

**Karl J Czymmek**  
Senior Extension Associate  
Field Crops and Nutrient Management  
Cornell University

328 Morrison Hall  
Ithaca, NY 14853  
Phone: (607)-255-4890  
Email: [kjc12@cornell.edu](mailto:kjc12@cornell.edu)

Updated 1-30-2019

#### Education

- UNIVERSITY AT BUFFALO, SCHOOL OF LAW
  - State University of New York, Buffalo, NY
  - Juris Doctor, June 1993
  - Concentration in Taxation
  - Admitted to New York State Bar, 1994
- CORNELL UNIVERSITY Ithaca, NY
  - B.S., Agriculture, June 1986
- ALFRED STATE COLLEGE Alfred, NY
  - A.A.S., Agriculture, June 1982

#### Employment

- Cornell University PRO-DAIRY Program, Ithaca, NY (1999-Present)
- Watershed Agricultural Council for the NYC Watersheds, Inc., Walton, NY (1996-1998)
- Cornell Cooperative Extension of Delaware County NY, Walton, NY (1995-96)
- Harmonie Farm, Downsville, NY (1994-95)
- Agricultural Consulting Services, Inc., Rochester, NY (1986-92)
- Cornell University, Ithaca, NY (1985-86)
- Soil Conservation Service, Batavia, NY (1982-84)

#### Leadership

- CAFO Work Group member
- Water Quality Work Group member
- OSHA Work Group member
- Ag Workforce Development Council member
- Dairy Issues Team advisor
- CALS Nutrient Guidelines Committee
- Co-Chair, Environmental Stewardship Committee, NY Dairy Task Force 2009-2010
- Advisor, Zeta Chapter, Alpha Gamma Rho fraternity
- New York Agricultural Land Trust, board member
- Cornell Dairy Executive Program 2005-06
- NY State Soil and Water Conservation Committee, advisory member, 2001-2007
- AEM Steering Committee, AEM Certification sub-committee member
- LEAD-NY, Class of 1999
- Soil and Water Conservation Society (SWCS), Empire Chapter Pres, 2001
- 1997-98 Berg Fellow (SWCS)
- SWCS Soil and Water Conservation Tour of China, 2000
- Cornell University Nutrient Management Program Work Team

#### Certifications/Awards

- Certified Crop Advisor
- USDA Certificate of Appreciation: CREP, November 2000
- Co-recipient USDA “flying vee” award, 2000
- Empire Chapter SWCS Commendation Award, 2002
- USDA-NRCS NY “Partner of the year” 2003
- PRO-DAIRY team Outstanding Accomplishments in Extension Award co-recipient 2010

#### Selected Extension Programs

- OSHA work group and Local Emphasis Program training
- CAFO Road Show, 2007-2009, 2015, 2017, 2018
- CAFO Off-Road Show, 2008-2019
- Annual NE Region Certified Crop Advisor training

- Annual March Water Quality Symposium/CNMP training
- Northeast Dairy Producers Association Annual Meeting, 2007, 2009, 2012, 2016, 2018
- Winter Dairy Management, 2007, 2009
- NEDPA Operations Managers Training Program, 2009, 2011, 2013, 2017
- NYS CAFO Permit review, comment, training, 1999, 2004, 2009, 2015-2017
- Air emissions consent agreement issue development and training, 2005
- Hazardous air emissions reporting tool, 2009, 2017

#### Journal Publications

- Ros, M.B.H., Q.M. Ketterings, S. Cela., and K.J. Czymbek (2019). Evaluating management implications of the New York Phosphorus Index with farm field information. *Journal of Environmental Quality (in press)*.
- Lyons, S.E., Q.M. Ketterings, S. Ort, G.S. Godwin, S.N. Swink, K.J. Czymbek, D.J. Cherney, J.H. Cherney, J.J. Meisinger, and T.F. Kilcer (2019). Nitrogen management for forage winter cereals in the Northeastern USA. *Soil Science Society of America Journal (in press)*.
- Kharel, T.P., S.N. Swink, A. Maresma, C. Youngerman, D. Kharel, K.J. Czymbek, and Q.M. Ketterings (2019). Yield monitor data cleaning is essential for accurate corn grain/silage yield determination. *Agronomy Journal* 111: 509-516. doi:10.2134/agronj2018.05.0317.
- Lyons, S.E., Q.M. Ketterings, G. Godwin, J.H. Cherney, K.J. Czymbek, and T. Kilcer (2018). Spring N management is important for triticale forage yield and quality. *Agronomy Journal* 110:1-8. doi:10.2134/agronj2018.01.0041.
- Sadeghpour, A., Q.M. Ketterings, G. Godwin, and K.J. Czymbek (2017). Shifting from N-based to P-based manure management maintains soil test phosphorus dynamics in a long-term corn and alfalfa rotation. *Agronomy for Sustainable Development*. doi: 10.1007/s13593-017-0416-z.
- Ketterings, Q.M., S. Cela, A. Collick, S. Crittenden, and K.J. Czymbek (2017). Restructuring the P index to better address P management in New York. *Journal of Environmental Quality*. doi:10.2134/jeq2016.05.0185.
- Crittenden, S., Q.M. Ketterings, and K.J. Czymbek (2017). Soil phosphorus saturation ratio sets comparable manure application cutoffs across states differing in agronomic soil test. *Soil Science* 182:00-00. doi: 10.1097/SS.0000000000000192.
- Cela, S., Q.M. Ketterings, M., Soberon, C. Rasmussen, and K.J. Czymbek (2017). Upper Susquehanna watershed and New York State improvements in nitrogen and phosphorus mass balances of dairy farms. *Journal of Soil and Water Conservation* 27: 1-11. doi: 10.2489/jswc.72.1.1.
- Sadeghpour, A., Q.M. Ketterings, G.S. Godwin, and K.J. Czymbek (2017). Under- or over-application of nitrogen impact corn yield, quality, soil, and environment. *Agronomy Journal* 109:1-11. doi: 10.2134/agronj2016.06.035
- Sadeghpour, A., Q.M. Ketterings, F. Vermeylen, G.S. Godwin, and K.J. Czymbek (2016). Soil properties under nitrogen- vs phosphorus-based manure and compost management of corn. *Soil Science Society of America Journal* 80:1272-1282. doi:10.2136/sssaj2016.03.0086.
- Sadeghpour, A., Q.M. Ketterings, G. Godwin and K.J. Czymbek (2016). Nitrogen- vs phosphorus-based manure and compost management of corn. *Agronomy Journal* 108: 185-195. doi:10.2134/agronj2015.0218.
- Cela, S., Q.M. Ketterings, K.J. Czymbek, J.L. Weld, D.B. Beegle, and P.J.A. Kleinman (2015). Nutrient management planners' feedback on New York and Pennsylvania phosphorus indices. *Journal of Soil and Water Conservation* 71: 281-288. DOI: 10.2489/jswc.71.4.281.
- Sadeghpour, A., Q.M. Ketterings, G. Godwin and K.J. Czymbek (2015). Nitrogen- vs phosphorus-based manure and compost management of corn. *Agronomy Journal*.
- Cela, S., Q.M. Ketterings, K.J. Czymbek, M. Soberon, and C.N. Rasmussen (2015). Long-term trends of nitrogen and phosphorus mass balances on New York dairy farms. *Journal of Dairy Science* 98: 7052-7070.
- Soberon, M., S. Cela, Q.M. Ketterings, K.J. Czymbek, and C.N. Rasmussen (2015). Changes in nutrient mass balances over time and related drivers for 54 New York dairy farms (2015). *Journal of Dairy Science* 98: 5313-5329.
- Ketterings Q.M., S.N. Swink, S.W. Duiker, K.J. Czymbek, D.B. Beegle, and W.J. Cox (2015). Review and interpretation: integrating cover crops for N management in corn systems on northeastern dairies. *Agronomy Journal* 107: 1365-1376.
- Ketterings, Q.M., S. Ort, S.N. Swink, G. Godwin, T. Kilcer, J. Miller, W. Verbeten, and K.J. Czymbek (2015). Winter cereals as double crops in corn rotations on New York dairy farms. *Journal of Agricultural Science*.
- Cela, S., Q.M. Ketterings, K.J. Czymbek, M. Soberon, and C.N. Rasmussen (2014). Characterization of N, P, and K mass balances of dairy farms in New York State. *Journal of Dairy Science* 97:7614-7632.

- Ketterings, Q.M., G.S. Godwin, S.N. Swink, and K.J. Czymbek (2013). Can manure replace the need for starter nitrogen fertilizer? *Agronomy Journal* 105:1597–1605.
- Long, E., Q.M. Ketterings and K.J. Czymbek (2013). Survey of cover crop use on New York dairy farms. *Crop Management*. DOI:10.1094/CM-2013-0019-RS.
- Soberon, M.A., Q.M. Ketterings, C.N. Rasmussen, and K.J. Czymbek (2013). Whole farm nutrient balance calculator for New York dairy farms. *Journal of Natural Resources and Life Science Education* (renamed *Natural Sciences Education*) 42: 57-67.
- Ketterings, Q.M., G. Godwin, P. Barney, J.R. Lawrence, B. Aldrich, T. Kilcer, K.J. Czymbek, and B. Gloy (2013). Shallow mixing of surface soil and liquid dairy manure conserves nitrogen while retaining surface residue. *Agronomy for Sustainable Development*. 33: 507-517. DOI 10.1007/s13593-013-0141-1.
- Ketterings, Q.M., J. Knight, P. Ristow, G. Swanepoel, and K.J. Czymbek (2012). Evaluation of dairy and cash grain farmers' perceptions of the value of manure. *Crop Management*. doi:10.1094/CM-2012-1024-01-RS.
- Ketterings, Q.M., K.J. Czymbek, D.B. Beegle, L.E. Chase, and C.N. Rasmussen (2012). Systematic nutrient (im)balances in dairy farm systems of the Northeast and Mid-Atlantic Regions of the United States. *Journal of Agricultural Science*. doi:10.5539/jas.v4n11p.
- Ketterings, Q.M., and K.J. Czymbek (2012). Phosphorus index as a phosphorus awareness tool: documented phosphorus use reduction in New York State. *Journal of Environmental Quality*. 41(6): 1767-1773.
- Kleinman, P., K. Saacke Blunk, R. Bryant, L. Saporito, D. Beegle, K. Czymbek, Q.M. Ketterings, T. Sims, J. Shortle, J. McGrath, F. Coale, M. Dubin, D. Dostie, R. Maguire, R. Meinen, A. Allen, K. O'Neill, L. Garber, M. Davis, B. Clark, K. Sellner, and M. Smith (2012). Managing manure for sustainable livestock production in the Chesapeake Bay Watershed. *Journal of Soil and Water Conservation*. 67(2): 54-61.
- Ketterings, Q.M., G. Godwin, S. Gami, K. Dietzel, J. Lawrence, P. Barney, T. Kilcer, M. Stanyard, C. Albers, J.H. Cherney, D. Cherney, K.J. Czymbek (2012). Soil and tissue testing for sulfur management of alfalfa in New York State. *Soil Science Society of America Journal* 76(1): 298-306.
- Swink, N., Q.M. Ketterings, L.E. Chase, K.J. Czymbek; M.E. Van Amburgh (2011). Nitrogen balances for New York State: Implications for manure and fertilizer management. *Journal of Soil and Water Conservation*.
- Ketterings, Q.M., K.J. Czymbek, and S.N. Swink (2011). Evaluation methods for a combined research and extension program used to address starter phosphorus fertilizer use for corn in New York. *Canadian Journal of Soil Science*.
- Lawrence, J.R., Q.M. Ketterings, M.G. Goler, J.H. Cherney, W.J. Cox and K.J. Czymbek (2009). Accuracy of the Illinois Soil Nitrogen Test (ISNT) in predicting N responsiveness of corn in rotation. *Soil Science Society of America J.* 73(1): 303-311.
- Swink, S.N., Q.M. Ketterings, L.E. Chase, and K.J. Czymbek, and J.C. Mekken (2009). Past and future phosphorus balances for agricultural cropland in New York State. *Journal of Soil and Water Conservation* 64(2):120-133.
- Ketterings, Q.M., E. Frenay, J.H. Cherney, K.J. Czymbek, S.D. Klausner, L.E. Chase, Y.H. Schukken (2007). Applying manure to established alfalfa-grass stands. *Forage and Grazinglands* DOI: 10.1094/FG-2007-0418-01-RV.
- Ketterings, Q.M., G.L Albrecht, C.N. Rasmussen, and K.J. Czymbek (2006). Cornell Cropware: Decision support tool for fertilizer and manure nutrient management planning. *Journal of Natural Resources and Life Sciences Education* 35: 140-151.
- Albrecht, G.L., Q.M. Ketterings, K.J. Czymbek, M. van Amburgh, and D.G. Fox (2006). Whole Farm Nutrient Management: A capstone course preparing seniors for environmental management of dairy farms. *Journal of Natural Resources and Life Science Education* 35: 12-23.

#### Extension Publications:

- Godwin, G.S., Q.M. Ketterings, K.J. Czymbek, T. Dumond, and D. Young (2018). Nutrient boom allows for mid-season manure application in corn. *What's Cropping Up?* 28(3): 52-53.
- Kharel, T., S.N. Swink, C. Youngerman, A. Maresma, K.J. Czymbek, and Q.M. Ketterings (2018). Corn Silage and Grain Yield Monitor Data Cleaning. *What's Cropping Up?* 28(3): 50-51.
- Ketterings, Q.M., K.J. Czymbek, G.A. Albrecht, D. Gates, and S. Latessa (2018). Adaptive Management Guidelines for 2018.
- Lyons, S.E., Q.M. Ketterings, G.S. Godwin, K.J. Czymbek, S.N. Swink, and T. Kilcer (2018). Soil Nitrate at Harvest of Forage Winter Cereals is Related to Yield and Nitrogen Application at Green-up. *What's Cropping Up?*
- Lyons, S.E., Q.M. Ketterings, G. Godwin, J.H. Cherney, K.J. Czymbek, and T. Kilcer (2018). Spring N Management is Important for Triticale Forage Performance Regardless of Fall Management. *What's Cropping Up?*

- Kharel, T., S.N. Swink, C. Youngerman, A. Maresma, K.J. Czymbek, Q.M. Ketterings, P. Kyverga, J. Lory, T.A. Musket, and V. Hubbard (2018). Processing/Cleaning Corn Silage and Grain Yield Monitor Data for Standardized Yield Maps across Farms, Fields, and Years. Cornell University, Nutrient Management Spear Program, Department of Animal Science, Ithaca NY.
- Ros, M., K.J. Czymbek, Q.M. Ketterings (2017). Series: Phosphorus and the Environment 1. An Introduction to Phosphorus. What's Cropping Up? 27(4): 45-47.
- Van Amburgh, M. and K.J. Czymbek (2017). Series: Phosphorus and the Environment 2. Setting the Record Straight: Comparing Bodily Waste between Cows and People. What's Cropping Up? 27(4): 48-50.
- Czymbek, K. Series: Phosphorus and the Environment 3. Protecting Our Lakes: Shoreline Septic System Concerns. What's Cropping Up? 27(4): 51-53.
- Lyons, S., Q.M. Ketterings, G. Godwin, J.H. Cherney, K.J. Czymbek, and T. Kilcer (2017). [Planting date and N availability impact fall N uptake of triticale](#). What's Cropping Up? 27(2): 20-22.
- Sadeghpour, A., Q.M. Ketterings, G. Godwin, and K.J. Czymbek (2017). [Impact of manure injection on alfalfa and grass hay stands](#). What's Cropping Up? 27(1): 7-8.
- Ketterings, Q.M., K.J. Czymbek, S. Gami, and M. Reuter (2017). Stalk Nitrate Test Results for New York Corn Fields from 2010 through 2017. What's Cropping Up? 28(1): ?-??
- Ketterings, Q.M., K.J. Czymbek, T. Kharel, and S.N. Swink(2017). What do New York corn fields really yield; The case for using yield monitors. What's Cropping Up? 28(1): ?-??
- Ketterings, Q.M., K.J. Czymbek, S Gami, G. Godwin and K Ganoe (2017). Guidelines for Land Application of Acid Whey. Animal Science Publication Series No. 247. Cornell University, Ithaca, N.Y.
- Czymbek, K.J. (2017). NYS issues 4th generation CAFO permit. DairyBusiness and Holsteinworld. The Manager. 9(4): 28.
- Ketterings, Q.M., K.J. Czymbek, S. Gami, M. Reuter, and M. Rutzke (2017). [Stalk nitrate test results for New York corn fields from 2010 through 2016](#). What's Cropping Up? 27(1): 5-6.
- Sadeghpour, A., S. Hetrick, K.J. Czymbek, G. Godwin, Q.M. Ketterings (2017). [How does managing phosphorus with reduced manure rates affect soil nitrate and organic matter?](#) DairyBusiness and Holsteinworld. The Manager. 9(4):30-31.
- Ketterings, Q.M., S. Cela, K.J. Czymbek and S. Crittenden (2016). [What is the Nutrient Balance of Your Dairy Farm?](#) What's Cropping Up? 26(3): 43-45.
- Tang, Z, Q.M. Ketterings, K.J. Czymbek, S.N. Swink, and P. Cerosaletti (2016). [Estimating Fall N Uptake by Winter Cereals Seeded as Cover or Double Crops after Corn Silage Harvest](#). What's Cropping Up? 26(2): 20-22.
- Czymbek, K, Van Slyke, T. When can OSHA investigate death or serious injury of a farm owner? (2016) PRO-DAIRY E-News.
- Sadeghpour, A., K.J. Czymbek, Q.M. Ketterings (2016). [Sidedressing saved money and N in 2015](#). Eastern DairyBusiness. The Manager. 8(2): 38-39.
- Sadeghpour, A., K.J. Czymbek, Q.M. Ketterings (2016). [Value of manure lingers long after application](#). Eastern DairyBusiness. The Manager. 8(2): 37-38.
- Ketterings, Q.M., K.J. Czymbek. S. Gami, and M. Reuter (2016). Stalk nitrate test results for New York corn fields from 2007 through 2015. What's Cropping Up? 26(1): 8.
- Tagarakis, A., I. Cornell, T. Pardoe, J. Cawley, M. Hunter, M. Stanyard, K. Czymbek and Q.M. Ketterings (2016). [Proximal sensing for on-the-go variable rate N application in corn](#). What's Cropping Up? 26(1): 9-12.
- Steinberg, S., C.A. Gooch, K.J. Czymbek. (2015). Covered manure storage systems: Tangible and non-tangible benefits. DairyBusiness and Holsteinworld. The Manager. 7(1):23.
- Czymbek, K.J. (2015) Professional Manure Application. DairyBusiness and Holsteinworld. The Manager. 7(1):15.
- Czymbek, K.J., L. Geohring, Q.M. Ketterings, P. Wright, T. Walter, G. Albrecht, J. Lendrum and A. Eaton (2015). [Revised winter and wet weather manure spreading guidelines to reduce water contamination risk](#). Cornell University Animal Science Publication Series No. 245, Ithaca NY. 8 pages.
- Soberon, M., S. Cela, Q.M. Ketterings, C. Rasmussen, and K.J. Czymbek (2015). Change in nutrient mass balances over time for 54 New York dairy farms. What's Cropping Up? 25(3): 22-24.
- Cela, S., Q.M. Ketterings, K.J. Czymbek. M. Soberon, and C. Rasmussen (2015). Trends in nutrient mass balances on four New York dairy farms. What's Cropping Up? 25(3): 25-27.
- Cela, S. Q.M. Ketterings, K.J. Czymbek, M. Soberon, and C. Rasmussen (2015). Feasible whole farm nutrient mass balances for New York dairy farms. What's Cropping Up? 25(2).
- Soberon, M. Q.M. Ketterings, K.J. Czymbek, S. Cela, C. Rasmussen (2015). Whole farm nutrient mass balance calculator for New York dairy farms. What's Cropping Up? 25(2).
- Czymbek, K.J., and Q.M. Ketterings (2015). [Taking care of \(manure\) business](#) – Strive to do the best possible job every time manure is applied. Eastern DairyBusiness. The Manager. 7(1): 16.

- Czymbek, K.J., A. Tagarakis, and Q.M. Ketterings (2015). [Optical sensors for corn silage production—](#) Sensors provide a way to check crop status and evaluate if more N is needed. Eastern DairyBusiness. The Manager. 7(1): 20-21.
- Ketterings, Q.M., K.J. Czymbek. S. Gami, and M. Reuter (2015). Stalk nitrate test results for New York corn fields from 2007 through 2014. What's Cropping Up? 25(1):4.
- Czymbek, K.J, and C.A. Gooch. (2014). "Bunker Silo Safety." DairyBusiness East. The Manager. 6(8): 26-27
- Czymbek, K.J, and C.A. Gooch. (2014). "OSHA's Local Emphasis Program (LEP) for New York State Dairy Farms." DairyBusiness East. The Manager. 6(8):16.
- Czymbek, K.J, C.A. Gooch, and N. Brown. (2014). "Respiratory Protection during Potential Hydrogen Sulfide Gas Exposure." DairyBusiness East. The Manager. 6(5):31.
- Eskildsen, T., N. Glazier, C.A. Gooch, and K.J. Czymbek. (2014). "Gypsum use in dairy barns: what's the big deal?" DairyBusiness East.
- Cela, S., Q.M. Ketterings, K.J. Czymbek, M. Soberon, and C. Rasmussen (2014). Whole farm nutrient balance benchmarks for New York dairies. Cornell Nutrition Conference Proceedings. Syracuse NY, October 21, 2014.  
[http://ecommons.library.cornell.edu/bitstream/1813/37980/1/CNC2014\\_16\\_Ketterings.pdf](http://ecommons.library.cornell.edu/bitstream/1813/37980/1/CNC2014_16_Ketterings.pdf).
- Ort, S.B., Q.M. Ketterings, S.N. Swink, G. Godwin, S. Gami, and K. Czymbek (2014). Spring carbon and nitrogen pools of wheat and cereal rye following corn silage. What's Cropping Up? 23(3): 3-4.
- Ort, S., Q.M. Ketterings and K.J. Czymbek (2014). Nitrogen rate studies of winter cereals. Eastern DairyBusiness. The Manager. 6(2): 19.
- Ketterings, Q.M. and K.J. Czymbek (2014). 2013 Corn and nitrogen. Eastern DairyBusiness. The Manager. 6(2): 18-19.
- Ketterings, Q.M., J. Williard, S. Gami, and K.J. Czymbek (2013). Enhanced efficiency fertilizers; Laboratory study. What's Cropping Up? 23(2): 13-15.
- Ort, S.B., M. Stanyard, S.N. Swink, Q.M. Ketterings, G. Godwin, S. Gami, K. Ganoe, and K. Czymbek (2013). Fall carbon and nitrogen uptake of various cover crop mixtures following small grains; fall 2010 and 2011 data. What's Cropping Up? 23(2): 7-9.
- Ort, S.B., Q.M. Ketterings, K.J. Czymbek, G.S. Godwin, S.N. Swink and S.K. Gami (2013). Carbon and nitrogen uptake of cereal cover crops following corn silage. What's Cropping Up? 23(2): 5-6.
- Ketterings, Q.M., and K.J. Czymbek (2013). Corn as a luxury consumer of N? Really? Eastern DairyBusiness; The Manager. 5(2): 19.
- Ketterings, Q.M., T. Kilcer, S. Ort and K.J. Czymbek (2013). Double cropping winter cereals yields triple bottom line. Eastern DairyBusiness; The Manager. 5(2): 15-16.
- Chase, L.E., Q.M. Ketterings, and K.J. Czymbek (2013) Corn silage and nitrates in drought conditions: 2012 post mortem analysis. Eastern DairyBusiness; The Manager. 5(2): 20.
- Ketterings, Q.M., G. Godwin, W. DeGolyer, and K. J. Czymbek (2013). Manure injection rate study at Table Rock farm. What's Cropping Up? 23(1): 12-16.
- Long, E., K. Van Slyke, Q. M. Ketterings, G. Godwin, and K.J. Czymbek (2013). Triticale as a cover and double crop on a New York dairy. What's Cropping Up? 23(1): 3-5.
- Czymbek, K. and Q.M. Ketterings (2012). Farm-level tools refine nitrogen management. Eastern Dairybusiness. 4(2): 26.
- Czymbek, K. and Q.M. Ketterings (2012). Managing Soil For Better Crops. Eastern Dairybusiness. 4(2) 28.
- Knight, J., P. Ristow, G. Swanepoel, K. Czymbek and Q.M. Ketterings (2012). Dairy and cash grain farmer perceptions of the value of manure. What's Cropping Up? 22(1): xx-xx.
- Czymbek, K.J. (2012) Challenges and opportunities facing the dairy industry: view from a crop production, nutrient management and environmental perspective. Northeast Dairy Producers Association Conference Proceedings.
- Czymbek, K.J., M. Haycock, C. Laughton (2012). Thinking about the future: is compliance a barrier to growth? Eastern Dairybusiness. The Manager. 4(8) 35-37.
- Czymbek, K.J. (2012). Preparing your dairy farm for the future from an environmental perspective. Eastern Dairybusiness. The Manager. 4(8) 35-37.
- Czymbek, K.J., L. Geohring, J. Lendrum, P. Wright, G. Albrecht, B. Brower, and Q.M. Ketterings (2011). Manure management guidelines for limestone bedrock/karst areas of Genesee County, New York: Practices for risk reduction. Animal Science Publication Series No. 240.
- Ketterings, Q.M., G. Godwin, J. Cherney, and K. Czymbek (2011). Effect of manure, compost and potassium application on alfalfa yield, potassium content, and soil test potassium in Aurora, NY. What's Cropping Up? 21(4): 8-12.

- Ketterings, Q.M., G. Godwin, J. Cherney, and K. Czymbmek (2011). Comparison of tissue and whole plant potassium for alfalfa. *What's Cropping Up?* 21(4): 13-15.
- Ristow, P.L., S. Moss, Q.M. Ketterings, K.J. Czymbmek (2011). Understanding manure nutrient variability. *What's Cropping Up?* 21(4): 19-23.
- Ketterings, Q.M., K.J. Czymbmek, P. Ristow, C. Rasmussen, and S. Swink (2011). State, regional and farm-scale nutrient balances: tools for enhanced efficiency of whole farm nutrient use. 73<sup>rd</sup> Cornell Nutrition Conference for Feed Manufacturers October 18-20, 2011. Syracuse, NY. Proceedings pages 180-189.
- Ketterings, Q.M., E. Hong, G. Godwin, and K. Czymbmek (2011). Variability of corn stalk nitrate test results as impacted by variety (BMR versus conventional). *What's Cropping Up?* 21(3): 11-14.
- Ketterings, Q.M., G. Godwin, and K. Czymbmek (2011). Effect of timing of nitrogen application on corn stalk nitrate test (CSNT) results. *What's Cropping Up?* 21(4): 7-10.
- Ketterings, Q.M., J. Kingston, S. McIlvennie, E. Long, G. Godwin, S. Gami, M. Stanyard, and K. J. Czymbmek (2011). Cover crop carbon and nitrogen content: Fall of 2010 sampling. *What's Cropping Up?* 21(4): 1-4.
- Ketterings, Q.M., G. Godwin, C.L. Mohler, B. Caldwell, and K.J. Czymbmek (2011). Impact of clover incorporation and ammonium nitrate sidedressing on Illinois soil nitrogen test dynamics over time. 3-Year Summary. *What's Cropping Up?* 21(2): 1-4.
- Ketterings, Q.M., G. Godwin, S.N. Swink, J. Foster, E. Hong, K.J. Czymbmek, A. Wright, M. Hunter, J. Lawrence, S. Canner, C. Albers, A. Gabriel, E. Young, T. Kilcer and P. Barney (2011). Can manure replace the need for starter N fertilizer? *What's Cropping Up?* 20(1): 14-17.
- Czymbmek, K.J., and Q.M. Ketterings (2011). Shallow manure incorporation works. *Eastern DairyBusiness* 3(3): 20.
- Gooch, C.A. K J. Czymbmek, and F. Mitolehner. (2011). "Dairy Air Emissions: what you must know". *Hoard's Dairyman*. March 10, 2011,
- Czymbmek, K.J., Q.M. Ketterings, and J. Cherney (2011). Soil may supply adequate K. *Eastern DairyBusiness* 3(2): 22-23.
- Ketterings, Q.M., K.J. Czymbmek, and J. Cherney (2011). Rethink added sulfur for alfalfa. *Eastern DairyBusiness* 3(2): 28-29.
- Ketterings, Q.M., and K.J. Czymbmek (2011). Manure injection grows corn silage yields. *Eastern DairyBusiness* 3(2): 30-31.
- Czymbmek, K.J., H.M. van Es (2011). Winter spreading, a management option. *Eastern Dairybusiness. The Manager.* x(x): 30-31.
- Czymbmek, K.J. (2011). Are TMDL's in your future? *Eastern Dairybusiness. The Manager.* x(x): 22-23
- Karl Czymbmek, Quirine Ketterings, Larry Chase & Larry Geohring (2010). NY Phosphorus Index may not be perfect, but has served state well. *Chesapeake Bay Journal Forum.* <http://www.bayjournal.com/article.cfm?article=3973>.
- Swink, S.N., Q.M. Ketterings, L.E. Chase, K.J. Czymbmek, M.E. Van Amburgh (2010). Nitrogen balances for the New York State: Implications for manure and fertilizer management. *What's Cropping Up?* 21(2): 20-23.
- Godwin, G., Q.M. Ketterings, T. Kilcer and K.J. Czymbmek (2010). Impact of nitrogen fertilizer source on corn yield and quality. *What's Cropping Up?* 20(1): 5-7.
- Czymbmek, K.J., and Q.M. Ketterings (2010). Managing potash in a dairy rotation. *Eastern DairyBusiness* 2(2): 12-13.
- Czymbmek, K.J., and Q.M. Ketterings (2010). Troubleshooting 2009 corn crop nitrogen fertilization practices. *NEDPA Proceedings 2010:* 107-110.
- Shepherd, T., C.A. Gooch, K.J. Czymbmek, and J. Karszes. (2009). "What's your cost to cover manure storage?" *Eastern DairyBusiness. The Manager.* 11(1).
- Shepherd, T., C.A. Gooch, and K.J. Czymbmek. (2009). "Put a lid on manure storage". *Eastern DairyBusiness. The Manager.* 11(1).
- Ketterings, Q.M., J. Lawrence, G. Godwin, N. Glazier, P. Barney, and K.J. Czymbmek (2009). Evaluation of ISNT-based nitrogen management for multi-year corn sites. *What's Cropping Up?* 19(3): 10-11.
- Godwin, G., Q.M. Ketterings. C.L. Mohler, B. Caldwell, and K.J. Czymbmek (2009). Impact of clover incorporation and ammonium nitrate sidedressing on ammonium, nitrate, and Illinois Soil Nitrogen Test dynamics over time. *What's Cropping Up?* 19(3): 12-15.
- Swink, S.N. Q.M. Ketterings, K.J. Czymbmek, L.E. Chase, and J. Mekken (2009). Upper Susquehanna River Watershed cropland P balances. *What's Cropping Up* 19(2): 1-3.
- Place, A., Q.M. Ketterings, G. Godwin, K.J. Czymbmek, S. Bossard, P. Barney, J. Lawrence, B. Aldrich, T. Kilcer (2009). Comparing manure incorporation methods in reduced till systems. *What's Cropping Up* 19(2): 4-5.

- Czymbek, K.J., and Q.M. Ketterings (2009). Can you replace starter N with manure? Eastern DairyBusiness 1(2): 19.
- Ketterings, Q.M., J.H. Cherney, and K.J. Czymbek (2009). 10 tips to manage manure on alfalfa-grass fields. Eastern DairyBusiness 1(2): 20 (+23).
- Ketterings, Q.M., and K.J. Czymbek (2009). Getting a good read on P. Eastern DairyBusiness 1(2): 21 (+23).
- Czymbek, K.J., Q.M. Ketterings, and J.H. Cherney (2009). Potassium management makes good sense. Eastern DairyBusiness 1(2): 22-23.
- Czymbek, K. and Q.M. Ketterings (2009). A one-two punch for corn N management. The Manager. Eastern DairyBusiness 1(1): 22-23.
- Swink, S., Q.M. Ketterings, K. Czymbek and L. Chase (2009). Dairies improve P management. The Manager. Eastern Dairybusiness 1(1): 20-21.
- Ketterings, Q.M., J.H. Cherney, K.J. Czymbek, E. Frenay, S.D. Klausner, L.E. Chase, and Y.H. Schukken. (2008). Manure Use for Alfalfa-Grass Production. Department of Animal Science Mimeo 231/Department of Crop and Soil Sciences Extension Series E08-3. Cornell University. 43 pages.
- Ketterings, Q.M., and K.J. Czymbek (2007). New York corn producers make a difference! Phosphorus fertilizer imports 2003-2005 reduced by 26.7 million lbs of P2O5. What's Cropping Up? 17(2): 4.
- Lawrence, J., Q.M., Ketterings, K.J. Czymbek, and G. Godwin (2007). Nitrogen savings for first year corn. What's Cropping Up? 17(1): 1-2.
- Ketterings, Q.M., and K.J. Czymbek (2007). Are manure and established alfalfa a good mix? The Manager. Northeast DairyBusiness 9(2): 14-15.
- Lawrence, J., Q.M. Ketterings, K.J. Czymbek, and G. Godwin (2007). Save on nitrogen costs. The Manager. Northeast DairyBusiness 9(2): 16-17.
- Lawrence, J. Q.M. Ketterings, K.J. Czymbek (2007). What's next for the Corn N Project? The Manager. Northeast DairyBusiness 9(2): 19.
- Ketterings, Q.M., K.J. Czymbek, S. Swink (2007). The state of New York's phosphorus balance. The Manager. Northeast DairyBusiness 9(2): 20-21.
- Czymbek, K.J., and Q.M. Ketterings (2007). Attend to lime. The Manager. Northeast DairyBusiness 9(2): 26.
- D.M. Belcher, C.A. Gooch, and K.J. Czymbek. (2006). Ammonia Emissions from Dairy Facilities. Proceedings from the 2006 Northeast Dairy Producers Association Biannual Conference, Syracuse, New York. March 8 – 9, 2006.
- Ketterings, Q.M., W.S. Reid, and K.J. Czymbek (2006). Lime guidelines for field crops in New York. First Release. Department of Crop and Soil Sciences Extension Series E06-2. 35 pages.
- Ketterings, Q.M., J. Klapwyk, and K.J. Czymbek (2006). Nitrogen management tools for corn. The Manager. Northeast Dairy Business 8(4): 34-35.
- Ketterings, Q.M., and K.J. Czymbek (2006). Which fields need extra N? The Manager. Northeast Dairy Business 8(4): 24 and 33.
- Gooch, C.A., K.J. Czymbek, and D.A. Crass. (2005). "What Should You Do About the EPA Consent Agreement?" Hoard's Dairyman. March 25, 2005.
- Gooch, C.A. and K.J. Czymbek. (2005). "EPA Air Quality Compliance Agreement and Final Order for AFOs: A Dairy Industry Executive Summary". CCE Agricultural News. Vol. 33, No. 3. March 2005.
- Gooch, C.A., and K. Czymbek. (2005). "EPA air compliance agreement: should you participate?" February, 2005. Northeast Dairy Business.
- Czymbek, K.J. and C.A. Gooch. (2005). "The EPA Air Emissions Compliance Agreement for Animal Feeding Operations: Why should dairy producers pay attention?" Cornell Cooperative Extension Agricultural News. April, 2005.
- Cook, D.L., M.A. Cole, C.A. Gooch, and K.J. Czymbek. (2005). Overview of the United States Environmental Protection Agency Air Quality Compliance Agreement for Animal Feeding Operations. NEDPA Annual Meeting, Syracuse, NY. March 1, 2005.
- Inglis, S.F., C.A. Gooch, and K.J. Czymbek. (2005). Mechanical Solid-Liquid Manure Separation: Application and Performance on Four Dairy Farms. Proceedings from the Dairy Manure Management: Treatment, Handling, and Community Relations Conference, Syracuse, NY. March 15-17, 2005. NRAES-176.
- Czymbek, K.J., H.M. van Es, L.D. Geohring, (2004). Maure and Groundwater: The case for protective measures and supporting guidelines. <http://nmsp.cals.cornell.edu/publications/files/Groundwater.pdf>.
- Gooch, C.A. and K.J. Czymbek. (2004). "Clean air laws apply to dairy farms". Hoard's Dairyman, 3538, pg. 396. June 25, 2004.
- Gooch, C.A., K. Czymbek, P.E. Wright, and L. Chase. (2004). "EPA makes offer to monitor emissions" June, 2004. Northeast Dairy Business.

- Ketterings, Q.M., S.D. Klausner, and K.J. Czymbek (2003). Nitrogen guidelines for field crops in New York. CSS Extension Series E03-16. Cornell University, Department of Crop and Soil Sciences, Ithaca NY. 70 pp.
- Ketterings, Q.M., K.J. Czymbek, and S.D. Klausner (2003). Phosphorus guidelines for field crops in New York. CSS Extension Series E03-15. Cornell University, Department of Crop and Soil Sciences, Ithaca NY. 35 pp.
- Czymbek, K.J., Q.M. Ketterings, L.D. Geohring, and G.L. Albrecht (2003). The New York Phosphorus Index. User's guide and documentation. CSS Extension Bulletin E03-13. 64 pp.
- Czymbek, K., Q.M. Ketterings, H. van Es and S. DeGloria (2003). The New York Nitrate Leaching Index. CSS Extension Publication E03-2. 34 pages.
- Ketterings, Q.M., S.D. Klausner, and K.J. Czymbek (2003). Potassium guidelines for field crops in New York. CSS Extension Series E03-14. Cornell University, Department of Crop and Soil Sciences, Ithaca NY. 41 pp.

Agronomy Fact Sheets:

- # 3: Pre-Sidedress Nitrate Test (9/20/2005; revised 1/12/2012)
- # 4: Nitrogen Credits from Manure (8/19/2005)
- # 8: Starter Phosphorus Fertilizer for Corn (10/22/2005)
- # 10: Phosphorus Index (12/12/2005)
- # 11: Nitrogen Leaching Index (2/2/2006)
- # 12: Phosphorus Basics - The Phosphorus Cycle (1/16/2006)
- # 13: Phosphorus Runoff (1/16/2006)
- # 16: Application of Manure to Established Alfalfa (12/18/2006)
- # 21: Nitrogen Needs for First Year Corn (12/18/2006)
- # 23: Estimating CEC from Cornell Soil Test Data (3/2/2007)
- # 27: How Quickly Will Soil Test P Levels Increase? (7/10/2007)
- # 28: Phosphorus Removal by Field Crops (7/21/2007)
- # 30: Soybean Nitrogen Credits (7/18/2007)
- # 31: Corn Stalk Nitrate Test (7/21/2007 updated 2/13/2011, 7/21/2011, and 1/12/2012)
- # 33: Nutrient Management Planning (10/15/2007)
- # 35: Nitrogen Guidelines for Corn (12/3/2007)
- # 36: Illinois Soil Nitrogen Test for Corn (1/17/2008; revised 1/12/2012)
- # 37: Nutrient Management Data Collection (2/5/2008)
- # 38: Manure Sampling, Handling and Analysis (2/5/2008 updated 7/8/2011)
- # 42: Manure Use for Alfalfa-Grass Establishment (9/12/2008)
- # 43: Nitrogen Benefits of Winter Cover Crops (11/26/2008)
- # 44: Nitrogen Fertilizers for Field Crops (8/23/2009)
- # 45: Enhanced Efficiency Nitrogen Sources (8/23/2009)
- # 52: Web Soil Survey (8/26/2010)
- # 53: Manure Cost, Value and Time Management Calculator (8/26/2010)
- # 54: Timing of Lime Applications for Field Crops (9/22/2010)
- # 56: Winter Triticale Forage (12/17/2010)
- # 57: Subsurface (Tile) Drainage Benefits and Installation Guidance (3/18/2011)
- # 58: Subsurface (Tile) Drainage Best Management Practices (4/20/2011)
- # 59: Magnesium for Field Crops (4/28/2011)
- # 60: Nitrogen Credits from Red Clover as Cover Crop between Small Grains and Corn (4/20/2011)
- # 61: Valuing Manure N, P, and K Applications (7/15/2011)
- # 63: Fine-Tuning Nitrogen Use on Corn (9/8/2011; revised 1/12/2012)
- # 64: Forage Radishes (12/20/2011)
- # 65: Fertility Management of Winter Wheat (12/20/2011)
- # 66: Cornell Sulfur Test for Alfalfa (3/17/2012)
- # 67: Can Manure Replace the Need for Starter N? (5/2/2012 revised 8/31/2013)
- # 68: On-Farm Research (7/9/2012)
- # 69: Adaptive Nutrient Management Process (7/22/2012)
- # 71: Measuring Corn Silage Yield (9/15/2012)
- # 72: Taking a Corn Stalk Nitrate Test Sample after Corn Silage Harvest (11/21/2012)
- # 73: Phosphorus Fertilizers for Field Crops (12/13/2012)
- # 74: Soybean Fertility Management (12/13/2012)
- # 75: Field Crop Fertilizer Management (12/13/2012)
- # 76: Manure Use for Soybeans (12/13/2012)
- # 77: Nitrogen for Corn; Management Options (10/2/2013)
- # 78: Adaptive Management of Nitrogen for Corn (10/2/2013)

- # 79: Zone/Strip Tillage (12/19/2013)
- # 81: Red Clover for Quality Forage for Dairy (1/11/2015)
- # 83: Gypsum for Field Crops in NY (12/20/2014)
- # 84: Crop Vigor Sensing for Variable-Rate N (12/20/2014)
- # 85: Feasible Whole Farm Nutrient Mass Balances (5/18/2015)
- # 86: Muck Soils (12/16/2015)
- # 87: Liquid Manure Injection (12/16/2015)
- # 88: Fall Uptake of Nitrogen by Cereal Cover Crops (12/16/2015)
- # 89: Reference Strips for Variable Nitrogen Rate Application (12/16/2015)
- # 90: Nitrous Oxide Emission From Crop Fields (3/18/2016)
- # 91: The Carbon Cycle and Soil Organic Carbon (7/1/2016)
- # 92: Guidance for Growing BMR Brachytic Dwarf Forage Sorghum (12/8/2016)
- # 93: Cover Crops for Field Crops Systems (12/8/2016)
- # 94: Forage Quality Parameters Explained (12/8/2016)
- # 95: Improving Aggregate Stability (12/8/2016)
- # 96: Acid Whey pH and Nutrient Content (12/22/2016)
- # 97: Guidelines for Land Application of Acid Whey (1/24/2017)
- # 98: Nitrogen Uptake by Corn (12/18/17)
- # 99: Nitrogen Rate Trials in Corn (12/18/17)
- #100: Harmful Algal Blooms (1/22/2018)
- #101: Importance of Sulfur for Soybeans (12/15/2018)
- #102: Earthworms in Agroecosystems (12/15/2018)
- #103: Multispectral Active and Passive Sensors in Agriculture (12/15/2018)
- #104: Grain Yield Monitor Calibration (2/15/2018)