

**Professor Tony J. Vyn**  
**(Partial Curriculum Vitae)**  
April 4, 2022

**Contact Information:**

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**Citizenship:** United States

**Education:**

<i>Degree.....</i>	<i>University.....</i>	<i>Month/Year</i>
Ph.D. (Crop Science)	University of Guelph, Ontario, Canada	(10/1987)
M.Sc. (Crop Science)	University of Guelph, Ontario, Canada	(05/1978)
B.Sc. (Agriculture)	University of Guelph, Ontario, Canada	(05/1976)

**Professional Positions:**

**1. Purdue University**

2018-present	Corteva Agriscience Henry A. Wallace Chair in Crop Sciences, Purdue University
2002-present	Professor & Cropping Systems Extension Agronomist, Purdue University
1998-2002	Associate Professor, Cropping Systems, Agronomy Department, Purdue

**2. University of Guelph**

1998-2001	Adjunct Professor, Plant Agriculture, University of Guelph
1998	Professor, Cropping Systems, Plant Agriculture Dep't., Univ. of Guelph,
1991-98	Associate Professor, Crop Science Department, University of Guelph
1987-91	Assistant Professor, Cropping Systems, University of Guelph
1984-87	Assistant Professor (contract), Crop Science, University of Guelph
1980-84	Lecturer, Departments of Crop Science and Land Resource Science (50:50), University of Guelph, Guelph, ON, Canada
1978-80	Research Associate, Crop Science Department, University of Guelph

**Honors and Awards:**

- \* Inaugural Chair Position at Purdue: Henry A. Wallace Chair in Crop Sciences, 2018
- \* Carl Sprengel Agronomic Research Award, American Society of Agronomy, 2015
- \* 2014 Researcher of the Year Award, Fluid Fertilizer Foundation, 2015
- \* Outstanding Presentation Award, 1<sup>st</sup> National Strip Tillage Conference, 2014
- \* Fellow, Crop Science Society of America, 2013
- \* Outstanding Graduate Student Mentor Award, Agronomy Department, Purdue University, 2013
- \* Werner L. Nelson Award, Fluid Fertilizer Foundation, 2011
- \* Fellow, Organization for Economic Cooperation and Development (OECD) for a research project in Western Australia during sabbatical leave in 2005
- \* Fellow, American Society of Agronomy (ASA), 2003

\* Scientific Society Invited Presentations: **Canadian Society of Soil Science** Annual Meeting (June, 2021). **Ten invited symposium presentations to the Annual Meetings of American Society of Agronomy.** [Note: the lead ASA division in each individual multiple-division symposium are as follows: S-3 in 1993, C-2 in 2000, A-9 and S-4 in 2002, both C-3 and S-4 in 2007, A-5 in 2009, C-3 in 2010, and ASA Climatology/Modeling in 2014, C3 ]

\* Three invited lectures to NC Regional ASA Meetings in 2001, 2004, and 2007.

\* Three invited presentations to the American Seed Trade Association Conference held in Chicago, IL, (2001, 2009 – co-authored with former graduate students - and 2010)

\* Invited Speaker to agricultural conferences in 18 U.S. states, 5 Canadian provinces, and several countries overseas (Argentina, Australia, Brazil, China (4 trips), France, Hungary, Italy, South Africa, The Netherlands).

### ***Membership in Honorary Academic Societies:***

Sigma Xi, Gamma Sigma Delta

### ***Membership in Professional Societies:***

American Society of Agronomy (ASA) (1979-present), Fellow (2003)

Crop Science Society of America, Fellow (2013)

Soil Science Society of America

International Soil Tillage Research Organization (1979-2015)

Purdue Cooperative Extension Specialists Association (1998 to ??)

### ***Special Appointments to Scientific Advisory Councils:***

Pioneer-DuPont Drought Research Advisory Council - Expert Panel (2011-2020)

Scientific Advisory Group for Fieldprint Calculator N<sub>2</sub>O Revision for a Fertilizer Industry 4R

Nutrient Stewardship effort in the Field to Market program (2014-2019)

Expert Panel for Agricultural Model Inter-comparison Project (AgMIP) on Maize Model

Improvement (2012-2016)

### ***Service to Science and Professional Societies:***

1. Associate Editor for *Frontiers in Plant Science* (Agroecology and Land Use Systems) 2017 to present
2. Associate Editor for *Field Crops Research* (09/01/2018 to present)
3. Sprengel Research Award Selection Committee for ASA (2016 to 2019)
4. Crop Science Research Awards Committee, CSSA (01/2018 to 12/2019)
5. Crop Science Fellows Selection Committee, CSSA (01/2018 to 12/2019)
6. Associate Editor for *Soil & Tillage Research Journal* (1989-1994, 2006- 2014)
7. Senior Associate Editor (2008-2011) and Associate Editor (2007-2008) for *Agronomy Journal*
8. Associate Editor of *Crop Science* (2002-2005)
9. External Review Team for *Agronomy Journal* (2006-2007)
10. Co-Chair (2003 to present, except for 10-month sabbatical in 2005-2006 and 5-month sabbatical in 2017) of the Joint Purdue-CCA Planning Committee for the 2-day annual crops conference held in Indianapolis (attended by between 450 and 800 crop advisors from Indiana and surrounding states).
11. North-Central American Society of Agronomy Executive Board (Secretary-Treasurer 2006-2007; Vice-President 2007-2008; President 2008-2009; Past-President 2009-2010).
12. Member, Board of Directors (ASA representative) for Council of Agricultural Science and Technology (2008-2010)
13. Occasional Reviewer (1987 to present) of peer-reviewed manuscripts submitted to PNAS, PLoS ONE, *Global Change Biology*, *Nature*, *Environmental Research Letters*, *Agriculture*, *Ecosystems and Environment*, *BioScience*, *Journal of Food and Agricultural Chemistry*, *Frontiers in Plant Science*, *Agriculture Ecosystems and Environment*, *Agronomy Journal*, *Crop Science*, *Soil Science*

- Society of America Journal, Journal of Soil and Water Conservation, Canadian Journal of Plant Science, Weed Technology, Field Crops Research, and Crop Management.
14. Research Proposal Review Panels like USDA-AFRI-NIFA Fellowships (2016 for Graduate Student and Post-doctoral Fellowships), NASA (2004), and National Sciences and Engineering Research Council (Canada).
  15. External Reviewer for Tenure and Promotion applications by faculty at other land-grant universities (University of Nebraska-Lincoln, Mississippi State University, University of Missouri, etc.).
  16. Expert Committees for research or proposal reviews in crop physiology, soil fertility and cropping systems in United States and Canada.
  17. Faculty/laboratory host to over 20 Visiting Scholars (with stays ranging from 1 to 12 months) from Argentina, Brazil, China, France, Hungary, South Korea, and Spain.
  18. Ph.D. proposal reviewer and External Ph.D. thesis reviewer for graduate students at the University of Guelph (2019), University of Wageningen (2017) and the University of Queensland (2016), respectively.

### ***Service to Agronomy Department at Purdue University:***

1. Chair, Department of Agronomy Department Head Review Committee (February to May, 2016)
2. Chair, Faculty Mentoring Committee for Dr. Shaun Casteel, now promoted to Associate Professor at Purdue University (2009 – present).
3. Chair for Department of Agronomy Search Committees for Soybean/Small Grain Extension (2008-2009) and Crop Physiology Faculty (2013-2014). Member on other faculty search committees in Agronomy and Agricultural and Biological Engineering.
4. Agronomy Department Representative to Purdue University Cooperative Extension Service Association (2000-2002).
5. Member, Agronomy Research/Education Center Advisory Committee (2001 to present).
6. Member, Department of Agronomy Graduate Committee (01/2017 to present).

### ***Service to College of Agriculture at Purdue University:***

1. Member, Dean's Search Committee (December 2017 to April, 2018)
2. Member, Dean's A/P Staff Advancement Committee, College of Agriculture (2018-2020).
3. Member, Purdue University Faculty/Student Appeals Committee.
4. Member, Dean's Advisory Committee for College of Agriculture (2002-2004?)
5. Reviewer for USDA Hatch project proposals at Purdue University by faculty in Agronomy, Botany and Plant Pathology, and Agricultural Economics.
6. Interdisciplinary Faculty Member, Ecological Sciences and Engineering.

### ***Service to Purdue University:***

1. Senate member (representing Agronomy Department). 8/2021 to present.
2. Purdue University Resource/Policy Committee member (2021-present)

### ***Sabbatical Leaves:***

1. August, 2005 to May 30, 2006. OECD Fellow for precision agriculture project involving RTK nutrient placements in Western Australia wheat production. I was hosted by Dr. Paul Blackwell, Western Australia Department of Agriculture in Geraldton, WA, and I received additional in-kind funding from fertilizer companies there. From February to May, 2006, I was hosted by Drs. Ken Cassman and Achim Dobermann in the Horticulture and Crop Science Department, University of Nebraska in Lincoln, NE. While there I studied sustainable ecological intensification systems for corn production and wrote papers and proposals to fund graduate student research.

- January 2, 2017 to May 31, 2017. I studied with Dr. Ken Giller (Plant Production Systems Chair Group) and Dr. Paul Struik (Cropping Systems Chair Group) in the Plant Science Department at the University of Wageningen, The Netherlands. I presented and attended group seminars, started new collaborative research on corn nutrient efficiency in Africa, and wrote papers and proposals to fund graduate student research.

### ***Graduate Student and Professional Training:***

- **Overall Graduate Student Mentoring:** Dr. Vyn appreciates professors who mentored him as a student, and he now enjoys both preparing and motivating the next generation(s) of agronomic scientists. Tony has served as the primary advisor for 43 graduate students (13 at the Ph.D. level, 6 of whom are female), and he is currently mentoring 3 students (1 Ph.D., and 2 MS). Dr. Vyn has intentionally aimed for inclusivity and diversity in his graduate students. Since 1987 his students have originated from Argentina (7), Brazil (1), Canada (10), China (3), Ghana (2), Hungary (2), Nigeria (1), Serbia/Czechoslovakia (2) as well as the United States (14). The year of graduation and the last known employment of these students is provided in the table below. Several of his former students are assistant/associate/full professors at universities or serve as principal scientists in the private sector. He has also hosted > 20 Visiting Scholars (about equally split between male and female; mostly for periods of 6-12 months) from Argentina, Brazil, China, France, Hungary, Ireland, Spain, and South Korea.
- **Graduate Student Mentoring History as Major Advisor:**

<b>Graduate Student Name</b>	<b>Degree/ Degree Sought</b>	<b>Last Known or Current Employment</b>
Quincey Tuttle	PhD	Part-time student. Senior Research Associate, Corteva, IN
Garrett A. Verhagen	MS	Graduate Student and Vyn Cropping Systems Lab Manager
Brendan Hanson	MS	Graduate Student on NSF-ERC project IoT4Ag
Lia Olmedo Pico	PhD, 2021	Post-doc Student, Purdue University (former Fulbright Fellow)
Monica Olson	PhD, 2021	Insecticide Biologist, Crop Protection, Corteva, Indianapolis, IN
Lauren Schwarck*	MS, 2020	Agronomist, Pivot Bio, Iowa
Nick Thompson*	MS, 2020	Regional Agronomy Lead, Pivot Bio, Indiana
Sarah M. Mueller** xx	PhD, 2018	Data Scientist, Breeding, Bayer Crop Science.
Heather Pasley	PhD, 2018	Post-doc, CSIRO, Queensland, Australia (Co-advisor = Dr. Camberato)
Keru Chen	PhD, 2016	Researcher, CiBO Technologies, Boston, MA area
Amanda de Oliveira Silva*	MS, 2015	Assistant Professor, Oklahoma State University, OK
Martha Winters	MS, 2015	Farming & part-time Purdue Research Assist. Napoleon, OH
Péter Kovács	PhD, 2013	Assistant Professor, South Dakota State Univ. (Co-Advisor =Van Scoyoc)
Jason A. Roth *	MS, 2013	Regional Agronomist, Winfield Solutions, Lansing, MI
Yanbing Xia	PhD, 2012	Self-employed, New York
Ignacio A. Ciampitti**	PhD, 2012	Professor, Cropping Systems Extension Specialist, Kansas State University, KS
Juan P. Burzaco *	MS, 2012	Agronomy Regulatory Scientist, J.R. Simplot Co., ID
Chris R. Boomsma** xx	PhD, 2009	Education Manager, American Society of Agronomy, Wasau, WI
Yanbing Xia*	MS, 2009	Future PhD student, Purdue University
Jared Alsdorf	MS, 2008	Research Agronomist, ABG Ag Services, IN (Co-Advisor)
Jason Brewer	MS, 2006	USDA-ARS Technician Corn Breeding, NC (Co-Advisor)
Matias Cánepa	MS, 2007	Production Section Head, Nutrisun, Advanta, Argentina
Martin Gonzalo**	PhD, 2006	Wheat Breeder, Limagrain AR, Mar del Plata, Argentina

Ignacio Conti*	MS, 2005	Oilseeds Marketing Specialist, Corteva, Argentina
Anita Gál	MS, 2005	Research Scientist, Univ. of Szent Istvan, Hungary
Ann M. Kline *	MS, 2005	Purdue Agriculture Extension Educator, Columbia City, IN
Brian J. Ball	MS, 2002	Plant and QA Manager, Treehouse California Almonds, LLC
Mercedes Murua *	MS, 2002	CTO – Co-Founder, The Plant Pathways Co.
Scott M. McCoy	MS, 2002	Seed Research Associate, USDA-ARS, Univ. of Illinois
Xinhua Yin	PhD, 2001	Professor, University of Tennessee, TN
Missy J. Arends (Bauer)	MS, 2001	B & M Crop Consulting, Inc., Coldwater, MI
<b>Graduate Students</b>	<b>at University</b>	<b>of Guelph (Ontario, Canada):</b>
Dave C. Hooker	PhD, 2000	Associate Professor, University of Guelph, ON, Canada
Dragan Galic	MS, 2000	Agricultural Technician, Plant Science, Univ. of Guelph
Dave C. Hooker	M.Sc., 1991	Future Ph.D. Student
George Opoku	Ph.D., 1996	Dep. Exec. Direct. CSSVD, Ghana Cocoa Board, Ghana
Zlatko Ziza	M.Sc., 1995	Dekalb Corn Breeding, London, ON, Canada
John G. Faber	M.Sc., 1995	Soil Nutrient Consultant, London, ON, Canada
Lynn Rowan (Van Maanen)	M.Sc., 1995	Instructor/Executive Assistant, Univ. of Guelph, Canada
Deneen B. Sebastian	M.Sc., 1994	Director, North American Marketing, BASF, SK, Canada
Beverly S. Green	M.Sc., 1992	Animal Health, Durham, ON, Canada
Harrison K. Dapaah	M.Sc., 1992	Principal Res. Scientist, Crops Research Institute, Ghana
Charlie E. Roland	M.Sc., 1992	Ag Environmental Officer, Ministry of Environment, ON
Allan B. Kwabiah	M.Sc., 1991	Research Scientist, Agriculture & Agri-Food Canada, NF
Ken J. Janovicek	M.Sc., 1991	Research Agronomist, Univ. of Guelph, ON, Canada
Greg A. Stewart	M.Sc., 1989	Maizex Corn Agronomy Specialist, Guelph, ON, Canada
Jack Moes	M.Sc., 1986	Vice-President Academic, Assiniboine College, MB, Canada

\*\* Winner of an annual award for “Outstanding Ph.D. Graduate Student in Research” in the Agronomy Department at Purdue University.

\* Winner of an annual award for “Outstanding M.S. Graduate Student in Research” in the Agronomy Department at Purdue University.

xx Winner of an annual award for “Outstanding Graduate Student in Extension” in the Agronomy Department at Purdue University.

- **Associated Mentoring History:** Dr. Vyn has mentored post-doctoral students such as Dr. Rex Omonode (originally from Nigeria), Dr. Olmedo Pico (originally from Argentina) and Dr. Keru Chen (originally from China). Dr. Vyn has served as advisory committee member to other graduate students in multiple departments including Agricultural Economics, Botany and Plant Pathology, Mechanical Engineering, Civil Engineering, Ag and Biological Engineering, and Earth and Atmospheric Sciences. He currently serves on 5 Ph.D. Advisory Committees for other graduate students at Purdue. He mentored 5 visiting Ph.D. scientists or faculty on Fellowship Leaves from universities in China (2012, 2013-2014, 2016-2017), and South Korea (2006), and sponsored ~25 Visiting Scholars between 2004 and 2022 from Argentina, Brazil, China, France, Hungary, Ireland, and Spain. He also supervised Adilson da Silva, a “Sandwich PhD student” from University of Sao Paulo, Brazil from 2013-2015. This student graduated from Brazil but most of his thesis research originated from a Visiting Scholar stay in Dr. Vyn’s program from 2013-2014.
- **Women Graduate Student Mentoring:** Dr. Vyn has mentored 6 women at the Ph.D. level and 11 at the MS level. In total, 17 women have completed their graduate degrees under his mentorship. One of the unique characteristics of his mentoring is that he encourages women to complete a PhD degree rather than stopping at the MS level. Three women he mentored since 2010 proceeded directly to a PhD degree from a BS degree. He has also mentored one woman (Yanbing Xia) for both a MS and a PhD degree and another of his female PhD

students (Keru Chen) gained a second MS in Applied Statistics while she was a PhD student at Purdue University.

- **Graduate Classes Taught:**

1. **Purdue University**

AGRY 598C Cropping Systems Research (3 credits, first taught in 2008, and repeated every second year from 2010-2022. The most recent Student Evaluation Rating of the overall instructor question is 4.9/5.0, and the overall course question is 4.8/5.0.

AGRY 696 Graduate Seminar (1 credit seminar, 2009)

2. **University of Guelph**

29-623 Colloquium in Crop Physiology and Management (annually from 1989-1997)

***Undergraduate Teaching Experience at the University of Guelph (1978 to 1998):***  
**Taught over 800 students at the diploma, undergraduate, and graduate levels.**

**Student evaluations averaged for this 20-year period ranked the professor as 4.3 out of a possible 5.0.**

<u>Undergraduate Course Teaching</u>	<u>Credits</u>	<u>Years</u>
29-422 Cropping Systems	4	(1986-1998)
29-423 Cropping Systems II	4	1984
290434 Selected Topics in Crop Science	2	(1985-94)
01-103 The Agriculture and Food System	2	(1978-84 Tutorial Leader)

***Cumulative Research Funding:***

**Research funding to my program estimated to total over \$8.0 million since 1985** from international sources (e.g. CIMMYT), national and regional government levels (e.g. NSF-ERC, USDA-NIFA, FFAR), corn and soybean crop commodity boards in both Indiana and Ontario, seed companies (Dupont-Pioneer and Dow AgroSciences- merged as Corteva Agriscience-Monsanto/Climate Corporation), farm equipment companies (John Deere, Case IH, Environmental Tillage Systems), Soil & Water Conservation Districts in multiple states, and numerous agricultural foundations, agricultural corporations and industry associations.

**The formal grants don't indicate the total support since it doesn't include gift income and in-kind contributions to my program. I have received over \$1.5 million in unrestricted gift support for Cropping Systems research since joining Purdue in 1998.**

In terms of for profit corporate support in the United States, I have received grant or gift research funding from Pioneer Hi-Bred Int'l., Inc., Monsanto Company, Georgia Pacific, Dow AgroSciences, John Deere, Case-New Holland, Landec Corporation, Potash Corporation, The

Mosaic Company, Valent BioSciences, Yara Int'l. Ltd., Environmental Tillage Systems, Pivot Bio and others.

Not-for Profit support has been received from CIMMYT, Soil and Water Conservation Districts, Howard G. Buffett Foundation, International Plant Nutrition Institute, 4R Nutrient Stewardship Fund, Fluid Fertilizer Foundation, Foundation for Agronomic Research, and others.

My cropping systems program has also benefited from frequent in-kind donations from various corporations. Examples are John Deere (gift of 1780 6/11 row-crop planter, annual use of a RTK precision-guided Deere 8R 340 series tractor (> 300 HP) and 2510H NH<sub>3</sub> applicator, Pioneer Hi-Bred (approximately \$8,000 retail value in free corn and soybean seed annually plus era hybrid seed; in-kind free nutrient analyses of thousands of plant tissue samples), Dow AgroSciences (gifts of corn seed and nitrification inhibitors), Monsanto/Bayer (current commercial and era hybrid corn seed), Climate Corporation (in-kind soil and plant tissue analyses for nutrients) and strip tillage equipment from Remlinger Manufacturing (OH), John Deere, Case-DMI, and Environmental Tillage Systems.

### ***Extension Responsibilities:***

On an annual basis, I typically speak directly to over 2000 conference or workshop participants (certified crop advisors, farmers, academics, etc.). I normally am an invited speaker at agricultural conferences in over four Corn Belt states each year. I am interviewed regularly by print, radio and TV media from numerous states on topical tillage, environmental, nutrient management, and crop management issues that relate to both environmental and economic sustainability in field crop agriculture systems. I write Extension articles and conference proceedings (both refereed and non-refereed) as time permits. See examples of recent Extension publications at the end of this CV.

My largest single undertaking in Extension has been leading the organization of the annual Crop Advisor Conference. In 2003, I lead the Purdue efforts to jointly sponsor this 2-day educational conference with the Indiana CCA Board. Our attendance at this mid-December conference has grown from approximately 300 to over 700 each year between 2012 and 2021. My partner from the IN CCA Board (Dr. Kim Polizotto) and I act as co-chairs of this highly successful conference with almost 40 invited speakers addressing the theme areas for which Continuing Education Units (CEU) are required (including Soil and Water Management, Nutrient Management, Crop Management and Pest Management).

### **National and International Media Contacts:**

I have been quoted by reporters for national newspapers related to questions concerning greenhouse gas emissions arising from nitrogen application to corn, the consequences of genetic and crop management improvements on nitrogen efficiencies over time, corn response to drought stress, the science of plant competition in corn fields, and other agronomy topics for which our research is relevant. National newspapers and media sources that have featured our group's research at Purdue University include Reuters, Washington Post, Wall Street Journal, USA Today, Time Magazine, and Los Angeles Times.

**Local and Farm Magazine Reporters:** I interact with local news agencies and provide content to farm magazines including Indiana Agri-News, Farm Journal, No-Till Farmer, Corn and Soybean Digest, Successful Farming, Farm Progress, Prairie Farmer, etc.

## ***International Collaborations:***

Since 1976, I have presented research papers at internationally sponsored scientific conferences in Argentina, Australia, Brazil, Canada, Denmark, France, England, Germany, Hungary, Italy, Scotland, The Netherlands, and United States. I have participated in research collaboration visits with academic institutions in Argentina, Brazil, China, Hungary, Kenya and The Netherlands. My wife and I lived in Western Australia for 5 months in 2005, and in Wageningen, The Netherlands, during my recent sabbatical (Jan. 2 – May 31, 2017). In 2011, 2015, 2016, and 2017 I gave invited talks about my maize research to the Chinese Academy of Agricultural Sciences and China Agricultural University in Beijing, to provincial Academies of Agricultural Sciences and to Shandong Agricultural University. In 2012 -2017, I gave invited talks about my tillage, maize physiology and nutrient placement research to land grant universities in Alabama, Georgia, Illinois, Iowa, Michigan, Nebraska, Tennessee, and Ohio, as well as to the University of Guelph in Ontario, Canada. Approximately half of the graduate students I have mentored are from home countries outside of North America.

## **International Visitors to our Research Program:**

From 2011 to 2021, our research group has hosted over 30 short-stay visits (e.g. 1 day) to our research program from touring groups of agronomists, farmers, agricultural business executives, and agricultural universities. The countries represented have included Argentina, Brazil, Chile, Italy, and Spain. Some groups have been partially sponsored by seed companies like Dow AgroSciences, DuPont-Pioneer and Syngenta, but others represent no-till and corn producer associations, etc. My graduate students and Visiting Scholars from Argentina and Brazil are essential to providing translation services when I (and other Purdue faculty) make presentations to these groups from South America.

## ***Professional Publications:***

**Author or co-author of ~120 refereed manuscripts** and over 250 abstracts and conference proceedings in the general areas of crop physiology, conservation tillage, maize hybrid/plant density/nitrogen interactions, greenhouse gas emissions, soil quality (including carbon and nitrogen sequestration), nutrient management (placement, rate, timing, source), crop rotation systems, and pest management interactions with tillage systems. The journals are normally in the top tier of those available for the subject area of the research. Four more papers are currently under review.

***Total Citations to my refereed journal articles are > 7700 according to Google Scholar Citations (April, 2022). Citations are often, but not always, most frequent for the 7 review papers on aspects of corn physiology and cropping system research (data synthesis) that my group published in the last 10 years. These special review papers are highlighted in yellow in the publication list below.***

## **Citation Notes:**

- 1. An underlined first author name with asterisk refers to graduate student advisee; an underlined first author without asterisk refers to post-doc or research associate, and an asterisk alone refers to corresponding author(s).**
- 2. Other and more current publications with appropriate links to the manuscript PDF or abstract-link in the individual publications can generally be found on my home page.**



### ***Book Chapters:***

Vyn, T.J., K. Janovicek and M.R. Carter. 1994. Tillage requirements for annual crop production in Eastern Canada. P. 48-73 *in* M.R. Carter (ed.) Conservation Tillage in Temperate Agroecosystems, CRC Press, Boca Raton, Florida.

Tollenaar, M., K. Dzotsi, S. Kumudini, K. Chen, J. Hatfield, J.W. Jones, J. I. Lizaso, R.L. Nielsen, P. Thomison, D.J. Timlin, O. Valentenuz, T. J. Vyn and H. Yang. 2018. Modeling the effects of genotypic and environmental variation on maize phenology: The phenology subroutine of the AgMaize crop model. Chapter 1 in Agronomy Monograph 60. J. Hatfield et al. editors, American Society of Agronomy.

<https://dl.sciencesocieties.org/publications/books/abstracts/agronomymonogra/agronmonogr60/agronmonogr60.2017.0038?access=0&view=pdf>

### ***Refereed Publications (starting from most recent):***

Bagnall, D.K., C.L.S. Morgan, M. Cope, G.M. Bean, S.B. Cappellazzi,.....T. J. Vyn,....., C. W. Honeycutt (Total of 106 authors). 2022. Carbon-sensitive pedotransfer functions for plant available water. Accepted in Soil Sci. Soc. Am. J. <https://doi.org/10.1002/saj2.20395>

Olson, M.B.\*, M.M. Crawford, and T.J. Vyn. 2022. Hyperspectral indices for predicting nitrogen use efficiency in maize hybrids. Remote Sensing 14, 1721. <https://doi.org/10.3390/rs14071721>

Rieke, L.E., S.B. Cappellazzi, M. Cope, D. Liptzin, G. Mac Bean,.....T. J. Vyn,....C.L.S. Morgan, C. W. Honeycutt (Total of 109 authors). 2022. Linking soil microbial community structure to potential carbon mineralization: A continental scale assessment of reduced tillage. Soil Biology and Biochemistry. Volume 168, 108618. <https://doi.org/10.1016/j.soilbio.2022.108618>

Olmedo Pico, L.B., and Vyn, T.J.\*, 2021. Dry matter gains in maize kernels are dependent on their nitrogen accumulation rates and duration during grain filling. Plants 10 (6), 1222 <https://doi.org/10.3390/plants10061222>

Olmedo Pico, L.B.\*, Zhang, C., and Vyn, T.J.\*, 2021. The central role of ear nitrogen uptake in maize endosperm cell and kernel weight determination during the lag period. Field Crops Res. 273, 108285. <https://doi.org/10.1016/j.fcr.2021.108285>

Pasley, Heather R.\*, James J. Camberato, Jill E. Cairns, Mainassara Zaman-Allah, Biswanath Das, and Tony J. Vyn\*. 2020. Nitrogen rate impacts on tropical maize nitrogen use efficiency and soil nitrogen depletion in eastern and southern Africa. Nutrient Cycling and Agroecosystems 116 (3). DOI: 10.1007/s10705-020-10049-x <https://bit.ly/2T0PCK6>

Eagle, A.J., E.L. McLellan, E.M. Brawner, M.H. Chantigny, E.A. Davidson, J.B. Dickey, B.A. Linquist, T.M. Maaz, D.E. Pelster, C.M. Pittelkow, C. van Kessel, T.J. Vyn, and K.G. Cassman. 2020. Quantifying on-farm nitrous oxide emission reductions in food supply chains. Earth's Future 8 (10) e2020EF001504 <https://doi.org/10.1029/2020EF001504>

Gaffney, Jim, James Bing, Patrick F. Byrne, Kenneth, G. Cassman, Ignacio Ciampitti, Deborah Delmer, Jeffrey Habben, H. Renee Lafitte, Ulrika E. Lidstrom, Dana O. Porter, John E. Sawyer, Jeff

Schussler, Tim Stetter, Robert E. Sharp, Tony J. Vyn, David Warner. 2019. Science-based intensive agriculture: Sustainability, food security, and the role of technology. *Global Food Security* 23: 236-244. <https://doi.org/10.1016/j.gfs.2019.08.003> **View the Publication**

### Refereed Publications (continued)

Mueller, S.M.\*, C.D. Messina, and T.J. Vyn\*. 2019. The role of the exponential and linear phases of maize (*Zea mays* L.) ear growth for determination of kernel number and kernel weight. *European Journal of Agronomy* 111 #125939 <https://doi.org/10.1016/j.eja.2019.125939>

Pasley, H.R.\*, H.R., J.E. Cairns, J.J. Camberato, and T.J. Vyn\*. 2019. Nitrogen fertilizer rate increases plant uptake and soil availability of essential nutrients in continuous maize production in Kenya and Zimbabwe. *Nutr. Cycl. Agroecosystems* 115: 373-389. [doi:10.1007/s10705-019-10016-1](https://doi.org/10.1007/s10705-019-10016-1) **View the Publication**

Mueller, S.M.\*, C.D. Messina, and T.J. Vyn\*. 2019. Simultaneous gains in grain yield and nitrogen efficiency over 70 years of maize genetic improvement. *Scientific Reports* 9: 9095 p. 1-9. <https://doi.org/10.1038/s41598-019-45485-5> **View the Publication**

Omonode, R.A.\* and T.J. Vyn\*. 2019. Tillage and nitrogen source impacts on relationships between nitrous oxide emission and nitrogen recovery efficiency in corn. *Journal of Environmental Quality*. Pages 421-429. [doi:10.2134/jeq2018.05.0188](https://doi.org/10.2134/jeq2018.05.0188)

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Sutton, J.C. and T.J. Vyn. 1990. Crop sequences and tillage practices in relation to diseases of winter wheat in Ontario. *Can. J. Plant Pathology* 12:358-368.

## Refereed Publications (continued)

Raimbault, B.A., T.J. Vyn and M. Tollenaar. 1990. Corn response to rye cover crop management and spring tillage systems in Southern Ontario. *Agron. J.* 82:1088-1093.

Clarke, N.A., J.A. Stone and T.J. Vyn. 1990. Conservation tillage expert system for Southwestern Ontario: Multiple experts and decision techniques. *J. Artificial Intelligence* 4(2):78-84.

Stone, J.A., T.J. Vyn, H.D. Martin and P.H. Groenvelt. 1989. Ridge tillage and early season soil moisture and temperature on a poorly drained soil. *Can. J. Soil Sci.*69:181-186.

Moes, J. \* and T.J. Vyn. 1988. Management effects on kernel breakage susceptibility of early maturing corn hybrids. *Agron. J.* 80:699-704.

Vyn, T.J. and J. Moes\*. 1988. Breakage susceptibility of corn kernels in relation to crop management under long growing season condition. *Agron. J.* 80:915-920.

Gaynor, J.D., J.A. Stone and T.J. Vyn. 1987. Tillage systems and atrazine and alachlor residues in a poorly drained soil. *Can. J. Soil Sci.* 67:959-963.

### **Examples of Published Abstracts:**

**Most of these are associated with the American Society of Agronomy Annual Meetings (Six in 2016 and 2017, Seven in 2015, Nine in 2014, Five in 2013, Nine in 2012, and Seven in 2011):**

1. Mueller, S.M., J.J. Camberato, C. Messina, H. Zhang and T.J. Vyn. 2017. Late-Season Split N Applications Increase Nitrogen Recovery but not Yield in Maize. Oral Presentation at ASA/CSSA/SSSA Annual Meeting. October 2017, Tampa, FL.
2. Mueller, S.M., and T.J. Vyn. 2017. Physiological strategies for yield preservation despite delayed N availability in modern maize hybrids. Poster presentation at ASA/CSSA/SSSA Annual Meeting. October 2017, Tampa, F
3. Pasley, H., Cairns, J., Olsen, M., Camberato, J, Vyn, T. J. 2017. *Soil Macro- and Micro-Nutrient Pools' Role in Yield and Nitrogen Use Efficiency Responses of Maize Hybrids to N in Africa*. Oral Presentation at ASA/CSSA/SSSA Annual Meeting. October 2017, Tampa, FL.
4. Pasley, H., Cairns, J., Olsen, M., Camberato, J, Vyn, T. 2017. *Maize Composition in Africa*. Poster and 5 Minute Rapid Oral Presentation at ASA/CSSA/SSSA Annual Meeting. October 2017, Tampa, FL.
5. Pasley, Heather, Jill Cairns, James Camberato, Tony Vyn. 2017. *Impact of Maize Hybrids with Enhanced Nitrogen Use Efficiency on Soil Nitrogen Depletion in Sub-Saharan Africa*. Soil and Water Conservation Society Meeting. July 2017, Madison, WI.
6. Pasley, H., Cairns, J., Zaman-Allah, M., Olsen, M., Camberato, J, Vyn, T. 2017. *The Price of Soil Nitrogen Depletion in Kenya and Zimbabwe: a cost-benefit analysis*. Poster presented at CONSOWA. June 2017, Lleida, Spain.

### **Published Abstracts (continued)**

7. Chen, K., T. J. Vyn, J. J. Camberato, M. R. Tuinstra, M. Tollenaar and S. Kumudini. 2016. Maize Genetic Improvement in Density and Nitrogen Stress Tolerance Traits from 1967 to 2005. Oral Division. Annual Meetings Nov. 6-9, Phoenix, AZ.
8. Mueller, S.M., J.J. Camberato, J.F. Shanahan, T.J. Vyn. 2016. Organ-specific N dynamics for maize plants at varying N stress in the critical period. ASA Meetings Abstract #94-8. Oral Division C02. Annual Meetings Nov. 6-9, Phoenix, AZ. <https://scisoc.confex.com/scisoc/2016am/webprogram/Paper100402.html>
9. Mueller, S.M., T.D. West, T.J. Vyn. 2016. Stability of corn yield response to crop rotation: a 40-year retrospective. ASA Meetings Abstract #334-1109. Poster Division C03. Annual Meetings Nov. 6-9, Phoenix, AZ. <https://scisoc.confex.com/scisoc/2016am/webprogram/Paper100410.html>
10. Omonode Rex A., and Tony J. Vyn. 2016. Effects of ecological intensification and late-split N timing on the relationship between nitrous oxide emission and nitrogen recovery efficiency in corn. Abstract 47-19; ASA-SSSA-CSSA International Annual Meeting, Phoenix, AZ. Nov 6-9, 2016. <https://scisoc.confex.com/crops/2016am/webprogram/Paper101816.html>
11. Pasley, H., Olsen, M., Das, B. Camberato, J., and Vyn, T. *Quantifying Net N Balance and Soil N Pools following Maize Hybrids with High N Use Efficiency in Sub-Saharan Africa*. Oral presentation at ASA/CSSA/SSSA Annual Meeting. November 2016, Phoenix, AZ.
12. Vyn, Tony and Rex Omonode. 2016. Relationship between nitrous oxide emission and nitrogen uptake and use efficiency in corn cropping systems. Presentation at the International Plant Nutrient Institute and Fertilizers Canada's North American 4R Nutrient Stewardship Researchers Meeting, Remington Room, Hyatt Regency, Phoenix, AZ. November 6, 2016.
13. Chen, K., and T. J. Vyn. 2015. Hybrid Era and Management Impacts on Morpho-Physiological Traits Related to Grain Yield Components in Maize. Oral Presentation. Annual Meetings, American Society of Agronomy. Nov. 15-18, Minneapolis, MN.
14. Chen, K., T. J. Vyn, M. Tollenaar, S. Kumudini, J.J. Camberato and M. R. Tuinstra. 2015. Plant Population Influences on Post-Silking N Uptake Vary with Hybrid Eras and N Rates. Poster Presentation. American Society of Agronomy. Nov. 15-18, Minneapolis, MN.
15. Brooks, S.M. and T.J. Vyn. 2015. Changes in post-silking N accumulation and allocation in maize over time: A review. ASA Meetings Abstract #55-8. Oral Division C03. Annual Meetings Nov. 15-18, Minneapolis, MN. <https://scisoc.confex.com/scisoc/2015am/webprogram/Paper94329.html>
16. Brooks, S.M., J.J. Camberato, J. F. Shanahan, and T.J. Vyn. 2015. Earshoot N dynamics during the critical period for maize. ASA Meetings Abstract #139-13. Poster Division C02. Annual Meetings Nov. 15-18, Minneapolis, MN. <https://scisoc.confex.com/scisoc/2015am/webprogram/Paper93305.html>
17. Brooks, S.M., J.J. Camberato, J. F. Shanahan, and T.J. Vyn. 2015. Earshoot N dynamics during the critical period for maize. ASTA Meetings Poster #16. ASTA Annual Meeting Dec. 7-11, Chicago, IL. <http://www.amseed.org/events/asta-css-seed-expo/seed-the-future-poster-presentations/>
- Omonode, Rex A., and Tony J. Vyn. 2015. Integrated nitrogen rate and nitrification inhibitor application effects on nitrogen use efficiency and nitrous oxide emission in rainfed corn. Abstract 183-3; ASA-SSSA-CSSA International Annual Meeting, Minneapolis, MN. Nov 15-19, 2015. <https://scisoc.confex.com/scisoc/2015am/webprogram/Paper93932.html>

## Published Abstracts (continued)

19. Omonode, Rex A., Douglas Smith, and Tony J. Vyn. 2015. Trace gas fluxes, global warming potential and greenhouse gas intensity related to tillage and nitrogen application with and without nitrapyrin in rainfed corn. *Abstract 79-1*; ASA-SSSA-CSSA International Annual Meeting, Minneapolis, MN. Nov 15-19, 2015. <https://scisoc.confex.com/scisoc/2015am/webprogram/Paper94328.html>
20. Pasley, H., Cairns, J., Zaman-Allah, M., Das, B., Olsen, M., Camberato, J., and Vyn, T. *Soil N Depletion by Maize Hybrids Differing in N Use Efficiency in Sub-Saharan Africa*. Poster presented at ASA/CSSA/SSSA Annual Meeting. November 2015, Minneapolis, MN.
21. Brooks, S.M. and T.J. Vyn. 2014. Genotype, environment and management factors controlling corn response to late season N application. ASA Meetings Abstract #164-6. Poster Division S-4. Annual Meetings Nov. 2- 5, Long Beach, CA. <https://scisoc.confex.com/scisoc/2014am/webprogram/Paper86843.html>
22. Vyn, T. J., 2014. New frontiers in integrated nitrogen and crop management systems for reduced N<sub>2</sub>O emissions. **ASA Abstract for invited oral talk:** # 70-7. ASA, CSSA, and SSSA Annual Meetings, Nov. 2-5. Long Beach, CA. <https://scisoc.confex.com/scisoc/2014am/webprogram/Paper86712.html>
23. Chen, K. , J.J. Camberato, S.V. Kumudini, M. Tollenaar, and T.J. Vyn. 2014. Impact of older versus newer hybrids at multiple plant densities on post-flowering N uptake. ASA Abstract # 114-9. ASA, CSSA, and SSSA Annual Meetings, Nov. 2-5, Long Beach, CA. <https://scisoc.confex.com/scisoc/2014am/webprogram/Paper86309.html>
24. Chen, K., J.J. Camberato, S.V. Kumudini, M. Tollenaar and T.J. Vyn. 2014. Plant biomass and nitrogen partitioning changes between flowering and maturity in older versus newer maize hybrids. ASA Abstract # 279-1. ASA, CSSA, and SSSA Annual Meetings, Nov. 2-5, Long Beach, CA. <https://scisoc.confex.com/scisoc/2014am/webprogram/Paper86305.html>
25. Omonode, R.A., Cliff Johnston, and Tony J. Vyn. 2014. Nitrification kinetics and nitrous oxide emissions in long-term tillage systems following co-application of urea-ammonium-nitrate and Nitrapyrin. ASA Abstract # 257-6: ASA, CSSA, SSSA Annual Meetings. Long Beach, CA. Nov. 2-5 2014. <https://scisoc.confex.com/scisoc/2014am/webprogram/Paper89190.html>
26. de Oliveira Silva, A., J.J. Camberato, T. Coram, T. Filley, and T.J. Vyn. 2014. “Nitrogen uptake and partitioning lessons learned from pulse-labeled N applications to field-grown corn” Abstract # 159-3 Div. SS4, ASA Meetings, (Long Beach-CA, USA, November 2-5, 2014). <https://scisoc.confex.com/scisoc/2014am/webprogram/Paper86049.html>
27. de Oliveira Silva, A., J.J. Camberato, T. Coram, and T.J. Vyn. 2014. “Partitioning of biomass versus nitrogen to leaf, stem and ear components during corn development” Abstract # 114-12. Div. C03, ASA, CSSA, & SSSA International Annual Meetings. Long Beach-CA, USA. (November 2-5, 2014). <https://scisoc.confex.com/scisoc/2014am/webprogram/Paper86045.html>
28. Kovacs, P., M.R. Winters and T.J. Vyn. 2014. Revisiting relationships between mid-season ear-leaf nutrient concentrations and corn grain yields. ASA Meetings Abstract #441-7. Annual Meetings Nov. 2-5. Long Beach, CA. <https://scisoc.confex.com/scisoc/2014am/webprogram/Paper87217.html>

29. Winters, M.R. ,and T. J. Vyn. 2014. Optimization of Nitrogen and Phosphorus Fertilizer Timing and Placement in Coulter-based Strip-till Corn Systems. ASA Abstract # 442-1. S-4 Poster session presented at: Grand Challenges, Great Solutions. ASA, CSSA, and SSSA International Annual Meetings. 2014 Nov. 2-5; Long Beach, CA.  
<https://scisoc.confex.com/scisoc/2014am/webprogram/Paper86841.html>
30. Brooks, S., and T.J. Vyn. 2014. Genotype, environment and management factors controlling corn response to late season N application. ASA Meetings Abstract #164-6. Poster Session S-4. Annual Meetings Nov. 2-5, Long Beach, CA.  
<https://scisoc.confex.com/scisoc/2014am/webprogram/Paper86843.html>
31. Chen, K., T.J. Vyn, M. Tollenaar, and S.V. Kumudini, 2013. Characterization of maize genetic improvement in response to plant density and nitrogen stress. Div. C02, ASA-CSSA-CSSA International Annual Meetings, Tampa. FL (November 1-5, 2013). Abstract # 234-16.  
<https://scisoc.confex.com/crops/2013am/webprogram/Paper79764.html>
32. Ciampitti, I.A., and T.J. Vyn. 2013. Nutrient use efficiency contribution to corn productivity: A global and historical overview. Div. C03, ASA-CSSA-CSSA International Annual Meetings, Tampa. FL (November 1-5, 2013). Abstract # 103-10.  
<https://scisoc.confex.com/crops/2013am/webprogram/Paper81675.html>
33. de Oliveira Silva, A., J.A. Roth, J.J. Camberato and T.J. Vyn. Do higher plant populations increase or decrease nitrogen use efficiency in corn production? Div. C03, ASA-CSSA-CSSA International Annual Meetings, Tampa. FL (November 1-5, 2013). Abstract # 104-26. Div. C03, ASA-CSSA-CSSA International Annual Meetings, Tampa. FL (November 1-5, 2013).  
<https://scisoc.confex.com/crops/2013am/webprogram/Paper79953.html>

**Published Abstracts (continued)**

34. Kovacs, Peter, and Tony Vyn. 2013. Origins of Plant-to-Plant Yield Variability in Corn. Div. C03, ASA-CSSA-CSSA International Annual Meetings, Tampa. FL (November 1-5, 2013). Abstract # 104-24. <https://dl.sciencesocieties.org/publications/meetings/2013am/11740/79776>
35. Kovacs, Peter, G.E. Van Scoyoc, and T.J. Vyn. 2013. Consequences of shallow pre-plant anhydrous ammonia placement on corn production. Div. S04, ASA-CSSA-CSSA International Annual Meetings, Tampa. FL (November 1-5, 2013). Abstract # 279-8  
<https://scisoc.confex.com/crops/2013am/webprogram/Paper79764.html>
36. Burzaco, J.P., D.R. Smith and T.J. Vyn. 2012. Effects of Nitrapyrin, N Rates and N Timing On N<sub>2</sub>O Emissions in Maize Fertilized with UAN. American Society of Agronomy Annual Meetings (C02 Division), Cincinnati, OH. (October 21-24, 2012). Abstract # 291-8.  
<http://scisoc.confex.com/scisoc/2012am/webprogram/Paper72698.html>
37. Burzaco, J.P., D.R. Smith and T.J. Vyn\*. 2012. Effects of Nitrapyrin, N Rates and N Timing On NUE in Maize Fertilized with UAN. American Society of Agronomy Annual Meetings (C02 Division), Cincinnati, OH. (October 21-24, 2012). Abstract # 291.9 \* Oral Presenter.  
<http://scisoc.confex.com/scisoc/2012am/webprogram/Paper72737.html>
38. Ciampitti, I.A., and T.J. Vyn\*. 2012. Physiological Perspectives of Changes Over Time in Maize Yield Dependency on N Uptake and Associated Efficiencies: I. General Overview of Changes. American Society of Agronomy Annual Meetings (C02 Division), Cincinnati, OH. (October 21-24,

2012). Abstract # 243-1.\* Oral Presenter

<http://scisoc.confex.com/scisoc/2012am/webprogram/Session9837.html>

### **Published Abstracts (continued)**

39. Ciampitti, I.A., and T.J. Vyn. 2012. Physiological Perspectives of Changes Over Time in Maize Yield Dependency on N Uptake and Associated Efficiencies: II. Physiological Basis of Changes. American Society of Agronomy Annual Meetings (C02 Division), Cincinnati, OH. (October 21-24, 2012). Abstract # 243-2. <http://scisoc.confex.com/scisoc/2012am/webprogram/Paper72730.html>
40. Kovacs, Peter, Thomas Doerge, James J. Camberato, George Van Scoyoc and Tony Vyn 2012. Consequences of Shallow NH<sub>3</sub> Placement and Timing on N Use Efficiencies in Corn Production. ASA-CSSA-CSSA International Annual Meeting, Cincinnati, OH. (October 21-24, 2012). Abstract # 100-15. <http://scisoc.confex.com/scisoc/2012am/webprogram/Paper71858.html>
41. Kovacs, Peter, Thomas Doerge, George Van Scoyoc and Tony Vyn. 2012. Within-Row Variability Resulting From Diagonal versus Parallel Pre-Plant NH<sub>3</sub> Applications. ASA-CSSA-CSSA International Annual Meeting, Cincinnati, OH. (October 21-24, 2012). Abstract # 152-2. <http://scisoc.confex.com/scisoc/2012am/webprogram/Paper73190.html>
42. Roth, J., and T.J. Vyn. 2012. Impacts of varied nitrogen rates and plant densities on phenotype responses and yield optimization in recent drought-tolerant maize hybrids. ASA-CSSA-CSSA International Annual Meeting, Cincinnati, OH. (October 21-24, 2012). Abstract # 363-23. <http://scisoc.confex.com/scisoc/2012am/webprogram/Paper73350.html>
43. Xia, X. and T. J. Vyn. 2012. Photosynthetically Related Physiological Responses in Maize to Multiple Plant Densities and Nitrogen Rates. American Society of Agronomy Annual Meetings (C02 Division), Cincinnati, OH. (October 21-24, 2012). Abstract # 243-6. <http://scisoc.confex.com/scisoc/2012am/webprogram/Paper73011.html>
44. Xia, X. and T. J. Vyn. 2012. Xia, X. and T. J. Vyn. 2012. Success Factors in Obtaining Meaningful Leaf Photosynthetic Measurement in Field-Grown Maize. American Society of Agronomy Annual Meetings (C02 Division), Cincinnati, OH. (October 21-24, 2012). Abstract # 99-12. <http://scisoc.confex.com/scisoc/2012am/webprogram/Paper73102.html>
45. Burzaco J.P. and T.J. Vyn. 2011. Nitrapyrin Effects on Maize N Uptake Following Pre-Plant and Side-Dress UAN (Poster Presentation). American Society of Agronomy Annual Meetings (Oct. 16-19, 2011), San Antonio, TX. Abstract 96-25 <http://a-c-s.confex.com/crops/2011am/webprogram/Paper65833.html>
46. Burzaco J.P., D.R. Smith and T.J. Vyn. 2011. Nitrapyrin Impacts on Nitrous Oxide Emissions with Alternate UAN Rates in Indiana Maize Production (Oral Presentation). American Society of Agronomy Annual Meetings (Oct. 16-19, 2011), San Antonio, TX. Abstract 253-9. <http://a-c-s.confex.com/crops/2011am/webprogram/Paper66448.html>
47. Ciampitti, I.A., and T.J. Vyn. 2011. Physiological processes affected by plant density and nitrogen stress tolerance in maize hybrids: Association between maize grain yield and N Uptake. Oral Presentation. ASA-CSSA-SSSAJ International Annual Meetings. Oct. 16-19, San Antonio, Texas. <http://a-c-s.confex.com/crops/2011am/webprogram/Paper66719.html>
48. Ciampitti, I.A., and T.J. Vyn. 2011. Plant Density and N Rate Impacts On Maize Plant N Uptake Dynamics During Vegetative and Reproductive Stages. Poster Presentation. ASA-CSSA-SSSAJ International Annual Meetings. Oct. 16-19, San Antonio, TX. <http://a-c-s.confex.com/crops/2011am/webprogram/Paper66684.html>

49. Omonode, R.A., T. Vyn, R. Grant, C. Johnston, and D.R. Smith. 2011. Integrated tillage and nitrogen management effects on nitrous oxide emission reduction from corn fields. American Society of Agronomy Annual Meetings (Oct. 16-19, 2011), San Antonio, TX. Abstract 257-4. <http://a-c-s.confex.com/crops/2011am/webprogram/Paper68562.html>
50. Omonode, R., and T.J. Vyn. 2011. Re-evaluating nitrification inhibitors and nitrogen management effects on nitrous oxide emissions in corn. American Society of Agronomy Annual Meetings (Oct. 16-19, 2011), San Antonio, TX. Abstract 288-3. <http://a-c-s.confex.com/crops/2011am/webprogram/Paper68490.html>
51. Shoaf, S., H. Ohm, L. Snyder, T. Vyn, and D. Buckmaster. 2011. Winter wheat and row crop combinations for grain, silage and biomass production. American Society of Agronomy Annual Meetings (Oct. 16-19, 2011), San Antonio, TX. Abstract 96-21. <http://a-c-s.confex.com/crops/2011am/webprogram/Paper65574.html>
52. Seyb, A., Xing, L. J., Vyn, T. J., & Westphal, A. (2008, June). Effect of tillage on population levels of *Heterodera glycines* in a crop sequence of corn and a nematode-susceptible or-resistant cultivar of soybean. In *Phytopathology* (Vol. 98, No. 6, pp. S204-S204). 3340 PILOT KNOB ROAD, ST PAUL, MN 55121 USA: AMER PHYTOPATHOLOGICAL SOC.
53. Westphal, A., Xing, L. J., Seyb, A., & Vyn, T. J. (2007, July). Soil suppressiveness against the soil-borne disease complex of sudden death syndrome of soybean. In *Phytopathology* (Vol. 97, No. 7, pp. S154-S154). 3340 PILOT KNOB ROAD, ST PAUL, MN 55121 USA: AMER PHYTOPATHOLOGICAL SOC.

### **Examples of Non-refereed Conference Proceedings in 2009-2017:**

1. Vyn, T.J., and K. Chen. Maize gains in nitrogen efficiencies over four decades of hybrid improvement are dependent on post-silking traits. *Proceedings of the XVIII International Plant Nutrition Colloquium*. (Ed. by A. Carstensen, K.H. Laursen, J.K. Schjørring), pp. 633-634. Copenhagen, Denmark. <http://www.ipnc2017.org/the-proceedings-book>
2. Mueller, S.M. and T.J. Vyn. 2017. Maize plant nitrogen dynamics during the critical period. In: *Proceedings of the XVIII International Plant Nutrition Colloquium*. (Ed. by A. Carstensen, K.H. Laursen, J.K. Schjørring), pp. 273-274. Copenhagen, Denmark. <http://www.ipnc2017.org/the-proceedings-book>
3. Pasley, H., Cairns, J., Olsen, M., Camberato, J, and T. J. Vyn. 2017. Closing the Yield Gap and Improving Soil Fertility with fertilizer and HNUE hybrids in Sub-Saharan Africa. *Proceedings of the XVIII International Plant Nutrition Colloquium*. (Ed. by A. Carstensen, K.H. Laursen, J.K. Schjørring), pp. 855-856. Copenhagen, Denmark. <http://www.ipnc2017.org/the-proceedings-book>
4. Hodde, W., J. Sesmero, B. Gramig, T.J. Vyn and O. Doerring. 2016. Climate change and the economics of conservation tillage. 2016 Annual Meeting of Agricultural and Applied Economics Association. July 31 to Aug. 2, Boston, MA. Issue 236090. Pages 1-52. <http://ageconsearch.umn.edu/bitstream/236090/2/Climate%20change%20and%20the%20economics%20of%20conservation%20tillage.pdf>

5. Mueller, S.M., and T.J. Vyn. 2016. Comparative N and dry matter dynamics in corn ears, stems, and leaves during the critical period after early and late-split sidedress N. Proceedings of North Central Extension-Industry Soil Fertility Conference, Des Moines, IA, Volume 32: 171-177. Retrieved from: <http://extension.agron.iastate.edu/nce/ncepdfs/2016/ncsfc%202016%20mueller%20pg171.pdf>
6. de Silva, A., Camberato, J. J., Filley, T. R., Coram, T., & Vyn, T. J. (2014). Nitrogen uptake and plant-component allocation following <sup>15</sup>N application at multiple growth stages in field-grown corn. Proceedings of North Central Extension-Industry Soil Fertility Conference, Volume 30: 188-193. Retrieved from: <http://extension.agron.iastate.edu/nce/ncepdfs/2014/ncsfc%202014%20silva%20pg188.pdf>
7. Kovacs, P., G.E. Van Scoyoc, T.A. Doerge, J.J. Camberato, and T.J. Vyn. 2012. *Consequences of shallow NH<sub>3</sub> placement and timing on N use efficiencies in corn production*. Proceedings, 42nd North Central Extension-Industry Soil Fertility Conference, Des Moines, Iowa. November 14-15, 2012. Pages 183-189. <http://extension.agron.iastate.edu/nce/ncepdfs/2012/ncsfc%202012%20kovacs%20p183.pdf>
8. Kovacs, P., and T.J. Vyn. 2011. *Corn plant uniformity following shallow NH<sub>3</sub> placement in precision-guided, pre-plant nitrogen applications*. Proceedings, 41st North Central Extension-Industry Soil Fertility Conference, Des Moines, Iowa. Nov. 16-17, 2011. Pages 181-187. <http://extension.agron.iastate.edu/nce/ncepdfs/2011/ncsfc%202011%20kovacs%20p181.pdf>
9. Ciampitti, I.A., Y. Xia, J. Camberato, and T.J. Vyn. 2010. Plant density consequences on nitrogen uptake dynamics of maize plants from vegetative to reproductive stages. Proceedings, 41st North Central Extension-Industry Soil Fertility Conference, Des Moines, Iowa. Nov. 17-18, 2010. Pages 163-173. <http://extension.agron.iastate.edu/nce/ncepdfs/2010/nc2010%20ciampitti%20p163.pdf>
10. Boomsma, C. and T.J. Vyn. 2009. Per-plant eco-physiological responses of maize to varied nitrogen availability at low and high plant densities. *Proceedings of the XVI International Plant Nutrition Colloquium (University of California, Davis) Paper 1233*. <http://repositories.cdlib.org/ipnc/xvi/1233>

### **Examples of Extension Publications Relevant to Environmental Sustainability:**

McClellan Maaz, T., R. A. Omonode, and T.J. Vyn. 2018. Can lower nitrogen balances and greater recovery by corn reduce N<sub>2</sub>O emissions? *Better Crops* 102 (2): 27-30. <https://doi.org/10.24047/BC102227> [http://www.ipni.net/publication/bettercrops.nsf/0/CF6411233FE28EF2852582800050DE72/\\$FILE/BC-2018-2%20p27.pdf](http://www.ipni.net/publication/bettercrops.nsf/0/CF6411233FE28EF2852582800050DE72/$FILE/BC-2018-2%20p27.pdf)

Mueller, S.M. and T.J. Vyn. 2017. The effects of late-season nitrogen applications in corn. [Purdue Extension AY-364-W](#)

Vyn, T.J., A. Halvorson and R.A. Omonode. 2016. Relationships of nitrous oxide emissions to fertilizer nitrogen recovery efficiencies in rainfed and irrigated corn production systems: Data review. Final Report to International Plant Nutrition Institute 4RN-27 1605. Pages 1-40. <http://research.ipni.net/page/RNAP-6582>

Winters, M.R. and T.J. Vyn. Tips for environmentally friendly phosphorus applications in Indiana. Purdue University Publication. Indiana Soil and Water AY-386-W. Pages 1-7. [https://www.edustore.purdue.edu/item.asp?Item\\_Number=AY-386-W#.VzmaF\\_krLrc](https://www.edustore.purdue.edu/item.asp?Item_Number=AY-386-W#.VzmaF_krLrc)  
Purdue News Release: <http://www.purdue.edu/newsroom/releases/2015/Q4/new-purdue-extension-publication-offers-tips-on-phosphorus-application.htm>

Vyn, T.J., and T.D. West. 2015. No-till and strip-till corn exceed expectations in 2015. *Purdue Pest and Crop Newsletter* (October 30, 2015). <https://extension.entm.purdue.edu/pestcrop/2015/Issue26/>