purchaser shall be responsible for payment of GST or shall self-assess for GST.
5. Vendor shall retain all surface rights compensations received prior to closing and those payments shall not be adjusted to the closing date.

17:2c

McCorriston says farmers often have no choice on wetland

☞ *Continued from front*

"If the town of Moosomin decides to grow, it seems perfectly acceptable to get rid of some marshland and build some hotels and restaurants. If our farm decides to grow, well it seems like we're not allowed to do it. But whether you're a hotel in Moosomin or a farmer, we're all just trying to better our lives. I just found that it was a personal shot, and I feel like we're forced to do it. When land is so expensive, you need to make it viable and you need to make it profitable, and I found it personally frustrating when I myself reached out to try and rent or long-term lease a portion of my land to Ducks Unlimited, and tried to go through the hoops, and they just made it too difficult to try and do something.

"On that piece of land that I bought, it already had two acreages subdivided out of it. So then they seem to want nothing to do with it, but yet I was wanting to leave the bush and the sloughs natural because the bush would protect those yards from wind, and I was doing it as a favor for the people that lived nearby. It just seemed like there were loopholes and Ducks Unlimited was like 'well we'll take a whole quarter here, a quarter there.' Well it shouldn't be that way if we have 10 or 20 acres of wasteland on our quarter. We should be able to long-term lease it to them. And the moral of the story is, cattails and trees just don't pay bills at this time."

McCorriston said he understands the point the Watershed Stewards were trying to get at, but he doesn't think they are considering things from the economic standpoint of farmers.

"I do get their point for sure, but it's a financial thing that forces us. We're just men and women who wake up every day and go to work and we're trying to make a living and do our job, and moving forward it's stuff we just have to do to make the land more viable and more profitable.

"Nobody mentions erosion because our technologies have changed, and they seem to forget about that. We're trying to do a better job. Zero-till farming at one time in the mid-nineties it was a radical idea, but now it's just the way it is. So I feel that yes we are draining sloughs, yes we are taking trees off the land, but then there's other aspects. We don't till the land anymore, we zero-till farm and we try not to spray pesticides unless we have to. We try to do everything we can within reason, I just don't feel the farmer should be held liable for everything. If the economy's growing in a city, they have no problem building new houses and paving streets and draining sloughs.

"I just feel that Ms. Davis forgets urban sprawl and she forgets it's not only the farmer that's changing the land, it's everybody, and if we're going to work together I think everybody needs to work together. And if we have land that's not usable, I feel that the Wildlife Federation, Ducks Unlimited Canada, they should change their strategy and be willing to take smaller portions of land, because I have no problem if I have wasteland, if they're willing to pay me for it, I will leave it. But if they're not, I have no choice but to try and make it pay."

McCorriston said modern farming methods have led to massive increases in the amount of land that can be produced from a quarter section.

"My dad, he started farming in this area in 1976. He came from in between Nipawin and Tisdale where they had a lot more viable black dirt land. Ours is more of a clay soil. Dad talks about 25 to

Mark McCorriston

30 bushels an acre wheat being a bumper crop. When I was a kid it used to be that we might touch 40 bushels an acre wheat in the '80s. Now it's perfectly acceptable to grow 60 to 70 bushels an acre wheat. The land, by us taking care of it properly, soil testing and using the right amount of fertilizer for what the plant needs, can produce a lot more. We're not over fertilizing, we're not under fertilizing. The land production and feeding the world has come a long way. And you'll notice it when you drive around the countryside. What used to be a little 1,350 bushel bin or 1,650, now they're 40,000 bushel bins. So we are on a whole producing more."

He said he doesn't think a lot of people outside of agriculture understand the industry.

"Moosomin's a close-knit community where agriculture is the backbone of our community, I feel, but on average, most people in town wouldn't understand what it's like to wake up at 11 at night and go check your cows and then wake up at 1 in the morning and go check your cows or put in 15 hour days during seeding and harvest day-after-day with no end in sight and your fingers crossed that you can have a rain day and maybe get an afternoon nap in. I don't think they understand the obligations and how much farming's changed. It's no different than I think a lot of jobs in town are. When I was a kid, there used to be more time for rest and relaxation. We're a busier world on whole, and it's the same for farmers as well. When I was a kid we had roughly 2,500 acres of grain land and 40 or 50 cows. Now we have 6,500 acres of grain land and 250 cows. I think that farmers are busier on average than they were. Everyone's busier and we're busier too.

"My dad started farming here in 1976 and my brother and my sister and I, we all grew up hearing him talk about the family farm. My dad passed away too early, but his goal was to see the farm carry on. I want to see my dad's dream to be the next generation, and then I also take a lot of steps to make sure that the kids, our kids, are taught the same way. Someday this will be yours, someday you'll have to run the air seeder, I'll be too old. The kids are stepping up and they help. They help bottle feed calves, they help sort cattle, they'll help bring out meals to the field. They're just young. But the reason why I do it is more to pay honor to my family and to see my dad's dream come true.

"I enjoy letting the cattle go into the pasture in the summer and seeing them frolic and jump around because they're so happy to be back on the green grass. I find seeding extremely rewarding because you're putting the seeds in the ground and it's the promise of a new year. I used to enjoy harvest a lot more when I was younger but now I find that sometimes the reality of the yield of the crop or your situation, you get into a field and it's five or 10 bushels an acre less than I was hoping for. But I still enjoy harvest, I just find sometimes harvest can be the voice of reality. You actually know what you're going to get. But I really enjoy seeding and seeing the new crops come up.

"Farming's constantly changing and the technologies are changing. I'm 42 years old, and there's lots of times I wish my dad was around or I could call him up and say, dad what should I do here or what should I do there? But he's gone and I have to figure it out on my own. But the challenges are always changing."

What message does he have for Alice Davis and the Watershed Stewards?

"I'd like to say that I recognize Ms. Davis' statement, but I just don't think financially it's feasible and it's no different than when we renovate our land or landscape it. It's no different than you putting siding or shingles on your house. You're increasing the value of your land, you're increasing the value of your house.

"And we're creating more food. I just felt that I took it personally, but I feel that I have no other choice and I would like to say I've taken steps to try and set aside some poor land, and I've tried to lease it out, and there's too many loopholes and too much red tape and the parcel of land required is too big. It's not practical. There's no one quarter in the area that's complete wasteland. Maybe a poor quarter of land might have 60 acres of wasteland and 100 acres of viable land. So I really feel that the watershed or Ducks Unlimited or the Wildlife Federation, they should take some steps to change a few things to work with us."

Worth the wheat: New durum wheat line shows intermediate resistance to fusarium head blight, a first for Canada and the world

Canada is a top producer of durum wheat on the international stage, but the spring wheat crop has faced production challenges owing to its moderate to high susceptibility to fungal diseases.

Since durum was introduced in Canada in the 1910s, it has been susceptible to the fungal disease Fusarium Head Blight (FHB).

To improve yield and strengthen FHB resistance, research scientist and durum wheat breeder Dr. Yuefeng Ruan and his breeding team at Agriculture and Agri-Food Canada's (AAFC) Swift Current Research and Development Centre have developed a new registration-ready durum wheat line with an "Intermediate Resistance (IR)" rating to FHB. The variety is currently named DT2009. It is the first durum line in Canada and the world to demonstrate the IR level of resistance to this fungal disease.

Why do Fusarium Head Blight and other fungal diseases matter?

FHB is primarily found in wheat, barley, and oats. It creates mycotoxins that infect seeds and diminish the quality of harvested grains used in food and non-food applications. This is bad news for farmers and processors.

FHB epidemics have occurred several times in the Canadian Prairies in the last two decades. The prevalence of the fungal disease in durum wheat has even altered the course of production patterns throughout Canada, pushing production further west. The new wheat line's intermediate resistance rating, however, signals a possible resumption of durum wheat production in the eastern Prairies, including Manitoba.

"DT2009 will give farmers an option to continually grow durum without the worry of Fusarium Head Blight, and will allow some FHB affected regions to grow durum wheat again," says Dr. Yuefeng Ruan.

How was this new line developed, and when can farmers get their hands on it?

Developing resistance to the fungal disease in durum varieties involves cross-analyzing several genetic factors of the plant and their degree of resistance against the variations of the fungal pathogen, as well as its interactivity with changing environmental conditions.

Through a process called quantitative trait locus (QTL) mapping, breeders like Dr. Ruan can identify "markers" to define minor FHB resistance genes, and stack their resistance in durum breeding lines.

But it's not only this one trait that the breeders need to worry about. They also have to think about other varietal characteristics that can mitigate yield-related threats. Just

AAFC research scientist and durum wheat breeder Dr. Yuefeng Ruan.

think of all the disease threats out there! The new line also scores highly here, demonstrating resistance to moderate resistance to all rusts including Ug99 stem rust, diseases that impact crops close to harvest.

Thanks to their breeding work, DT2009 is also high yielding, has high protein content, strong straw structure and good packages for other desirable traits of agronomy, disease, and quality.

"Thanks to a team effort at AAFC Swift Current, the new line is a breakthrough in the improvement of FHB resistance in durum wheat, which will increase its profitability for farmers. It's the first and only durum line with the 'Intermediate' FHB resistance in Canada - and worldwide to date."—Dr. Yuefeng Ruan, Research Scientist, Agriculture and Agri-Food Canada.

The process of taking a new variety from the researcher's lab to the farmer's field is a long one. It involves oversight and agreement by industry experts, who thoroughly evaluate the lines the research programs put forward. Currently, just one or two new durum lines from AAFC are approved for registration each year.

Supported for registration following the annual Prairie Grain Development Committee's virtual registration event in 2021, the new breed of durum wheat will likely be available to farmers in about three years depending on the release date determined by seed companies. Dr. Ruan's other accepted line, called DT2005, which also has excellent fungal resistance properties, would also be available for registration support.

Key Discoveries/Benefits:

- DT2009, a new registration-ready AAFC durum wheat line, demonstrates beneficial varietal characteristics including increased yield and an improved resistance to fungal disease Fusarium head blight (FHB) with an Intermediate Resistance (IR) rating—the first durum wheat line to be released in Canada.
- The breeding research program at AAFC's Swift Current Research and Development Centre leverages genetic technologies to address agronomic and yield-related concerns associated with wheat and grain crop production, including fungal resistance and improved drought tolerance.
- With an IR response to FHB, the DT2009 line signals an opportunity for durum production to resume in FHB-affected regions, which could benefit overall yield in Canada and the quality of grains used in food and non-food applications.