

PAUL DAVID MITCHELL

Professor, Department of Agricultural and Applied Economics
 Extension State Specialist, Cropping Systems and Environmental Management
 Director, Renk Agribusiness Institute, UW College of Agricultural and Life Sciences
 Faculty Affiliate, Nelson Institute for Environmental Studies, UW-Madison
 Fellow, International Science & Technology Practice & Policy (University of Minnesota)
 Co-Founder, FieldRise, LLC (<http://fieldrise.com/>)
 Owner, AgInfomatics, LLC (<http://aginfomatics.com/index.html>)
 University of Wisconsin-Madison, Madison, WI 53706-1503
 O: (608) 265-6514 M: (608) 320-1162 Email: pdmitchell@wisc.edu
 Web: <http://www.aae.wisc.edu/mitchell/> Twitter: @mitchelluw
 Google Scholar: <https://scholar.google.com/citations?user=DW71SsQAAAJ&hl=en>

EDUCATION

Ph.D. Economics, Iowa State University, Ames, IA, August 1999
 M.A. Classics, University of Wisconsin, Madison, WI, December 1991
 B.A. History, Iowa State University, Ames, IA, May 1990

ACADEMIC POSITIONS

6/2017 – present **Professor**, Department of Agricultural and Applied Economics,
Appointment: 70% Extension, 30% Research, 9-months

7/2016 – present **Director**, Renk Agribusiness Institute, UW Madison

6/2010 – 6/2017 **Associate Professor**, Department of Agricultural and Applied Economics

1/2012 – 7/2018 **Co-Director**, Nutrient and Pest Management Program, UW Extension

8/2004 – 6/2010 **Assistant Professor**, Department of Agricultural and Applied Economics

8/1999 – 8/2004 **Assistant Professor**, Department of Agricultural Economics, Texas A&M

6/1994 – 8/1999 **Research Assistant**, Iowa State University, Department of Economics

7/1993 – 6/1994 **Research Assistant**, Iowa State University, Department of Botany

9/1991 – 7/1993 **Graduate Instructor**, University of Wisconsin, Department of Classics

PROFESSIONAL HONORS AND AWARDS

2019 Vilas Faculty Mid-Career Investigator Award, University of Wisconsin-Madison

2019 American Society of Agronomy Extension Education Community Award, for the Sporebuster mobile app developed at UW, shared with 16 others from multiple Midwestern land grant universities.

2017 American Society of Agronomy Educational Materials Awards, Certificate of Excellence. Grain Management Considerations in Low-Margin Years, Publications < 16 pages and Audio Visuals. UW Extension ANRE State Specialists Team

2016 Team Workgroup Leadership and Responsiveness Award, University Of Wisconsin Agricultural and Natural Resources Extension to the 2014 Farm Bill Delivery Team

- 2015 Researcher of the Year, Wisconsin Potato and Vegetable Growers Association
 Awarded for developing a sustainability program for processing vegetables and potatoes
- 2014 American Society of Agronomy Educational Materials Awards, Certificate of Excellence.
 Economic Risk and Profitability of Soybean Seed Treatments at Reduced Seeding Rates,
 Publications < 16 pages. Gaspar, Conley, Gaska, Mitchell
- 2013 Extension Excellence in Audio Visual Award, American Society of Agronomy, National
 Sustainable Soybean Initiative (NSSI), UW Extension ANRE State Specialists Team
- 2011 Integrated Pest Management Team Award, Entomology Society of America, Awarded to
 the European Corn Borer IPM Team, a multi-state collaboration among land grant, state,
 and industry researchers and extension specialists
- 2007 Professional Achievement Alumni Award, Department of World Languages and Cultures,
 Iowa State University
- 2002 Texas A&M University, Measurement and Research Service, Top 25% “Most Effective”
 faculty teaching a 600-level course, fall semester, designation for AGECE 672
- 1992 & 1991 Heironimus Prize in Greek Prose Composition, Classics Department, UW-Madison
- 1992 Pillinger Prize in Latin Prose Composition, Classics Department, UW-Madison
- 1990 Wisconsin Alumni Research Foundation Fellowship, Graduate fellowship to attend UW-
 Madison, Classics Department
- 1989 Albert L. Walker Excellence in English Award, English Department, Iowa State University
- Honor Societies: Phi Beta Kappa, Gamma Sigma Delta, Phi Kappa Phi

RESEARCH

A. Refereed Journal Articles

1. Smail, R., A.H. Pruitt, P.D. Mitchell, and J.B. Colquhoun. Cumulative Deviation from Moving Mean Precipitation as a Proxy for Groundwater Level Variation in Wisconsin. *Journal of Hydrology X*. 5: 100045 <https://doi.org/10.1016/j.hydroa.2019.100045>
2. Jones, M.S., J.A. Delborne, J. Elsensohn, P.D. Mitchell, and Z.S. Brown. 2019. Does the US public support using gene drives in agriculture? And what do they want to know? *Science Advances* 5(9):eaau8462 DOI: 10.1126/sciadv.aau8462
3. Willbur, J.F., P.D. Mitchell, M. Fall, A. Byrne, S. Chapman, C. Floyd, C. Bradley, K. Ames, M. Chilvers, N. Kleczewski, D. Malvick, B. Mueller, D. Mueller, M. Kabbage, S. Conley, and D.L. Smith. 2019. Meta-analytic and economic approaches for evaluation of pesticide impact on Sclerotinia stem rot control and soybean yield in the North Central U.S. *Phytopathology* <https://doi.org/10.1094/PHYTO-04-18-0124-R>.
4. Mitchell, P.D., Z. Brown, and N. McRoberts. 2018. Economic issues to consider for gene drives. *Journal of Responsible Innovation* 5:sup1, S180-S202, DOI: 10.1080/23299460.2017.1407914 <https://doi.org/10.1080/23299460.2017.1407914>.
5. Weil, R.J., E.M. Silva, J. Hendrickson, and P.D. Mitchell. 2017. Time and technique studies for assessment of productivity on diversified organic vegetable farms. *Journal of Agriculture, Food Systems, and Community Development*. <http://dx.doi.org/10.5304/jafscd.2017.074.007>.
6. Mitchell, P. 2017. Keynote Summary: Black swans, dragons and the phoenix: rebuilding citrus after HLB. *Journal of Citrus Pathology* 4(1). iocv_journalcitruspathology_35112. Online: <https://escholarship.org/uc/item/7c52n0rg>.

7. Silva, E.M., J. Hendrickson, P.D. Mitchell, and E. Bietila. 2017. From the Field: A Participatory Approach to Assess Labor Inputs on Organic Diversified Vegetable Farms in the Upper Midwestern USA. *Renewable Agriculture and Food Systems* DOI: 10.1017/S1742170517000266.
8. Hurley, T.M., and P.D. Mitchell. 2016. Value of Insecticide Seed Treatments to U.S. Soybean Farmers. *Pest Management Science* 73:102-112. DOI:10.1002/ps.4424.
9. Moore, V.M., P.D. Mitchell, E.M. Silva, and B.L. Barham. 2016. Cover Crop Adoption and Intensity on Wisconsin's Organic Vegetable Farms. *Agroecology and Sustainable Food Systems* 40(7):693-713.
10. Dong, F., P.D. Mitchell, V. Davis and R. Recker. 2016. Impact of Atrazine Prohibition on the Sustainability of Weed Management in Wisconsin Corn Production. *Pest Management Science* doi: 10.1002/ps.4298.
11. Dong, F., P.D. Mitchell, T. Hurley and G. Frisvold. 2016. Quantifying Adoption Intensity for Weed Resistance Management Practices and Its Determinants among U.S. Soybean, Corn, and Cotton Farmers. *Journal of Agricultural and Resource Economics* 41(1):42-61.
12. Dong, F., P.D. Mitchell, D. Knuteson, J. Wyman, A.J. Bussan, and S. Conley. 2015. Assessing Sustainability and Improvements in U.S. Midwestern Soybean Production Systems Using a PCA-DEA Approach. *Renewable Agriculture and Food Systems* doi:10.1017/S1742170515000460.
13. Tinsley, N, P.D. Mitchell, R. Wright, L. Meinke, R. Estes, M. Gray. 2015. Estimation of Efficacy Functions for Products Used to Manage Corn Rootworm Larval Injury. *Journal of Applied Entomology* doi: 10.1111/jen.12276.
14. Milne, A.M, J.R. Bell, W.D. Hutchison, F. van den Bosch, P.D. Mitchell, D. Crowder, S. Parnell, and A.P. Whitmore. 2015. The effect of farmers' decisions on pest control with Bt crops: a billion dollar ecology game. *PLoS Computational Biology* 11(12): e1004483. doi:10.1371/journal.pcbi.1004483.
15. Andow, D.A., S.G. Pueppke, A.W. Schaafsma, A.J. Gassman, T.W. Sappington, L.J. Meinke, P.D. Mitchell, T.M. Hurley, R.L. Hellmich, and R.P. Porter. 2015. Early Detection and Mitigation of Resistance to Bt Maize by Western Corn Rootworm (Coleoptera: Chrysomelidae). *Journal of Economic Entomology* 109:1-12.
16. Recker, R.A., J.G. Lauer, D.E. Stoltenberg, P.D. Mitchell, and V. M. Davis. 2015. Does Timing Influence the Utility of Reduced Atrazine Rates for Proactive Resistance Management? *Weed Technology* 29:464-471.
17. Recker, R.A., P.D. Mitchell, D.E. Stoltenberg, J.G. Lauer, and V.M. Davis. 2015. Late-season Weed Escape Survey Reveals Discontinued Atrazine Use Associated with Greater Abundance of Broadleaf Weeds. *Weed Technology* 29:451-463.
18. Gaspar, A.P., P.D. Mitchell, and S.P. Conley. 2015. Economic Risk and Profitability of Soybean Seed Treatments at Reduced Seeding Rates. *Crop Science* 55:924-933.
19. Dong, F., P.D. Mitchell, and J. Colquhoun. 2015. Measuring Farm Sustainability Using Data Envelope Analysis with Principal Components: The Case of Wisconsin Cranberry. *Journal of Environmental Management* 147:175-183.
20. Silva, E., F. Dong, P.D. Mitchell, and R. Claypool. 2015. Impact of marketing channels on perceptions of quality of life and profitability for Wisconsin's organic vegetable farmers. *Renewable Agriculture and Food Systems* 30:428-438.
21. Mitchell, P.D. 2014. Market-level assessment of the economic benefits of atrazine in the United States. *Pest Management Science* 70:1684-1696.

22. Silva, E.M., R. Claypool, J. Munsch, J. Hendrickson, P.D. Mitchell, and J. Mills. 2014. Veggie Compass: A Spreadsheet-Based Tool to Calculate Cost-of-Production for Diversified Organic Vegetable Farmers. *Hort Technology* 24: 394-402.
23. Rejesus, R.M., M. Mutuc-Hensley, P.D. Mitchell, K.H. Coble, and T.O. Knight. 2013. U.S. Agricultural Producer Perceptions of Climate Change. *Journal of Agricultural and Applied Economics* 45:701-718.
24. Mitchell, P.D., R. Rejesus, K.H. Coble, T.O. Knight. 2012. Analyzing Farmer Participation Intentions and Enrollment Rates for the Average Crop Revenue Election (ACRE) Program. *Applied Economics Perspectives and Policy* 34:615-636. doi:10.1093/aep/pps038.
25. Goeser, N, P.D. Mitchell, P. Esker, D. Curwen, G. Weis, and A.J. Bussan. 2012. Modeling Long-term Trends in Potato Growth and Development in Wisconsin. *Agronomy* 2:14-27. doi:10.3390/agronomy2010014.
26. You, W., P.D. Mitchell, and R. Nayga. 2012. Improving Food Choices among Supplemental Nutrition Assistance Program Recipients. *Health Economics* 21:852-864. doi:10.1002/hec.1758.
27. Onstad, D.W., P.D. Mitchell, T.M. Hurley, J.G. Lundgren, R.P. Porter, C.H. Krupke, J.L. Spencer, C.D. DiFonzo, T.S. Baute, R.L. Hellmich, L. Buschman, W.D. Hutchison, and J.F. Tooker. 2011. Seeds of Change: Corn Seed Mixtures for Resistance Management and IPM. *Journal of Economic Entomology* 104:343-352.
28. Hutchison, W.D., E.C. Burkness, P.D. Mitchell, R.D. Moon, T.W. Leslie, S.J. Fleischer, M. Abrahamson, K.L. Hamilton, K.L. Steffey, M.E. Gray, R.L. Hellmich, L.V. Kaster, T.E. Hunt, R.J. Wright, K. Pecinovsky, T.L. Rabaey, B.R. Flood, and E.S. Raun. 2010. Areawide Suppression of European Corn Borer with Bt Maize Reaps Savings to Non-Bt Maize Growers. *Science* 330:222-225.
29. Dillen, K., P.D. Mitchell, T. Van Looy, and E. Tollens. 2010. The Western Corn Rootworm, A New Threat to European Agriculture: Opportunities for Biotechnology? *Pest Management Science* 66:956-966.
30. Dun, Z., P.D. Mitchell, and M. Agosti. 2010. Estimating *Diabrotica virgifera virgifera* Damage Functions with Field Data: Applying an Unbalanced Nested Error Component Model. *Journal of Applied Entomology* 134:409-419.
31. Dillen, K., P.D. Mitchell, and E. Tollens. 2010. On the Competitiveness of *Diabrotica virgifera virgifera* Damage Abatement Strategies in Hungary: a Bio-economic Approach. *Journal of Applied Entomology* 134:395-408.
32. Frisvold, G. F., T. M. Hurley, and P. D. Mitchell. 2009. Adoption of Best Management Practices to Control Weed Resistance by Cotton, Corn, and Soybean Growers. *AgBioForum* 12:370-381.
33. Hurley, T. M., P. D. Mitchell, and G. Frisvold. 2009. Effects of Weed Resistance Concerns and Resistance Management Practices on the Value of Roundup Ready® Crops. *AgBioForum* 12:291-302.
34. Hurley, T. M., P. D. Mitchell, and G. Frisvold. 2009. Weed Management Costs, Weed Best Management Practices, and The Roundup Ready® Weed Management Program. *AgBioForum* 12:281-290.

35. Hurley, T. M., P. D. Mitchell, and G. Frisvold. 2009. Characteristics of Herbicides and Weed Management Programs Most Important to Corn, Cotton, and Soybean Growers. *AgBioForum* 12:269-280.
36. Frisvold, G. F., T. M. Hurley, and P. D. Mitchell. 2009. Overview: Herbicide Resistant Crops – Diffusion, Benefits, Pricing and Resistance Management. *AgBioForum* 12:244-248.
37. Hsieh, M.-F., P. D. Mitchell, K. W. Stiegert. 2009. Potato Demand in an Increasingly Organic Marketplace. *Agribusiness: An International Journal* 25:369-394.
38. Mitchell, P. D., and T. O. Knight. 2008. Economic Analysis of Supplemental Deductible Coverage as Recommended in the USDA's 2007 Farm Bill Proposal. *Agricultural and Resource Economics Review* 37:117-131.
39. Seo, S., E. Segarra, P. D. Mitchell, and D. J. Leatham. 2008. Irrigation Technology Adoption and Its Implication for Water Conservation in the Texas High Plains: A Real Options Approach. *Agricultural Economics* 38:47-55.
40. Bussan, A.J., P. D. Mitchell, M. E. Copas, and M. J. Drilias. 2007. Evaluation of the Effect of Density on Potato Yield and Tuber Size Distribution. *Crop Science* 47:2462-2472.
41. Mitchell, P. D., and D. W. Onstad. 2005. Effect of Extended Diapause on the Evolution of Resistance to Transgenic *Bacillus thuringiensis* Corn by Northern Corn Rootworm (Coleoptera: Chrysomelidae). *Journal of Economic Entomology* 98:2220-2234.
42. Mueller, T. C., P. D. Mitchell, B. G. Young, and A. S. Culpepper. 2005. Proactive versus Reactive Management of Glyphosate-Resistant or Tolerant Weeds. *Weed Technology* 19:924-933.
43. Seo, S., P.D. Mitchell, and D. Leatham. 2005. Effects of Federal Risk Management Programs on Optimal Acreage Allocation and Nitrogen Use in a Texas Cotton-Sorghum System. *Journal of Agricultural and Applied Economics* 37:685-699.
44. Crowder, D. W., D. W. Onstad, M. E. Gray, P. D. Mitchell, J. L. Spencer, and R. J. Brazee. 2005. Economic Analysis of Dynamic Management Strategies Utilizing Transgenic Corn for Control of Western Corn Rootworm (Coleoptera: Chrysomelidae). *Journal of Economic Entomology* 98:961-975.
45. Mitchell, P. D. 2004. Nutrient Best Management Practice Insurance and Farmer Perceptions of Adoption Risk. *Journal of Agricultural and Applied Economics* 36:657-673.
46. Mitchell, P. D., M. E. Gray, and K. L. Steffey. 2004. A Composed Error Model for Estimating Pest-Damage Functions and the Impact of the Western Corn Rootworm Soybean Variant in Illinois. *American Journal of Agricultural Economics* 86:332-344.
47. Hurley, T. M., P. D. Mitchell, and M. E. Rice. 2004. Risk and the Value of Bt Corn. *American Journal of Agricultural Economics* 86:345-358.
48. Onstad, D. W., D. W. Crowder, P. D. Mitchell, C. A. Guse, J. L. Spencer, E. Levine, and M. E. Gray. 2003. Economics versus Alleles: Balancing IPM and IRM for Rotation-Resistant Western Corn Rootworm (Coleoptera: Chrysomelidae). *Journal of Economic Entomology* 96:1872-1885.
49. Mitchell, P. D. 2003. Value of Imperfect Input Information in Agricultural Production. *Agricultural Systems* 75:277-294.

50. Mitchell, P. D., T. M. Hurley, B. A. Babcock, and R. L. Hellmich. 2002. Insuring the Stewardship of Bt Corn: A Carrot versus a Stick. *Journal of Agricultural and Resource Economics* 27:390-405.
51. Alston, J. M., J. Hyde, M. C. Marra, and P. D. Mitchell. 2002. An Ex Ante Analysis of the Benefits from the Adoption of Corn Rootworm Resistant, Transgenic Corn Technology. *AgBioForum* 5:71-84.
52. Mitchell, P.D., and W. Riedell. 2001. Stochastic Dynamic Population Model for Northern Corn Rootworm *Diabrotica barberi* (Coleoptera: Chrysomelidae). *Journal of Economic Entomology* 94:599-608.
53. Crumpton, W. G., T. M. Isenhardt and P. D. Mitchell. 1992. Nitrate and Organic N Analyses with Second-Derivative Spectroscopy. *Limnology and Oceanography* 37:907-913.

B. Funded Research Projects (last 5 years)

1. Using hyperspectral remote sensing to develop decision support models for potato nitrogen management. Co-Principal Investigator. Three-Year (2020-2022) USDA AFRI.
2. Organic Alternatives to Conventional Celery Powder as a Meat Curing Agent. Co-Principal Investigator. Three-Year (2020-2023) USDA OREI.
3. Creating a New Paradigm for Potato Breeding and Seed Production Based on True Potato Seed. Co-Principal Investigator. Four-Year (2019-2023) USDA SCRI.
4. Applications of Reinforcement Learning Algorithms To Improve Crop Input Use. Project Director. Three-Year (2019-2022) USDA AFRI.
5. Sweet CAP: Integrated Technologies to Improve Sweet Corn Production. Co-Principal Investigator. Four-Year (2018-2023) USDA Specialty Crop Research Initiative CAP.
6. The Economics of Seed-Based Insect Management for Corn and Soybeans, Three-Year (2017-2019) UW CALS Hatch Grant.
7. Economic Impact of Irrigated Potato and Vegetable Production and Processing in Wisconsin. Project Director (2016-2017). Wisconsin Potato and Vegetable Growers Association.
8. Increasing the Economic Value of Sustainability in Wisconsin Potato Production Using a Multi-Tiered Approach to Assessment. Project Director. One-Year (2014-2015) Wisconsin Potato and Vegetable Growers Association.
9. Profitability of Alternative Management Strategies for Western Corn Rootworm. Project Director (2014-2017). Monsanto Corn Rootworm Knowledge Research Program.
10. Understanding How Market Structure Affects Pest Resistance to Enhance Sustainable Corn and Soybean Production. Co-PI. Three-Year (2014-2017) USDA AFRI Foundation.
11. The ABCs of Farmer Best Management Practice Adoption: Assessing the Role of Attitudes, Beliefs and Characteristics. PI. Two-Year (2013-2015) UW CALS Hatch Grant.
12. Building Market Foundations for Sustainable Vegetable Production and Processing: A Consumer and Metrics-Based Approach. Project Director with six Co-PDs and thirteen Collaborators in six states. Four Year (2012-2016) USDA SCRI grant.
13. Rear and Release Psyllids as Biological Control Agents - An Economical and Feasible Mid-Term Solution for Huanglongbing (HLB) Disease of Citrus. One of 40 Investigators under Project Director T. Turpen (Citrus Research and Development Foundation). Five Year (2012-2017) USDA SCRI grant..

14. Soybean Aphid Management, Resistance, and Outreach in the North Central Region. Cooperator under Project Director K. Tilmon et al. Three Year (2012-2015) Competitive Grant from the North Central Soybean Research Program for \$2,127,000.

C. Reports and Discussion Papers (last 5 years)

1. Dong, F., and P.D. Mitchell. 2018. Welfare Analysis of the Prohibition of 2,4-D in the United States. Benefits and Economic Assessment of 2,4-D and the Phenoxy Herbicides in the US. 2,4-D Industry Task Force II. Online: https://www.24d.org/PDF/Newsroom-PDF/2018_Study/2_Welfare_Analysis_of_Prohibition_of_24-D_03-10-2018.pdf.
2. Mitchell, P.D., and S.P. Conley. 2017. Benefits of Seed Applied Insecticides to Canadian Farmers: A Summary Report Prepared for the Canadian Seed Trade Association. AgInfomatics Research Report, Madison, WI (23 p). Online: <http://aginfomatics.com/index.html>.
3. Nowak, P., P.D. Mitchell, T.M. Hurley. 2017. The value of pyrethroids in U.S. agricultural and urban settings: Executive summary. AgInfomatics Research Report, Madison, WI (36 p). Online: <http://aginfomatics.com/pyrethroids-project.html>.
4. Mitchell, P.D. 2017. Methods and assumptions for estimating the impact of pyrethroid insecticides on pest management practices and costs for U.S. crop farmers. AgInfomatics Research Report, Madison, WI (119 p). Online: <http://aginfomatics.com/pyrethroids-project.html>.
5. Mitchell, P.D. 2017. Summary of the use of pyrethroid insecticides by U.S. crop farmers and the impacts of non-pyrethroid scenario on insecticide use and farmer costs. AgInfomatics Research Report, Madison, WI (26 p). Online: <http://aginfomatics.com/pyrethroids-project.html>.
6. Mitchell, P.D. 2017. Estimated yield benefits and efficacy of pyrethroid insecticides for major U.S. crops based on a meta-analysis of small plot data. AgInfomatics Research Report, Madison, WI (88 p). Online: <http://aginfomatics.com/pyrethroids-project.html>.
7. Mitchell, P.D. 2017. An economic assessment of the benefits of pyrethroid insecticides in the U.S. AgInfomatics Research Report, Madison, WI (34 p). Online: <http://aginfomatics.com/pyrethroids-project.html>.
8. Mitchell, P.D. 2015. The Value of Corn and Soybean Neonicotinoid Seed Treatments for Canada. AgInfomatics Research Report, Madison, WI (45 p). Online: <http://aginfomatics.com/index.html>.
9. Mitchell, P.D. 2015. An Economic Assessment of the Benefits of Nitroguanidine Neonicotinoid Insecticides in the United States and Canada. AgInfomatics Research Report, Madison, WI (35 p). Online: <http://aginfomatics.com/index.html>.

EXTENSION

Extension Activities (last five years)

Outreach program focused broadly on crop economics for all Wisconsin farmers, including both commodity crops and specialty crops, from small diversified organic vegetable growers to large-scale commercial farms. Topics include agricultural policy, crop insurance, sustainability, precision agriculture, and pest and resistance management. County-based extension activities include 1 smartphone app, 12 extension fact sheets, 8 magazine publications, and 100+

presentations at various venues: <https://aae.wisc.edu/pdmitchell/extension/>, including the Wisconsin Corn/Soy Expo, the Wisconsin Agri-Business Classic, the Wisconsin Potato and Vegetable Growers Association Grower Education Conference, and the Midwest Food Products Association's Processing Crops Conference.

Director, Renk Agribusiness Institute (July 2016 - present)

The Institute has a broad mission to enhance education, research and outreach for Wisconsin's agribusiness sector, including input suppliers, farmers, product handlers, and food processing: <https://renk.aae.wisc.edu/>. As a signature outreach event, the director annually organizes and hosts the day-long Wisconsin Agricultural Outlook Forum (<https://renk.aae.wisc.edu/ag-outlook-forum/>) with more than 200 attendees.

A. Extension Publications

1. Grain Management Considerations in Low-Margin Years. F. Arriaga, S. Conley, B. Jensen, C. Laboski, J. Lauer, B. Luck, P. Mitchell, D. Smith. UW Extension Publication A4137 <https://learningstore.uwex.edu/Assets/pdfs/A4137.pdf>. (Awarded 2017 American Society of Agronomy Educational Materials Certificate of Excellence for Publication < 16 pages).
2. A Toolkit for Assessing IPM Outcomes and Impacts. An Online Living Document with Multiple Modules: <http://westernipm.org/index.cfm/center-projects/project-websites/toolkit-for-assessing-ipm-outcomes-and-impacts/>. Written by the IPM Adoption and Impacts Assessment Workgroup (B. Coli, A. Fournier, P. Goodell, M. Halbleib, J. Haley, K. Hansen, J. Hurley, T. Lybbert, M. Lubbell, N. McRoberts, W. Miller, P.D. Mitchell, D. Sande, S. Tungate, D. Young, and C. Thomas) with USDA NIFA funding through the Western IPM Center, Davis, CA, October 2013.

B. Smartphone Apps

1. Sporebuster, a White Mold Fungicide Value Calculator. 2018. Calculates the net return to foliar fungicide applications in soybeans based on user-entered data for their fields. See: <http://ipcm.wisc.edu/apps/sporebuster/>.

C. Extension Web Pages

1. Resources for Making ARC and PLC Decisions <https://aae.wisc.edu/pdmitchell/extension/arc-plc-signup/>. Created 9 videos, 2 presentations, 2 documents and 1 spreadsheet, as well as links to multiple others as resources for farmers and those working with farmers to use to make their decisions regarding farm program sign up.
2. Veggie Compass (<http://www.veggiecompass.com/>) an ongoing project focused on developing whole farm profit management tools designed to help growers improve on-farm decision making and financial farm planning in order to maximize profitability and ensure the continuation of sustainable farms.

TEACHING

AAE 320: Farming Systems Management (3 credits)

Undergraduate course covering fundamentals of production economics and farm business management, including financial management, taxes and business arrangements, budgeting, and agricultural policy. Course homepage: <https://aae.wisc.edu/pdmitchell/aae-320/>.