MANITOBA CROP ALLIANCE

The FENCE POST

Bi-Annual Newsletter

April 2021

REPORT FROM THE CEO'S OFFICE

Communication. The Oxford English Dictionary has the following definition:

> *Communication, n. The imparting or exchanging of information by speaking, writing, or using some other medium. The successful conveying for sharing of ideas and feelings.*

It is a very important topic. There are numerous books, courses, and other resources available speaking to the importance of communication. For Manitoba Crop Alliance (MCA), we have dedicated budget in our 2020/21 fiscal year for communication. **Why focus on communication?** We have all seen or experienced examples where excellent communication yielded beneficial results. However, we probably have also seen the opposite where the best planned communication led to issues, often to the detriment of what was being communicated. We must only look to Responsible Grain or the Value Creation consultation to understand how important communication is. Without a clear message, a story to underscore the message, and facts to support the message, the message is not conveyed to the audience.

MCA wants to keep our members informed of the value and benefits they derive from being a member. We communicate to our farmer members in several ways and largely in a very traditional way. We have our online presence, namely our website – www.mbcropalliance.ca – where we house the information we feel is valuable to our farmer members. We also have our electronic newsletter called HeadsUp. The Agronomy edition is issued the second Wednesday of each month. It contains third-party, unbiased agronomic information and production services for our farmer members. There are also the News and Events editions which highlight upcoming events and news we want to inform our members about. MCA is also active on social media platforms including Twitter and Instagram.

MCA has print mediums to communicate to our members including this publication, The Fence Post, our biannual newsletter. We recently released our research-focused magazine, The Focal Point. Plus, MCA delegates, directors, and staff are always available by phone. **We want to hear and listen to your ideas and concerns.**

The pandemic has changed how we can communicate with members. Events such as CropConnect Conference, annual general meetings, Crops-a-Palooza, Combine to Customer, Producer Malt Academy, Seeding and Spraying Clinic, and Research on the Farm trial appreciation events have all been cancelled in the past year or moved to a virtual format. It is more difficult to have those one-on-one conversations where great communication can take place. In recognition of these changes, MCA is exploring more video communication tactics to convey information to our members. An example being the video "A Manitoba Farm's Sustainability Story" done in conjunction with Great Tastes of Manitoba and Frank Digital Media.

However, we cannot forget that communication has three parts: the sender (MCA), the message, and the recipient or audience. In the majority of cases, the recipient is our farmer members. But are our farmer members receiving our message? Are they receiving it in a format they want to? How do we know if we do not receive engagement in return, or gather feedback? We have some metrics to help us measure reach, but does that help us if it is the information our members want to know or hear?

In addition to our farmer members, there is increasing pressure for farmers to tell their stories to the public and consumers. Regardless of the audience, to communicate well we must ensure the message is clear, the story supports the message, and we have facts that support the message.

In 2020, the board recognized where MCA can do better in communicating activities and initiatives to our members. We will strive to do better in 2021, focusing on two-way communication efforts as we want to make sure our farmer members are receiving the message in a format they want and that they can engage with us. **An internal communications committee has been formed to ensure our communication strategies have strong objectives,** understand the target audience, utilize the best communication methods, provide budget support to achieve those objectives, implement the communications plan, and evaluate feedback and success. It is an exciting endeavor the communications committee and board will tackle in 2021.

In the meantime, I encourage our farmer members to read through The Fence Post. It contains great information on a few of the initiatives we are working on for the benefit of our farmer members. As always, myself, staff and the board of directors encourage our members to reach out to us via email or phone to let us know how we are doing!

I wish our farmer members a safe, healthy, and profitable 2021! Good luck with seeding!

Pam de Rocquigny

Scientific Research & Experimental Development (SR & ED) tax credit

Farmers that contributed check-off dollars to Manitoba Wheat and Barley Growers Association (MWBGA) or Manitoba Corn Growers Association (MCGA) prior to amalgamation with Manitoba Crop Alliance and are in good standing are eligible to claim the federal Scientific Research & Experimental Development (SR & ED) tax credit.

For the 2020 tax year, 18.42% of MWBGA check-off and 18.43% of MCGA check-off qualifies for the SR & ED tax credit.

For more information on the process of claiming the tax credit please consult your accountant or visit the Canada Revenue Agency website.

18.43%
Corn

18.42%
Wheat & Barley

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Advance Payments PROGRAM

Administered by Manitoba Crop Alliance

Agriculture and Agri-Food Canada
Advance Payments Program

Agriculture et Agroalimentaire Canada
Programme de paiements anticipés

ADVANCE PAYMENTS PROGRAM

MANITOBA CROP ALLIANCE CELEBRATES 40 YEARS OF BEING ADMINISTRATOR IN 2021

The Advance Payments Program (APP) is a federal program, delivered and administered by Manitoba Crop Alliance (MCA). Under the program, producers can access up to $1,000,000 per program year in advances based on the value of their agricultural product, with the Government of Canada paying the interest on the first $100,000 advanced to a producer.

"Celebrating 40 years of being an APP administrator is a big milestone for MCA", says Pam de Rocquigny, Chief Executive Officer, MCA. "We're proud to celebrate this milestone and will continue to provide the high level of personalized, friendly, small town service our clients expect and deserve when they contact our office regarding APP now, and well into the future."

Last year saw changes with the amalgamation of five Manitoba commodity groups and the challenges associated with managing operations through the COVID-19 pandemic. The pandemic and provincial public health orders influenced how MCA delivered service of the APP to clients. Although the MCA offices had to close to the public, both Tammy Cote and Rae Jackson, MCA APP staff, continued to work to provide service to clients through other platforms including phone, email, fax and a secured drop box. Regardless of delivery method, MCA is dedicated to continue to provide personalized, small town service to ensure dollars are advanced within three to five business days once a completed application is on file.

MCA provides cash advances on over 30 different crop kinds, including the major crop such as wheat, canola, soybeans, and grain corn. MCA's interest rate on interest-bearing cash advances is a competitive rate with major banks and credit unions.

MCA is currently accepting applications for the 2021 program year with funds to be issued starting April 1, 2021 and will continue to accept applications for short term financing needs under the 2020 program year.

"MCA has recently published APP Service Standards on our website defining the high level of service our customers can expect when they contact us. As we celebrate 40 years of being an APP administrator in 2021, we recognize producers have the choice of administrators and we'd like to thank our loyal customers for their continued support," adds de Rocquigny.

MCA's staff will continue to work closely with partners at AAFC to deliver the APP and provide administrative options to serve Manitoba farmers. For more information about the APP or to review the APP Service Standards, visit mbcropalliance.ca.

Susie Miller, Executive Director of the Canadian Roundtable for Sustainable Crops

RESPONSIBLE GRAIN UPDATE

The consultations for the first draft of the Responsible Grain code of practice are wrapping up. On behalf of the Canadian Roundtable for Sustainable Crops (CRSC), thank you to all who provided feedback. To date, approximately 850 producers participated in the consultations.

All feedback received during the consultations will be reviewed and analyzed. A "What We Heard" summary report will likely be posted on the Responsible Grain website in April.

The CRSC Steering Committee and the Code Development Committee are considering all feedback to determine where to go next. Although all the results from the consultations are not yet available, it is evident that there is not support for the draft Code of Practice as it is currently written. The CRSC will provide an opportunity for growers to review any proposed revisions or further drafts. A redrafted Code will be ready for review in November or December of this year.

We encourage all growers to continue to be engaged, ask questions, and check out responsiblegrain.ca for any updates regarding the summary report and next steps.

RESPONSIBLE GRAIN
CANADIAN FARM STANDARDS

DID YOU KNOW?

Manitoba Crop Alliance has numerous strategic research areas for 2020-21 and beyond:

- Variety development/ genetic enhancement
- Fusarium head blight management
- Nitrogen and protein
- Extremes of moisture initiative
- Rotation considerations, facilitate the development of agronomic innovations
- Residue management
- Stand establishment
- Population and row spacing research
- Research on the Farm, support of variety evaluation trials

Do you have a production question related to wheat, barley, corn, flax or sunflower? Email us!

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Agronomy Extension Specialit – Special Crops
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CALL FOR FARMERS TO PARTICIPATE IN MANITOBA CROP ALLIANCE RESEARCH ON THE FARM TRIAL PROGRAM FOR 2021!

Have you ever considered a **Research on the Farm** trial on your farm? Would you like to learn more about doing your own research and are you a member of the Manitoba Crop Alliance (MCA)? MCA is expanding our Research on the Farm trial program with projects on corn, wheat, barley and sunflowers available for farmers to participate in for 2021!

A) Management of Lodging in Spring Wheat with a Plant Growth Regulator (PGR)

Objective: To quantify the impact a plant growth regulator (Manipulator 620 or Moddus) on height and yield of spring wheat or barley.

Benefits to MB Producers: When does it make sense to use a plant growth regulator for your wheat crop in Manitoba? This is a question in many farmers' minds as they see a good growing season developing. An application of a PGR can be a useful tool in a high-input situation where the wheat crop has high yield potential and at a high risk of lodging.

B) Fusarium Head Blight (FHB) Management Through Fungicide Timing in Spring Wheat and Barley

Objective: In each of the two projects the objective is to provide further insight on impact of fungicide application and timing on FHB disease levels in-season and in harvested grain.

Benefits to MB Producers: Being aware of potential risk of FHB infection through use of decision tools such as Manitoba Agriculture's FHB risk maps, combined with proper timing of fungicide application, are key factors in helping Manitoba wheat and barley growers reduce the risk of yield and quality loss due to FHB.

C) Use of a Seed Treatment in Spring Wheat

Objective: To quantify the economic and agronomic impacts of using a seed treatment on plant establishment and yield in spring Wheat.

Benefits to MB Producers: When does it make sense to use a seed treatment in your spring wheat crop in Manitoba? How does a farmer try to ensure good establishment of his wheat field in uncertain field conditions? A use of a seed treatment may prove beneficial in ensuring a good start to a promising crop.

D) Plant Populations in Corn, Spring Wheat and Sunflowers

Objective: To quantify the agronomic and economic implications of reducing/increasing your normal seeding rate or plant population in various crop types.

Benefits to MB Producers: How does a lower or higher plant population in your farming operation affect your returns? Does your agronomics change within the different plant populations?

Interested in participating?

If you are interested in participating in any of the trials, please call Daryl Rex, Research Trial Specialist at 204.745.6661 or email daryl@mbcropalliance.ca.

For more information on MCA's Research on the Farm trial program, including results from previous years and current Research on the Farm trial projects, please visit mbcropalliance.ca/research/on-farm-research.

In 2020-2021, MCA will commit

$2.3 Million

on behalf of **Manitoban farmers** for research, we successfully strive toward our goal to spend

65% of our budget on annual research allocation

Over the lifetime of the **79 current projects** MCA sponsors, we will have proudly pledged

$11.7 Million

on projects that have a combined value of more than

$121.7 Million

Mallorie Lewarne, Agronomy Extension Specialist–Cereal Crops with the Manitoba Crop Alliance, mallorie@mbcropalliance.ca

RESEARCH ON THE FARM:

Fungicide management of Fusarium head blight

Manitoba farmers are too familiar with the devastating toll Fusarium head blight (FHB) can cause in cereal crops. FHB is a serious disease that reduces yields and produces mycotoxins that impact human and animal health. Historically many farmers in high-risk FHB areas have applied a fungicide without questioning it.

Through the Research on the Farm Program, Manitoba Crop Alliance (MCA) is collecting data from real, working farms in order to give farmers more timely information and resources to help them fight this disease.

The Fungicide Timing for Management of FHB in Spring Wheat trials are in their fourth year. The objective of these trials is to provide further insight on the impact of fungicide application and timing on FHB disease levels in-season and in harvested grain.

This trial has run for three growing seasons at a total of 18 sites. A statistically significant effect on yield from fungicide application has only been observed in six out of 18 sites. Even when a significant effect on yield was observed, mycotoxin levels (DON) were very low. All three growing seasons have been relatively dry, which could explain the lack of DON accumulation. Ideally, we'd like to get some data on this from a wet growing season, where conditions favor FHB infection.

Colin Penner, a farmer from Elm Creek has participated in a number of Research on the Farm Trials over the years and sees the value on his farm.

"We're in the Red River Valley so we spray for FHB on our farm," says Penner. "The last number of years have been really dry so I've always questioned the effectiveness of fungicides, especially at head timing."

Penner participated in the 2020 Fungicide Management of FHB in Spring Wheat trial and described it as a very simple process which produced surprising results on his farm.

"They came to the field and gave me the replication instructions which were straightforward and easy to follow. In this particular trial the results really surprised me. We've seen fungicides show a marginal benefit on dry years but I really didn't expect to see the results we did by spraying late (not something I would aim to do). In our trials, to spray early was good and to spray late was even better."

In Penner's trial, the recommended application date was July 6 and the late timing strips were sprayed four days later, on July 10. At this site there was a statistical yield difference between the late timing strip and the untreated check, but there was no statistically significant yield difference between the recommended application timing and the untreated check.

Penner stressed the importance of randomized replicated trials to be able to compare the results with the information received from different companies. "I see a lot of data from companies that's often not replicated. I think it's important we do our own replicated trials like these ones.

"FHB is a difficult disease to work with; infection risk varies field to field."

It adds value on my farm because it gets me thinking, and it's also an opportunity to try different ideas and see what works well in my area."

Tools like Manitoba Agriculture's FHB risk maps, which can be found on their website here: https://www.gov.mb.ca/agriculture/crops/seasonal-reports/fusarium-head-blight-report.html, combined with proper timing of fungicide application can help farmers reduce FHB risk.

"Manitoba Agriculture posts FHB Risk Maps daily (during the wheat flowering period) on our website. We also have a seven-day animation which shows the risks building or declining up to the point where you're concerned about the crop," says David Kaminski, Field Crop Pathologist, with Manitoba Agriculture and Resource Development. "FHB is a difficult disease to work with; infection risk varies field to field. It depends on your seeding date. Some crops will escape just because, when they were flowering, infection-conducive conditions were not there in your specific area. Whereas a crop that was seeded a little bit earlier or a little bit later just hits it wrong and that's when you'll see disease."

Kaminski says fungicide spraying needs to be very precise on the timing of crop development. "The heads have just come out and its prior to flowering. Depending on how much heat you are getting at the time, the application window can be as short as two days or as long as five days. It's a tricky thing to determine," adds Kaminski.

At the University of Manitoba (U of M) Dr. Paul Bullock, Professor, Dr. Manasah Mkhabela, Research Associate and Adjunct Professor, and Mr. Taurai Matengu, M.Sc. Student, Department of Soil Science, U of M are in year three of a five-year research project with an objective to better understand how weather relates to FHB risk levels in cereal crops.

"If I'm a farmer and I'm going to apply a fungicide, there's a cost to that application. So, the question is, is it worth it? What we're trying to achieve through the FHB Risk Model is to give producers a model that when they monitor the weather in their fields, the model can calculate if the FHB risk is high, moderate, or low to help them with that decision," says Bullock.

As more data is collected throughout the years of study, the models are updated and improved for accuracy. More farmers from across the prairies are getting involved which allows the data collected from their fields to be used to independently test the accuracy of the FHB risk models. Some of the research MCA is collecting from producers' fields through the Research on the Farm Program will eventually be used to validate the accuracy of the models as well. The next phase of the project is to build an online platform using the model to provide FHB risk assessments across the prairies for producers.

The figure below is an example of how the model can be used to map out the risk levels based on different factors. This example shows how the probability of FDK risk level changes based on the average relative humidity in the 15 days leading up to an including the date of flowering.

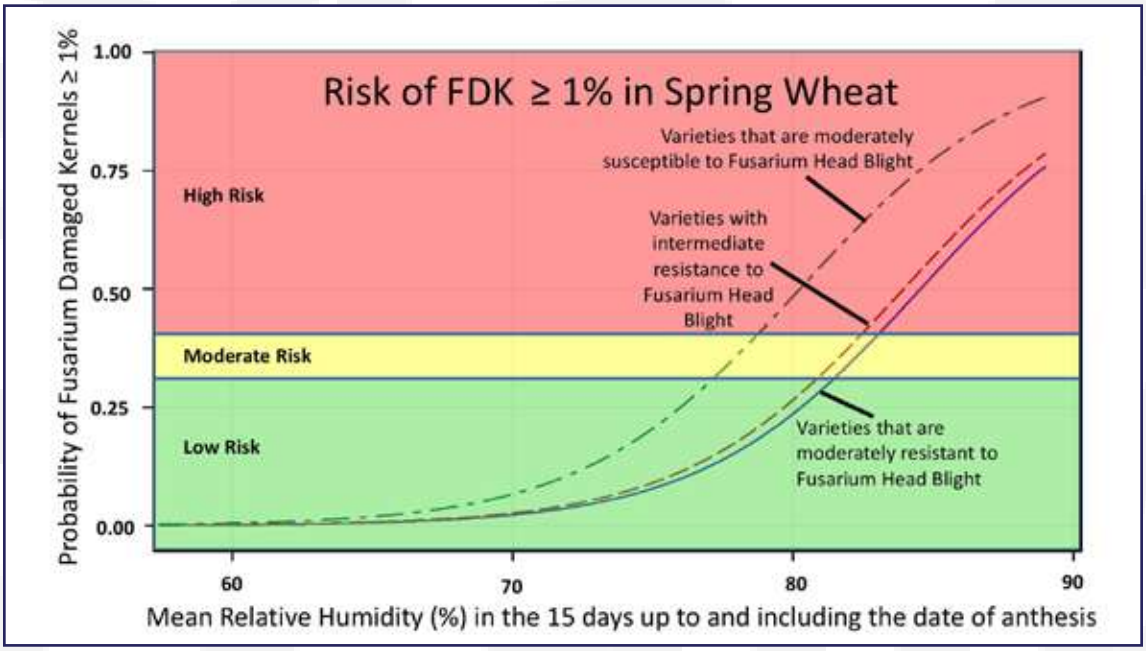

Photo credit: Dr. Paul Bullock, Professor, Dr. Manasah Mkhabela, Research Associate and Adjunct Professor, and Mr. Taurai Matengu, M.Sc. Student, Department of Soil Science, U of M

For more information about MCA's Research on the Farm Trials and to view full trial results, visit mbcropalliance.ca.

FIELD CROP DISEASES TO SCOUT FOR THIS SEASON

David Kaminski, P.Ag., MPM, Field Crop Pathologist with Manitoba Agriculture and Resource Development

So much of the focus in 2020 was on the effects of the global pandemic. Did you realize that 2020 was designated by the United Nations to be the International Year of Plant Health? Covid-19 pushed plant health to the back burner. Yet farmers deal with plant health concerns every year; these include diseases, insects, weeds and soil fertility. Here are some fundamental actions that can reduce the impact of these yield robbers:

- Consider crop rotation carefully,
- Choose resistant cultivars, and
- Apply prophylactic pesticides judiciously.

Are you a **wheat** grower in Manitoba? Depending on the market class(es) you produce, you may have to choose from cultivars with limited genetic tolerance to Fusarium head blight (FHB). For example, durum wheat has all but disappeared from Manitoba with, at best, a moderately susceptible (MS) rating to FHB. The fungicides that suppress FHB are not enough, especially in the eastern prairies, which typically receive more rainfall. On the other hand, many CWRS varieties have moderate resistance (MR) to FHB. Even so, in disease conducive conditions, a carefully timed fungicide will likely be warranted.

Barley is also highly susceptible to FHB. With even tighter standards for levels of the DON toxin in malt barley, it takes a higher level of management to ensure acceptable quality. Furthermore, your buyer might specify that fungicides cannot be used on barley intended for malt even though they are registered on the crop. Consider the Keep-It-Clean directive; we all bear responsibility to ensure that end products are free from pesticide residues to prevent market implications.

Winter cereals often escape FHB infection by flowering earlier, at a time when it is less likely to be hot and humid. Again, available resistance is limited so there are years when **winter wheat** can be hit hard. **Hybrid fall rye** is much more prone to infection with ergot, than FHB. The glumes remain open longer during rainy periods, allowing access to the insects that introduce ergot spores from native grasses.

Despite drier than average conditions across Manitoba in 2020, some bacterial diseases were problematic. Bacterial leaf streak (BLS) was documented in some CWRS fields, especially in areas that suffered from intense rainfall events and/or hail injury. Fungicides cannot control bacterial diseases; hence, the impact of a disease like BLS is "unmasked" when fungicides have been applied. Oat growers often see bacterial disease, too. Those who apply fungicides to manage foliar diseases may be disappointed with the lack of results.

Corn is another grain crop that can be adversely affected by Fusarium fungi. They cause stalk rot and/or ear rot, with the potential for toxins to render the grain unsuitable as animal feed. In a tight corn rotation, for example in the production of silage corn, another bacterial disease, Goss's wilt can be an issue. In Manitoba, fortunately, we have yet to see the bacterium cause actual "wilt." Rather, the disease appears mostly on foliage.

Let us turn to some of the diseases that infect broadleaf crops.

Flax acres are likely to increase in 2021 in response to a record commodity price in 2020. New growers should be aware of a number of agronomic practices that can affect yield. One is the crop's dependence on mycorrhizal fungi, which are not supported by canola. If canola was grown in the year before flax, phosphorus uptake will be limited. The inoculum for **pasmo**, a fungal disease, is widespread and crops should be scouted mid-season to determine whether foliar fungicides are needed. If one has been pushing the rotation with flax, you may need to watch out for Fusarium wilt. Fusarium oxysporum lini is unique to flax, but this wilt can be very serious, at least in patches in the field. Get an agronomist or diagnostic lab to determine whether it is Fusarium wilt or one of several abiotic causes of stunting and death.

Sunflowers have a variety of disease issues, but the one that is most difficult to manage and most likely to result in quality and yield reductions. Sclerotinia is a fungus that attacks most broadleaf crops and can cause basal stalk rot, mid-stalk rot and head rot. Sunflowers are vulnerable to infection from the vegetative stage right though to harvest. Minor diseases on sunflowers include downy mildew, other stalk rots and Botrytis head rot.

HOW CAN I KEEP IT CLEAN AND HELP KEEP MARKETS OPEN FOR ALL?

The quality and reputation of Canadian canola, cereals and pulses is amongst the best in the world, and Canadian growers work hard to produce crops to the highest standard. You can help protect Canada's reputation as a trusted supplier and access to key export markets by ensuring the crops you grow are market ready.

Your on-farm practices DO make a difference. To avoid unacceptable residue levels in the grain, keep it clean – use only acceptable crop protection products and use them correctly. Follow the **Keep it Clean 5 Simple Tips** to protect the marketability of your crop and reduce the risk of rejected shipments due to residues that exceed maximum residue limits (MRLs).

Visit the **Keep it Clean Updates** page frequently for updates about products of concern, disease management and helpful information to help mitigate risk.

Website: keepitclean.ca · Twitter: twitter.com/KICCanada

5 SIMPLE TIPS TO KEEP YOUR CROPS READY FOR MARKET

When you follow the 5 Simple Tips at every point in the growing season, you help keep markets open for all.

- **TIP #1** USE ACCEPTABLE PESTICIDES ONLY
- **TIP #2** ALWAYS READ AND FOLLOW THE LABEL
- **TIP #3** GROW DISEASE-RESISTANT VARIETIES AND USE PRACTICES THAT REDUCE INFECTION
- **TIP #4** STORE YOUR CROP PROPERLY
- **TIP #5** DELIVER WHAT YOU DECLARE

Learn more about growing market-ready crops at **keepingitclean.ca**

@KICCanada

Keep it Clean!

canolacouncil of Canada · Cereals Canada · Prairie Oat Growers Association · Conseil de l'orge du Canada · Barley Council of Canada · Pulse Canada · Canadian Agricultural Partnership · Canada

Cereal leaf beetle is a cereal feeding insect that has not been at economic levels in Manitoba, and is being managed with biological control.

INSECTS TO SCOUT FOR IN 2021

John Gavloski, Entomologist with Manitoba Agriculture and Resource Development

A few crop feeding insects got to levels that were of concern in 2020. Among these were grasshoppers, cutworms and armyworms. Cereal leaf beetle is a cereal feeding insect that has not been at economic levels in Manitoba, and is being managed with biological control. In this article we will look at these four insects and provide some tips on how you can monitor levels in your crops, and possibly help out with a biological control program.

Grasshopper levels remain high

There has been an increase in grasshopper populations over the past few years. Grasshopper populations have more successful development in dry years and generally increase over a series of dry years. The generally dry summers over the last few years have likely contributed to their increase. If this trend continues in 2021, farmers and agronomists should keep an eye on grasshopper levels around and in their crops.

Each year Manitoba Agriculture and Resource Development, with assistance from organizations like Manitoba Crop Alliance, does a grasshopper survey in August to forecast levels for the next year. Along with grasshopper levels, the dominant species are recorded. Twostriped grasshopper was generally the most common species at most of the count sites where species were determined. Migratory grasshopper was noted as one of the dominant species in at least one count site in each region, and clearwinged grasshopper was noted as one of the most common species at one site in the Central region and two in the Interlake. Both migratory and twostriped grasshoppers feed on a variety of types of plants (crops and non-crop). Clearwinged grasshopper is primarily a grass feeder and seldom feeds on broad-leaved plants. Carolina grasshopper, a non-pest species of grasshopper was noted to be one of the dominant species at one site in each of the Southwest and Central regions, and three sites in the Interlake. Populations of bee flies, field crickets, and Epicauta species of blister beetles, all of which feed on grasshopper eggs, were also quite noticeable in some locations in 2020.

One of the things that can reduce grasshopper levels is heavy rainfall, but timing of this is important. The egg stage (the overwintering stage of pest species of grasshoppers) is very resilient to excess moisture. Heavy rains in early spring would not be a major mortality factor for grasshopper eggs but the same rains in early or mid-June, as the nymphs are emerging, could be quite detrimental. Start scouting for grasshoppers in late-may or early-June and focus on areas that had lush green vegetation late last summer (field edges, pastures, late crops, etc.).

Twostriped grasshopper adult (right) and nymphs

Cutworms: Still main early-season concern in many crops

Cutworm levels were high in many field crops in 2020. The two dominant species were once again the redbacked and dingy cutworm. Both of these species overwinter in Manitoba. Redbacked cutworm overwinters as an egg, while dingy cutworm overwinters as a partially grown larva. Scout for these cutworms as soon as the crop emerges. Cutworm populations can be quite patchy in a field. If high levels are found, determine if they are patchy or more widespread over a field. Cutworms are nocturnal feeders and will be hidden during the day. You have to look in the soil or under debris to find them. Insecticide applications are best done late in the day or at night.

Predators such as ground beetles, and parasitoids such as bee flies Tachinid flies, and several species of parasitic wasps can help manage cutworms. Wet soil conditions promote fungal diseases among cutworms, and also forces the larvae to feed at the soil surface where they are subject to the attack of parasites and predators. High populations of these natural enemies can help regulate cutworm levels. To promote healthy levels of natural enemies, a recommended approach is to scout and get an idea what levels of cutworms and cutworm feeding are like early in the season, and control them if levels are high. Applying insecticides when cutworm levels are naturally low can be uneconomical, not only because of the insecticide costs, but also by disrupting cycles of natural enemies.

Redbacked Cutworms

Dingy Cutworm

Armyworms: The troop was large in 2020

Armyworms do not overwinter in Manitoba. The adult moths move in from the south, so populations can be very different in successive years. In 2020, armyworms were controlled in some fields of small grains in all agricultural regions of Manitoba. Populations of larvae were quite high and widespread from the end of June through July. Fall rye fields had very high levels of armyworms in some areas.

Natural enemies also seemed to be at work on the armyworm population. In some fields that had armyworms, pupal clusters from a parasitic wasp called Cotesia were very visible at the top of the plants. In some cases, people may mistake these for insect eggs. Cotesia larvae live inside the armyworms, and once mature dozens of Cotesia larvae can emerge within minutes from a parasitized armyworm.

Armyworm

Manitoba Agriculture and Resource Development will be organizing a program to monitor the time of arrival and abundance of armyworm moths in 2021. Approximately 30 pheromone-baited traps will be set up to monitor moth counts.

Cotesia pupal cluster

Cotesia emerging from armyworm

Cereal Leaf Beetle: A biological control success story

The cereal leaf beetle was first found in Manitoba in 2009 in the Swan River Valley. Larva were dissected and found to not contain the parasitoid that in many other areas of Canada help keep levels of this cereal feeding insect low. Since 2009, regular releases of a tiny parasitic wasp called Tetrastichus julis, which targets cereal leaf beetle, have been done in Manitoba and the level of parasitism monitored. Cereal leaf beetle can now be found in most cereal growing areas of Manitoba but so can this parasitoid. Damage from cereal leaf beetle remains below economic levels.

In 2020, cereal leaf beetle larvae from fields near Pilot Mound, Tolstoi, Sarto and Dugald were collected and sent to Agriculture and Agri-Food Canada in Lethbridge where they were tested for percent parasitism by larvae of Tetrastichus julis. Collection dates ranged from June 22 to July 7. Percent parasitism ranged from 10 to 58 percent of larvae parasitized by T. julis.

Percent parasitism by Tetrastichus julis of cereal leaf beetle (clb) larvae from Manitoba in 2020.

Nearest Town	Crop	Collection Date	Number of clb larvae collected	Number of clb parasitized	Percent Parasitism
Pilot Mound	Oats	June 23	31	18	58.1
Tolstoi	Oats	July 7	30	3	10.0
Sarto	barley	June 22	33	12	36.4
Dugald	Wheat	June 26	69	37	53.6

No new releases of T. julis were done in Manitoba in 2020 due to supplies not being available. Areas in Eastern Manitoba that had lower levels of percent parasitism in 2019 remain priority areas for future releases of T. julis once sufficient supplies of the parasitoid are available.

Farmers and agronomists can help with this biological control program. If you notice cereal leaf beetle larvae on any of your cereal crops, contact John Gavloski, with Manitoba Agriculture and Resource Development for more information.

Cereal leaf beetle larva

Cereal leaf beetle feeding and larvae

Summary: Start scouting for cutworms as soon as your crops emerge. May and June is when most damage from cutworms occurs. Starting in late-May or early-June also start scouting for grasshoppers. Watch for insects that may move in from the south, such as armyworms and aphids. If you find that you have cereal leaf beetle larvae in your cereal crops, let us know. We would like to collect some larvae to determine the level of parasitism. It is always nice when the beneficial insects can do the bulk of the pest management.

WHOLE FARM RESEARCH

Lori-Ann Kaminski,
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Manitoba Crop Alliance (MCA) delegates have been busy this winter looking at the opportunities ahead for our organization. This has included several meetings where we took a critical look at the goals and objectives we want to accomplish through our research investment program. Over several priority setting meetings, the 33 MCA delegates met within their respective committees: Corn Committee, Flax Committee, Sunflower Committee and Wheat & Barley Committee. MCA delegates looked to their own commodities to understand how to move those grains and oilseeds forward, and each committee also spent considerable time discussing what they could do together. From these discussions two delegates of each commodity volunteered to sit together on the Whole Farm Research Committee.

Whole Farm Research Committee delegates include Sheila Elder, Boris Michaleski, Warren McCutcheon, Sally Parsonage, Hubert Preun, Eric Fridfinnson, Andrew Harris and Edgar Scheurer

The first week of March started with the Whole Farm Research committee delegates working together on the objectives and priorities for the program. We reviewed feedback and prioritized production concerns we heard from Manitoba farmers and MCA delegates.

MCA Whole Farm Research delegates are proud to announce a targeted call for research projects that will bring our Whole Farm priorities to life.

As of Thursday, March 18, 2021 *MCA accepted letters of intent (LOI)'s for research projects to begin in 2022.* ***LOI's were accepted until Thursday, April 15, 2021.***

Whole Farm Research Objective:

MCA will lead and develop a research program that allows for a whole-farm, cross-commodity approach to research. The Whole Farm Research program is not crop-specific and leads to innovative solutions for the benefit of Manitoba producers now and into the future.

General Principles: MCA Whole Farm Research projects are:

- Innovative and forward-thinking.
- Designed to answer farmers questions or resolve issues.
- Solution-oriented with actionable outcomes and an emphasis on end goals that producers can implement in their operations.
- A pathway to assess and integrate new/next technology into Manitoba cropping systems.
- Another channel to communicate and collaborate with other organizations in Manitoba and across Canada.
- An opportunity to enhance communication channels with consumers and the public.

Research Priorities:

- Crop Rotation Innovation
  - Economic analyses for Manitoba rotation choices.
  - Understand rotations designed for increased yield potential (costs and benefits).
  - Pest control approaches including herbicide and fungicide rotations.
  - Water use efficiency and water use balance.
  - Nutrient use efficiency and stewardship.
  - Harvest management.
- Soil Health: Organic Matter
  - Herbicide and fungicide effects on soil biology.
  - Carbon sequestration
- Cover Crop and Intercropping
  - Options designed for Manitoba growing conditions.
- Pest Management: Weeds, Diseases and Insects
  - Optimize current tools and minimize resistance pressure.
  - Next generation control options.
  - Integration of digital tools.
- Water
  - Extremes of moisture managing drought and flood
  - Irrigation and drainage innovation

UNIVERSITY OF MANITOBA HIRES NEW PLANT SCIENCE PROFESSOR

Late last year Curt McCartney joined the Department of Plant Science at the University of Manitoba (U of M) as an Associate Professor in Cereal Crop Breeding and Genetics. He will be exploring new breeding strategies such as genomic selection to accelerate genetic gain in the U of M winter wheat breeding program. Dr. McCartney's program will address production issues important to Manitoba farmers such as Fusarium head blight (FHB), lodging resistance, and of course grain yield.

McCartney received his Bachelor in Genetics from the U of M in 1997 and his PhD in Plant Breeding and Genetics from the U of M in 2002. His PhD research was focused mostly on disease resistance in wheat.

What got you interested in this area of work?

Having grown up on a farm I've always been interested in farming and in high school and university classes I was always interested in genetics. Developing varieties applies genetics to improve profitability for farms, something I find very interesting.

Where did you work before the U of M?

Before joining the U of M I was a Research Scientist with Agriculture and Agri-Food Canada (AAFC) where I was focused on wheat and oat genetics. I was working on a variety of traits important for farmers in Manitoba and the prairies including resistance to FHB, leaf and stem rust and orange wheat blossom midge.

Tell us a bit about what you're working on at the University.

I will focus on winter wheat breeding because I think there is a real need for development in this class of wheat for Western Canada. There are many other wheat breeders across the prairies working on other types of wheat which I think are very well represented already, but and there are only a few breeders working on winter wheat. I expect global warming will lead to an increase in winter wheat production in Western Canada.

This year we'll be testing spring, durum and winter wheat breeding lines going through the registration process for Western Canada. All that material gets tested for FHB resistance through our program at the U of M Carman research station and by AAFC in Morden. This U of M and AAFC data is the basis of the FHB resistance ratings for spring, durum, and winter wheat varieties in the provincial seed guides. Farmers rely on this data – it's a critical tool for them to make informed decisions on what new varieties will fit on their farms.

In addition, I'll be conducting genetic studies on traits that are important for the breeding programs in western Canada. I'll also be training graduate students and teaching courses at the University in the fields of crop breeding and genetics.

What can you say about the value of farmers providing funding and support to your organization?

Farmer funding is critical for the success of the U of M wheat breeding program and the wheat research program. It allows us to:

- Increase our capacity in breeding winter wheat.
- Evaluate FHB resistance in wheat lines and varieties developed by other public sector breeding organizations and private breeding companies.
- Purchase equipment and operating supplies.
- Train graduate students who ultimately go on to work in other parts of the agriculture industry in Western Canada.
- Leverage federal and provincial funding to conduct specific projects like the genetic projects or those conducted by graduate students.

How does that farmer funding and support directly benefit farmers?

Farmers benefit from having increased breeding activity which translates into additional new varieties available to them. The funding also allows us to develop the Fusarium head blight ratings information for the Seed Guides, a very important recourse for farmers.

Moving forward, the goal of the winter wheat program is to develop varieties with improved winter hardiness, FHB resistance and increased grain yield. Without farmer funding and support we wouldn't be able to investigate combining those traits. These are some of the major aspects farmer funding enables us to do.

How do you spend your time outside of work?

It is hard to remember what I did before the pandemic, but I enjoy going out for dinner with my wife and kids, curling, golfing, and reading. I am really looking forward to returning to regular life. Simple things like seeing friends and going out for coffee.

OPTIMIZING BENEFITS OF HIGH-PRICED PHOSPHORUS FERTILIZER

John Heard, CCA, P.Ag., Crop Nutrition Specialist with Manitoba Agriculture and Resource Development

Fertilizer is a unique crop input that permits tinkering with rates and application techniques to stretch its value when costs are high. Since we are currently seeing some very high phosphorus (P) prices, I expect farmers to exploit some of these techniques.

I'm not an economist, and I price fertilizer differently than many. I price fertilizer according to the purchasing power of the crop. When crop prices are high, one can recover the cost of more fertilizer per bushel, referred to as the price ratio (PR). Figure 1 shows a 40 year pattern of P prices (per lb P_2O_5 in red, including current 2021 costs) and the PR or how much P could be purchased with one bushel of wheat (brown), canola (yellow) or corn (green) until last fall. Last summer and fall, P was the least cost in some 10 years and strong crop prices would have signalled good opportunities to purchase. However, those low P prices triggered US tariffs against imports, leading to the current high prices.

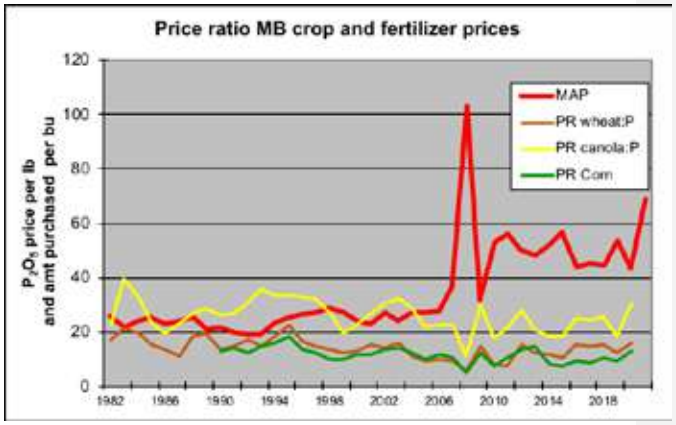

Figure 1. *Historic phosphorus fertilizer (MAP 11-52-0) prices in Manitoba and the purchasing power of various crops.*

Historic fertilizer use patterns in Manitoba have been impacted by changing cropping systems, increasing yields and fertilizer prices. Figure 2 shows that phosphate use generally matches crop P removal very well, once fallow was abandoned and continuous cropping adopted in the 1970s. Other notable deviations occurred with lower phosphate use following the very high prices in 2008, and the adoption of soybeans the past 15 years, which many did not fertilize. Most recently, farmers use of P has increased, presumably to replenish soils depleted through cropping practices aided by the price signals of affordable P. But enough speculation on historical use – What can farmers do in 2021?

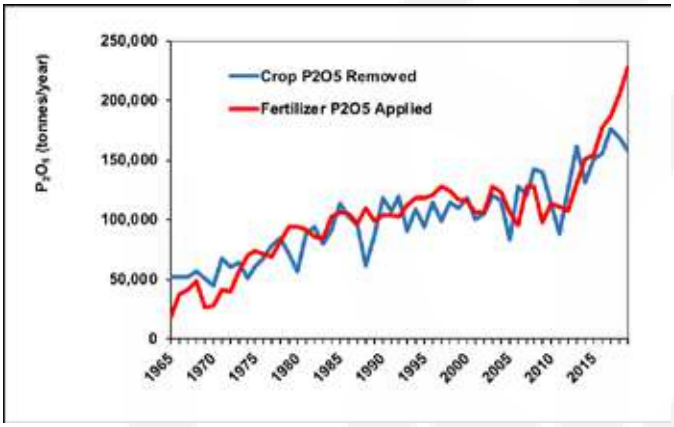

Figure 2. *Phosphorus removal and fertilizer use in Manitoba (not including manure).*

First, most Manitoba farmers have already pre-purchased their P fertilizer last fall and some have made fall applications. So, these farmers will have avoided the recent price run-up for now.

Now that that fertilizer is more expensive, even they may wish a refresher on the ways to maximize its value. If reducing P application rates, you must consider soil test levels, the crop to be grown, the yield levels and seeding date.

A soil test will allow you to allocate higher P application rates to those low testing fields needing it most. Other higher testing fields may produce good yields with starter rates only. We base many of our current phosphorus application approaches on the research of Wagar et al (Figure 3) conducted for six years in Saskatchewan. In this figure the upper two lines represent higher soil P levels achieved with initially high batch applications of P fertilizer (82 and 163 lb P2O5/ac). These higher testing soils respond slightly to added seedplaced P, whereas the low testing soil needed the full P application rates to achieve its highest yield potential. Note that in spite of the good response to starter P in the low testing soil, yields did not attain the same level as fields with higher soil test P levels.

When P prices are high, those farmers who have employed a sustainable, long-term approach of building soils into a medium-high soil test level, are rewarded in having the flexibility to use starter P only.

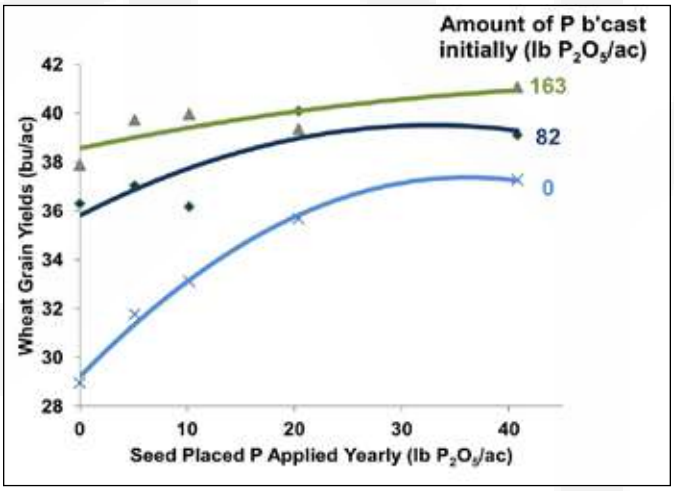

Figure 3. *Average wheat yield response to seed placed P fertilizer where three different soil P levels were achieved with initial batch P applications. Wagar et al. 1986*

However, using starter P rates only is a short-term survival strategy. Typical starter rates of 10-20 lb P2O5/ac means the crops will be removing the remainder of P from soil reserves. Example removal values are 50, 35 and 34 lb P2O5/ac from 50 bu/ac canola, 60 bu/ac wheat and 40 bu/ac soybeans, respectively. Continued use of low P fertilizer rates will deplete soil test levels. But Manitoba farmers have recently shown that they are willing to make up this shortfall later – hopefully when fertilizer prices are reasonable.

Naturally occurring mycorrhizal fungi assist many crops in accessing soil P. The initial activity of such fungi are reduced following canola or summer fallow, so under such instances P fertilizer levels should be maintained at recommended rates, especially for corn and flax.

Some crops are more dependent than others on P fertilizer. Yield increase with P tends to be greatest for cereals and canola and lessor for soybeans and flax. Recent Manitoba research has shown that corn hybrids may vary in response to P fertilizer, but since hybrids turn over so quickly in the marketplace, it is tough to exploit this knowledge.

Phosphorus uptake by roots occurs by diffusion, very short distance movement, which is affected greatly by soil temperatures. With early seeding into cold soils, P diffuses slower and root growth is reduced, making the supply and placement of P fertilizer critical. However, if planting should be delayed until soils warm (like in June), the need for fertilizer P is much less. That being said, the yield potential will also be limited due to late seeding.

For lower P rates to be effective they must be placed in a band with or close to the seed. Prairie research has shown that broadcast P applications typically need to be 2-4 times higher than seedplaced P rates to be as effective for cereals.

Past manure use is a real asset at such times. The resulting higher soil test values may mean low-rate starter P is sufficient for full yield potential.

What about foliar products and microbial biofertilizers? Well, a limited amount of study has been done on these. Foliar P is not a substitute for soil placed P, but can be attempted to salvage yield if your brother-in-law forgot to turn on the fertilizer while seeding. It is an expensive alternative to soil applied P, that will go little towards matching the removal needs of the crop.

Microbial products have been used for some time with sporadic success in research. However, some farmers have faith in their use, presumably through some testing they have done on their own. Biofertilizers or microbials do not produce P, they simply exploit soil P reserves. So their use will speed depletion of soil reserves, which will need to be rebuilt later.

In summary, there are a number of short-term survival strategies for periods when P purchasing power is low, i.e., when P price is high, crop value is low, or both. Such strategies include maintaining full rates on low testing soils and starter P to higher testing soils, applying P to your most responsive crops and banding P with or close to the seed instead of broadcasting. An important part of this survival strategy is a plan to rebalance the P removals that will be occurring, through future replenishment when P purchasing power improves.

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TOGETHER

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