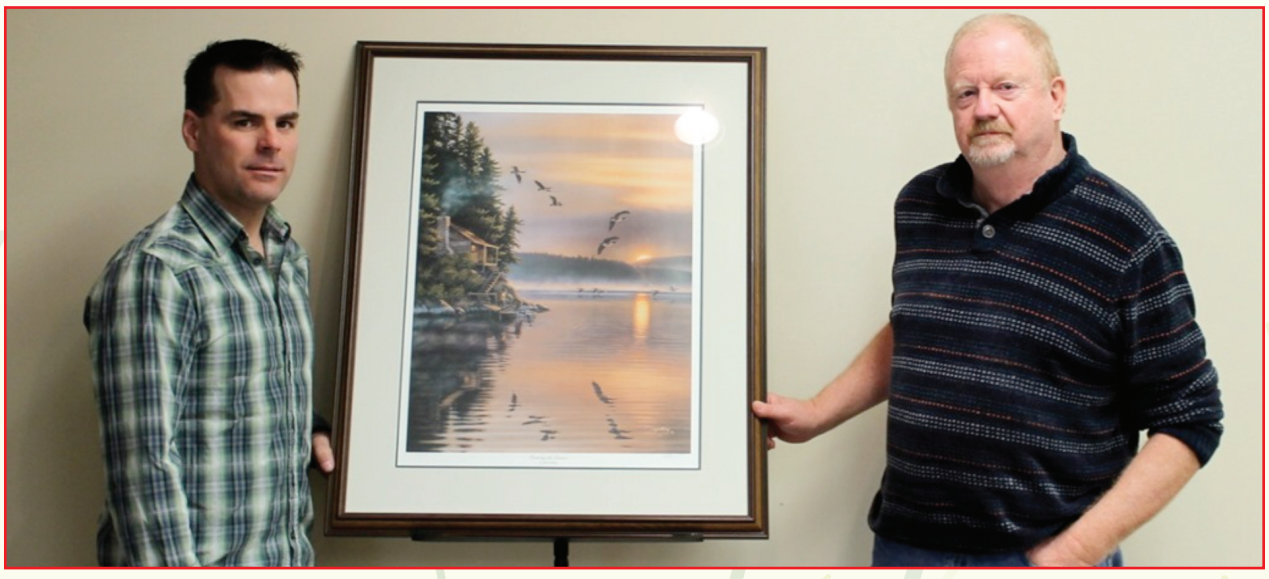
WINTER CEREALS CANADA GROWER

Incorporating Saskatchewan Winter Cereals Development Commission and Winter Cereals Manitoba Inc. News

ISSUE NO. 54 SPRING 2015 OFFICIAL NEWSLETTER OF WINTER CEREALS

GARTH BUTCHER RECEIVES RECOGNITION FOR HIS CONTRIBUTION TO THE PROMOTION OF WINTER WHEAT



Brent Schram (left) presents Garth Butcher (right) with a framed Ducks Unlimited Canada art print in recognition of his years of service to Winter Cereals Canada Inc. and Winter Cereals Manitoba Inc.

At the 2015 Annual General Meetings for Winter Cereals Canada Inc. and Winter Cereals Manitoba Inc. held on March 18, 2015 in Brandon, Manitoba Garth Butcher was presented with a framed art print in recognition of his many years of involvement with both organizations. Garth has served as Chairman of the Board for both organizations and was the founding Chairman for Winter Cereals Manitoba and was instrumental in the process involved for the organization to gain official recognition as the representative body for winter wheat producers in Manitoba. Garth also represented Winter Cereals Manitoba Inc. and the Saskatchewan Winter Cereals Development Commission on the board of the Western Grains Research Foundation. In past years Garth was also active with the Manitoba Zero Tillage Research Association. With the 2015 annual meetings of both organizations complete Garth has now retired from active board participation in both groups. At the same time Garth is also reducing his involvement in farming. Garth plans to spend his free time between his home near Birtle, Manitoba and Mexico. Winter Cereals Canada Inc. and Winter Cereals Manitoba Inc. sincerely wish Garth a long and enjoyable retirement.

MEET WINTER CEREALS MANITOBA'S THREE NEW DIRECTORS

Three new directors were introduced at the 2015 WCMI Annual General Meeting, March 18, 2015.

Charlene Lewandoski joins our board from Sandy Lake, Manitoba. Charlene has extensive experience in the agricultural chemical industry and will bring new expertise to our organization.

Jeff Askin hails from Portage la Prairie where his family operate Askin Farms. Jeff's experience is as a seed grower and he brings a seed growers point of view to our directors table.

Ken Gross is a special appointment to our group of farmer directors. Ken is the Regional Winter Wheat Agronomist for Ducks Unlimited Canada working out of the Ducks Unlimited Brandon Office. Ken brings a wealth of knowledge on growing winter wheat in Manitoba to Winter Cereals Manitoba Inc.

It is Time to Elevate Your Winter Wheat Crop

By Dr. Rob Graf, AAFC Lethbridge, Alberta

W495, a CWRW wheat that was recommended for registration in February 2014, was registered as AAC Elevate on February 9, 2015. Based on four years of testing in the Western Canadian Winter Wheat Coop trials, AAC Elevate yielded 8% more than CDC Buteo in Saskatchewan and was similar in yield to CDC Buteo in Manitoba. Winter survival appears to be good to very good, being equal to CDC Buteo. AAC Elevate is about 8 cm shorter than CDC Buteo and it has excellent straw strength, being better than both CDC Buteo and CDC Falcon. Maturity is equal to CDC Buteo. AAC Elevate has acceptable test weight but it is not as high as CDC Buteo. It has large kernels as the thousand kernel weight is 36 g versus 32 g for CDC Buteo. Grain protein concentration was equal to CDC Buteo. AAC Elevate has broad disease resistance: the Disease Evaluation Team rated it as moderately resistant (MR) to stem rust and bunt, and intermediate in resistance (I) to leaf rust, stripe rust and fusarium head blight. AAC Elevate also carries wheat curl mite resistance for protection against wheat streak mosaic virus. SeCan has the marketing rights to AAC Elevate. It should be available in fall 2017. In February 2015, two new winter wheat lines from the AAFC Lethbridge winter wheat breeding program were supported for registration. The first is W512, a CWRW wheat that is well adapted to the western prairie region could be described as a Radiant replacement. Over three years (2012 – 2014) of testing in registration trials, W512 had significantly higher grain yield than all of the CWRW checks (Radiant +9, CDC Buteo +12%, Flourish +7%, and Moats +8%). W512 has very good winter survival and matures one day later than Radiant. It is of medium height, being about 6 cm shorter than CDC Buteo, and has excellent straw strength. Test weight of W512 is acceptable and the mean 1000 kernel weight was 35 g. Grain protein concentration is slightly higher than CDC Buteo. W512 expressed a combination of disease and pest resistance traits well suited to Alberta and western Saskatchewan: resistant to stripe rust, moderately resistant to common bunt and FHB, intermediate resistance to leaf rust and improved leaf spot reaction. It is also tolerant to infestation by Biotype 1 of the Russian wheat aphid. W512 is susceptible to stem rust which will discourage production in the eastern prairies. A commercialization partner will be chosen in early April. Availability will likely be in 2018. The second winter wheat was W530, supported for a three year interim registration to facilitate market development. W530 is a hard white winter wheat that could create new opportunities for winter wheat in western Canada. It has exceptional milling properties, producing very high yields of bright white, low ash flour of excellent gluten strength relative to its protein content. Based on CIGI work funded by the Alberta Wheat Commission, W530 appears to have promise in Asian steamed breads, whole grain pan bread and white salted noodles. Over two years (2013 & 2014) of registration testing, W530 combined slightly higher grain yield (+1%) than the mean of the CWRW checks with acceptable winter survival, acceptable maturity, short straw with excellent lodging resistance, acceptable test weight and kernel mass, and good resistance to stem, leaf and stripe rust. W530 expressed moderate susceptibility to FHB based on visual response (VRI), but had lower DON and FDK than the CWRW checks. As is the case for most western Canadian winter wheat cultivars, W530 was susceptible to common bunt. A market development and commercialization partner will be chosen in early April.

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In This Issue

CIGI REPORT: RESULTS FROM PROJECT TO OPTIMIZE DOWNGRADED WHEAT AND WORK CONTINUES IN EVALUATING NEW CWRW VARIETIES

By Lisa Nemeth, Technical Specialist, Winter Wheat, Cigi

Cigi (Canadian International Grains Institute) has made good progress in projects involving winter wheat. As mentioned in the previous edition of this newsletter, Cigi gathered large samples of CWRW at five different levels of fusarium damaged kernels (FDK) to test the ability of commercial sorting equipment to remove fusarium and increase value of the wheat. Fusarium produces a mycotoxin called deoxynivalenol (DON or vomitoxin), which is regulated in international markets, so wheat samples were also tested for DON before and after sorting. BoMill sorting technology with NIT (near infrared transmission) technology was used to sort each sample to varying degrees of lower FDK. Results showed the value of CWRW could be increased with sorting to a higher grade level, even with the loss of damaged grain. It was also found that the DON levels were reduced at the same proportion the fusarium was reduced. Information from this project was presented to farmers and representatives from seed cleaning companies, grain companies, and flour mills this past December at a workshop in North Battleford. Demonstrations of sorting technologies were also done using the BoMill and an optical sorter. Information from the workshop has also been shared with farmers attending Cigi's Combine to Customer programs and is available on Cigi's web site at cigi.ca/cigi-works-with-innovative-grain-sorting-technology-to-offset-downgrading-factors. Cigi's research in this area is continuing. Currently, select wheat fractions are being milled and analyzed for strength and functionality and will also be evaluated in pan bread and steamed bread applications. Quality of the sorted fractions will be compared to a control sample of the same CWRW variety with an FDK level similar to what the test samples were sorted to. The objective of this assessment is to understand if there is any effect on the quality/functionality of the wheat that remains after sorting (e.g. is there any downgrading in quality that is not detected in the final grade inspection). Cigi will also test DON levels in flour. Similar testing will be done by Cigi on samples sorted on an optical sorter. Samples have also been sent to be tested on sorting equipment that utilizes both optical and NIR technology in combination. To further improve sorting technology, Cigi, in cooperation with the Canadian Grain Commission, also sourced a wide range of small samples of two different downgrading factors: Frost/Heat Stress and Sprout/Severe Sprout damage. BoMill representatives are currently working with these samples in the hopes of developing a correlation to sort out these downgrading factors using their technology. Cigi is also in the midst of evaluating five of the newest CWRW varieties to build an understanding of the future quality of this class for market promotion activities. Large samples of the varieties Emerson, Gateway, Moats and Flourish will be milled on Cigi's pilot mill. The flour will be analyzed for quality in the analytical lab as well as in pan bread and steamed bread. Smaller samples of these varieties will also be lab milled along with the recently registered CWRW variety Chase and compared to the quality of four U.S. Hard Red Winter (HRW) wheat samples sourced from four different locations. The results of this comparison will be shared with the Canadian value chain – from breeder to producer to Canadian handler and finally end product processor – to build demand for CWRW and to gather knowledge on the desired quality for the class.

BoMill sorting of a single fusarium damaged wheat sample into fractions of different degrees of downgrading.

Lisa Nemeth speaking at the WCMI AGM in Brandon Manitoba.

Presentation of sorting results at workshop in North Battleford.

WHERE DO YOUR LEVY DOLLARS GET SPENT ON RESEARCH

Currently SWCDC and WCMI are involved in several research related projects in Western Canada.
Winter Hardiness research at the U of S with Dr. Ravi Chibbar and Dr. Monica Baga. $480,000.00 over 5 years.
Fall Rye breeding with Dr. Jamie Larsen, AAFC Lethbridge and Fall Rye Agronomy. Total $50,000.00.
Winter Wheat co-op trials $35,000.00 over three years.
Support for equipment upgrades Dr. Bob Graf, AAFC Lethbridge $35,000.00.
Winter Wheat Agronomy Growing Forward project. Managed by Dr. Brian Beres, AAFC Lethbridge. $250,000.00 over 4 years.

EXPLORING OPTIONS FOR PRODUCER INVOLVEMENT IN WHEAT & BARLEY VARIETY DEVELOPMENT

A historic event occurred in Calgary on Tuesday December 16, 2014 when, for the first time, western Canadian wheat and barley producer check-off organizations met to discuss producer involvement in wheat and barley variety development.

The organizations agreed to work together to objectively explore options for producer commissions' (associations') to continue to invest in wheat and barley variety development.

A Working Group was established to direct the process and will report the results of their analysis to the participating organizations by November 2015.

Participating organizations include:

Alberta Barley Commission
Alberta Wheat Commission
BC Grain Producers Association
Manitoba Wheat and Barley Growers Association
Saskatchewan Barley Development Commission
Saskatchewan Wheat Development Commission
Saskatchewan Winter Cereals Development Commission
Winter Cereals Manitoba
Western Grains Research Foundation (Facilitator)

Since December board and staff representatives have held meetings in Regina and Winnipeg plus multiple teleconferences to set the terms of reference for the study and review the various proposals received from qualifies consultants. A consultant has been contracted and we expect to meet with the consultant several times to review progress.

WCMI and SWCDC are committed to seeing a strong wheat and barley breeding system in western Canada. We feel it is important that the potential public, private or private / public partnership models be thoroughly investigated and compared to other systems in place in other wheat and barley producing areas of the world.

If you no longer wish to receive the Winter Cereal Grower newsletter, please send us either an e-mail with your name and address or send us a note with your mailing label requesting that your name be removed from the mailing list.

GROWING FORWARD WITH WINTER WHEAT

Winter Cereals Manitoba Inc. (WCMI) and the Saskatchewan Winter Cereals Development Commission are pleased to announce total investment of $250,000 in 11 winter wheat-related research and development (R&D) projects that will build on agronomic practices to improve returns for farmers. The combined investment from all funding partners is $2.2 million over four years. This is an example of how producer generated seed funding can grow into a significant contribution to Canadian agriculture. With $1,000,000.00 in matched funding from Agriculture and AgriFood Canada (AAFC) under their Growing Forward 2 AgriInnovation Program (AIP), the projects will focus on closing gaps in agronomic knowledge that will encourage Canadian farmers to access the untapped market potential of winter wheat.

“Canadian winter wheat is in high demand around the world for its excellent milling properties and the potential for increased sales is immense” said Doug Martin –chairman of WCMI. “This research will increase producer’s opportunities to cash in on this huge potential market,” Martin added. Saskatchewan counterpart Dale Hicks –chairman of SWCDC added “Western Canadian winter wheat is recognized around the world for its excellent quality and the potential for increased worldwide sales is enormous. These research projects will increase every western Canadian winter wheat producer’s opportunity to benefit from this huge potential market”.

Research will be led by Dr. Brian Beres at the AAFC Lethbridge Research Station in cooperation with Ducks Unlimited Canada. Dr Beres provides us the following update. *Winter wheat growers across western Canada will be pleased to learn of a recently announced, federally supported research initiative that aims to provide more tools for winter wheat production systems. "Greater Economic Returns and Enhanced Ecosystem Services through the Expansion of Winter Wheat Production in the Canadian Prairies", announced on March 17 at the Lethbridge Research Centre by MP Jim Hilyer, will be supported by $2,175,882 of federal Growing Forward 2 (GF2) funding and contributions from industry. Industry partners provided $1,170,328 to ensure the investment of $1,005,554 from Agriculture and Agri-Food Canada (AAFC). This project builds on work from the first iteration of Growing Forward programming Developing Innovative Agri-Products Program (DIAP) program.*

One study component aims to evaluate the agronomic and economic trade-offs of a range of planting date scenarios, including dates beyond the recommended fall planting window. A number of studies will assess weed control in winter wheat, including management of problematic weeds such as downy brome, wild oats, and cleavers, and another component will assess the most optimal combination of resistant cultivars and fungicide treatments to control stripe rust, a common production constraint for winter wheat growers.

"Ultimately, our goal with this suite of studies is to remove barriers to adoption, which often includes issues with stand establishment or the challenges/ opportunities of in-crop agronomic practices such as nitrogen and integrated pest management", noted Dr. Brian Beres, an AAFC scientist at the Lethbridge Research Centre and Principal Investigator for the project. Beres adds that the strength of the proposal and initiative is due to the broad industry and grower representatives from the winter wheat value chain that stepped forward with funding. Funding partners include Ducks Unlimited Canada, Saskatchewan Winter Cereals Development Commission, Winter Cereals Manitoba Inc., Western Grains Research Foundation, Alberta Wheat Commission, Koch Fertilizer, Agrium, and Dow AgroSciences.

The Alberta Wheat Commission will be co-managing this project with Ducks Unlimited Canada. Overall activity began in 2013; however, eligible activity under the GF2 AgriInnovation Program (AIP) commenced February, 2014.

As this project procedes we will be posting updates on the SWCDC, WCMI and Winter Cereals Canada websites. Watch for notices on the News sections of our three websites.

Genomics strategies to improve field survival in winter cereals and stabilize yield. Update – Year 1

By Ravindra Chibbar & Monica Båga, University of Saskatchewan, Saskatoon.

[Editor's Note: SWCDC and WCMI have invested heavily in gene marker research to improve winter hardiness of new varieties of winter wheat. Following is an update on the progress of this critical research project.]

Research Progress: Field survival of winter cereals is a complex process for which success is based on a close interaction between the plant's vernalisation requirement, low temperature tolerance and interaction with certain developmental traits. In our previous work, we analyzed the low temperature locus located on chromosome 5A. In the first year of current project, genomics screening of 986 near isogenic lines (NIL) identified 547 lines with recombination's within Fr-A2 region on chromosome 5A. In the same population 148 and 271 lines showed recombination events at chromosomes 1B and 2B that are both associated with prostrate growth habit, floral transition time and winter field survival. Approximately half of these recombinant lines were seeded at the University of Saskatchewan, Kernen Farm and at the AAFC (Rob Graf and Jamie Larsen) plots in Lethbridge, Alberta. In addition to these recombinant lines, 130 and 108 lines of two doubled haploid (DH) populations, 50 winter rye lines and 13 wheat genotypes as checks were also seeded at the U of S and AAFC sites. In total, 793 lines are being field-tested in the first year of the project.

In the laboratory, work is focused to precisely characterize the C-repeat binding factors (CBF) that are strongly associated with low-temperature tolerance. A new DH population under development at AAFC Lethbridge is being phenotyped for developmental traits and genotyped by next generation sequencing to develop more markers at the chromosomal regions associated with low temperature tolerance and selected developmental traits related to field survival in winter wheat.

Funding Success: The new-year (2015) started with very good news. The funds contributed by the SWCDC ($200,000), WCMI ($200,000) and WGRF ($159,749) were matched ($555,218) by the Natural Sciences and Engineering Research Council (NSERC) collaborative research program (CRD) to bring the total to $1,114,967 for five years (April 1, 2014 to March 31, 2019). NSERC had previously awarded a Discovery grant $40,000 per year for five years (2013 – 2018) to a total of $200,000 to conduct basic research in winter wheat that forms the basis of the current project. In summary a total of $1,314,967 is presently (till March 31, 2019) invested in winter cereals research in our program at the University of Saskatchewan.

VISIT WWW.WCMI.INFO AND WWW.SWCDC.INFO FOR ALL YOUR MANITOBA AND SASKATCHEWAN WINTER CEREALS NEWS

Winter Cereals Manitoba Inc. is proud to provide funding for the MCVET trials on behalf of Manitoba winter wheat producers and our members.