

Bee Khim Chim

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Education

Doctor of Philosophy in Crop and Soil Environmental Sciences (CSES) Virginia Tech, Blacksburg, Virginia	2016
Master of Science in Plant and Soil Sciences (PASS) Oklahoma State University, Stillwater, Oklahoma	2012
Bachelor of Science in Biochemistry and Molecular Biology Oklahoma State University, Stillwater, Oklahoma	2009

Professional Experiences

Assistant Extension Professor/ Assistant Professor of Sustainable Agriculture University of Maine Cooperative Extension and UMPI College of Arts and Sciences	Sep 2020–Present Presque Isle, Maine
Postdoctoral Research Associate/ORISE scholar USDA–ARS North Central Agricultural Research Lab (NCARL)	Jun 2018–Aug 2020 Brookings, South Dakota
Postdoctoral Associate Virginia Tech Crop and Soil Environmental Sciences (CSES)	Jul 2016–May 2018 Blacksburg, Virginia
Graduate Research Assistant Virginia Tech Crop and Soil Environmental Sciences (CSES)	Aug 2012–May 2016 Blacksburg, Virginia
Lab Manager/Graduate Research Assistant Oklahoma State University Plant and Soil Sciences (PASS)	Jan 2010–May 2012 Stillwater, Oklahoma

Teaching Experiences

Assistant Professor of Sustainable Agriculture Department of Agriculture Science & Agribusiness, University of Maine–Presque Isle (UMPI) <i>AGR 320 Precision Agriculture (students: 6; 3 credit hours)</i> <i>AGR 310 Plant and Crop Sciences (students: 17; 4 credit hours)</i> <i>AGR 320 Precision Agriculture (students: 7; 3 credit hours)</i>	Presque Isle, Maine Jan 2023–May 2023 Aug 2021–Dec 2021 Jan 2021–May 2021
Teaching Assistant Department of Crop and Soil Environmental Sciences (CSES), Virginia Tech <i>CSES 3444 World Crops and Systems Laboratory –Co-instructor (students: 64)</i> <i>CSES 4214 Soil Fertility and Management (students: 33)</i>	Blacksburg, Virginia Feb 2017–May 2017 Aug 2013–Dec 2013
Department of Plant and Soil Sciences (PASS), Oklahoma State University <i>SOIL 5813: Nutrient Cycling and Environmental Quality</i> <i>SOIL 5111: Research Methods</i> <i>SOIL 4213: Precision Agriculture</i> <i>SOIL 5813: Nutrient Cycling and Environmental Quality</i> <i>SOIL 4213: Precision Agriculture</i>	Stillwater, Oklahoma Jan 2012–May 2012 Jan 2011–May 2011 Jan 2011–May 2011 Jan 2010–May 2010 Jan 2010–May 2010
Guest Lectures Department of Agriculture Science & Agribusiness, UMaine Presque Isle (UMPI) <i>COS 290 Special Topics in Cybersecurity – Food Supply Chain (students: 9)</i> <i>AGR 260 Agricultural Technology, Operations & Safety (students: 8)</i>	Presque Isle, Maine 19, 21 Sep. and 3 rd Oct. 2023 13 Oct 2021
School of Food and Agriculture, University of Maine <i>PSE 440 Environmental Soil Chemistry and Plant Nutrition (students: 19)</i> School of Biology and Ecology, University of Maine <i>BIO 505 Professionalism in Biology (grad students: 7)</i>	Orono, Maine 12 Apr 2022 Orono, Maine 8 Mar 2022

Professional/ Extension Activities

Annual Report and Board Meetings

- ❖ Maine Potato Board Research Meeting (13 Mar 2024, MPB building, Presque Isle, ME)
- ❖ Maine Potato Board Research Meeting (8 Mar 2023, MPB building, Presque Isle, ME)
- ❖ Maine Potato Board Research Meeting (10 Mar 2022, MPB building, Presque Isle, ME)
- ❖ Farm Board Customer focus group meeting (15 Jan 2020, USDA–ARS, Brookings, SD)
- ❖ Farm Board Customer focus group meeting (20 Mar 2019, USDA–ARS, Brookings, SD)
- ❖ Virginia Small Grain Board Meeting and Annual Report (18 Jul 2017, Richmond, VA)
- ❖ Virginia Corn Board Meeting and Annual Report (24 Feb 2015, Williamsburg, VA)
- ❖ Oklahoma Ag Expo MMX (2–4, Nov 2010, Oklahoma City, OK)
- ❖ Oklahoma Fertilizer Check-off Board Meeting and Annual Report (17 Dec 2008, 22 May 2009 and 26 Apr 2011, Stillwater, OK)

Extension Talks

1. **B.K. Chim.** Is Soil Fumigation Sustainable for Potato Production? DASCO Grower meeting – Soil Health and Fumigation Breakfast, Northeastland Hotel, Presque Isle, 19th Mar. 2024. Attendees: 95.
2. **B.K. Chim.** Effects of Micronutrients on Potato Production. Grand Falls Grower meeting – Decoding the growing season in 2023, Virtually thru Zoom for New Brunswick, Canada growers. 2nd Feb, 2024. Attendees: 35.
3. **B.K. Chim.** Effects of Micronutrients on Potato Production. Grand Falls Grower meeting – Decoding the growing season in 2023, Northern Maine Community College (NMCC), Presque Isle, ME. 1st Feb, 2024. Attendees: 106.
4. **B.K. Chim.** A Comprehensive Approach to IPM, Soil Fumigation, Timing, Fertility, and ROI Strategies for Sustainable Potato Production in Northern Maine. 2024 Maine Agricultural Trades Show, Augusta, ME. 9th–11th Jan. 2024. Attendees: 30.
5. **B.K. Chim.** Optimizing Crop Health: Nutrient Management Strategies for Sustainable and Land-Efficient Potato Production. Maine Potato Summit 2024, hosted by Maine Potato Board, North Maine Community College (NMCC), Presque Isle, ME. 3rd–4th Jan. 2024. Attendees: 180.
6. **B.K. Chim.** Phosphorus Management for Sustainable Potato Production in Northern Maine. 2023 Northeast CCA training, hosted by New York State Agribusiness Association (NYSABA). Via Zoom, 13th Dec. 2023. Attendees: 85.
7. **B.K. Chim.** A comprehensive approach to IPM, soil fumigation, timing, fertility, and ROI strategies for sustainable agriculture. 2023 Crop Health Conference (CHC), Northeastland Hotel, PI, 4th Dec. 2023. Attendees: 90.
8. **B.K. Chim.** Cultivating Healthy Potato Production: Optimal Spacing, Soil Health Management, and Nutrient Management Strategies. Potato growers from Western NY, 9th Mar. 2023. Attendees: 15.
9. **B.K. Chim.** ACEA Annual Report, annual conference. In-person at Aroostook Shrine Club, 20th Oct. 2022. Attendees: 40
10. **B.K. Chim.** Powdery Scab Project – Update (2021–2022). Predictive modeling of powdery scab and PMTV disease risk in U.S. 11th Apr. 2022. Via Zoom meeting, attendees: 15.
11. Y. Zeng, A. Charkowski, **B.K. Chim.** Colorado State potato grower meeting, discussion regarding powdery scab project. 23rd Mar. 2022. Via Zoom meeting, attendees: 25.

Extension Field days

- ❖ 2023 Potato Field Day–In Honor of Dr. Greg Porter: Celebrating his Contributions to the Potato Industry. Pesticide Recertification Credit (2), CEUs credits (3.5), Aug 16, 2023 (In-person). Attendance: 97 at Aroostook Research Farm, Presque Isle, ME.
- ❖ Pursell Potato Field Day, Aug 10, 2023 (In-person) regarding the Pursell UREA fertilizer product demonstration research plot. Attendance: 60 at Aroostook Research Farm, Presque Isle, ME.
- ❖ 2022 Syngenta Field Day. Pesticide Recertification Credit (2), CEUs credits (2), Aug 17, 2022 (In-person). Attendance: 115 at Aroostook Research Farm, Presque Isle, ME.
- ❖ 2022 Potato Field Day, Pesticide Recertification Credit (1), CEUs credits (2.5), Aug 17, 2022–Nutrient management for potatoes (In-person). (<https://extension.umaine.edu/potatoes/field-day/>) Attendance: 96 at Aroostook Research Farm, Presque Isle, ME.
- ❖ 2022 Field Day: Managing Irrigation for Crop Improvement, Soil Health, and Water Source Conservation from USDA–NRCS Southern Aroostook (In-person). Title: Moisture sensor demo; when to irrigate and how much to apply. Aug 10, 2022. Attendance: 54 at Fitzpatrick Farm, Houlton, ME.
- ❖ 2022 Potato Virus Y Field Day: Potato Virus Y (Recognizing it in the field). Pesticide Recertification Credit (3), Jul 13, 2022–Phosphorus Management in Potato systems (In-person). (<https://extension.umaine.edu/ipm/plant-disease/field-day-growers/>) Attendance: 60 at Aroostook Research Farm, Presque Isle, ME.

- ❖ Potato experiences for 8–12th grade with Alisha Targonski from 4H, Jul 30, 2021, at Seed Pro Inc, Monticello, ME. Attendance: 5.
- ❖ Rogers Farm Hemp Twilight meeting, Jul 8, 2021–Active sensor NDVI on hemp (in–person). Attendance:24 at Roger Farm, Orono, ME.
- ❖ 2019 Conservation Tillage Conference (17–18, Dec 2019, St. Cloud, MN)–oral presentation; table talks.
- ❖ 25th Annual Field Day (18 Jun 2019, USDA–ARS, Brookings, SD)–oral presentation
- ❖ South Dakota Middle School Field Day (25 Apr 2019, USDA–ARS, Brookings, SD)–participated in the demonstration.
- ❖ 24th Annual Summer Field Day (19 Jun 2018, Eastern SD Soil and Water Research Farm, Brookings, SD)–participated.
- ❖ AgExpo Field day (7 Aug 2014, Lottsburg, VA)–oral presentation
- ❖ Virginia No-Till Alliance Vantage Conference (15 Feb 2013, Fredericksburg, VA)
- ❖ Collected corn stalk diameter, plant distance, and corn yield by plant in farmer fields to predict yield and recommendation nitrogen sidedress rate (Oct 2011, Minden, NE)
- ❖ **International:** Collected maize stalk diameter and plant distance to aid in by-plant yield prediction, collected wheat NDVI measure for diagnostics with a new GreenSeeker™ handheld optical sensor also to isolate phosphorus deficiencies (9–14, Jan 2011, Ciudad Obregón, Mexico)
- ❖ Oklahoma State University Extension Kids Community Field Day (2 events–Apr 2011 and Nov 2011, Stillwater, OK) – participated in the demonstration.
- ❖ Oklahoma Ag Expo MMX–Oklahoma Agribusiness Retailer Association & Oklahoma Grain & Feed Association (2–4, Nov. 2010, Oklahoma City, OK.)
- ❖ Collected corn sensor data in farmer fields to predict yield and recommendation of nitrogen sidedress rate (Jun 2010, Bloomington and Champaign, Illinois)
- ❖ GreenSeeker™ Training for the 45th Agribusiness Development Team Oklahoma Army National Guard (17 Aug 2009, Stillwater, OK) – participated in the demonstration.

Invited Guest Speaker

- ❖ Envirothon Fall Field Day, Sep. 12, 2023 (In-person), hosted by Southern Aroostook Soil and Water Conservation District. Attendance: 25 at Aroostook State Park, Presque Isle, ME.
- ❖ McCain Soil Health Field Day, Aug 17, 2023 (In-person) To talk about potential fall cover crops option for the potato cropping system as an invited speaker from McCain and Soil Health Institute (SHI). Attendance: 65 at Blackstone Farm, Caribou, ME.
- ❖ McCain webinar series collaborated with Soil Health Institute (SHI) and attended as an invited discussion panel. Virtually (Jul 20, 2023). Title: Making Cover crops pay in potato. Attendance; 73 (virtual).
- ❖ St. John Valley 2023 Spring Ag Program. Pesticide Recertification credit (1), Fort Kent, ME (Mar 16, 2023). Title: Using crop rotation to improve soil health, disease, and weed management in potato production. Attendance: 6
- ❖ 2023 In-service Training for Agricultural Service Providers and Certified Crop Advisors (CCA) Training–In person, Portsmouth, NH (Jan 25–26, 2023). Title: Cover crop options to protect potato soils. Attendances: 50
- ❖ 2022 Aroostook County Extension Association (ACEA) annual meeting–In-person, Aroostook Shrine Club, Presque Isle, ME (Oct 20). Title: Soil Health Round Table Discussion with other 4 guest speakers (Tony Jenkins–Soil Scientist at USDA–NRCS, Matt Bouchard– soil scientist at the Maine Department of Agriculture, Conservation and Forestry (DACF), Cody Staples–Staples farm, Justin Wilcox–McCain Foods). Attendances: 40.
- ❖ 167th Northern Maine Fair 2022–In-person, Presque Isle ME (Aug 4, and 6). Title: Soil testing and documenting your results. Attendances: 11
- ❖ St. John Valley 2022 Spring Ag Program Webinars. Pesticide Recertification credit (1), April 20, 2022–Soil Health Management (virtual). Attendance: 28
- ❖ 166th Northern Maine Fair 2021–In-person, Presque Isle ME (Aug 5, and 6). Title: Soil health, why soil sampling is a good idea, how to take a good soil sample, interpreting test results. Attendance: 12
- ❖ State of Maine 80th Agricultural Trades Show 2021 via Zoom –Virtually, ME (19–23, Jan 2021) Title: Can crop rotation be a sustainable pest and disease management? (PAT–2021 ATS) Attendance: 122
- ❖ 2021 In-service training for agricultural service providers and certified crop advisors (CCA) training – via Zoom. Title: Root length density of cereal grain and legume crops in a diverse crop rotation. 2021 In-Service training for Agricultural Service Providers–CCA (Lunch and Learn series, ½ CEU credit crop management), 18th Feb. 2021– Attendance: 60.
- ❖ Final Journal Club Meeting via Zoom – California State University, Chico, CA (5 Jun 2020) Attendance: 17

Workshops/ Conferences

- ❖ 2023 Crop Health Conference. Pesticide Recertification Credit (5), CEUs credits (5.5). Northeastland Hotel, Presque Isle, ME Dec 4th, 2023, In-person. Attendance: 90.

- ❖ 2023 Sustainable Ag Workshop. Pesticide Recertification Credit (2), CEUs credits (5.5), UMPI. Mar 22, 2023 (In-person). (<https://extension.umaine.edu/potatoes/sustainable-ag-workshop/>) Attendance: 53.
- ❖ Northeast Cover Crop Council (NECCC) Annual Conference, Planning Committee, Portland, ME (In-person). (<https://northeastcovercrops.com/event/northeast-cover-crops-council-2023-annual-conference/>) with CEU credits (9). Attendance: 86.
- ❖ 2023 Maine Potato Summit, Northern Maine Community College (NMCC), Presque Isle, ME 9–10th Jan. 2023, In-person. Attendance: 180.
- ❖ Soil Health Course (through Brightspace)–Online (2/16/22–3/23/22), total 5 sessions, (14 farms–30 attendees)
- ❖ So, You Want To Farm in Maine (SYWTFIM, with students), total 10 sessions. 18th Jan. 2022–17th Feb. 2022, Virtual. Attendance: 13 students, 36 farmers.
- ❖ So, You Want To Farm in Maine (SYWTFIM, only farmers), total 7 sessions. 29th Mar. 2021–22nd Apr. 2021. Attendance: 85 farmers.
- ❖ OSU–AGCO GreenSeeder™ Hand Planter Workshop – Online (16 Jan 2014, Stillwater, OK)

Training

- ❖ Northeast Maine Climate Adaptation Practices (MECAP) program–Online/In-person (1/5/23–6/30/23) part of the 15 professionals in Ag industrial training in Maine and New Hampshire.
 - Explore practices to help farmers to adapt to “Too Much Water.”
- ❖ Northeast Maine Climate Adaptation Practices (MECAP) program–Online/In-person (10/26/21–6/30/22) part of the training group of 11 professionals in Ag industrial.
 - Explore practices to help farmers adapt to “Too Little Water.”
- ❖ Young Professional Institute (UMPI) weekly from 14th Apr.–2nd Jun. 2021 (virtually), part of the 45 people professionals in their early career in Aroostook County.
- ❖ CITL Seminar–Orientation training (Feb 2, 2021, met weekly) for all new faculty through UMaine systems.
- ❖ LECO Training Course at LECO Corporation for LECO Certificate (18 Feb 2009, Stillwater, OK)

Media/Videos/ Newsletters

- ❖ **B.K. Chim.** Interview by Brian Bouchard on 10th Oct. 2023 in the County Ag Series, talking about this potato wet season and how it affects potato production in the county. Formally interviewed thru Zoom from WAGM–TV, Presque Isle, ME. Aired on 11th Oct. 2023.
- ❖ **B.K. Chim.** Interview by Shawn Cunningham and Vanessa Symonick on 26th Sep. 2023. Potato Pickers special guest talking about the current potato growing season and ongoing potato research, live on local channel WAGM–TV at 5 a.m.
- ❖ **B.K. Chim,** and Jason Johnston. Interview by Shawn Cunningham and Vanessa Symonick on 21st Sep. 2022. Potato Pickers special guest talking about ongoing potato research and the current Agriculture program at UMPI, live on WAGM–TV at 5 a.m.
- ❖ **B.K. Chim.** Interview by Brian Bouchard on 17th Aug 2022. About 2022 Potato Field Day. informal interview from WAGM–TV, Presque Isle, ME. Aired on 17th Aug 2022.
- ❖ **B.K. Chim.** Interview by Brian Bouchard on 4th Aug 2022. The 167th Northern Maine Fair 2022 Extension Talk. Formal record from WAGM–TV, Presque Isle, ME. Aired on 6th Aug 2022.
- ❖ **B.K. Chim.** Interviewed by Robert Grimm on 4th May 2022. The latest research in the County to help students at UMPI for County Ag Report. Formally interviewed thru Zoom from WAGM–TV. Aired on 12th May 2022.
- ❖ Prisc Isl, newsletter from Darik New. Formally interviewed by Robert Grimm on 4th May 2022. Research in support of local agriculture. <https://darik.news/maine/research-in-support-of-local-agriculture/571805.html>
- ❖ **B.K. Chim.** Interviewed by Brian Bouchard on 8th Oct 2021. Introduction of myself to the county. Formal interview in-person from WAGM–TV. Aired 18th Oct 2021.
- ❖ **B.K. Chim.** Interviewed by Shawn Cunningham and Audrey Sinclair on 6th Oct 2021. Potato Pickers special guest, live on WAGM–TV at 5 a.m.
- ❖ **B.K. Chim.** Interviewed by Rhian Lowndes on 4th Oct 2021. Precision Ag and technology in agriculture. Formal interview in-person from WAGM–TV. Aired on 12th Oct 2021.
- ❖ **B.K. Chim.** Interviewed by Kathy McCarty on 4th Sep 2020. New UMaine Extension crops specialist Bee Chim based in Presque Isle. Published 9th September 2020. <https://www.centralmaine.com/2020/09/09/new-umaine-extension-crops-specialist-bee-chim-based-in-presque-isle/>

Publications

Peer-reviewed Journal

1. Brockmueller, B., P. Sexton, S. L. Osborne, and **B.K. Chim.** 2023. Winter rye cover crop seeding rate and termination timing effects on cover crop biomass quality. *Comm. Soil Sci. Plant Anal.* 54:17, 2360–2375. doi: 10.1080/00103624.2023.2221299

2. Zhang, X., X. Ma, X. Fan, T. Ge, R.E. Leiby, B.M. Swingle, S.B. Johnson, R.P. Larkin, **B.K. Chim**, and J. Hao. 2023. First report of *Pectobacterium brasiliense* causing bacterial blackleg and soft rot of potato in Pennsylvania. *Plant Disease*. 107:8, 2512. doi:10.1094/PDIS-09-22-2085-PDN.
3. Zhang, X., X. Fan, K.A. Ashley, P. Lévasseur, **B.K. Chim**, and J. Hao. 2022. Field evaluation of chemical and biological products for the control of *Verticillium wilt* of potato in Maine, 2021. *Plant Disease Mgmt. Reports*. 16: V119.
4. Leme, J.F.D.C., **B.K. Chim**, C. Bermand, W.E. Thomason, A.A. Diatta. 2022. Effect of biostimulants on cannabis productivity and soil microbial activity under plasticulture conditions. *Res. Square*. doi:10.21203/rs.3.rs-2050388/v1.
5. **Chim, B.K.**, S.L. Osborne, and R.M. Lehman. 2022. Short-term corn yield response associated with nitrogen dynamics from fall-seeded cover crops under no-till dryland conditions. *Agrosyst., Geosci., Environ. J.* 5:3. e20305. doi: 10.1002/agg2.20305
6. **Chim, B.K.**, S.L. Osborne, R.M. Lehman, S.K. Papiernik. 2021. Cover crop effects on cash crops in Northern Great Plains no-till systems are annually variable and possibly delayed. *Comm. Soil Sci. Plant Anal.* 53:2, 153–169. doi:10.1080/00103624.2021.1984512.
7. Leme, J.F.D.C., W.E. Thomason, G.K. Evanylo, X. Zhang, M.S. Strickland, **B.K. Chim**, and A.A. Diatta. 2021. An integrated plant nutrition system (IPNS) for corn in the Mid-Atlantic USA. *J. Plant Nutr.* 44:5, 704–722. doi:10.1080/01904167.2020.1849298.
8. Leme, J.F.D.C., W.E. Thomason, G.K. Evanylo, X. Zhang, M.S. Strickland, **B.K. Chim**, and A. Diatta. 2020. Biochemical and physiological responses of *Cannabis sativa* to an integrated plant nutrition system. *Agron. J.* 112:5237–5248. doi:10.1002/agj2.20400
9. Leme, J.F.D.C., W.E. Thomason, G.K. Evanylo, X. Zhang, M.S. Strickland, **B.K. Chim**, C. Bermand, and A. Diatta. 2020. Corn response to an integrated plant nutrition system (IPNS) with humic acid and biofertilizers. *J. Agric. Sci.* 12,8. doi:10.5539/jas.v12n8p25
10. Leme, J.F.D.C., W.E. Thomason, G.K. Evanylo, X. Zhang, M.S. Strickland, **B.K. Chim**, and A.A. Diatta. 2020. The synergistic effects of humic substances and biofertilizers on plant development and microbial activity: a review. *Intl. J. Plant Soil Sci.* 32:56–75. doi:10.9734/IJPSS/2020/v32i730306
11. Norris, R., **B.K. Chim**, G. Evanylo, M. Reiter, and W.E. Thomason. 2020. Corn yield and soil nitrogen following winter annual cover crops interseeded into soybean. *Crop Sci.* 60:2667–2682. doi:10.1002/csc2.20185
12. Osborne, S.L., **B.K. Chim**, W.E. Riedell, and T.E. Schumacher. 2020. Root length density of cereal and grain legume crops grown in diverse rotations. *Crop Sci.* 60:2611–2620. doi:10.1002/csc2.20164.
13. Polat, A., **B.K. Chim**, S. Kumar, S.L. Osborne. 2020. On-farm assessment of soil quality in low and high grazing under integrated crop-livestock system in South Dakota. *J. Agric. Sci. Issues 2020/Vol26/Issue4*.
14. Lehman, R.M., S.L. Osborne, W.I. Taheri, J.S. Buyer, **B.K. Chim**. 2019. Comparative measurements of arbuscular mycorrhizal fungal response to agricultural management practices. *Mycorrhiza* 29:227–235. doi:10.1007/s00572-019-0884-4.
15. Norris, R., **B.K. Chim**, G. Evanylo, M. Reiter, and W. Thomason. 2018. Assessment of in-season soil nitrogen tests for corn planted into winter annual cover crops. *Soil Sci. Soc. Am. J.* 82:1428–1436. doi: 10.2136/sssaj2018.01.0036
16. Diatta, A.A., W.E. Thomason, O. Abaye, L.J. Vaughan, T.L. Thompson, M. Lo, **B.K. Chim**, and S. Bateman. 2018. Inoculation and soil texture effects on yield and yield components of mungbean. *J. Agri. Sci.* 10(9):6–16. doi:10.5539/jas.v10n9p6
17. **Chim, B.K.**, T. Black, P. Davis and W. Thomason. 2017. In-season decision support tools for estimating sidedress nitrogen rates for corn in the Mid-Atlantic coastal plain. *J. Plant Nutri.* 40:2818–2828. doi: 10.1080/01904167.2017.1382531
18. Thomason, W., **B.K. Chim**, D. Holshouser, H. Behl, M. Balota, K. Xia, W. Frame, and T. Black. 2017. Comparison of full season and double crop soybean and grain sorghum systems in central and southeast Virginia. *Agron. J.* 109: 1532–1539. doi:10.2134/agronj2016.10.0577
19. **Chim, B.K.**, P. Omara, J. Mullock, S. Dhital, N. Macnack, and W. Raun. 2014. Effect of seed distribution and population on maize (*Zea mays* L.) grain yield. *Int. J. Agron.* doi:10.1155/2014/125258.
20. Pavuluri, K., **B.K. Chim**, C.A. Griffey, M.S. Reiter, M. Balota and W.E. Thomason. 2015. Canopy spectral reflectance can predict grain nitrogen use efficiency in soft red winter wheat. *Precision Agric.* 16: 405–424. doi:10.1007/s11119-014-9385-2.
21. Macnack, N., **B.K. Chim**, J. Mullock and W. Raun. 2014. In-season prediction of nitrogen use efficiency and grain protein in winter wheat (*Triticum aestivum* L.). *Commun. Soil Sci. Plant Anal.* 18:1–15. doi:10.1080/00103624.2014.904337
22. Rutto, E.C., C.M. Daft, J.Kelly, **B.K. Chim**, J.L. Mullock, G. Torress, and W.R. Raun. 2014. Effect of delayed emergence on corn (*Zea Mays* L.) grain yield. *J. Plant Nutri.* 37:198–208. doi:10.1080/01904167.2013.859691.
23. N. Macnack, **B.K. Chim** and W. Raun. 2013. Applied model for estimating potential ammonia loss from surface applied urea. *Commun. Soil Sci. Plant Anal.* 44:2055–2063. doi:10.1080/00103624.2013.794823.
24. Mohammed, Y., J. Kelly, **B.K. Chim**, E. Rutto, K. Waldschmidt, J. Mullock, G. Torres, K. Girma, and W. Raun. 2013. Nitrogen fertilizer management for improved grain quality and yield in winter wheat in Oklahoma. *J. Plant Nutri.* 36 (5):749–761. doi:10.1080/01904167.2012.754039.
25. Rutto, E.C., J. Vossenkemper, J. Kelly, **B.K. Chim**, and W.R. Raun. 2012. Maize (*Zea mays* L.) grain yield response to distance nitrogen is placed away from the row. *Expl. Agric.* 49(1):3–18. doi:10.1017/S0014479712000981.

Manuscript under revision

1. P.M. Ewing, **B.K. Chim**, R.M. Lehman, and S.L. Osborne. Diversified grain rotations can be highly and reliably productive in unstable climates. Accepted to Field Crops Research.
2. Zhang, X., X. Ma., X. Fan, Y. Chen, W. Kolbenson, T. Ge., **B.K. Chim**, S.B. Johnson, B. Swingle, R. Larkin, and J. Hao. First Report of *Pectobacterium carotovorum* Causing Bacterial Soft Rot of Potato in Maine, the United States. Target to Plant Disease.
3. Zhang, X., X. Ma, X. Fan, T. Ge, **B.K. Chim**, B. Swingle, R. Larkin, and J. Hao. First Report of *Pectobacterium polaris* Causing Soft Rot of Storage Potatoes in Maine, United States. Target to Plant Disease.

Book Chapter

1. Rayne, E.N., and **B.K. Chim**. 2023. Soil Biology–Biological aspects of manure management. *In* J.T. Sims, R.O. Maguire, Manure Management, (eds) Daniel Hillel. Encyclopedia of Soils in the Environment, Second edition. Elsevier Publishing Limited. 558–566. doi:10.1016/B978-0-12-822974-3.00275-5.
2. Thomason, W.E., **B.K. Chim**, and M.S. Reiter. 2017. Chapter 5: Zero-tillage cultivation of maize. *In* Dave Watson (ed). Achieving sustainable cultivation of maize Volume 2: Cultivation techniques, pest and disease control. Burleigh Dodds Science Publishing Limited. 81–95. doi:10.19103/AS.2016.0002.06

Extension Publication

1. Schattman, R., H. Jean, J. Faulkner, R. Maden, and **B.K. Chim**. 2023. Soil water availability monitoring for diversified vegetable farms. [UMaine Agroecolab](#), Jan 2023.
2. Schattman, R., H. Jean, J. Faulkner, R. Maden, and **B. Chim**. 2023. Soil water monitoring systems: Components and costs. [UMaine Agroecolab](#), Jan 2023.
3. Brockmueller, B., P. Sexton, S.L. Osborne, **B. Chim**, and C. Sweeter. 2020. Impact of rye seeding rate on nutrient cycling and soybean production. Southeast Research Farm 2019 Progress Report. South Dakota State University Agricultural Exp. Station, Beresford, SD 57004. SERF AR 1914.
4. Brockmueller, B., P. Sexton, S.L. Osborne, **B. Chim**, and C. Sweeter. 2020. Rye burndown timing effects on nutrient cycling and soybean production. Southeast Research Farm 2019 Progress Report. South Dakota State University Agricultural Exp. Station, Beresford, SD 57004. SERF AR 1915.
5. Brooks, W., **B.K. Chim**, T. Custis, C.A. Griffey, D. Horn, N. Jones, B. Lael, D.B. Langston, J. Light, J. Oakes, R. Pitman, E. Rucker, and M. Vaughn. 2018. Small Grains in 2018. Virginia Coop. Ext., Blacksburg, VA 24060. SPES-46NP.
6. Thomason, W., C.A. Griffey, Behl, H.D., E. Rucker, and **B.K. Chim**. 2017. Small Grains in 2017. Virginia Coop. Ext., Blacksburg, VA 24060. CSES-198NP.
7. Macnack, N., **B. Chim**, B. Amedy, B. Arnall. 2011. Fertilization based on sufficiency, build-up, and maintenance concepts. Oklahoma Cooperative Extension Service, Stillwater, OK 74078, PSS-2266.

Proceeding/Popular press publications

1. **Chim, B.K.**, S.L. Osborne, and R.M. Lehman. 2020. Do legume cover crops help mineralize soil nitrogen? *In* A. Schegel (ed.) Proc. Great Plains Soil Fertility Conf. 2020. Vol 18. Denver, CO.
2. Osborne, S.L., R.M. Lehman, W.E. Riedell, and **B.K. Chim**. 2020. Long-term crop rotation impact on soil properties and crop response. *In* A. Schegel (ed.) Proc. Great Plains Soil Fertility Conf. 2020. Vol 18. Denver, CO.
3. **Chim, B.K.**, P. Davis, T.K. Black, and W.E. Thomason. 2016. In-season decision support tools for estimating sidedress nitrogen rates for corn. Better Crop with Plant Food, Vol. C (100) No. 3.

Abstracts (more upon request)

1. **Chim, B.K.** and A. Buzza. 2024. Exploring the Benefits and Challenges of Twin-Row Planting in Northern Maine. Potato Expo 2024, 10–11th Jan., Austin, TX, Poster presentation.
2. **Chim, B.K.** 2023. Enhancing land use efficiency with twin-row potato planting. ASA–CSSA–SSSA International Annual Meetings, Oct. 29–Nov. 1, St. Louis, MO, Poster presentation.
3. **Chim, B.K.**, E. Mallory, T. Molloy, and A. Buzza. 2023. The Potential Cover Crop Options for the Potato Production’s Soil in Northern Maine. ASA–CSSA–SSSA International Annual Meetings, Oct. 29–Nov. 1, St. Louis, MO, Poster presentation.
4. **Chim, B.K.**, E. Mallory, T. Molloy, and A. Buzza. 2023. The potential cover crop options for the potato production’s soil. Aroostook County Open House, Aug. 26, Presque Isle, ME. Poster presentation.
5. **Chim, B.K.**, and A. Buzza. 2023. Will a twin-row potato work in the Northeast potato production systems? Aroostook County Open House, Aug. 26, Presque Isle, ME. Poster presentation.
6. **Chim, B.K.**, E. Mallory, T. Molloy, and A. Buzza. 2023. The potential cover crop options for the potato production’s soil. McCain Soil Health Field Day, Aug. 17, Caribou, ME. Poster presentation.
7. **Chim, B.K.**, and A. Buzza. 2023. Will Twin-row potato work in the Northeast potato production systems? Potato Association of America (PAA) 107th Annual Meeting, Charlottetown, Prince Edward Island (PEI), Canada. Jul 23–27, 2023. Poster presentation.
8. Zhang, X., T. Ge, X. Fan, R.P. Larkin, **B.K. Chim**, S.B. Johnson, and J. Hao. 2023. Taxonomic components and infectiousness of bacteria causing potato blackleg and soft rot in the northeastern US. The Northeastern Division Meeting (NED–APS) annual meeting, Mar 8–10, Southbury, CT. Poster presentation.
9. X. Fan, Y. Chen, X. Zhang, S.B. Johnson, **B.K. Chim**, and J. Hao. 2023. Chemical control of potato early blight based on disease forecasting. The Northeastern Division Meeting (NED–APS) annual meeting, Mar 8–10, Southbury, CT. Poster presentation.

10. **Chim, B.K.**, E. Mallory, T. Molloy, and A. Buzza. 2023. The potential cover crop options for the potato production's soil. Northeast Cover Crops Council (NECCC) Annual Conference, Feb. 16, Portland, ME. Poster presentation.
11. **Chim, B.K.**, E. Mallory, A. Buzza, and T. Molloy. 2022. Can a cover crop fit after the potato production in the Northeast region? ASA-CSSA-SSSA International Annual Meetings, Nov. 6-9, Baltimore, MD. Oral presentation.
12. **Chim, B.K.**, P.M. Ewing, M. Lehman, and S.L. Osborne. 2022. Diverse cropping systems can overcome the tradeoff between productivity and stability. ASA-CSSA-SSSA International Annual Meetings, Nov. 6-9, Baltimore, MD. Oral presentation.
13. Zeng, Y., M. Davidson, D. Casey, P. O'Neil, B. Pandey, A.C. Fulladolsa, **B.K. Chim**, K. Frost, J. Pasche, and A. Charkowski. 2022. Model-based forecasting of powdery scab disease risk in potato, integrating soil sporosorus inoculum, potato cultivar, and environmental monitoring data. The American Phytopathological Society Annual Meeting (APS), Aug 6-10, 2022, Pittsburgh, PA. Poster presentation.
14. Zhang, X. T. Ge, X. Fan, **B.K. Chim**, S.B. Johnson, G. Porter, and J. Hao. 2022. Impact of inoculation methods on potato tuber responses to *Dickeya dianthicola* infection. The American Phytopathological Society Annual Meeting (APS), Aug 5-10, 2022, Pittsburgh, PA. Poster presentation.
15. Coffin, D. **B.K. Chim**, T. Jackson, J. Liley, and R. Long. 2022. So, You Want to Farm in Maine? Using BrightSpace. NACAA Search for excellence in farm and ranch business management Award Category (National Winner). Future Annual Meeting and Professional Improvement Conferences (AM/PIC), Jul. 17-22, West Palm Beach, FL. Poster presentation.
16. Ashley, K., J. Hao and **B.K. Chim**. 2022. Investigating shellfish by-products as soil amendments for disease suppression and soil health improvement in potato production. 106th Annual Potato Association of America meeting, Jul 17-21, Missoula, MT. Oral presentation.
17. Zeng, Y., M. Davidson, D. Casey, P. O'Neil, B. Pandey, A.C. Fulladolsa, J. Ham, **B.K. Chim**, K. Frost, J. Pasche, and A. Charkowski. 2022. Integrating environmental sensing and molecular pathogen detection methods for developing a risk prediction model on powdery scabs in potato. 10th International Integrated Pest Management (IPM) Symposium, Feb 28-Mar 3, Denver, CO. Poster presentation.
18. **Chim, B.K.**, E. Mallory, A. Buzza, and T. Molloy. 2021. Cover crop management in the Northeast region. ASA-CSSA-SSSA International Annual Meetings, Nov. 7-10, Salt Lake City, UT. Oral presentation.
19. Jackson, T., D. Coffin, **B. Chim**, B. Erickson, C. Fitzgerald, R. Kersbergen, J. Lilley, R. Long, and F. Wertheim. 2021. So You Want to Farm in Maine? National Farm Viability Conference, Oct. 12, Virtual. Poster presentation.
20. Coffin, D., **B.K. Chim**, B. Erickson, C. Fitzgerald, T. Jackson, R. Kersbergen, J. Lilley, R. Long, and F. Wertheim. 2021. So you want to farm in Maine? National Association County Agricultural Agents (NACAA), Jul. 6-9, Virtual AM/PIC (State winner). Poster presentation.

Student Training

Graduate Students Training/Mentoring

University of Maine (Committee member)	Presque Isle, Maine
❖ Shayli Morris (MSc.)	Jan 2023-Present
❖ XiaoWei Fan (MSc.)	Aug 2022-Present
❖ Katie Ashley (Ph.D)	Jan 2021-Present
USDA-ARS North Central Agricultural Research Lab (NCARL)	Brookings, South Dakota
❖ HanXiao Feng (Ph.D., South Dakota State University)	Jun 2018-Aug 2020
❖ Benjamin Brockmueller (MSc., South Dakota State University)	Aug 2018-Aug 2020
Virginia Tech Crop and Soil Environmental Sciences (CSES)	Blacksburg, Virginia
❖ Jose Da Cunha Leme Filho (Ph.D.)	Aug 2016-May 2020
❖ Daniel Chongo (visiting scholar from Mozambique)	Jan 2017-Dec 2017
❖ Luke Boyd (MSc.)	Jun 2016-Jun 2018
❖ Martin Battaglia (Ph.D.)	Apr 2014-Jun 2018
❖ Tyler Black (MSc.)	Jan 2013-Apr 2015
❖ Madalyn Lynch (MSc.)	Jan 2013-Dec 2014
❖ Robert Norris (MSc.)	Jan 2013-Jan 2015
❖ Marieme Drame (MSc.)	Jan 2013-May 2014

Undergraduate students training

University of Maine	Presque Isle, Maine
❖ Savannah Guess	Jun 2022-Present
❖ Sophia Garcia (high school student)	Oct 2022-Present
Virginia Tech Crop and Soil Environmental Sciences (CSES)	Blacksburg, Virginia
❖ Allison Magnant	Jun 2016-Jun 2018
❖ Carolina Lancaster	Jan 2015-Jun 2017
❖ Lyndsey Weeks	Jan 2014-May 2015
❖ Logan Holland	Jan 2014-May 2016
❖ Tri Nguyen	Jan 2013-Dec 2015
❖ Evan Harver	Jan 2013-Dec 2015
❖ Kimberly Pittard	Aug 2012-Dec 2013
❖ Jordan Ullrich	Aug 2012-Sep 2013
Oklahoma State University Plant and Soil Sciences	Stillwater, Oklahoma
❖ Candibyani Tjan	Sep 2011-May 2012

Professional Services and Activities

Federal grant panel review

- ❖ USDA–NIFA’s Soil Health A1401 program for FY2023–2024 (invited, services Nov 14–17, 2023)
- ❖ USDA–NIFA’s Soil Health A1401 program for FY2022–2023 (invited, services Nov 29–Dec 1, 2022).

Program Services

- ❖ Northeast Cover Crop Council’s Annual Conference, Portland ME (planning committees) 16–18 Feb 2023
- ❖ Maine Potato Summit (planning committees) 10–11 Jan 2023
- ❖ Soil Health Course (planning committees) 16 Feb–23 Mar 2022
- ❖ So, You Want To Farm in Maine (SYWTFIM) (planning committees) 18 Jan–17 Feb 2022
- ❖ So, You Want To Farm in Maine (SYWTFIM) (planning committees) 29 Mar–22 Apr 2021

Institutional Services

Appointed positions

- ❖ Appointed as 2024 NRCCA Board list (Maine Representative) Jan 2024–Dec 2024
 - ❖ Appointed as the member of ASA–CSSA–SSSA’s Peer Review Advisory Committee (PRAC) Jan 2023–Dec 2023
 - ❖ Branch Director of the Northeastern Branch of ASA–CSSA–SSSA Jul 2022–Jun 2024
 - ❖ Appointed as the UMaine Extension Policy Advisory Committee (PAC) Aug 2022–Jun 2023
 - ❖ Potato Association of America (PAA)–Extension, Production & Management Division (Secretary) 2023
 - ❖ NACAA–Maine State Committee Chair (Agronomy/Pest Management) Jan 2022–Present
 - ❖ National Association of County Agriculture Agents (NACAA)–Maine Treasurer Jan 2021–Present
 - ❖ Appointed as the ARS Postdoc Advisory Council representative for the Plains Area Feb 2020–Aug 2020
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Scholarships and Awards

- ❖ Search for Excellence in Farm and Ranch Business Management–National Finalist for The National Association of County Agricultural Agents (NACAA) Jul 2022
 - ❖ 2021 Agronomy Journal Editor’s Citation for Excellence [Reviewer](#) Award 2022
 - The editorial board Recognition for outstanding professional contribution in manuscript review in 2021.
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Grants and Proposals

Granted

Governments/Internal University

- ❖ Mario Henrique Murad Leite Andrade, **B.K. Chim**, Brett Johnson, Ek Han Tan, Andrei Alyokhin, Mary Camire, and Jianjun Hao. 2023–2025. Breeding and developing potato varieties with enhanced resilience to abiotic and biotic stresses in the Eastern United States submitted a grant to USDA–NIFA Special Grants Potato Breeding Research for \$2,287,227. NIFA award: 2023–34141–40975.
- ❖ Szendrei, Z., Groves R., Mitchell, P., Crowder, D., Waters, T., Goldberger, J., Dentzman, K., Nault, B., Andrei Alyokhin, **B.K. Chim**, Angelella, G. 2023. Enhancing integrated insect pest management strategies for U.S. potato production systems, submitted a grant to USDA–NIFA SCRI for a total of \$6,033,062 and sub-awarded to the University of Maine for \$647,864.
- ❖ Larkin, Robert, Jianjun Hao, **B.K. Chim**, Ruijun Qin. USDA–ARS: Enhancing soil health in potato production by applying soil amendments and manipulating post-fumigation microbiomes, submitted a grant for \$47,576.
- ❖ Lily Calderwood, Sean Birkel, Philip Fanning, and **B.K. Chim**. 2022. Maine Mesonet: A weather station network for Maine farmers, submitted a grant Earmark CDS proposal for \$3,548,000.
- ❖ **B.K. Chim** and E. Mallory. 2021–2024. Cover crop management in the Northeast region. Responsible for annual reports submitted to USDA–NRCS–CIG, submitted a grant for 150,000.
- ❖ **B.K. Chim** and E. Mallory. 2021. Enhanced Mentoring Program with Opportunities for Ways to Excel in Research (EMPOWER). The University of Maine submitted a grant for \$10,000.
- ❖ Md Rafiul Hassan, J.C. Johnston, L. Feinstein, L. Zuo, G. Ghoshal, **B.K. Chim**, and C. Wang. Distributed machine learning approaches for big data analysis, submitted to Maine Economic Improvement Fund (MEIF) grant for \$168,474.

Industrials

- ❖ **B.K. Chim** and J. Hao. 2023. Evaluating Biolevel PhosN in potato yield and quality. Responsible for annual reports submitted to Biolevel Ltd., submitted a grant for \$4,000.

- ❖ **B.K. Chim**, and J. Hao. 2023. Evaluating product Biotryke in potato yield and quality. Responsible for annual reports submitted to Biotryke, submitted a grant for \$4,000.
- ❖ **B.K. Chim**, and A. Alyokhin. 2023. Evaluating FMC herbicide product efficacy and crop tolerance in potatoes. Responsible for annual reports submitted to FMC Crop Protection, submitted a grant for \$12,600.
- ❖ **B.K. Chim**. 2023. Phosphorus uses efficiency to improve potato yield and quality. Responsible for annual reports submitted to Maine Potato Board, submitted grant for \$8,607.
- ❖ **B.K. Chim**, and A. Alyokhin. 2023. Effect of bio-nutritional products on the growth and yield of potato. Responsible for field trial, data analysis, and annual reports, submitted to Helena Agri-Enterprises, LLC. for \$13,356.
- ❖ **B.K. Chim** and J. Hao. 2023. Effect of biostimulant, P application, and seed treatment on potato growth, quality, and yield. Responsible for field trial, data analysis, and annual reports, submitted to Verdesian for \$22,360.
- ❖ **B.K. Chim**, and A. Alyokhin. 2023. Evaluating the split application of Urea (Pur) in potato yield and quality. Responsible for field trial, data analysis, and annual reports, submitted to Agromart, LLC. For \$5,000.
- ❖ **B.K. Chim**, and A. Alyokhin. 2023. Effective nutrient management for potatoes in Northern Maine. Responsible for field trial management, data analysis, and annual reports submitted to Nutrien Ag. Solution for \$9,000.
- ❖ J. Hao, A. Alyokhin, **B.K. Chim**. 2022. Syngenta grows more—A comprehensive CP solution for potatoes in Northern Maine. Responsible for field trial management and data analysis. Syngenta Ltd. submitted grant for \$25,000.
- ❖ **B.K. Chim**. 2022. Evaluating Biolevel PhosN in potato yield and quality. Responsible for annual reports submitted to Biolevel Ltd., submitted grant for \$4,560.
- ❖ **B.K. Chim**. 2022. Evaluating of BCP222H (metobromuron) efficacy and crop tolerance in potatoes. Responsible for annual reports submitted to Belchim Crop Protection, submitted a grant for \$20,000.
- ❖ **B.K. Chim**. 2022. Phosphorus use efficiency to improve potato yield and quality. Responsible for annual reports submitted to Maine Potato Board, submitted grant for \$7,700.
- ❖ **B.K. Chim**. 2022. Predictive modeling of powdery scab (PS) and potato mop-top virus (PMTV) disease risk using soil-based Internet of Things (Soil-IoT) in Maine. Responsible for annual reports submitted to Maine Potato Board, submitted grant for \$9,700.
- ❖ **B.K. Chim** and A. Alyokhin. 2021. Agronomic efficacy of agrocoate 57 and polysulfate in potato yield and quality. Responsible for annual reports submitted to ICL Specialty Fertilizers, submitted grant for \$4,200.
- ❖ **B.K. Chim**. 2021. Evaluating Biolevel PhosN in potato yield and quality. Responsible for annual reports submitted to Biolevel Ltd., submitted grant for \$3,960.
- ❖ **B.K. Chim**. 2021. Evaluating of BCP222H (metobromuron) efficacy and crop tolerance in potatoes. Responsible for annual reports submitted to Belchim Crop Protection, submitted a grant for \$9,000.
- ❖ **B.K. Chim**. 2021. Agronomic efficacy for F3203 as seed coating in potato on germination, plant establishment, and yield. Yara UK Ltd. submitted a grant for \$17,000.

Collaborations

- ❖ Southern Aroostook Soil and Water Conservation District (SASWCD) DEP 319 Grant Steering Committee, Phase III grant through DEP's grants for nonpoint source pollution control projects, Meduxnekeag River Watershed Restoration project. Collaboration: Kirsten Thompson (DEP), Sharri Venno (Houlton Band of Maliseet Indians), Angela Wotton (Southern Aroostook Soil and Water Conservation District), Philip Quint (USDA–NRCS), and UMaine Cooperative Extension (**B.K. Chim**) project end Dec 2025.
- ❖ Cross Lake Watershed Restoration Project, Phase 1—Sub-agreement between the County of Aroostook & St. John Valley Soil & Water Conservation District. Collaborations: Northern Tilt (Andrew Carpenter and Emily Mallory), Potato growers (St. John Valley's growers), Maine Department of Environmental Protection (Kirsten Thompson and Kathy Hoppe), and UMaine Cooperative Extension (**B.K. Chim**), project end Dec 2024.
- ❖ USDA–SCRI (FY2020–2022). Colorado Potato Administrative Committee. Predictive modeling of powdery scab and mop-top disease risk in the US. PI: Amy Charchoski. Collaborators: Patrick O'Neill (Colorado State University), Kenneth Frost (Oregon State University), Julie Pasche and Binod Pandey (North Dakota State University), and **B.K. Chim** (University of Maine).
- ❖ MEIF Small Campus Initiative FY2021. PI: Md Rafiul Hassan, Co-PI: Jason C Johnston, Larry Feinstein, Li Zuo. Collaborator: Goutam Ghoshal, **B.K. Chim** and Chunzeng Wang. Title: Distributed Machine Learning Approaches for Big Data Analysis, submitted Maine Economic Improvement Fund (MEIF) grant for \$168,474 (granted).