

**Western
Grains**
Research Foundation

Annual Report
2012



Outlook for 2013

2013 will see Western Grains Research Foundation (WGRF) continue to increase its research expenditures to provide value to producers through a western Canadian approach to research. Producers on the WGRF Board of Directors are at the front-line in the decision making process ensuring producers have a voice in research funding decisions.

WGRF has made a four-year commitment of \$15 million in new funding out of the Endowment Fund towards crop research projects. This investment by producers will likely lead to improved crop production and have a significant impact on western Canadian agriculture. WGRF is working to leverage this producer investment to more than \$30 million by co-funding with provincial agriculture funding bodies, Producer commodity organizations and within The Growing Forward 2 AgriInnovation Program framework.

WGRF supports the establishment of new wheat and barley commissions and councils in Western Canada. These organizations will provide the leadership for the wheat and barley industries in the coming years. WGRF is committed to a smooth transition to provincial check-offs ensuring wheat and barley variety development research is continues in the best interest of farmers.

The Growing Forward 2 comes into effect on April 1, 2013. WGRF will be again very actively involved in this program. WGRF has submitted a national wheat proposal as well for the first time a Crop Sustainability application, with the intent to do research on issues that cut across several crops. WGRF collaborated with the Barley Council of Canada and Alberta Barley Commission in preparation of the barley application.

2013 WGRF Elected Executive Committee

Dave Sefton, Chair – Broadview, SK

Dr. Keith Degenhardt, Vice-Chair – Hughenden, AB

Garth Butcher – Birtle, MB

Gerrid Gust – Davidson, SK

Mel Stickland – Red Deer, AB





An Overview of the Western Grains Research Foundation

WGRF is a farmer funded and directed non-profit organization investing primarily in wheat and barley variety development to benefit western Canadian producers. Through investments of more than **\$86.5 million** WGRF has assisted in the development and release of more than **158** new wheat and barley varieties over the past decade and a half, many of which are today seeded to large portions of the cropland in Western Canada. WGRF also invests in research on other western Canadian crops through the Endowment fund. Since 1981 the Endowment Fund has supported a wealth of innovation across Western Canada providing more than **\$26 million** in funding for more than **230** research projects.



Dave Sefton,
2013 WGRF Board Chair

Chair's Message

WGRF is a leading funder of agriculture research in Western Canada. Our role at WGRF as Board members is to invest producer's dollars into crop research that will ultimately benefit their farms. In 2012, WGRF invested more than \$7.4 million into crop research that our Board and staff are confident will benefit western Canadian producers. WGRF takes a western Canadian approach to funding research. As a regional organization we bring the spending power of all farmers in Western Canada together.

I would like to express WGRF's appreciation to Federal Agriculture Minister Gerry Ritz for his ongoing support of the wheat and barley research check-offs. The check-offs allow producers to leverage additional public and private investment that will increase the overall breeding research efforts and allow western Canadian wheat and barley producers to remain competitive with other exporters. Judging from the feedback we have received, the benefits of these check-offs are clearly recognized and valued by producers and the federal government. We

look forward to working with the emerging provincial wheat and barley commissions to synchronize check-off collection and regional research investments.

WGRF has targeted a total of \$15 million in new funding over the next four years. We have established co-funding partnerships with provincial agriculture funding bodies as well as other producer commodity groups that will double this producer investment to \$30 million.

Crop research delivers tremendous value to us as producers and to our industry. I have enjoyed serving as WGRF Board Chair this past year and I would like to thank the WGRF Board and our staff for their commitment to helping producers continue to achieve these outstanding returns.

A handwritten signature in dark brown ink, appearing to read 'D Sefton'.

Dave Sefton, WGRF Board Chair



Executive Director's Message

2012 was undoubtedly one of the biggest and most important years of growth and change for WGRF. On August 1, 2012, a new point of sale check-off on wheat and barley sold at all licenced grain buyers was introduced. WGRF worked with the industry partners and federal Agriculture and Agri-Food Canada (AAFC) officials to make this transition. WGRF co-ordinated a communications campaign to ensure producers were fully informed and aware of the benefits of the check-offs as well as the changes to the check-off program.

The establishment of co-funding partnerships with provincial funders across western Canada in 2012 was a substantial undertaking by WGRF. These co-funding partnerships allow WGRF an opportunity to increase our scope of funding but also to play a leadership role in interprovincial collaboration in agriculture research funding. This initiative has been very well received and is an important step towards leveraging producers' dollars to maximize investments in crop research. In early 2013 we announced \$3.5 million of new funding towards 25 crop-related research projects out of the Endowment Fund. WGRF is looking forward to making similar announcements with the Agri-Food Research & Development Initiative in Manitoba, The Agriculture Funding Consortium in Alberta and British Columbia in 2013.

On December 7, 2012, the AgriInnovation Program was announced to replace the five year Growing Forward policy agreement that expired on March 31, 2013. The AgriInnovation Program will run April 2013 to March 2018 and is designed to accelerate the pace of innovation by supporting research and development activities and facilitating the demonstration, commercialization and/or adoption of innovative products, technologies, processes, practices and services. WGRF was again actively involved in developing a national wheat proposal as well as a Sustainable Crops application with the intent to do research that will look at agronomy issues that cut across several crops. WGRF was also a collaborating partner with the Barley Council of Canada and Alberta Barley Commission in preparation of the barley application.

WGRF is an organization with over 30 years of experience funding breeding and crop research in Western Canada. The Endowment Fund supports research in all crops, looking specifically at projects that show the most potential for producer benefit. With the Board's decision to increase research support via the Endowment Fund, WGRF will work to maximize this investment by producers through collaboration and partnerships.

This is an exciting time to be involved in agriculture, and I look forward to another very successful year in 2013 at WGRF working with a great staff and dedicated Board Members.



Garth Patterson, Executive Director WGRF



Garth Patterson,
WGRF Executive Director



WGRF Board of Directors 2012

The Board WGRF is comprised of 15 individuals who provide well-rounded representation of the crop production sector in Western Canada. Members are producers with one non-voting representative from AAFC. Each member represents a different agricultural organization within Western Canada. In 2012 WGRF Board consisted of:

Dave Sefton, Chair
Saskatchewan Flax Development Commission

Dr. Keith Degenhardt, Vice-Chair
Wild Rose Agricultural Producers

Todd Lewis
Agricultural Producers Association
of Saskatchewan

Dr. Stephen Morgan Jones
Agriculture & Agri-Food Canada (non-voting)

Peter Pepneck
Alberta Soft Wheat Producers Commission

Martin Moore
BC Grain Producers Association

Colin Felstad
Canadian Canola Growers Association

Joe Rennick
Canadian Seed Growers Association

Don Dewar
Keystone Agricultural Producers

Bill Gehl
National Farmers Union

Bob Anderson
Prairie Oat Growers Association

Mel Stickland
Western Barley Growers Association

Gerrid Gust
Western Canadian Wheat Growers Association

Fred Grieg
Western Pulse Growers Association

Garth Butcher
Western Winter Cereal Producers

WGRF Staff

Garth Patterson, M.Sc., P Ag
Executive Director

Barbara Kammerer, CMA
Financial Officer

Tracy Antonenko
Administrative Clerk

Mike Espeseth, B.Comm
Communications Manager

Wayne Thompson
Research Program Manager

Joelle Harris, P Ag
Research Program Manager

Gina Feist, B.Sc., MBA
Research Program Manager





WGREF invested over
\$7.4 Million
into crop research in 2012



Wheat and Barley Check-off Program

On August 1, 2012, new regulations for a check-off to support research, market development and technical assistance for the western grain industry came into effect. The regulations allow for wheat and barley research check-offs to be collected by licensed buyers at the point of sale. This is a new process for producers and grain buyers as well as all of the organizations involved in the wheat and barley check-offs.

WGRF looks forward to working with the emerging provincial wheat and barley commissions to synchronize check-off collection and regional research investments.

This voluntary check-off of \$0.48 per tonne of wheat sold in B.C., Alberta, Saskatchewan and Manitoba, and \$0.56 per tonne of barley sold in B.C., Saskatchewan and Manitoba (\$0.04 per tonne of barley sold in Alberta), is shown as a Deduction of Levy on Cash Purchase Tickets upon grain delivery at a Canadian Grain Commission licensed company. It does not apply to imports, producer-to-producer sales, and feed and exports not delivered through licensed grain buyers. Given that it is a voluntary check-off, producers are able to request a refund of the check-off if they wish.

The Alberta Barley Commission (ABC) was selected to provide a producer-run, cost-effective solution to administer the check-off.

This transitional check-off is in addition to any pre-existing provincial check-offs to enable WGRF, Canadian International Grains Institute (Cigi) and the Canadian Malting Barley Technical Centre (CMBTC) to deliver new varieties, market development and technical support to the industry. Strong producer support and understanding about the value of the check-offs is important so that these activities not only continue but thrive.

WGRF looks forward to working with the emerging provincial wheat and barley commissions to synchronize check-off collection and regional research investments.

A website was also developed (www.wheatbarleycheckoff.com) to serve as a central information holding place for producers and grain buyers to visit. Western Canadian farmers and grain buyers are encouraged to utilize the website or phone the ABC's toll-free number at 1-800-265-9111 for more information.



wheat & barley check-off

DELIVERING NEW VARIETIES & MARKET OPPORTUNITIES TO YOUR FARM

Funds delivered to the following groups, who work together to support your farm's future:



Wheat and Barley Varietal Research Benefits Producers

WGRF invests the funds collected through the wheat and barley check-offs into wheat and barley breeding programs at Agriculture and Agri-Food Canada (AAFC) institutions, Alberta Agriculture and Rural Development (AARD) and the three Prairie universities: University of Saskatchewan, University of Manitoba, and the University of Alberta. These partnerships ensure producers have direct input into setting wheat and barley breeding objectives and priorities. Investments from check-off funds create a partnership between farmers and researchers. WGRF invests, on average, more than \$5 million each year in wheat and barley breeding research.

Wheat \$1 Check-Off =
\$20.40 Producer Value

Barley \$1 Check-Off =
\$7.56 Producer Value

WGRF has assisted in the development and release of more than 158 new wheat and barley varieties over the past decade and a half, many of which are today seeded to large portions of the cropland in Western Canada. Cultivars are widely tested across western Canada to ensure adaptation to drought, heat, weather damage and diseases such as rust, common bunt, Fusarium Head Blight, leaf spots, and loose smut, and insects such as wheat midge and wheat stem sawfly.

A recent return on investment study commissioned by WGRF estimated that investment in wheat and barley varietal research is providing producers with a very high return on their investment. This study calculated that on average every producer check-off dollar invested into wheat varietal research has returned \$20.40 in value to the producer. Barley

varietal research saw a return of more than \$7.56 for each producer dollar invested.

The value is realized when new wheat and barley varieties are released and adopted by producers in Western Canada. For example, new WGRF-supported varieties like Carberry, Muchmore, CDC Verona and all of the midge tolerant wheats are higher yielding with improved disease and pest resistance.

The return on investment of 36% on wheat variety development and 28% on barley variety development demonstrates that investing in research continues to be an excellent way for producers to improve their returns. WGRF invests more than \$5 million of producers dollars annually into breeding and crop research. As a regional organization, WGRF brings the research spending power of all farmers in Western Canada together, maximizing the returns they see in crop research.

The popularity of WGRF-supported varieties and these high rates of returns show that producers have benefited substantially from their check-offs and would benefit from increased investment in varietal research.

Midge Tolerant Wheat



The Midge Tolerant Wheat Stewardship Team is a broad industry coalition representing plant breeders, government, seed growers, seed distributors and producer groups. WGRF serves as Co-chair of the Midge Tolerant Stewardship Team. The team is committed to maintaining the viability of midge tolerant wheat by educating Canadian wheat producers on the importance of proper stewardship of the technology.

It took more than 15 years and a huge financial investment for researchers to move the single gene, Sm1, into spring wheat varieties. It is the only known gene that confers tolerance to wheat midge. Tolerance based on a single gene has a history of becoming ineffective over a relatively short period of time as insect populations change. An interspersed refuge system – planting a blend of a midge tolerant

A recent survey showed that Prairie farmers who grew midge tolerant wheat in 2011 were pleased with the results and the program to preserve this new technology.

variety with a susceptible variety – is required in order to prevent the build-up of midge that are able to attack wheat carrying the Sm1 gene.

This is the first time a system such as this was applied to the commercial production of wheat in the world, and, as such, requires a strong education component necessary for its success as farmers will be responsible for the stewardship of these varieties and the refuge system will help farmers to respond to the devastating issue of wheat midge in a proactive way. The success in extending the life of this tolerance relies on the actions of farmers to continue to maintain the correct percentage of each variety (90% tolerant, 10% susceptible) outlined in the stewardship agreement.

A recent survey showed that Prairie farmers who grew midge tolerant wheat in 2011 were pleased with the results and the program to

preserve this new technology. Of the 2,600 growers surveyed, nearly 90% said that midge tolerant wheat met or exceeded their expectations, with more than 90% agreeing that the stewardship program is critical to protect the life of the midge tolerance gene. From this data and other data found in the study it is clear that farmers growing midge tolerant wheat understand the importance and respect the current stewardship system to protect this technology.

Three more midge tolerant varieties became commercially available in 2012: AC® Shaw VB, CDC Utmost VB and the first CPS variety AC® Conquer VB. The other midge tolerant varieties previously available are: AC® Unity VB, AC® Goodeve VB, AC® Glencross VB and AC® Fieldstar VB. Two more midge tolerant varieties are scheduled to be released in the spring of 2013 and 2014.

For more information on Midge Tolerant Wheat visit: www.midgetolerantwheat.ca



Producer Survey Shows Strong Support of Research

In March, 2012, WGRF contracted Insightrix Research to conduct a telephone survey of 600 wheat and barley producers in Manitoba, Saskatchewan, Alberta and British Columbia. WGRF was interested in gauging producers awareness, understanding and opinions of WGRF, the wheat and barley check-offs and research priorities.

The results of the survey were very positive. In fact, 75% of producers believe that the wheat and barley check-offs are important to producers for varietal research. Overall, producers surveyed had a positive perception of WGRF and highly value farmer-directed agricultural research. According to the survey, 89% of producers believe it is important to have a research-oriented organization like WGRF.

The survey also showed support for increased investment in wheat, as evident by the fact that 65% of producers agree that increased funding of wheat breeding is important to increasing

wheat profitability for farmers. There is also strong support by producers for an increase in both public (84%) and private (68%) wheat breeding.

Top research priorities listed in the survey included improving disease and pest resistance management, and the development of higher yielding varieties. WGRF would like to thank the producers who participated in the survey.

SR&ED Tax Credit

The federal government annually provides a Scientific Research and Experimental Development (SR&ED) tax credit to producers offering them money back on their check-off investments.

The tax credit percentage for producers who contributed to the wheat and barley check-off in 2012 are 85% for wheat and 86% for barley.

The percentages above are calculated by looking at the amount of the check-off dollars spent directly on research. This is then determined to be the eligible portion. Each check-off organization may vary, as they will have their own eligible percentage.

For more information on claiming your SR&ED tax credit, please consult your accountant or visit the Canada Revenue Agency website.



Seed of the Year West

WGRF is very proud to Co-chair the Seed of the Year Committee. Seed of the Year West was proud to announce that CDC Bethune was selected as the 2012-13 winner.



CDC Bethune's consistently high seed yield and reliable agronomic package made it the flax variety of choice throughout the past decade. CDC Bethune enhanced the economic return of flax crops.

Seed of the Year is designed to provide recognition to publicly-developed varieties that have made a significant contribution to the economy, agriculture, and the Canadian public in general.

Seed of the Year is designed to provide recognition to publicly-developed varieties that have made a significant contribution to the economy, agriculture, and the Canadian public in general. Although the name, Seed of the Year, indicates the contribution in a particular year, the program is much broader reaching and considers total lifetime achievement and contribution. It is important to recognize the value of our public plant breeding programs and encourage the entry of new plant breeders to the industry.

Part of the western award is a \$4,000 scholarship, awarded to a student enrolled in a western Canadian university and currently completing a Masters or Ph.D. in plant breeding or genetics. As the breeder responsible for CDC Bethune, Dr. Gord Rowland was asked to select the scholarship recipient. Dr. Rowland

selected Marley Boyce as this year's Seed of the Year scholarship winner.

Marley is in her first year of graduate studies at the University of Manitoba. Marley's research involves the identification, characterization and genetic mapping of a new leaf rust resistance gene in spring wheat.

Seed of the Year West would also like to acknowledge its sponsors: Agriculture and Agri-Food Canada, Alberta Barley Commission, Canterra Seeds, Cargill, Parrish & Heimbecker Limited, Canadian Seed Growers Association, Viterra, Richardson International, SeCan, and Western Grains Research Foundation. We also wish to thank the judges and other applicants.



Marley Boyce,
University of Manitoba



Rail Cap Revenue

The Canadian Transportation Agency (CTA) announced on December 19, 2012, that Canadian National Railway and Canadian Pacific Railway both exceeded their railway revenue caps for the 2011-12 crop year. WGRF received approximately \$672,332 from the Canadian Pacific Railway Company (CP) and the Canadian National Railway Company (CN).

Grain Revenue

CN's grain revenue of \$542,756,316 was \$240,185 above its cap of \$542,516,131.

CP's grain revenue of \$494,436,705 was \$400,132 above its revenue cap of \$494,036,573.

Under the Canada Transportation Act, amounts received by the railways for grain movement in excess of the revenue cap are paid into the WGRF Endowment Fund.

Under the Canada Transportation Act, amounts received by the railways for grain movement in excess of the revenue cap are paid into the WGRF Endowment Fund. The Endowment Fund is used to support research on all crop types. It should be noted that the WGRF Endowment Fund is completely separate from funds collected and invested from the wheat and barley check-offs.

A complete history of the funds WGRF has retained through the revenue cap are listed below:

2003-04 Crop Year

CPR was ruled to have exceeded the revenue cap, WGRF retained a net amount of \$321,912

2004-05 Crop Year

CN was ruled to have exceeded the revenue cap, WGRF retained a net amount of \$118,714

2005-06 Crop Year

CPR and CN were both ruled to have exceeded the revenue cap and WGRF retained a net amount of \$3,202,484.

2006-07 Crop Year

CPR was ruled to have exceeded the revenue cap and WGRF retained a net amount of \$3,364,591.

2007-08 Crop Year

CN and CPR were both ruled to have exceeded the revenue cap and WGRF retained a net amount \$68,206,127.

2008-09 Crop Year

CN was ruled to have exceeded the revenue cap and WGRF retained a net of \$717,432.

2009-10 Crop Year

CTA announced in December that revenues of CN and CPR did not exceed their respective revenue caps for movement of Western grain in the crop year 2009-2010.

2010-11 Crop Year

CPR was ruled to have exceeded the revenue cap and WGRF retained a net amount of \$1,314,636.

2011-12 Crop Year

CN and CPR were both ruled to have exceeded the revenue cap and WGRF retained a net amount \$672,332

WGRF Graduate Scholarships

WGRF provides \$100,000 a year towards graduate scholarships at the three Prairie university. These scholarships encourage top students to further their studies in crop research. WGRF sees great value in attracting the best minds to crop research; to generate improved technology and productivity for western crop producers.

The scholarships are administered on a rotating basis between the University of Manitoba, University of Alberta and the University of Saskatchewan. Each university receives \$100,000 every three years. Each university can choose to fund one Ph. D student at rate of \$33,000 per year for three years or two masters students at \$25,000 per year for two years.

WGRF believes that committing money to graduate students who have demonstrated

outstanding academic achievement is a very worthwhile investment for producers. WGRF has been investing producer dollars in agriculture research and breeding programs at these institutions for a number of years.

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The faculty at the Agricultural, Life & Environmental Sciences at the University of Alberta selected Jagroop Gill Kahlon as this year's scholarship recipient. Jagroop, an incoming PhD. student-plans to research the biosafety of genetically modified disease resistant peas.

Jagroop joins Sean Asselin at the University of Manitoba as current WGRF scholarship recipients. The main focus of Sean's work is characterizing the diversity and breeding potential of perennial sunflower species native to western Canada for their implementation in crop improvement and novel crop development.

The University of Saskatchewan will now be accepting applications for the WGRF Graduate Scholarship in 2013 followed by the University of Manitoba again in 2014.



The University of Saskatchewan is one of three universities to receive scholarships from WGRF.



Endowment Priorities and Funding

WGRF has six important research areas that it supports with the Endowment Fund. WGRF will consider funding for projects that align within these six priority areas:

1. Agronomy

Cropping systems and fertility research for significant western Canadian crops.

2. Variety Development

Pre-breeding and breeding research for significant western Canadian crops.

WGRF has targeted a total of \$15 million in new funding over the next four years.

3. Minor Crop Development

Breeding and agronomy research for minor or new western Canadian crops.

4. Crop Utilization

Utilization research on western Canadian crops with the potential to provide significant benefit to producers.

5. Crop Risk Management

Monitoring, forecasting and control of diseases, weeds and insects in cropping systems.

6. Post Harvest Management

Post harvest handling and storage research, and its impact on grain quality (e.g. ochratoxins) and storage costs of western Canadian crops.

WGRF established relationships with provincial agriculture funding bodies in Western Canada Agri-Food Research & Development Initiative (ARDI) in Manitoba, Agriculture Development Fund (ADF) in Saskatchewan, Agriculture Funding Consortium (AFC) in Alberta as well as other producer commodity groups to review proposals submitted to these organizations and co-fund projects in key priority areas.

To view a full list of projects supported through the WGRF Endowment Fund visit: westerngrains.com/current-research/endowment-fund-research/



Current Endowment Funded Projects

Below is a summary of ongoing research projects being funded through the WGRF Endowment Fund:

1 | Potential Vernalization Response and Crop Development of Canary Seed

Lead Researcher:
Pierre Hucl, University of Saskatchewan

Total Funding: \$155,018

Years: 2012-2015

Objective: The primary objective of this project is to determine whether canary seed has a vernalization requirement. A vernalization (cold treatment) requirement in spring cereals can lead to yield instability under certain growing conditions. In addition, the researcher will study the crop growth and development of canary seed in order to provide better crop staging information.

Producer Benefit: This project will help understand the underlying causes of the yield instability in canary seed and whether it is possible to reduce the large swings in the crop's grain yield.

2 | FHB Resistant Oat for FHB Prone Eastern Prairie Region

Lead Researcher:
Aaron Beattie, University of Saskatchewan

Total Funding: \$180,000

Years: 2012-2015

Objective: To maintain domestic and export markets for Western Canadian oat growers. This will be done by screening germplasm for resistance, identifying markers associated with FHB resistance (to assist breeding FHB resistant varieties) and survey FHB prevalence, severity and mycotoxins in commercial fields.

Producer Benefit: To produce future oat varieties with better FHB resistance that will help western Canadian growers produce a quality and safe oat product to protect their role in supplying oat products to the domestic and US markets.

3 | Improving Farinograph Absorption of CWRW Wheat by Screening for Pentosan Content

Lead Researcher:
Harry Sapirstein, University of Manitoba

Total Funding: \$161,540

Years: 2012-14

Objective: To significantly improve farinograph absorption (FA) of CWRW wheat. FA is a standardized measure of flour water absorption and is one of the most important bread making quality determinants. The research focus is to evaluate the relationship between FA and pentosan content of CWRW wheat measured by a small scale screening test.

Producer Benefit: Improving FA of CWRW wheat would enhance marketing opportunities and revenue.



4 | Coordinated Monitoring, Forecasting and Risk Warning Systems for Field Crop Insect Pests

Lead Researcher:
Jennifer Otani, AAFC-Beaverlodge

Total Funding: \$45,000

Years: 2012-2015

Objective: To coordinate an insect monitoring program designed to keep the Canadian agriculture industry informed of the risks to crop production from pest species and to highlight and conserve their natural enemies.

Producer Benefit: The proposed project will develop & implement a region-wide monitoring program designed to keep the agriculture industry informed of the risks to crop production from insect pests. The data will also contribute to the development of future beneficial management practices.

5 | Developing Molecular Markers for Determining Race Structure of *Leptosphaeria Maculans* in Western Canada

Lead Researcher:
Hossein Borhan, AAFC-Saskatoon

Total Funding: \$224,250

Years: 2012-2015

Objective: To generate DNA markers from the genome of *Leptosphaeria maculans*, the causal agent of blackleg disease of canola. The researcher will identify markers for known avirulence genes which exist in *L. maculans* population in Western Canada and tag other potential avirulence/virulence genes inferred from the *Leptosphaeria* genome sequence.

Producer Benefit: information about the *Leptosphaeria* genome will be important for developing canola cultivars with effective resistance to blackleg and will help producers to choose a resistant variety best suited to their location.

6 | Aptamer-Based TLC Technology for Mycotoxin Detection in Grains

Lead Researcher:
Dr. Maria DeRosa, Carleton University

Total Funding: \$225,000

Years: 2012-2015

Objective: To develop low-cost, easy-to-use mycotoxin tests using a combination of a new technology called aptamers and established techniques of thin layer chromatography and dipstick assays.

Producer Benefit: Mycotoxins, such as DON, OTA and Fumonisin pose an immediate threat to profitable cereal grain production in Canada. New regulatory maximum limits for OTA and DON in grains and grain-based foods are being implemented to manage risks posed by chronic/acute dietary intake. Producers require a fast, reliable testing technology that is simple and inexpensive enough to be used on site without special expertise.



7 | Natural Air Grain Drying: Testing an Automatic Controller for Managing Bin Aeration Fans

Lead Researcher:

Christopher Holzapfel, Indian Head Agricultural Research Foundation

Total Funding: \$206,747

Years: 2012-2015

Objective: To determine if calculating the water-holding capacity of the air as a function of its temperature and relative humidity can be used as a control point for the operation of aeration fans.

Producer Benefit: Potential energy savings could be substantial with a rapid payback for technology that can operate the aeration fans only when cooling and drying occurs. The proposed approach involves a low cost solution with a short payback time-frame for the producer. Proper grain storage is also necessary to avoid the development of the mycotoxin Ochratoxin A which will render grain unsuitable for human consumption.

8 | Development and Implementation of a Triticum Technology Platform to Support Public Cereal Breeding Programs in Western Canada

Lead Researcher: Dr. Curtis Pozniak, University of Saskatchewan, Crop Development Centre, Dr. Francois Eudes, AAFC-Lethbridge, Dr. Brent McCallum, AAFC-Winnipeg.

Total Funding: \$3,778,070

Years: 2011-2016

Objective: To develop genomic tools to enhance cereal breeding in Canada. To build on established knowledge and skills in isolated microspore culture to address the most critical limiting factors of this platform process, and to strengthen double haploid production units in the prairies. To develop durable multi-pathogen resistance to leaf rust, stem rust, stripe rust and powdery mildew in wheat cultivars.

Producer Benefit: Greater use of genomic technologies will mean faster, more accurate identification of the best genes available in seed germplasm to breed into varieties for commercial production. Doubled haploid technology accelerates the cycle of crop breeding. Together, these technologies can get improved varieties into farmers' fields quicker and add to the producer's bottom line.

9 | Development of Baseline Data for Incidence and Levels of Ochratoxin in Milling Quality Cereal Grains Intended for Processing in Canada

Lead Researcher:

Canada Grains Council

Total Funding: \$120,000

Years: 2011-2013

Objective: The objectives of this project are to: 1) assemble a baseline database to establish incidence and observed levels of OTA and DON present in deliveries of milling quality wheat and oats to Canadian based processors; 2) develop operating characteristic curves for OTA for each of the flour classes of grain studies to enable application day-to-day use of these curves to manage acceptance and rejection of shipments, 3) illustrate the correlation between commercially available ELISA analysis and commercially available HPLC and/or LC/MS; and, 4) illustrate, if it exists, seasonal variation (during the crop year) in OTA and DON levels present in grain shipments to Canadian wheat and oat mills

Producer Benefit: Of importance for western Canadian farmers is the knowledge of how much DON and ochratoxin is in the grain being delivered and how this may impact storage practices on farm.



10 | Increased Crop Performance through Wheat-Mycorrhizal Interaction

Lead Researcher:

Dr. Danny Singh, AAFC-Swift Current

Total Funding: \$165,025

Years: 2011-2013

Objective: To produce nutrient use efficient wheat cultivars in order to reduce crop dependence on fertilizer, reduce farm input costs and increase the value of Canadian wheat.

Producer Benefit: Canadian durum captures almost 50% of the world market. Arbuscular mycorrhizal fungi (AMF) form symbioses with the roots of most plant species, including wheat. AMF offers numerous benefits to producers: efficient use of fertilizer and soil nutrients, drought and disease tolerance, greater N-fixation, and improved soil physical properties. Breeding for AMF symbiotic wheat could reduce the dependence of wheat and its rotation crops on fertilizers, leading to improved profitability and net farm income gains.

11 | Pea Yield Formation in Warming Temperatures

Lead Researcher:

Dr. Rosalind Bueckert, University of Saskatchewan

Total Funding: \$160,000

Years: 2011-2013

Objective: The goal is to look at nine varieties of pea, which cover Saskatchewan cultivars and potentially heat tolerant cultivars from Australia, and find out why pea has poor yield in warm summers on the prairies.

Producer Benefit: Pea yields are substantially reduced in warm summers. With a warming climate, the pea crop is going to be stressed more often, resulting in shorter times of growth and substantial reductions in yield amount and quality. Identifying the best traits to improve heat tolerance will result in new pea cultivars that can yield moderately or very well in warm summers.

12 | Hormonal Regulation of Pre-harvest Sprouting in Wheat

Lead Researcher:

Dr. Belay Ayele, University of Manitoba

Total Funding: \$121,900

Years: 2011-2013

Objective: To identify genes controlling pre-harvest sprouting in wheat, and investigate the potential of molecular breeding approaches to accelerate incorporation and deployment of these genes into commercial wheat cultivars.

Producer Benefit: This research will provide powerful tools for breeders to develop new wheat cultivars with increased tolerance to Pre-harvest Sprouting (PHS) damage; thereby improving wheat yield and quality. The proposed research will also generate new information that will be valuable for controlling sprouting damage in other economically important cereal crops whose production is affected by PHS.





WGFR invested over
\$7.4 Million
into crop research in 2012



13 | Genetic Analysis of Transgenes in Flax Germplasm

Lead Researcher:

Dr. Helen Booker, University of Saskatchewan

Total Funding: \$147,145

Years: 2011-2013

Objective: This research will contribute to the design of accurate GM testing and help to restore export markets for Canadian flax exporters.

Producer Benefit: This project will develop a more accurate test for detecting the presence of CDC Triffid in shipments for export and develop new knowledge regarding the inheritance of transgenes in flax. Confidence will be restored in export markets for Canadian flax. Additionally, GM seed will largely be eliminated from Canadian pedigree flax seed stocks.

14 | Genetic Male Sterility Facilitated Recurrent Selection in Spring Wheat

Lead Researcher:

Dr. Stephen Fox, AAFC-Winnipeg

Total Funding: \$136,000

Years: 2011-2013

Objective: This project aims to better exploit genetic variability and knowledge for simultaneous improvement of yield, end-use quality, pest resistance and adaptability of new varieties.

Producer Benefit: Apart from pest resistance, it is possible to improve through breeding almost every aspect of the profitability of wheat production. Characteristics such as yield potential, adaptation, seed dormancy and reduced likelihood of sprouting in the ears during wet seasons, seed protein content, milling and baking quality all have complex multigenic inheritance. This project attempts to develop more appropriate and effective alternative/ supplementary breeding strategies. The value for producers is found in the more timely production of new cultivars with desirable trait combinations.

15 | Molecular Characterization of Low Temperature Tolerance in Cereals

Lead Researcher:

Dr. Ravindra Chibbar, University of Saskatchewan

Total Funding: \$151,800

Years: 2011-2013

Objective: To study Canadian, Scandinavian and Russian wheat and rye germplasms with varying levels of cold hardiness. The most effective genes will be identified and be recommended for introgression into Canadian wheat germplasm to increase their low temperature tolerance and winter survival.

Producer Benefit: Development of winter wheat cultivars with improved winter survival will provide producers with an alternative or complement to spring wheat production. The benefits from winter wheat are relatively low input cost, an environmentally friendly production system and high yield. Winter wheat generally yields significantly more than spring wheat, however high winter kill can eliminate this advantage.



16 | Building Durable Clubroot Resistance in Canola

Lead Researcher:

Dr. Gopalan Selvaraj, National Research Council of Canada

Total Funding: \$134912

Years: 2011-2014

Objective: To identify multiple clubroot resistance genes from diverse Brassica germplasm and to develop markers based on those genes for use in the production of canola varieties with durable clubroot resistance.

Producer Benefit: Yield loss and low quality seeds make clubroot a very serious emerging threat in canola farming. Clubroot spores survive winters, no chemical treatments exist, and genetic solutions are necessary. Knowing which variety contains what specific resistance gene, and having varieties with multiple resistance genes will give farmers much greater options in managing clubroot. The proposed work will assist non-GMO breeding while providing an option for GMO varietal development to meet future market demands as well.

17 | Northern Adapted Flax Variety Development and Agronomy Program

Lead Researcher:

Saskatchewan Flax Development Commission

Total Funding: \$120,000

Years: 2011-2013

Objective: To ensure that as new better adapted flax varieties are developed, there is concurrent development of agronomic best management practices to ensure maximum production capability is realized.

Producer Benefit: Development of an agronomic package for northern flax varieties will ensure new varieties achieve their full genetic potential, resulting in reduced risk and increased productivity for flax production in the northern half of the grain belt and hence allowing flax to be a viable crop for producers of this region.

18 | Net Blotch: Variability in Relation to Virulence, Resistance and Fungicide Sensitivity

Lead Researcher:

Dr. Kelly Turkington, AAFC- Lacombe

Total Funding: \$ 279,000

Years: 2010-2015

Objective: To conduct a Prairie-wide assessment of the current status of the pathogens that cause netted and spotted net blotch of barley to determine: 1) their variability in pathogenicity, virulence, and molecular characteristics; 2) ability to overcome currently-used sources of resistance; and, 3) any variation in the sensitivity of representative pathogen forms and isolates to the fungicides registered to manage net blotch

Producer Benefit: This research will help to maintain and build expertise and knowledge in barley pathology, pathogen variation, pathogen population genetics, and host-pathogen interactions. This will aid in the development of cultivars with more durable and stable forms of resistance which will benefit prairie barley producers, plant pathologists, breeders and the industry.



19 | Reducing Overlooked Losses in Wheat: a Novel Approach to Control Leaf Spot Diseases

Lead Researcher:
Dr. Jeannie Gilbert, AAFC-Winnipeg

Total Funding: \$60,000

Years: 2010-2012

Objective: To deliver adapted, high-quality spring wheat germplasm that combines resistance to pathogens causing leaf spot diseases (tan spot, stagonospora glume blotch, septoria tritici blotch, and spot blotch) while retaining resistance to predominant races of leaf and stem rust, Fusarium graminearum, and wheat streak mosaic virus (WSMV).

Producer Benefit: This project will allow valuable yield now lost to leaf spot diseases to be captured. This project will build on progress already made towards combining resistance to leaf spot diseases with resistance to WSMV, fusarium head blight and rusts. This will help reduce fungicide costs, optimize frequency of wheat cultivation in a crop rotation, and improve yield.

20 | Biological Control of Root Maggots in Canola

Lead Researcher:
Dr. Neil Holliday, University of Manitoba

Total Funding: \$60,000

Years: 2010-2012

Objective: To reduce root maggot damage to prairie canola to below economic levels by introducing a biological control agent of root maggots. The project will generate data on risks to non-target organisms of introducing the agent.

Producer Benefit: The lack of practical, economic and environmentally acceptable methods of root maggot control in canola leaves farmers essentially powerless to manage these pests which have shown a trend of increasing severity in the last 30 years. This project is part of a program aimed at controlling root maggots by classical biological control. Farmers could see a reduction in losses due to root maggots, possibly to the point at which no economic loss occurs. This reduction would be Prairie-wide and self-sustaining and occur without any direct costs to individual farmers.

21 | Protecting Canadian Farmers from the Threat of UG99

Lead Researcher:
Dr. Curtis Pozniak, University of Saskatchewan
CDC

Total Funding: \$163,470

Years: 2010-2012

Objective: To develop DNA markers for existing and novel sources of resistance to UG99 in durum and bread wheat.

Producer Benefit: Stem rust has been very devastating to the industry in the past. Races such as UG99 have great potential to spread to North America by either natural means or by human activity, so it is imperative that we are ready for that eventuality. This research will develop the DNA tools to allow effective breeding of UG99 in Canadian wheat cultivars to protect wheat producers if or when the disease arrives.



22 | Developing Canola with Reduced Pod Shattering

Lead Researcher:

Dr. Shaleb Shah, Alberta Innovates-Technology Futures

Total Funding: \$108,000

Years: 2010-2013

Objective: To develop canola lines with reduced pod shattering and to confirm the reduced pod shattering in field trials. To increase yield of canola through reduced pod shattering, and thus meet the increased demand of vegetable oils for bio-based industry.

Producer Benefit: The development of pod shattering resistance in canola will significantly benefit the Canadian canola producers by reducing yield losses in the field.

23 | Rust Resistance Genetic Resources for the Canadian Wheat Industry

Lead Researcher:

Dr. Curtis Pozniak, University of Saskatchewan, Crop Development Centre

Total Funding: \$14,100

Years: 2010-2013

Objective: To ensure that the most advanced material from the late Dr. Knott's program is inventoried and submitted to the Plant Gene Resources Canada (PGRC) GenBank and to publish a monograph of Dr. Knott's results for other breeders and pathologists to access.

Producer Benefit: The genetic stocks developed by Dr. Knott and the data he collected will be useful for wheat breeders to deploy alternative resistance genes into new bread wheat and durum cultivars.

24 | Enhancing Nitrogen Management through Genetics in Cereal-Legume Crop Rotations

Lead Researcher:

Dr. Pierre Hucl, University of Saskatchewan, Crop Development Centre

Total Funding: \$150,000

Years: 2009-2012

Objective: To develop a method for identifying varieties of spring and durum wheat that are better suited for production on lentil and pea stubble. To identify superior nitrogen fixing pea and lentil varieties that can be selected for greater nitrogen fixation and N contribution in stubble to the cropping system based on indirect effects on spring wheat and durum. To identify varietal combinations of cereal-legume cultivars that will result in reduced greenhouse gas emissions.

Producer Benefit: Pea-spring wheat and lentil-durum rotations represent the predominant cereal-legume rotations in Western Canada. An ability to select for higher yield and better quality pea-spring wheat and lentil-durum cultivars based on complementarities of genotypes will contribute greater economic returns through reduced costs, higher revenue and possibly improved environmental credits through improved nitrogen use efficiency.



Independent Auditor's Report

To the Directors of Western Grains Research Foundation

We have audited the accompanying financial statements of Western Grains Research Foundation (the "Foundation") which comprise the statement of financial position as at December 31, 2012, and the statements of operations and changes in fund balances and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our qualified audit opinion.

Basis for Qualified Opinion

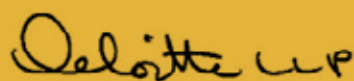
The Foundation derives part of its earnings from payments from wheat and barley producers and royalties, the completeness of which is not susceptible to satisfactory audit verification. Accordingly, our verification of revenue from these sources was limited to the amounts recorded in the records of the Foundation and we were not able to determine whether any adjustments might be necessary to payments received from producers or royalties, excess of revenue over expenditures and cash flows from operations for the year ended December 31, 2012, and fund balances as at January 1 and December 31, 2012.

Qualified Opinion

In our opinion, except for the possible effects of the matter described in the Basis for Qualified Opinion paragraph, the financial statements present fairly, in all material respects, the financial position of the Foundation as at December 31, 2012 and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

Comparative Information

Without modifying our opinion, we draw attention to Note 2 to the financial statements which describes that Western Grain Research Foundation adopted Canadian accounting standards for not-for-profit organizations as issued by the Canadian Institute of Chartered Accountants on January 1, 2012 with a transition date of January 1, 2011. These standards were applied retrospectively by management to the comparative information in these financial statements, including the statements of financial position as at December 31, 2011 and January 1, 2011, and the statements of operations and changes in fund balances and cash flows for the year ended December 31, 2011 and related disclosures. We were not engaged to report on the restated comparative information, and as such, it is unaudited.



Chartered Accountants
March 7, 2013
Saskatoon, Saskatchewan



Statement of Financial Position

	As at December 31, 2012	As at December 31, 2011 (unaudited)	As at January 1, 2011 (unaudited)
	(Restated - see note 13)		
Current Assets			
Cash	\$ 1,022,619	\$ 913,587	\$ 865,164
Cash and short-term notes held by investment dealer	1,556,858	1,547,132	438,015
Accounts receivable	1,149,838	1,492,315	348,327
Prepaid expenses	3,640	3,625	3,513
Accrued interest receivable	354,381	405,336	281,243
Investment in debt instruments (Note 7)	52,682,187	52,482,625	56,189,681
Investment in equity securities	61,018,093	52,482,725	49,061,242
	\$ 117,787,616	\$ 109,327,345	\$ 107,187,185
Current Liabilities			
Accounts payable and accrued liabilities	\$ 1,165,412	\$ 823,802	\$ 2,102,430
Fund Balances (Notes 4 and 10)			
Capital Fund	9,066,972	9,066,972	9,066,972
Endowment Fund (Schedule 1)	85,826,351	80,650,403	80,559,468
Wheat Fund (Schedule 2)	19,686,576	16,788,443	13,521,907
Barley Fund (Schedule 3)	2,042,305	1,997,725	1,936,408
	116,622,204	108,503,543	105,084,755
	\$ 117,787,616	\$ 109,327,345	\$ 107,187,185

See accompanying notes

Approved by the Board of Directors

Dr. Keith J. Degenhardt Director

Dr. J. L. Smith Director



Statement of Operations and Changes in Fund Balances

Year ended December 31

2012

2011
(unaudited)

(Restated - see
notes 2 and 13)

Revenues

Payments received from producers	\$ 6,542,677	\$ 6,824,951
Unrealized gain (loss) on investments (Note 8)	4,204,887	(1,703,228)
Investment income	2,876,943	2,166,321
Other income (Note 9)	1,516,148	2,426,799
Royalties	1,241,878	1,354,686
Gain (loss) on sale of investments	559,908	(413,206)
Foreign exchange gain (loss)	182	(4,733)
	<u>16,942,623</u>	<u>11,156,505</u>

Expenditures

Research funding	7,352,651	6,211,162
Operating (Schedule 4)	1,226,771	1,113,427
Royalty research funding	144,540	313,128
Scholarships	100,000	100,000
	<u>8,823,962</u>	<u>7,737,717</u>
Excess of revenue over expenditures for the year	8,118,661	3,418,788
Fund balances, beginning of year	<u>108,503,543</u>	<u>105,084,755</u>
Fund Balances, End of Year	\$ 116,622,204	\$ 108,503,543

See accompanying notes



Statement of Cash Flows

Year ended December 31

2012

2011
(unaudited)

(Restated - see
notes 2 and 13)

Cash Flows From (Used In) Operating Activities

Excess of revenue over expenditures for the year	\$ 8,118,661	\$ 3,418,788
Items not affecting cash		
Unrealized (gains) loss on investment	(4,204,887)	1,703,228
Amortization of net premiums on bonds	(303,067)	32,628
(Gain) loss on sale of investments	(559,908)	413,206
	3,050,799	5,567,850
Decrease (increase) in accounts receivable	342,477	(1,143,988)
Increase in prepaid expenses	(15)	(112)
Decrease (increase) in accrued interest receivable	50,955	(124,093)
Increase (decrease) in accounts payable and accrued liabilities	341,610	(1,278,628)
	3,785,826	3,021,029

Cash Flows From (Used In) Investing Activities

Purchase of investments	(62,401,215)	(59,145,738)
Proceeds on investments redeemed	58,734,147	57,282,249
	(3,667,068)	(1,863,489)
Increase in cash during the year	118,758	1,157,540
Cash position, beginning of year	2,460,719	1,303,179
Cash position, end of year	\$ 2,579,477	\$ 2,460,719

Cash is Comprised of

Operating cash	\$ 1,022,619	\$ 913,587
Cash and short-term notes held by investment dealer	1,556,858	1,547,132
	\$ 2,579,477	\$ 2,460,719

See accompanying notes



Schedule of Endowment Fund Operations and Changes in Fund Balance

Year ended December 31

	2012	2011 (unaudited)
		(Restated - see notes 2 and 13)
Revenues		
Investment income	\$ 2,379,811	\$ 2,163,840
Other income (Note 9)	672,332	1,314,636
Gain (loss) on sale of investments	559,908	(413,206)
Unrealized gain (loss) on investments (Note 8)	4,204,887	(1,703,228)
Foreign exchange gain (loss)	182	(4,733)
	7,817,120	1,357,309
Expenditures		
Research funding		
Variety Development	1,552,508	396,488
Post Harvest Management	194,999	60,000
Agronomy	163,195	187,180
Crop Risk Management	111,681	129,078
Crop Utilization	83,835	-
Minor Crop Development	51,673	-
Other	9,772	29,317
	2,167,663	802,063
Scholarships	100,000	100,000
Operating (Schedule 4)	373,509	364,311
	2,641,172	1,266,374
Excess of revenue over expenditures for the year	5,175,948	90,935
Endowment fund, beginning of year	80,650,403	80,559,468
Endowment Fund, End of Year	\$ 85,826,351	\$ 80,650,403

Schedule of Wheat Fund Operations and Changes in Fund Balance

Year ended December 31

2012

2011
(unaudited)

Operating Account

Revenues

Payments received from producers (Note 3)	\$ 5,861,286	\$ 6,143,206
Royalties	1,125,436	1,265,782
Other income (Note 9)	690,066	947,163
Investment income	1,653	2,156
	7,678,441	8,358,307

Expenditures

Research funding		
Agriculture and Agri-Food Canada	2,767,412	2,882,750
University of Saskatchewan	983,156	1,151,898
University of Manitoba	331,761	336,054
University of Alberta	128,972	97,721
Alberta Agriculture and Rural Development	125,137	134,841
	4,336,438	4,603,264
Royalty research funding	144,540	274,287
Operating (Schedule 4)	744,269	655,363
	5,225,247	5,532,914
Excess of revenue over expenditures for the year	2,453,194	2,825,393
Transfer to wheat reserve account	(2,508,931)	(1,821,017)
Operating account, beginning of year	200,913	(803,463)
Operating Account, End of Year	145,176	200,913

Reserve Account

Investment income	444,939	441,143
Transfer from wheat operating account	2,508,931	1,821,017
Reserve account, beginning of year	16,587,530	14,325,370
Reserve Account, End of Year	19,541,400	16,587,530
Wheat Fund, End Of Year	\$ 19,686,576	\$ 16,788,443



Schedule of Barley Fund Operations and Changes in Fund Balance

Year ended December 31	2012	2011 (unaudited)
Operating Account		
Revenues		
Payments received from producers (Note 3)	\$ 681,391	\$ 681,745
Other income (Note 9)	153,750	165,000
Royalties	116,442	88,904
Investment income	250	325
	951,833	935,974
Expenditures		
Research funding		
Agriculture and Agri-Food Canada	499,218	469,235
University of Saskatchewan	343,332	336,600
BC Grain Producers Association	6,000	-
	848,550	805,835
Royalty research funding	-	38,841
Operating (Schedule 4)	108,993	93,753
	957,543	938,429
Excess of expenditures over revenue for the year	(5,710)	(2,455)
Transfer from barley reserve account	2,767	141,600
Operating account, beginning of year	8,207	(130,938)
Operating Account, End Of Year	5,264	8,207
Reserve Account		
Investment income	50,290	63,772
Transfer to barley operating account	(2,767)	(141,600)
Reserve account, beginning of year	1,989,518	2,067,346
Reserve Account, End of Year	2,037,041	1,989,518
Barley Fund, End Of Year	\$ 2,042,305	\$ 1,997,725

Schedule of Operating Expenditures

Year ended December 31	Endowment Fund	Wheat Fund	Barley Fund	2012 Total	2011 Total (unaudited)
Expenditures					
Wages and benefits	\$ 203,396	\$ 276,409	\$ 41,723	\$ 521,528	\$ 530,218
Communications	31,380	210,363	22,319	264,062	153,603
Office (Note 11)	41,564	56,484	8,526	106,574	109,234
Professional fees	17,289	27,089	4,180	48,558	87,543
Consulting fees	6,974	66,349	6,583	79,906	24,305
Travel and other	53,299	83,357	21,635	158,291	162,118
Directors per diem	19,607	24,218	4,027	47,852	46,406
Operating expenditures for the year	\$ 373,509	\$ 744,269	\$ 108,993	\$ 1,226,771	\$ 1,113,427



Notes to Financial Statements

1. Description of the Foundation

Western Grains Research Foundation (the "Foundation" or "WGRF") is a farmer funded and directed not-for-profit organization investing primarily in wheat and barley variety development to benefit western Canadian producers.

2. Change in the Basis of Accounting

The Foundation has elected to apply Canadian accounting standards for not-for-profit organizations (the "new standards" or "NPO accounting standards").

These financial statements are the first financial statements for which the Foundation has applied NPO accounting standards.

The financial statements for the year ended December 31, 2012 were prepared in accordance with the accounting principles and provisions set out in Section 1501, *First-time Adoption by Not-for-Profit Organizations*, for the first-time adopters of this basis of accounting.

Exemptions relating to first-time adoption

The Foundation has elected to adopt the related financial instruments exemption available under Section 1501. As a result, the Foundation did not re-examine assets and liabilities related to financial instruments that occurred prior to the date of transition to NPO accounting standards.

Impact of the change in the basis of accounting

As of January 1, 2011, the Foundation recognized its investments in quoted shares at fair value. Under the previous basis of accounting, these investments were also recognized at fair value as available-for-sale financial assets, and the unrealized gains were reported as a direct adjustment to the fund balances. These unrealized gains are not recognized in the statement of operations. Therefore, there is no net effect on the investments or fund balances. However, the unrealized loss on investments of \$1,703,228 has been added to the statement of operations for the year ended December 31, 2011.

3. Summary of Significant Accounting Policies

The financial statements have been prepared in accordance with NPO accounting standards and reflect the following significant accounting policies:

Revenue recognition

a) Wheat and barley funds

Investment income is recognized as income in the year earned.

Revenue earned by the wheat and barley funds consists primarily of payments received from producers. Up until July 31, 2012, the revenue was collected by the Canadian Wheat Board ("CWB") via a deduction from the final payments on grain sold by producers in a particular crop year and remitted to the Foundation. The payment from producers is recognized in the operating account of the respective fund as revenue in the year received from CWB. The Foundation expects to receive one final payment in 2013 from CWB for the crop year ended July 31, 2012. The amount is not yet known, and has not been included in the revenue for the year ended December 31, 2012.

The federal government repealed the Canadian Wheat Board Act on August 1, 2012. Under new federal legislation, a transitional check-off for up to five years became effective August 1, 2012. Licensed grain buyers must deduct the producer check-off at the point of sale. Amounts deducted are remitted to the Alberta Barley Commission ("ABC") for administration. ABC remits the amounts to the Foundation, net of an administration fee and a holdback fee for refunds.

The payment from producers is recognized in the operating account of the respective fund as revenue in the year received because the amounts cannot be determined by the Foundation prior to receipt.

Summary of payments from producers:

	2012	2011 (unaudited)
Wheat		
Check-Off - CWB	\$ 4,740,430	\$ 6,146,318
Refunds	(13,138)	(3,112)
Transitional		
Check-Off - ABC	1,133,994	-
Total Check-Off Revenue	\$ 5,861,286	\$ 6,143,206
Barley		
Check-Off - CWB	\$ 498,203	\$ 682,324
Refunds	(156)	(579)
Transitional		
Check-Off - ABC	183,344	-
Total Check-Off Revenue	\$ 681,391	\$ 681,745

Royalties earned by the wheat and barley funds are recognized in the operating accounts of the respective funds in the year received, again because the amounts cannot be determined by the Foundation prior to receipt.

b) Endowment fund

Investment income, including any unrealized changes in fair value in equity securities, is recognized as income in the year earned.

The endowment fund has in the past years been awarded funds by the Canadian Transportation Agency ("CTA") as a result of Canadian Pacific Railway Company ("CP") and Canadian National Railway Company ("CN") exceeding their annual revenue caps for movement of grain in Western Canada. This revenue is recognized and recorded as other income in the endowment fund operations when the amount is known and collection is reasonably assured.

Investments and investment income

Investments in debt instruments have been recorded at the amortized cost based on the effective interest rate at the date of purchase.

Investments in equity securities are recorded at fair value. Both realized and unrealized changes in fair value from year to year are recognized in earnings.

Investment income includes interest and dividend income earned in the year and realized gains and losses from dispositions of investment assets in the year.

Fund operations

Revenue earned, net of operating expenditures, is allocated to designated funds. Research funding for a particular year is charged against the respective fund.

Royalties

The Foundation's share of royalties derived from wheat and/or barley varietal developments are recorded as royalty revenue in the respective wheat and/or barley statement of fund revenue and expenditures. The royalty funds are subsequently reinvested with research organizations for the funding of specific projects and recorded as royalty expenditures in the respective statement of fund revenue and expenditures for wheat and/or barley.

Foreign currency translation

The Foundation follows the temporal method of accounting for the translation of foreign currency amounts into Canadian dollars. Under this method, monetary assets and liabilities denominated in foreign currencies are translated into Canadian dollars at the exchange rate in effect at the balance sheet date. Non-monetary assets are translated at the historical rate of exchange. Revenue and expenses are translated at the rate of exchange prevailing on the transaction date. Gains and losses on translation are reflected in income.

Financial instruments

The Foundation initially measures its financial assets and financial liabilities at fair value. It subsequently measures investments in equity securities at fair value. Other financial assets and financial liabilities including cash, cash and short-term notes held by investment dealer, accounts receivable, investments in debt instruments and accounts payable and accrued liabilities are subsequently measured at amortized cost.



Use of estimates

The preparation of financial statements in conformity with Canadian generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. The inherent uncertainty involved in making such estimates and assumptions may impact the actual results reported in future periods.

4. Funds

Capital Fund

The Foundation was funded by the Canadian Ministry of Agriculture on May 2, 1983 by a \$9,066,972 contribution to the Capital Fund. The funding contribution represented an amount equivalent to the balance remaining in the Prairie Farm Emergency Fund, which was derived entirely by deductions from prairie farmer grain sales.

Endowment Fund

Annual investment revenue earned from the initial Capital Fund contribution and funds awarded by CTA to the Foundation as a result of CN and CP exceeding their revenue caps for the movement of grain in Western Canada, net of operating and research grant expenditures, is allocated to the Endowment Fund. The endowment fund is not externally restricted and can be spent at the discretion of the Foundation's Board of Directors.

Wheat Fund and Barley Fund

Prior to August 1, 2012, the wheat and barley producers had the option to have \$0.30 per tonne for wheat and \$0.50 per tonne for barley deducted from their final CWB payment. Under the new federal regulations effective August 1, 2012, licensed grain buyers are required to deduct a levy of \$0.48 per tonne for wheat

and \$0.56 per tonne for barley and remit to ABC. A portion of the levy is directed to market development and technical assistance and administration. ABC remits the amount directed for research to the Foundation. WGRF receives \$0.30 per tonne for wheat and \$0.50 per tonne for barley, less amounts retained for future producer refunds. The funds are invested and directed to fund research projects for wheat and barley. Separate accounting of the wheat and barley check-offs is required by federal legislation.

On an annual basis, each of the Wheat Fund and Barley Fund is required to allocate a percentage of their net revenue, before research funding, to reserve accounts to ensure that any future financial commitments can be met. For the current year, 12.5% of the fund net revenue is to be allocated to the reserve account when the balance in the Wheat Fund goes below \$4.8 million and when the balance in the Barley Fund goes below \$1.1 million. When the balance in the Wheat Fund goes below \$2.4 million and in the Barley Fund goes below \$500,000, the amount to be allocated is 25% of the fund net revenue.

In 2009, the Board approved a motion to increase the minimum Wheat Fund reserve account balance from \$4.8 million to \$8.8 million.

5. Income Tax Status

The Foundation is a registered charity, designated as a Public Foundation under the Income Tax Act of Canada. As such, it is not subject to income taxes.

6. GST Refunds

The Foundation is entitled to a rebate of 50% of the GST paid in the year. This rebate is calculated at the end of each year and the related expense accounts have been reduced for the GST receivable by the Foundation.

7. Investment in Debt Instruments

Investments included are bonds, bond strip instruments, and guaranteed investment certificates.

	2012		2011	
	Amortized Cost	Market Value	Amortized Cost	(unaudited) Market Value
Endowment Fund	\$ 32,050,714	\$ 32,277,614	\$ 34,351,316	\$ 34,753,726
Wheat Fund	18,705,430	18,808,848	16,212,911	16,473,892
Barley Fund	1,926,043	1,927,988	1,918,398	1,937,901
	<u>\$ 52,682,187</u>	<u>\$ 53,014,450</u>	<u>\$ 52,482,625</u>	<u>\$ 53,165,519</u>

8. Accumulated Unrealized Gains (Losses) on Investment in Equity Securities

Endowment Fund

	2012	2011 (unaudited)
Change in unrealized gains during the year	\$ 4,764,795	\$ (2,116,434)
Recognition of realized (gains) losses during the year	(559,908)	413,206
	4,204,887	(1,703,228)
Unrealized gains in opening fund balance	1,456,797	3,160,025
	<u>\$ 5,661,684</u>	<u>\$ 1,456,797</u>



9. Other Income

Other income includes the following:

Endowment Fund

	2012	2011 (unaudited)
Funds received from CP for exceeding the revenue cap for grain movement for 2010-2011	\$ -	\$ 1,314,636
Funds received from CP for exceeding the revenue cap for grain movement for 2011-2012	420,138	-
Funds received from CN for exceeding the revenue cap for grain movement for 2011-2012	252,194	-
	672,332	1,314,636

Wheat Fund

Support for Wheat Midge communications program	10,241	91,492
Support for Wheat Midge Agriculture Sustainability Initiative	2,820	8,400
Agriculture and Agri-Food Canada funding for research under the Wheat Cluster research program	461,411	657,782
Agriculture and Agri-Food Canada funding for operations costs of the Wheat Cluster research program	215,594	189,489
	690,066	947,163

Barley Fund

Research funding from partners in the Barley DIAP research program	153,750	165,000
	\$ 1,516,148	\$ 2,426,799

10. Commitments

The Foundation has approved and is committed to certain research funding over the next five years as follows:

	Endowment Fund	Wheat Fund	Barley Fund	Total
2013	\$ 3,036,485	\$ 3,582,014	\$ 562,665	\$ 7,181,164
2014	2,600,595	3,392,534	588,149	6,581,278
2015	1,823,703	1,077,796	67,567	2,969,066
2016	752,371	34,527	4,600	791,498
2017	91,351	4,298	-	95,649
	\$ 8,304,505	\$ 8,091,169	\$ 1,222,981	\$ 17,618,655



11. Operating Lease

The minimum annual lease payments under the operating lease for office space that expires in 2014 is \$51,552 plus Goods and Services taxes.

12. Financial Instruments

The Foundation's recognized financial assets and liabilities consist of cash, cash and short-term notes held by investment dealer, accounts receivable, accrued interest receivable, investment in debt instruments, investment in equity securities, and accounts payable and accrued liabilities. The fair values of these items approximate their carrying values except for investments in debt instruments, the fair values of which are disclosed in Note 7.

Credit risk

The Foundation is exposed to credit risk with respect to cash, cash and short-term notes held by investment dealer, accounts receivable and the accrued interest receivable. The Foundation assesses, on a continuous basis, accounts receivable on the basis of amounts it is virtually certain to receive. The credit risk with respect to cash and short-term notes is insignificant since they are held in large financial institutions.

Interest rate risk

The Foundation is exposed to interest rate risk on its fixed and floating interest rate financial instruments. Fixed-rate instruments subject the Foundation to a fair value risk while the floating rate instruments subject it to a cash flow risk. The

Foundation is exposed to this type of risk as a result of investments in debt securities. However, the risk associated with investments is reduced to a minimum since these assets are invested in government securities, large financial institutions or large multinational corporate bonds.

Other price risk

Other price risk associated with investments in equity securities is the risk that their fair value will fluctuate because of changes in market prices. The Foundation mitigates this risk by regularly rebalancing its portfolio.

13. Comparative Figures

Certain of the comparative figures have been reclassified to conform to the current year's presentation.

During the year, the Foundation recognized Rail Cap Revenue in the year it is earned, as far as the amount can be determined, rather than in the year the award was received. To this effect, the prior year income and receivables have been revised to include the Rail Cap Revenue award received in 2012 from CP for the 2010-2011 crop year. These comparative figures have been restated, which has resulted in an increase in Endowment Fund other income of \$1,314,636, an increase in accounts receivable of \$1,314,636 and an increase to the Endowment Fund of \$1,314,636.







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