

Aaron MacLeod

Director, Center for Craft Food and Beverage
Hartwick College
PO Box 4020, Oneonta, NY, 13820
macleoda@hartwick.edu
Tel: 607-431-4232

EDUCATION

Bachelor of Science in Chemistry
University of Western Ontario
London, Ontario, 2004

EMPLOYMENT

Director, Center for Craft Food and Beverage 2015 to Present
Hartwick College
Oneonta, New York

Malting Barley Research 2005 - 2015
Grain Research Laboratory, Canadian Grain Commission
Winnipeg, Manitoba

Quality Assurance 2001-2004
Cargill Animal Nutrition, Strathroy, Ontario

PROFESSIONAL ACTIVITIES

American Society of Brewing Chemists, Member 2009 - Present
ASBC Technical Committee, Member 2012 - Present
AACC International Canadian Prairie Section, Chair 2013 - 2014
AACC International Canadian Prairie Section, Vice-Chair 2011 - 2012
AACC International Canadian Prairie Section, Secretary. 2008 - 2010
Prairie Recommending Committee for Oats and Barley, Secretary 2014 - 2016
Prairie Recommending Committee for Oats and Barley, Member 2011 - 2013

ARTICLES PUBLISHED IN PEER REVIEWED JOURNALS

1. O'Donovan, Yadeta Anbessa Kabeta, Cynthia Grant, Aaron L MacLeod, Michael Edney, Marta Izydorczyk, Thomas Kelly Turkington, Patricia Juskiw, Guy P Lafond, William May, Neil Harker, Eric Johnson, Brian L Beres, Tim Angus McAllister, Elwin G. Smith, William Chapman. 2015. Relative responses of new malting barley cultivars to increasing nitrogen rates in western Canada. *Canadian Journal of Plant Science* 95(5): 831-839
2. MacLeod, A. Langrell, D, Edney, MJ. 2014. Comparison of Export and Harvest surveys of malting barley quality. *Canadian Journal of Plant Science* 94(3): 587-592

3. Edney, MJ. MacLeod, A. Laberge, D. 2014. Evolution of a testing program for improving malting barley quality in Canada. *Canadian Journal of Plant Science* 94(3): 535-544
4. Macintosh, A. MacLeod, A. Eck, E. Beattie, A. Edney, MJ, Rossnagel, B, Speers, A. 2014. Assessing the Effect of Fungal Infection of Barley and Malt on Premature Yeast Flocculation. *Journal of the American Society of Brewing Chemists* 72(1):66-72

REPORTS PUBLISHED IN REFEREED JOURNALS

1. Chicos, T., Franciso, B., Jensen, S., Johnson, J., Lahlum, R., MacLeod, A., McMaster, N., Roberts, E., Rodriguez, M., Stern, A., Wijetuna, T., Jennings, R. Rapid immunoassay method for analysis of deoxynivalenol in barley. *Journal of the American Society of Brewing Chemists* 72(4):301-302. 2014.
2. Kim, U., Adam, C., Brown, D., Chicos, T., Harasymow, S., Henderson, T., Jensen, S., Lahlum, R., Martens, C., Roberts, E., Rodriguez, M., Spedding, G., Stern, A., Macleod, A. Spectrophotometric determination of β -glucan in wort. *Journal of the American Society of Brewing Chemists* 72(4) 299-300. 2014.
3. MacLeod, A. Caruso, A. Fogarty, M. ; Harasymow, S. Henderson, T. Joy, R. Martens, C. Miller, A. Olscamp, G. Price, A. Roy-Price, K. Stephans, B. Stern, A, and Jennings, R. 2012. Viscosity of Wort by Rolling Ball Viscometer. *Journal of the American Society of Brewing Chemists* 70(4):98-299
4. Budde, A. Barr, J. Chicos, T. Churchill, K. French, K. Joy, R. MacLeod, A. McCann, J. Mead-Shirley, T. Menert, J. Schmitt, M. Stern, A. and Jennings, R. 2011 Determination of α -amylase in malt by segmented flow analysis using potass
5. MacLeod, A. Adam, C. Budde, A. Chicos, T. Churchill, K. Jenson, S. Johnson, B. Joy, R. Marker, C. Schmitt, M. Schuba, R. Stern, A. Whittaker, T. and Jennings, R. 2011 Determination of β -glucan in wort by segmented flow analysis. *Journal of the American Society of Brewing Chemists* 69(4):296-297
6. MacLeod, A. Adam, C. Budde, A. Chicos, T. Churchill, K. Jenson, S. Johnson, B. Joy, R. Marker, C. Schmitt, M. Schuba, R. Stern, A. Whittaker, T. and Jennings, R. 2011 Determination of Free Amino Nitrogen in Wort by Segmented Flow Analysis. *Journal of the American Society of Brewing Chemists* 69(4):295
7. Chicos, T. Baroch, A. Barr, J. Budde, A. Fodor, E. Fox, G. Francisco, B. Jalbert, M. MacLeod, A. Martens, C. McCann, J. Mead-Shirley, T. Stern, A. and Jennings, R. 2011 Alternative method for malt assortment. *Journal of the American Society of Brewing Chemists* 69(4):289-292
8. Speers, A. Baugh, C. Cook, D. Eck, E. Gibson, B. Joy, R. MacLeod, A. Panteloglou, A. Voetz, M. Walker, S. and Powell, C. 2011 Miniature fermentation method. *Journal of the American Society of Brewing Chemists* 69(4):281-287
9. Ritchie, P. Barr, J. Bartlett, S. Boucek, J. Budde, A. Chicos, T. Churchill, K. Fox, G. Joy, R. MacLeod, A. Maurice, M. and Jennings, R. 2010 Assortment of Malt Using the Pfeuffer Sortimat. *Journal of the American Society of Brewing Chemists* 68:248-253
10. Budde, A. Barr, J. Bartlett, S. Chicos, T. Churchill, K. Frey, D. MacLeod, A. Maurice, M. Menting, J. Stern, A. and Jennings, R. 2010 Method for Determining Alpha-Amylase in Malt by Segmented Flow Analysis Using Potassium Ferricyanide. *Journal of the American Society of Brewing Chemists* 68:246-247

11. Bartlett, S. Barr, J. Bolin, P. Chicos, T. Churchill, K. Dong, Y. Einarson, M. Greene, J. Hanson, D. Joy, R. Jutras, M. Kuhl, R. MacDonald, J. MacLeod, A. McCann, J. Miller, D. Mundy, A. Pollhammer, J. Ritchie, P. Rugroden, K. Stern, A. Szeto, B. Trautman, J. Yamaura, N. and Jennings R. 2010. Enzyme-Linked Immunosorbent Assay Method for Deoxynivalenol Analysis in Malt. *Journal of the American Society of Brewing Chemists* 68:238-240
12. Speers, A. Bendiak, D. Caudill, J. Cook, D. Eck, S.E. Fernandez, B. Gibson, B. MacLeod, A. Monroe, J. Parker, N. Porter, A. Schuba, R. Walker, S. White, L. Voetz, M. and Powell, C. 2010. Miniature Fermentation Method. *Journal of the American Society of Brewing Chemists* 68:231-237
13. Eurich, M. Budde, A. Jennings, R. Lakenburgs, K. MacLeod, A. and Porter, A. 2010 Review of Wort Methods of Analysis. 2010. *Journal of the American Society of Brewing Chemists* 68:222-223
14. Menert, J. Adams, C. Amundsen, B. Bolin, P. Fox, A. French, K. Joy, R. MacLeod, A. Stern, A. and Jennings, R. 2010 Megazyme E-MAST Standard for Segmented Flow Analysis of α -Amylase in Malt. *Journal of the American Society of Brewing Chemists* 68:218-219
15. Jennings, R. Allder, K. Bartlett, S. Budde, A. Chicos, T. Fox, G. Kahle, J. MacLeod, A. Pickett; Schmitt, M, Whittaker, T. 2010. Ethylenediaminetetraacetate acid versus barley as a calibration standard for determining protein in malt using combustion analysis. *Journal of the American Society of Brewing Chemists* 68:220-221
16. MacLeod, A. Allsopp, D. Amundsen, B. Bartlett, P. Churchill, K. Joy, R. McCann, J. Ritchie, P. Stern, A. Whittaker, T. and Jennings, R. 2010. Mill and mashing apparatus for determination of malt extract. *Journal of the American Society of Brewing Chemists* 68:216-217
17. Barr, J. Bartlett, S. Budde, A. Churchill, K. Home, S. Jewett, J. Joy, R. Li, Y. Lowe, J. MacLeod, A. Maurice, M. McCann, J. Menert, j. Mundy, A. Ritchie, P. Robbins, K. Roumeliotis, S. Schwarz, P. Sheehy, M. Vogel, J. Zinati, J. and Jennings, R. 2009 Review of Malt Methods of Analysis. *Journal of the American Society of Brewing Chemists* 67:262

ORAL PRESENTATIONS

1. MacLeod, A*. Izydorczyk, M.S. Edney, M.J. O'Donovan, J.T. 2014 *Levels of starch degrading enzymes in new malting barley varieties grown in Western Canada and their relationship with grain protein*. Brewing Summit. Chicago, IL. June 4-7.
2. MacLeod, A*. 2013. *Evaluating barley for end use quality in Canada*. International Cereal Chemistry Conference, Freemantle, Australia. August 25th -28th.
3. MacLeod, A*. Beattie, A. Edney, MJ, Speers, RA. 2013. *Improving the Fermentability of Canadian Malting Barley*. BMBRI Triennial Barley Improvement Conference. Winnipeg. June 6th.

POSTER PRESENTATIONS

1. O'Donovan, JT*. Turkington, TK. Harker, KN. Oatway, L, Grant, CA. Beres, B. Johnson, B. May, W. Izydorczyk, MS. MacLeod, AL. Anbessa, Y. Vera, C. 2015 Malting Barley Cultivar Responses to Increasing Nitrogen Rates in Western Canada. Crop Science Society of America Annual Meeting, Minneapolis, NM. November 15-18.
2. H. Luo*, S. Harasymow, B. Paynter, C Li, A. MacLeod, J. O'Donovan. 2015 Genetic and environmental effects on barley and malt proteins from two Australian and two Canadian varieties. 17th Australian Barley Technical Symposium. Sydney, Australia. September 13-16.
3. T. Gräfenhan*, W. Chen, C.T. Lewis, C.A. Lévesque, N. Zhang, J.M. Bamforth, D. Gaba, S.A. Tittlemier, A. MacLeod and T.K. Turkington. 2014. Composition of fungal communities on barley and malt from western Canada revealed by next generation sequencing. North American Barley Researchers Workshop. Minneapolis, MN. July 1-4.
4. Chen, W*. Lewis, CT. Lévesque, A. Zhang, N. Turkington, KT. Bamforth, J. Gaba, D. Tittlemier, SA. MacLeod, A. Gräfenhan, 2014. T. Pyrosequencing revealed geographical distribution and ecological diversification of fungal communities on barley and malt from western Canada. XIVth International Congress of Mycology and Eukaryotic Microbiology. Montréal, Québec, July 27 - August 1,
5. MacLeod, A*. Speers, RA. McCaig, R. Edney, MJ. 2013 Beyond Attenuation Limit: Enhanced Techniques for Assessing Malt Fermentability. 16th Australian Barley Technical Symposium. Melbourne, Australia. September 8th -11th.
6. MacLeod, A*. O'Donovan, J.T. Turkington, T.K. and Edney, M.J. 2012. Wort amino acid composition of new Canadian malt barley varieties and their relationship with grain protein. World Brewing Congress, Portland, OR July 28th-August 1st
7. Gómez, B*. MacLeod, A. De León, T. Edney, MJ. 2012. Investigating the influence of wort amino acid composition on fermentability using a model solution. World Brewing Congress, Portland, OR July 28th-August 1st
8. MacLeod, A*. Legge, B. McCaig, R. Edney, M. 2011. Brewing with low phytate barley malt – increased mineral availability for improved fermentation. 74th Annual meeting of the ASBC, Fort Myers, FL, June 11th-15th
9. MacLeod, A*. Langrell, D. Lowe, S. Edney, MJ. 2010. Application of Ultra Performance Liquid Chromatography for the determination of amino acids in wort and beer. 73rd Annual meeting of the ASBC, Providence, RI, June 15th-18th
10. Gomez, B. MacLeod, A*. Edney, M.J. 2009 A laboratory fermentation method that can determine the influence of micro-nutrient levels on wort fermentability. 72nd Annual meeting of the ASBC, Tucson, AZ, June 6th-10th
11. MacLeod, A. Langrell, D*. Edney, M.J. 2009. The impact of turbidity on wort colour measurement. 72nd Annual meeting of the ASBC, Tucson, AZ, June 6th-10th
12. Gomez, B*. MacLeod, A. Edney, M.J. 2009. Using a high maltose fermentability test to investigate effects of wort amino acids on fermentability. 14th Australian Barley Technical Symposium, Queensland, Australia, September 13th to 16th.

*Presenting author