ANNUAL REPORT

DELIVERING TECHNICAL EXPERTISE TO ADVANCE THE CANADIAN MALTING BARLEY INDUSTRY

ANNUAL REPORT 2017-2018
PURPOSE

The Canadian Malting Barley Technical Centre (CMBTC) was established in 2000 as a national, independent, non-profit industry organization that provides malting and brewing technical expertise to the Canadian malting barley value chain.

Based in Winnipeg, Manitoba, Canada, the CMBTC facilities include a state-of-the-art malting plant and pilot brewery.

The CMBTC offers a suite of activities including technical services, marketing support, applied research as well as education and training. The CMBTC also operates the Malt Academy, offering technical courses on malt processing and brewing.

Funding is provided by members of the malting barley, malt and brewing industries, producers as well as provincial and federal governments. The CMBTC is governed by a Board of Directors comprised of voting members.

MANDATE

The CMBTC is an applied research facility with on-site pilot malting and brewery facilities to test and evaluate quality, and promote Canadian malting barley.

MISSION

To enhance the competitiveness of Canadian malting barley through technical services, applied research, marketing support, communications and education.

VISION

In collaboration with our partners, our vision is to help ensure Canada is a leader in supplying high-quality malting barley to the global malting and brewing industries, meeting the needs of customers around the world.
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On behalf of the Canadian Malting Barley Technical Centre (CMBTC) Board of Directors, thank you for your commitment to CMBTC over the past year. Your support for our technical services, market development and applied research programming enables us to continue to advance Canada’s malting barley industry, strengthening our position as leaders in the supply of high-quality malting barley to the global malting and brewing industries.

Our Board is excited by the continued growth of Canada’s malting barley sector. As a world recognized technical centre, we are working hard at the CMBTC to meet the needs of members, and innovate on behalf of an industry that emphasizes quality and service, seeking to grow Canada’s malting barley markets domestically and abroad.

CMBTC membership continues to reflect Canada’s malting barley value chain, from breeders and farmers through to end-users in overseas markets. Each CMBTC member plays an important and integral role in advancing the CMBTC and its mission, helping to build a strong, relevant and sustainable organization dedicated to keeping Canadian malting barley competitive.

Within this 2017-2018 CMBTC annual report you will read about the wide range of activities that the CMBTC is involved in, a breadth of work that is impressive and demonstrates a hard-working and focused organization.

Be sure to stay tuned to our social networks, join us for our next @MaltAcademy program, or reach out to us to find out how we can assist you in accessing world barley markets. In spite of strong global competition, opportunities continue to grow for Canada’s malting barley industry, and our investments in breeding, research and market development initiatives help Canada maintain a competitive edge.

In the coming year we look forward to continuing to engage with our members and stakeholders to meet their needs for technical services, market development programming as well as education and training.

Sincerely,

Dale Matchett
Chair - CMBTC Board of Directors
Since 2000 the CMBTC has supported its members and stakeholders to ensure Canada is providing the world’s best quality malting barley to the domestic and global market place. The technical support and market development initiatives provided by the CMBTC help ensure Canada is growing markets for malting barley and malt, and also importantly to maintain our existing customer base.

The CMBTC’s core areas of focus, which include technical services, marketing support, applied research as well as training & education, continue to keep our CMBTC team busy and engaged with members and stakeholders.

With excellent growing conditions and harvest weather, Canada’s 2017 malting barley crop was one of the best in recent memory. This resulted in a record export program and a particularly busy year at the CMBTC conducting cargo quality evaluations or as we like to call them, CQCs. In 2017-18, the CMBTC conducted 42 CQCs to support over 1.0 million tonnes of malting barley exports, an all-time record.

Another highlight of the past year was an outgoing mission to China in November 2017 during which the CMBTC visited 10 major Chinese malting and brewing companies using Canadian malting barley. These key customers, among some of Canada’s largest malting barley importers, appreciated the CMBTC’s timely updates on 2017 malting barley crop quality and new Canadian malting barley varieties.

In the past year, our CMBTC team participated in 10 conferences across North America engaging with stakeholders, sharing applied research results, and keeping up to date on industry developments. We partnered again with the Canadian Grain Commissions on the GRL’s Quality of Western Canadian Malting Barley annual evaluation, leveraging our combined resources to promote Canadian malting barley.

On the training side the CMBTC’s unique Malt Academy program continues to provide one-of-a-kind, hands on malting education programs, with over 75 participants attending either the 3-day or 1-week course in 2017-2018. Many of our Malt Academy students come from outside Canada, travelling from all over the world to tap into our technical expertise. The coming year will see these students applying those skills all over the globe.

At the CMBTC we work hard to realize the CMBTC vision to ‘supply high quality malting barley to the global malting and brewing industries, meeting the needs of customers around the world’, and all of our activities, initiatives and programs are aligned with that vision in mind.

Cheers!

Peter Watts
Managing Director - Canadian Malting Barley Technical Centre
CMBTC BOARD OF DIRECTORS
2017-2018

Dale Matchett
Chair
Merchant Malt Barley
Richardson International

Richardson International

Jason Lenz
Observer Member
Director
Alberta Barley Commission

Allen Kuhlman
Voting Member
Director
Saskatchewan Barley Development Commission

Lorelle Selinger
Secretary
Canadian Barley Supply Chain Manager
Prairie Malt Limited

Aaron Beattie
Voting Member
Assistant Professor
Barley and Oat Breeding Program, Crop Development Centre, University of Saskatchewan

Marta Izydorczyk
Treasurer
Research Scientist and Program Manager
Research on Barley & Other Grains Crops Section Grain Research Laboratory

Kenric Exner
Observer Member
Barley Merchandiser Viterra

Lorelle Selinger
Secretary
Canadian Barley Supply Chain Manager Prairie Malt Limited

Marta Izydorczyk
Treasurer
Research Scientist and Program Manager Research on Barley & Other Grains Crops Section Grain Research Laboratory

Kenric Exner
Observer Member
Barley Merchandiser Viterra

CMBTC ANNUAL REPORT 2017-2018
CMBTC MEMBERSHIP

2017-2018

CMBTC membership includes representatives from the full Canadian malting barley value chain from breeders and producers through to end users in export markets. The following is the list of members as of March 31, 2018.

CURRENT MEMBERSHIP

CMBTC VALUES

**INTEGRITY**
Conduct affairs in honest, ethical manner; follow through on commitments.

**PROFESSIONALISM**
Uphold consistent, high standard in all services, programs and communications; demonstrate respect and listen to members & stakeholders.

**STEWARDSHIP**
Recognize responsibility to represent the Canadian malting barley industry; ensure services meet members’ needs; demonstrate value for investment.

**ACCOUNTABILITY & TRANSPARENCY**
Execute mandate, achieve targets and report results and finances in open and transparent manner.
Barley seeded area in Canada was **2.33 MLN HECTARES** in 2017, down **13.6%** from 2016 area. Fortunately good weather during the growing season and harvest provided a good quality crop which was ultimately pegged by Statistics Canada at **7.89 MLN TONNES** compared with **8.84 MLN TONNES** in 2016, a drop of **10.7%**.

Malting barley area was essentially steady in 2017 at **1.35 MILLION HECTARES**. Historically strong prices prior to seeding supported plantings with **60.8%** of barley area in W. Canada seeded to malting varieties. The 2017 fall weather was dry and ideal for harvesting and as a result, W. Canada harvested one of its best malting barley crops in the last 25 years. Compared with an average year where some **50%** of the malting barley meets malt specifications, in 2017 **OVER 80%** of the malting barley harvest was of selectable quality.

In terms of varieties, area seeded to AC Metcalfe continued to decline, falling to **32.0%** of total malting barley seeded area, while CDC Copeland seedings reached their highest level ever at **48.8%**. AAC Synergy plantings rose to **7.4%** indicating this variety has essentially become mainstream. Six-row area declined slightly to **4.9%** of total malting barley area.

With ample supply of malting barley, Canada’s malting industry, including maltsters, brewers and grain companies, selected over **2.5 MILLION TONNES** of malting barley, well above average. With production issues in Australia, prices for Canadian malting barley in the fall were very competitive. As a result, **CANADIAN EXPORTERS CHALKED UP RECORD SALES** to our biggest export market, China, with exports of 2017 crop malting barley reaching **1.4 MILLION TONNES** worth about **CAD $425 MILLION**, well ahead of last year’s record of **835,000 TONNES**.
The CMBTC conducts micro and pilot-scale malting and brewing trials on an annual basis to evaluate the quality of new crop malting barley and new Canadian malting barley varieties. Samples are collected at harvest with malting and brewing trials conducted at both the micro and pilot scale. Quality analysis as well as process performance data is generated and shared broadly with the domestic industry and international customers.

New Crop Quality & Performance Evaluation

New crop quality evaluation data is provided to both sellers and buyers each year to support the marketing of Canadian malting barley. Each year the CMBTC New Crop Quality Report is produced and distributed to members and end-users. The information generated in these trials is added to a historical times series that forms the basis of the CMBTC’s Variety Specification Sheets, which can also be found on the CMBTC web site. In 2017-18, the CMBTC conducted the following new crop pilot trials:

2017 New Crop Pilot Trials

<table>
<thead>
<tr>
<th>Variety</th>
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<tbody>
<tr>
<td>5 AC Metcalfe</td>
<td>4 CDC Copeland</td>
</tr>
<tr>
<td>4 AAC Synergy</td>
<td>3 AAC Connect</td>
</tr>
<tr>
<td>2 CDC Bow</td>
<td>1 Celebration</td>
</tr>
<tr>
<td>1 CDC Kindersley</td>
<td>1 Newdale</td>
</tr>
<tr>
<td>1 Tradition</td>
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</table>

New Variety Quality & Performance Evaluation

In addition to new crop evaluations, the CMBTC conducts micro (1-2 kgs of barley) and pilot-scale (50 kgs of barley) malting and brewing trials to evaluate the quality of new Canadian malting barley varieties (e.g. newly registered varieties as well as breeder or seed company lines, pre-registration). Samples are collected after harvest from grain companies, malting companies, breeders and seed companies. Quality analysis and process performance data is generated for barley, malt and beer quality parameters, similar to new crop.

2017 New Variety Evaluation Trials

<table>
<thead>
<tr>
<th>Trials</th>
<th></th>
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<tbody>
<tr>
<td>370 micro malting trials</td>
<td>(min 0.5 kgs)</td>
</tr>
<tr>
<td>10 pilot malting trials</td>
<td>(min 50 kgs)</td>
</tr>
<tr>
<td>10 pilot brewing trials</td>
<td>(3 hL)</td>
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</table>

New variety trials included new cultivars such as Lowe, CDC Fraser, CDC Copper and AAC Goldman.

Test results are communicated to the Canadian malting barley value chain and used to promote new malting barley varieties domestically and internationally to facilitate their acceptance and adoption by end-users.

The CMBTC would like to acknowledge the support of the following companies who supplied barley samples from the 2017 crop: Richardson International, Viterra Inc., Prairie Malt, Syngenta, Integrated Grains, CANTERRA SEEDS and Canada Malting Company.
MARKETING SUPPORT

Cargo Quality Evaluation (CQC)
Under the Cargo Quality evaluation program at the CMBTC, exporting companies select a 50 kilogram representative sample of barley during loading at port and sends it to the CMBTC for processing and performance evaluation. Full barley analysis as well as malting and brewing test results, including process recommendations, are supplied to the shipper who in turn can pass the report along the end-users. The malting and brewing companies in turn can use the data to optimize performance of Canadian malting barley. This is a unique service globally offered only by Canada.

• Between April 2017 and March 31, 2018, the CMBTC conducted 42 Cargo Quality Control (CQC) pilot malting and brewing trials for offshore barley exports representing over 1,000,000 tonnes of Canadian malting barley (all shipped to China) which represents and all-time record in terms of the number of CQCs and tonnage.

CMBTC China New Crop Mission
From November 14 - 24, 2017 the CMBTC held a new crop mission to China visiting 10 major users of Canadian malting barley in five cities including Beijing, Guangzhou, Dalian, Yantai and Qingdao. During the mission meetings and seminars were held with purchasing and technical staff. The objectives of the trip included: provide an overview of 2017 crop quality; introduce new Canadian malting barley varieties; gain an understanding of current/future interests and requirements of in terms of quality; solicit input and feedback as well as listen to concerns.

New Variety Acceptance
In 2017-18, the CMBTC worked with domestic partners to supply production scale quantities of two new Canadian malting barley varieties – AAC Connect and CDCX Bow, to one of China’s largest malting companies. Between 150-175 tonnes of both varieties were sourced and shipped in container to the customer. After processing the malt was send to a number of Chinese brewers for testing. This work encourages buyers to test new varieties and supports their timely acceptance into the commercial stream.
APPLIED RESEARCH

CMBTC Applied Research Projects

In 2017-18, the CMBTC undertook several applied research initiatives:

• **Evaluation of flavour profile of Canadian malting barley:** With funding support from the Saskatchewan Barley Development Commission (SBDC) and AAFC’s Agri-Innovation Program, the CMBTC evaluated the flavour profile of 6 Canadian malting barley varieties, comparing flagship cultivars such as AC Metcalfe and CDC Copeland with promising new varieties.

• **Mitigating DON formation during malting in fusarium infected barley:** With funding support from the SBDC and AAFC’s Agri-Innovation Program, the CMBTC tested different approaches to limiting DON growth during malting. This project also endeavoured to identify which substrates of fusarium were present in the barley, and the link to gushing in beer.

• **Screening for DMS/DMSP** - With funding support from the SBDC, the CMBTC purchased a new High Performance Liquid Chromatograph (HPLC) to screen new varieties for the presence of dimethyl-sulfide (DMS), a compound that can negatively affect beer flavour.
GOOD THINGS ARE BREWING
BRINGING OUR BEER TO THE PUBLIC

The CMBTC is pleased to have the fruits of our labour offered to the public at the Fairmont hotel lounge in downtown Winnipeg to showcase how Canadian barley can make a delicious brew. Our golden blonde ale is made with 100% single variety Canadian malting barley. In addition, during 2017-2018 the CMBTC participated in the local Flatlanders beer festival offering two beers including a dunkel-bock, made with a Caramunich malt made in house at the CMBTC (Bock to the Future) and our flagship blonde ale (Prairie Ale).
COMMUNICATION / EDUCATION

Presentations and Conference Participation
The CMBTC participated in, and/or presented, at events/meetings during 2017-18 including:

Canadian Barley Symposium – The CMBTC helped organize the CBS, in conjunction with the North American Barley Research Workshop. Over 150 attendees participated from across North America and beyond which took place in Winnipeg in June of 2017.

Annual Master Brewers Association of the Americas (MBAA)/American Society of Brewing Chemists (ASBC) Conference - Joint conference with the MBAA & the ASBC (P. Watts, A. Nguyen) – Atlanta, October 2017.

American Malting Barley Assoosication (AMBA) Barley Genetics Improvement Conference: Dr. Y. Li attended the meeting in San Diego, January 2018

CropSphere: The CMBTC (P. Watts) presented a Malting Barley Outlook to CropSphere on January 10th, 2018 in Saskatoon.

Master Brewers Association of the Americas, Ontario District Annual Technical Conference: The CMBTC (Dr. Y. Li) presented to the MBAA Ontario District conference on Jan. 28, 2018 on new Canadian malting barley varieties.

Prairie Recommending Committee for Oats and Barley (PRCOB): The CMBTC participated in the PRCOB at the annual Prairie Grain Development Committee meetings in Banff Feb 28-Mar 1, 2018.
Reports and Publications

In 2017-18 the CMBTC shared reports, publications, crop and market updates with members and stakeholders via email as well as our regularly updated website and social media platforms. The following publications and reports were issued to members during the year:

- Issued 2018-19 Recommended Varieties List – November 2017
- Collaborated with the Canadian Grain Commission’s GRL on the 2017-18 Quality of Western Canadian Malting Barley annual publication – November 2017
- Issued 2016-17 Cargo Quality Evaluation Report Summary – March 2018

Social Media

The CMBTC continues to expand its presence on social media platforms including Twitter and Instagram. A dedicated YouTube channel also offers a variety of videos that provide interested viewers an overview of the malting and brewing process.

CMBTC.COM 10,000+ HITS IN 2017-18

@MALTACADEMY

2,000+ SUBSCRIBERS AT THE END OF 2017-18

ACL Genmais
Established Demand

AAC Synergy
Under Commercial Market Development

AAC Connect
Under Commercial Market Development

CDC Bow

New Varieties in Development

The following varieties have been registered with CFIA and are undergoing seed propagation. Both varieties have been pilot scale tested at the CMBTC and exhibit good quality characteristics suitable for all malt and/or adjunct brewing styles.

VARIETY COMMENTS

CDC Fraser
Two-Row - Undergoing seed propagation

Lowe
Two-Row - Undergoing seed propagation

Note: CDC PlatinumStar2 and CDC PolarStar2 are currently closed-loop varieties. For contracting opportunities contact Prairie Malt - Cargill Biggar. Marketing opportunities remain for the varieties Bentley2 and Newdale3 and CDC Kindersley1 in certain areas.

The CMBTC and its members recommend:

• Talk with your local malting barley buyer about opportunities in your area to grow and market two-row and six-row malting barley varieties.
• Use certified seed to ensure varietal purity, reduce disease incidence and increase the likelihood of selection for malt.
• For contracting opportunities, contact your grain company representative, local elevator operators, malting companies, or the representative seed company.

Questions? Call your selector, seed company, grain handling company or contact the CMBTC.

CMBTC & Malt Academy @MaltAcademy - 12 Aug 2018

This 2018 CMBTC Canada Ultra zero crop has begun. Very pleased to welcome the major buyers of Craft malting barley. Today we visited the Est Light Source located at the U of Sask, an amazing facility. The light generated is many times stronger than the sun.

CMBTC & Malt Academy @MaltAcademy - 18 Jun 2018

Some cool farming news from our friends in Saskatchewan: Ranchers farmers tap into to malt market: @ManGrainCentre @ManAg @canadamalt @ranchers @HuskyMalting

Peter Watts - 119 9-15-6-14
On Twitter & li 915-616-2617

CMITC ANNUAL REPORT 2017-2018
CMBTC Malt Academy
The CMBTC’s Malt Academy offers unique training and education programming. The flagship 1-week intensive course in malt processing offers participants theoretical and practical, hands-on instruction using the CMBTC’s state-of-the-art 75 kg pilot Malthouse and Joe White micro-malting unit. The Academy also offers a 3-day program focused on the Canadian malting barley value chain including breeding and varietal development, production, handling, malt processing and brewing.

The CMBTC held 6 Malt Academy programs in 2017-18:
• 1-week intensive malting program – Winnipeg, Apr 3-7, 2017
• 2-day course for MolsonCoors – May 16, 17, 2017
• 1-week intensive malting program – Winnipeg, May 29-Jun 2, 2017
• 1-week intensive malting program – December 4-8, 2017
• 3-day malting program – March 7-9, 2018
• 1-week intensive program – March 19-23, 2018

Committee Participation
The CMBTC participated in the following committees, or was a member of the following associations, during 2017-18:
• Brewing & Malting Barley Research Institute (BMBRI) Technical Committee (Y. Li)
• Prairie Recommending Committee for Oat & Barley (PRCOB) - Prairie Grain Development Committee (Y. Li, P. Watts, A. Onio)
• CGC Barley and Other Cereal Grains Sub-Committee (P. Watts)
• Master Brewers Association of the Americas – MBAA (P. Watts, Y. Li, A. Nguyen, A. Onio, B. Lodge, S. Santiano)
• US Craft Maltsters Guild (CMBTC)
• Barley Council of Canada – (P. Watts)
• Winnipeg Brewmasters (P. Watts, Y. Li, A. Nguyen, A. Onio, B. Lodge, S. Santiano)
• Manitoba Brewers Association - MBBA (A. Nguyen)
2017-18 EXPENDITURES

- **Salaries**: $664,094 (58%)
- **Operations**: $214,501 (19%)
- **Rent**: $152,702 (13%)
- **External Services**: $58,157 (5%)
- **Travel**: $58,575 (5%)
2017-18 REVENUES

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>AAFC (AGRI MARKETING)</td>
<td>33%</td>
<td>$387,187</td>
</tr>
<tr>
<td>MEMBERSHIP</td>
<td>27%</td>
<td>$318,118</td>
</tr>
<tr>
<td>PRODUCER CONTRIBUTIONS</td>
<td>17%</td>
<td>$196,275</td>
</tr>
<tr>
<td>RESEARCH, FUNDING</td>
<td>17%</td>
<td>$181,300</td>
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<tr>
<td>MALT ACADEMY</td>
<td>9%</td>
<td>$99,096</td>
</tr>
<tr>
<td>TECHNICAL CONSULTING</td>
<td>3%</td>
<td>$31,400</td>
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<tr>
<td>OTHER REVENUE (PROGRAMS, BEER SALES, INTEREST)</td>
<td>1%</td>
<td>$17,312</td>
</tr>
</tbody>
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CMBTC STAFF LISTING

2017-2018

Sherwin Santiano
Malt Plant Technician

Dr. Yueshu Li, PHD
Director of Malting and Brewing Operations

Rose Marie Bemrose
Office Administrator

Andrew Nguyen
Malting and Brewing Technical Specialist

Peter Watts
Managing Director

Bryce Lodge
Malting and Brewing Technician

Aaron Onio
Malting and Brewing Technical Specialist