

**Mindy L. Mallory**  
**Associate Professor**  
**Department of Agricultural Economics**  
**Purdue University**

**Date Started at Purdue: 08/12/2019**

**Current Appointment:**

**Research/Teaching**

**Jan 17, 2022**

## MINDY L. MALLORY

### Associate Professor – Department of Agricultural Economics

#### GENERAL INFORMATION

##### A. Academic Degrees

| <u>Degree</u> | <u>Year</u> | <u>Major</u>   | <u>Institution</u>       |
|---------------|-------------|----------------|--------------------------|
| B.S.E.        | 2003        | Math Education | Emporia State University |
| M.S.          | 2005        | Mathematics    | Emporia State University |
| Ph.D.         | 2009        | Economics      | Iowa State University    |

##### B. Professional Experience

- 2019-Present Clearing Corporation Foundation Chair in Food and Agricultural Marketing, Purdue University, West Lafayette, IN.
- 2019-Present Associate Professor, Department of Agricultural Economics, Purdue University, West Lafayette, IN.
- 2016-2019 Associate Professor, Department of Agricultural and Consumer Economics, University of Illinois, Urbana, IL.
- 2009-2016 Assistant Professor, Department of Agricultural and Consumer Economics, University of Illinois, Urbana, IL.

##### C. Awards and Honors

1. University of Illinois, Department of Agricultural Economics Graduate Student Association, Outstanding Faculty of the Year, 2019.
2. Earl and Mildred Hughes Teaching Enhancement Award. University of Illinois. 2019.

##### D. Membership in Academic, Professional, and Scholarly Societies

- 2007-Present . Agricultural and Applied Economics Association
- 2010-2012 Western Agricultural Economics Association
- 2015-2016 American Finance Association

#### SECTION A. DISCOVERY

##### 1. Current Research Program

Since last promotion my work has been published in top agricultural economics, environmental economics, and interdisciplinary journals (e.g., *American Journal of Agricultural Economics*; *Agricultural Economics*; *Conservation Biology*, *Conservation Letters*). I have advised or co-advised 6 Ph.D. students and 6 Master's students. Since my last promotion in 2016 I have published 13 peer reviewed publications and 11 of those were with graduate students.

My research focuses on risk and uncertainty in agricultural and environmental markets. Agricultural and natural resource markets are constantly subject to technological innovations, shocks from adverse weather events and climate change, and evolving competitive market structure. These forces make it imperative that market participants, government policy makers, and regulators can make informed decisions regarding firms' risk management activities, policy makers' proposals, and regulation of market structures so that all varieties of participants in markets can achieve their strategic business and risk management objectives.

My work informs these activities via three main research streams: Price analysis and forecasting in commodity markets, risk management in commodity and natural resource markets, and futures market quality. The table below displays the impact factor and citation counts for articles published since my last promotion in 2016. In the sections below I discuss my approach to each research stream and list important contributions to the area of my work. Submitted articles, and work in progress can be found in sections A.3.A, and A.3.A.1.

|    | Article Title  | Journal                                    | Impact factor <sup>a</sup><br>(5 year) | Citation Count <sup>b</sup> |
|----|--|--|--|-----------------------------|
| 13 | When Portfolio Theory Can Help Environmental Investment Planning to Reduce Climate Risk to Futures Outcomes – and When it Cannot. 2018 | Conservation Letters                       | 8.105                                  | 18                          |
| 12 | Fine-Resolution Conservation Planning with Limited Climate-Change Information. 2016.   | Conservation Biology                       | 6.560                                  | 14                          |
| 11 | Journal Submissions, Review and Editorial Decision Patterns During COVID-19 Restrictions. 2021   | Food Policy                                | 4.552                                  | 1                           |
| 10 | Price Density Forecasts in the Lean Hogs Futures Market. 2016.   | American Journal of Agricultural Economics | 4.082                                  | 9                           |
| 9  | Impact of COVID-19 on Medium Term Export Prospects for Soybeans, Corn, Beef, and Poultry. 2021.  | Applied Economics Perspectives and Policy  | 4.083                                  | 14                          |
| 8  | Short-Term Price Density Forecasts in the Lean Hog Futures Market. 2017.   | European Review of Agricultural Economics  | 3.836                                  | 8                           |
| 7  | The Components of the Bid-Ask Spread: Evidence from Corn Futures Market. 2018.   | Agricultural Economics                     | 2.585                                  | 15                          |
| 6  | Measuring Price Discovery Between Nearby and Deferred Contracts in Storable and Non-storable Commodity Futures Markets. 2020.          | Agricultural Economics                     | 2.585                                  | 8                           |

|   |   |  |       |    |
|---|---|--|-------|----|
| 5 | Looking Under the Surface: An Analysis of Iceberg Orders in the U.S. Agricultural Futures Markets. 2021           | Agricultural Economics                     | 2.585 | 0  |
| 4 | The Impact of Brazil on Global Grain Dynamics: A Study of Cross-Market Volatility Spillovers. 2021                | Agricultural Economics                     | 2.585 | 0  |
| 3 | Carbon Price Interaction between Allocated Parties and Generated Offsets. 2020.                                   | Operational Research                       | 2.511 | 5  |
| 2 | Diversifying to Reduce Conservation Outcome Uncertainty in Multiple Environmental Objectives. 2018                | Agricultural and Resource Economics Review | 1.426 | 6  |
| 1 | Estimating the Cost of Pre-Harvest Forward Contracting Corn and Soybeans in Illinois Before and After 2007. 2017. | Agribusiness: An International Journal     | 2.057 | 17 |

<sup>a</sup> Journal five-year impact factors as reported on the journal's homepage.

<sup>b</sup> Citation count indicates the number of citations article has received as of Jan 17, 2022 on Google Scholar.

### *Price analysis and forecasting in commodity markets*

“History does not repeat itself, but it often rhymes,” is a quote popularly attributed to Mark Twain. The sentiment certainly applied to commodity markets. For this reason, detailed analyses of evolving market conditions, unexpected market shocks, policy impacts, and monitoring of the performance of state-of-the-art forecasting models is important work in agricultural economics. My work in price analysis and forecasting provides near real-time evaluation of evolving market conditions. This allows stakeholders to make informed decisions in near real-time, as well as to look back to how markets reacted to past scenarios. This research stream has shown the following results:

1. Logarithmic combinations of quarterly density forecasts using equal and mean square error weights outperform all individual density forecasts. Comparison of the outlook forecasts to the best composite demonstrates the usefulness of the composite procedure, and identifies the economic value that more accurate expected price probability distributions can provide to producers. **(Trujillo et al. 2016 in section A.2.A)**
2. Prior to 2007, it cost 1.55% of the October spot price or 3.74 cents/bushel on average to forward contract corn at the end of February. In 2007–2013, a period of high price volatility, the average cost increased to 3.31% or 16.40 cents/bushel. In the soybean market, before 2007 the average cost was 0.77% or 6.26 cents/bushel and thereafter increased to 1.46% or 15.62 cents/bushel. **(Etienne et al. 2017 in section A.2.A)**
3. Risk-neutral and risk-adjusted forward-looking market techniques are better calibrated and have superior predictive accuracy than time series GARCH models based on historical data. Improvements to goodness of fit and accuracy of the forecasts obtained by the calibration from risk-neutral to real-world densities imply that short-term risk

premiums may be present in the lean hog futures markets, and they most likely appear in periods of market turmoil. **(Trujillo et al. 2017 in section A.2.A)**

4. Grains and meats have had differing degrees of vulnerability to trade disruptions due to the coronavirus pandemic. US exports of beef and pork were particularly impacted by a wave of processing facility shutdowns in the wake of COVID-19 outbreaks among workers. Poultry exports saw declines from their highs but remain strong, even though poultry-processing facilities have also faced issues with outbreaks and shutdowns. **(Mallory 2020 in section A.2.A)**
5. The Kyoto Protocol established targets for curbing greenhouse gas emissions in order to mitigate climate change, and it introduced two kinds of market-based mechanisms: the emission allowance market and the carbon offset market. Our work is the first to derive a closed form solution incorporating most policy instruments, such as abatement and offset usage, and delivery risks in offsets. We show that policy changes will impact one market directly and the other indirectly, generating unequal price responses that affects the spread between the two compliance instruments. We show how the price spread between allowances and offsets is affected by market conditions such as the offset import limit, abatement and offset cost, penalty rate, emission cap, and baseline emissions. **(Yu and Mallory 2020 in section A.2.A)**
6. Milk production in Wisconsin and New York have lost price dominance to California through the 2000's and 2010's. **(Hughes et al. 2021 in section A.3.A1)**
7. Linkages between U.S. and Brazilian increased after double cropping corn after soybeans expanded, volatility spillover magnitudes expanded, and the direction of volatility spillovers flipped from U.S. volatility spilling over to Brazil before double cropping, to Brazil spilling over to U.S. after double cropping. **(Gimaldi and Mallory 2021 in section A.3.A)**
8. There was a long-standing equilibrium relationship between the Georgia Dock chicken price and the USDA's 12-City chicken price index that shifted across time. Our analysis shows that there was a structural break between these two price indices around 2000. This was prior to the dates associated with the recent chicken price fixing allegations. After this structural break, our analysis suggests Georgia Doc prices were about \$0.047/lb higher, than they would have been without the break. **(Morrissette et al. 2021 in section A.3.A)**
9. The cattle crush spread became cointegrated with the S&P 500 futures during the March 2020 COVID 19 crisis in U.S. equity markets. It appears this crisis-driven equilibrium relationship is an instance of the phenomenon, "All Correlations go to 1 in a Crisis". **(Mefford and Mallory 2021 in section A.3.A1)**
10. We show that the commodity overshooting theory is untestable in the conventional sense because unit roots are present in real commodity prices and real interest rates, rendering previous results in favor of the theory due to spurious regression. Using variations of the model that account for non-stationarity in the data, we show that real interest rate changes are generally not associated with real price changes in the major agricultural commodities. **(Naughton 2021 in section A.3.A1)**

11. We show the option volume to futures volume ratio, especially when volumes for call and put options are considered separately, have small predictive power in the returns of commodity futures contract prices. **(Han, et al. 2021 in section A.3.A1)**
12. We find that volatility linkages between the U.S. and Brazil increased after double-cropping corn after soybeans expanded, volatility spillover magnitudes expanded, and the direction of volatility spillovers flipped from U.S. volatility spilling over to Brazil before double cropping, to Brazil spilling over to U.S. **(Avileis, et al 2022 in section A.3.A1)**

### *Portfolio Theory in Natural Resource Markets*

Uncertainty is a key problem that creates significant planning problems for actors in any kind of economic environment. This stream of my research has taken tools from finance, namely portfolio theory, and used them to help entities mitigate the risk that ecosystem services they currently protect may change in the face of climate change. This research stream has shown the following results:

1. We show that the difference in expected conservation returns can be as large as 30% between conservation planning with limited climate change information and full climate change information. However, the iterative approach we develop enables a decision maker to do finer-resolution portfolio allocation with limited available climate change forecasts in a manner that obtains the best possible risk-return combinations. **(Shah et al. 2016 in section A.2.A)**
2. We show it is more efficient to optimize a conservation portfolio for multiple goods jointly, allowing planners to exploit information about multiple dimensions of correlations between goods. We identified a new type of correlation that is important for optimal conservation planning of multiple objectives under uncertainty: scenario correlation between objectives in a given part of the landscape. The conservation planner faces a different kind of problem if the objectives at hand respond similarly rather than differently to climate shocks in subregions of the planning area. **(Ando, Howlader, and Mallory 2018 in section A.2.A)**
3. Variability among climate change scenarios produces great uncertainty in what is the best allocation of resources among investments to protect environmental goods in the future. Previous research shows Modern Portfolio Theory can help optimize environmental investment targeting, but no work has yet identified the types of cases for which MPT is most useful. We assemble data on 26 different conservation cases in three distinct ecological settings and develop new metrics to evaluate how well MPT can reduce uncertainty in future outcomes of a set of environmental investments. We find MPT is broadly but not universally useful and works best when multiple investments have negatively correlated outcomes across climate scenarios; a second-best investment has expected value almost as good as the value in the best investment; or multiple investments have little uncertainty in ecological outcomes. **(Ando et al. 2018 in section A.2.A)**

### *Futures Market Quality*

Futures markets are the predominant method by which commodity market participants can transfer risky positions that they do not want to speculators want risky positions. Even risk management activities conducted between farmers and grain buyers get ultimately results in futures market activity as grain buyers lay off risk associated with those activities in the futures market. Therefore, research regarding the quality of our futures contracts with regards to liquidity, transparency, price discovery, and impacts of contract rules are important to the health of our markets and the ability to manage risk in commodity markets. This research stream has shown the following results:

1. We estimate whether changes to liquidity costs are driven by its adverse selection, inventory, or order processing components. Commodity index fund roll activity reduces the asymmetric information cost component of liquidity cost, but the inventory cost component increases as (mostly long only) commodity index funds sell their nearby positions and buy the first deferred contract. The sum of these two effects is that liquidity costs remain low during index fund roll periods, averaging one “tick” (0.25 cents). On USDA report release days, informed traders raise the asymmetric information component of liquidity costs in the first hour after release, but the inventory cost component is reduced due to the increase in volume. Similar to index fund roll activity, liquidity costs on USDA report release days remain low, averaging one “tick”. **(Shang et al. 2018 in section A.2.A)**
2. We quantify the contribution of nearby and deferred contracts in price discovery in the corn and live cattle futures markets. Nearby contracts reflect information more quickly than deferred contracts in the corn market, but have a less dominant role in the live cattle market. In both markets, the nearby contract loses dominance when its relative volume share dips below 50%, which typically occurs when the nearby is close to maturity. Price discovery is mainly related to trading volume and time to expiration in both markets. In the corn market, price discovery share between nearby and deferred contracts is also related to inverse carrying charges, crop year differences, USDA announcements, market crashes, and commodity index position rolls. Differences between corn and live cattle markets are consistent with differences in the contracts’ liquidity and commodity storability. **(Hu et al. 2020 in section A.2.A)**
3. The Chicago Mercantile Exchange allows traders to conceal part of their limit orders, which is known as a hidden-limit order (HLO). With HLOs, market participants have incomplete knowledge of the order book. Our estimates indicate that HLOs represent more than 10% (20%) of the total volume in corn (live cattle) futures market. The findings show that the existence of HLOs improves market quality in multiple dimensions: driving trading volume while reducing market volatility, and enhancing market liquidity. They are also indicative that market traders hide successfully, which in turn may be key to protect traders who have speed disadvantages in the era of fast trading. **(Shang et al. 2021 in section A.2.A)**

## **2. Published Work**

**A. Articles in Refereed Journals** (\*Indicates graduate student author, + indicates Mallory's graduate student advisee)

1. Avileis, F. and Mallory, M. 2021. "The Impact of Brazil on Global Grain Dynamics: A Study on Cross Market Volatility Spillovers." *Agricultural Economics*. Forthcoming.
2. Biondi, B., Barrett, C., Mazzocchi, M., Ando, A., Harvey, D., and Mallory, M. 2021. "Journal Submissions, Review and Editorial Decision Patterns During Initial COVID-19 Restrictions." *Food Policy*. doi.org/10.1016/j.foodpol.2021.102167.
3. Shang, Q.\*, Serra, T., Garcia, P., and Mallory, M. 2021. "Looking Under the Surface: An Analysis of Iceberg Orders in the U.S. Agricultural Futures Markets." *Agricultural Economics*. 52(4), 679-699.
4. Mallory, M. 2021. "Impact of COVID-19 on Medium Term Export Prospects for Soybeans, Corn, Beef, Pork, and Poultry." *Applied Economic Perspectives and Policy*. 43(1), 292-303.
5. Yu+, J., and M.L. Mallory. 2020. "Carbon Price Interaction between Allocated Parties and Generated Offsets." *Operational Research*. 20, 671-700. DOI: 10.1007/s12351-017-0345-2.
6. Hu\*, Z, Mallory, M., T. Serra, and Garcia, P. 2020. "Measuring price discovery between nearby and deferred contracts in storable and nonstorable commodity futures markets." *Agricultural Economics*. 51(6),825-840. <https://doi.org/10.1111/agec.12594>
7. Ando, A.W., J. Fraterrigo, G. Guntenspergen, A. Howlader\*, M. Mallory, J. Olker, and S. Stickley\*. 2018. "When Portfolio Theory Can Help Environmental Investment Planning to Reduce Climate Risk to Future Environmental Outcomes – and When it Cannot" *Conservation Letters*. 11(6). [doi.org/10.1111/conl.12596](https://doi.org/10.1111/conl.12596).
8. Shang+, Q., Mallory, M., and Garcia, P. 2018. "The Components of the Bid-Ask Spread: Evidence from the Corn Futures Market." *Agricultural Economics*. 49, 381-393.
9. Ando, A., A. Howlader\*, and M.L. Mallory. 2018. "Diversifying to Reduce Conservation Outcome Uncertainty in Multiple Environmental Objectives." *Agricultural and Resource Economics Review*. 47(2), 220-238.
10. Trujillo-Barrera\*, A., P. Garcia, and ML. Mallory. 2017. "Short-Term Price Density Forecasts in the Lean Hog Futures Market." *European Review of Agricultural Economics*, 45(1), 121-142.
11. Etienne\*, X.L., M.L. Mallory, and S.H. Irwin. 2017. "Estimating the Cost of Pre-Harvest Forward Contracting Corn and Soybeans in Illinois Before and After 2007." *Agribusiness: an International Journal*, 33(3):358-377.



12. Shah\*, P., M. Mallory, A. Ando, and G. Guntenspergen. 2016. "Fine-Resolution Conservation Planning with Limited Climate-Change Information." *Conservation Biology*, 31(2):278-289.
13. Trujillo-Barrera\*, A., P. Garcia, M. Mallory. 2016. "Price Density Forecasts in the U.S. Hog Market: Composite Procedures." *American Journal of Agricultural Economics*, 98(5):1529-1544.
14. Yu+, J. and M. Mallory. 2015. "An Optimal Hybrid Emission Control System in a Multiple Compliance Period Compliance Period Model." *Resource and Energy Economics*, 39:16-28.
15. Yu+, J. and M. Mallory. 2014. "Exchange Rate Effect on Carbon Credit Price via Energy Markets." *Journal of International Money and Finance*, 47:145-161.
16. Mallory, M. and A. Ando. 2014. "Implementing Efficient Conservation Portfolio Design." *Resource and Energy Economics*, 38:1-18.
17. Mallory, M., W. Zhao+, and S. Irwin. 2014. "The Cost of Post-Harvest Forward Contracting in Corn and Soybeans." *Agribusiness: An International Journal*, 31(1):47-62.
18. Sherrick, B., M. Mallory, and T. Hopper. 2013. "What's the Ticker Symbol for Farmland?" *Agricultural Finance Review*, 73(1):6-31.
19. Mallory, M. and K. Baylis. 2013. "The Food Corporation of India and the Public Distribution System: Impacts on Market Integration in Wheat, Rice, and Pearl Millet." *Journal of Agribusiness*, 30(2):225-250.
20. Zhang+, T., M. Mallory, and P. Barry. 2012. "Determinants of the Patronage Refund Decision of Farm Credit System Associations." *Agricultural Finance Review*, 73(1):102-118.
21. Ando, A. and M. Mallory. 2012. "Reply to Dunkel and Weber: Probability Distributions and Shortfall Risk Measures in Conservation Portfolio Analysis." *Proceedings of the National Academy of Sciences*, 109(35):E2305. 3 Updated October, 2018
22. Mallory, M. and S. Lence. 2012. "Testing for Cointegration in the Presence of Moving Average Errors." *The Journal of Time Series Econometrics*, 4(2):1941-1928.
23. Trujillo\*, A., M. Mallory, and P. Garcia. 2012. "Volatility Spillovers in US Crude Oil, Ethanol and Corn Futures Markets." *Journal of Agricultural and Resource Economics*, 37(2):1-16.
24. Mallory, M., S. Irwin, and D. Hayes. 2012. "How Market Efficiency and the Theory of Storage Link Corn and Ethanol Markets." *Energy Economics*, 34(6):2157-2166.

25. Ando, A. and M. Mallory. 2012. "Optimal Portfolio Design to Reduce Climate-Related Conservation Uncertainty in the Prairie Pothole Region." *Proceedings of the National Academy of Sciences*, 109(17):6484-6489.
26. Mallory, M., D. Hayes, and B. Babcock. 2011. "Crop-based Biofuel Production with Acreage Competition and Uncertainty." *Land Economics*, 87(4):610-627.
27. Mallory, M. 2011. "Coordination Problems, Strategic Complementarities, and Multiple Equilibria in an Alternative Fuel Market." *Environmental Economics*, 2(1):38-49.
28. Irwin, S., D. Good, and M. Mallory. 2011. "Could a Variable Ethanol Blenders' Tax Credit Work?" *Biofuels*, 2(3):277-284.
29. Mallory, M. 2011. "Alternative Biofuel Policies: An Economic Comparison." *Biofuels*, 2(3):267-276.
30. Du, X., D. Hayes, and M. Mallory. 2009. "A Welfare Analysis of the U.S. Ethanol Subsidy." *Review of Agricultural Economics*, 31(4):669-676.

## **B. Invited Review**

### **C. Invited and Selected Conference Papers (\* Indicates the presenter)**

1. Mallory, M.\*, D. Hayes, and B. Babcock. "Crop Based Biofuel Production under Acreage Constraints and Uncertainty." AAEA annual meeting, Orlando, FL, July 2008.
2. Mallory, M.\*, and S. Lence. "Much Ado about the Wrong Thing? Cointegration Analysis of Commodity Prices." AAEA Annual Meeting, Denver, CO, July 2010.
3. Mallory, M.\*, D. Hayes, and S. Irwin. "How Market Efficiency and the Theory of Storage Link Corn and Ethanol Markets." Biobased Industry Center Bioenergy Camp. Perry, IA. May 20, 2010.
4. Mallory, M.\* and S. Irwin. 2010. "The Forward Contract's Income Shifting Option and on the Forward Basis." Proceedings of the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.
5. Mallory, M.\* "Energy Policy: Implications for Farmer Cash Flow and Land Values." NC-1177 Annual Meeting, Denver, CO. October 2011.
6. Mallory, M.\*, X. Etienne, and S. Irwin. "Estimating the Cost of Forward Contracting Corn, Soybeans, and Wheat." WAEA Annual Meeting, Banff, Alberta, Canada, June 2011.

7. Trujillo, A.\*, M. Mallory, and P. Garcia. 2011. "Volatility Spillovers in US Crude Oil, Ethanol and Corn Futures Markets." Proceedings of the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.
8. Mallory M.\*, H. Zahran, and S. Irwin. "Profit and Prices in the Biodiesel Industry." NC-1177 Annual Meeting, Washington, D.C. October 26, 2012.
9. Ando, A., and M. Mallory\*. "The Perils of Shortcuts in Efficient Conservation Portfolio Design." AAEA Annual Meeting, Seattle, WA, August 13, 2012.
10. Mallory M.\*, and K. Baylis. "The Food Corporation of India and the Public Distribution System: Impacts on Market Integration in Wheat, Rice, and Pearl Millet." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO. April 2012.
11. Trujillo, A.\*, P. Garcia, and M. Mallory. 2012. "Density Forecasts of Lean Hog Prices." Proceedings of the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.
12. Trujillo, A.\*, P. Garcia, and M. Mallory. 2013. "Price Density Forecasts in the U.S. Hog Market: Composite Procedures." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.
13. Mallory, M.\*, P. Garcia, and T. Serra. 2015. "Nearby and Deferred Quotes: What They Tell Us about Linkages and Adjustments to Information." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.
14. Shang, Q.\*, M. Mallory, and P. Garcia. 2016. "The Components of the Bid-Ask-Spread: Evidence from the Corn Futures Market." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.
15. Shang, Q.\*, M. Mallory, and P. Garcia. 2016. "The Electronic Live Cattle Futures Market Bid Ask Spread Behaviors and Components" Agricultural and Applied Economics Association. 2016 Annual Meeting, July 31-August 2, Boston, Massachusetts.
16. Hu, Z.\*, M. Mallory, T. Serra, and P. Garcia. 2017. "Measuring Price Discovery between Nearby and Deferred Contracts in Storable and Non-Storable Commodity Futures Markets." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.

17. Shang, Q.\*, T. Serra, P. Garcia, and M. Mallory. 2018. "The Term Structure of Liquidity Provision in Agricultural Futures Markets." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. Minneapolis, MN.
18. Janzen, J. and M. Mallory\*. 2018. "Going to Kansas City? Examining Working's Wheat Price Discovery Puzzle." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. Minneapolis, MN.
19. Shang, Q.\*, T. Serra, P. Garcia, and M. Mallory. 2019. "Lifting the Veil on the Iceberg: An Analysis of Hidden Liquidity in the U.S. Agricultural Futures Markets." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. Minneapolis, MN.
20. Han, X., M. Mallory\*, and M. Robe. 2019. "Informed Trading and the O/F Ratio." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. Minneapolis, MN.
21. Grimaldi, F.\* and M. Mallory. 2019. "Where to Hedge? Optimal Hedge in Cointegrated Markets: The Case of Brazil and the U.S." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. Minneapolis, MN.
22. Naughton, C.\* and M. Mallory. 2019. "Commodity Speculation and Overshooting Theory." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. Minneapolis, MN.
23. Mallory, M. 2020. "Execution Risk in Corn Futures Market Spreads." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. Minneapolis, MN. \*Cancelled due to COVID-19.
24. Mefford, E. \* and M. Mallory. 2021. "All Correlations Go to One in a Crisis: The Cattle Crush Spread During the COVID 19 Crisis." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. Virtual.
25. Hu., Zhepeng, and M. Mallory. 2022. "Overseas Impact of USDA Reports: Evidence from Chinese Soybean Complex Futures." NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.

**D. Selected Conference Posters (\* Indicates the presenter)**

1. Miller, B.\*, M. Mallory, K. Baylis, and C. Hart. "Spatial Basis Effects of Corn-Belt Ethanol Plants." AAEA Annual Meeting, Pittsburgh, PA, July 2011.

2. Yu, J.\*, and M. Mallory. “An Optimal Safety Valve for Emission Trading in a Multi-Compliance Period Model.” Heartland Environmental and Resource Economics Workshop. Urbana, IL. October 2011.

### **3. Unpublished Work**

#### **A. Submitted Work**

1. Morrissette, K., Mallory, M., and Lusk, J. “A Tale of Two Chicken Prices” Revise and Resubmit at *AEPP*. November 2021.
  - a. Paper grew out of the term paper Kendra Rash wrote for AGECE 605.
2. Mefford, E.\*, and M. Mallory. “Correlations Go to One in a Crisis: How the COVID 19 Market Crash brought Cattle and Stocks Together.” Revise and Resubmit at *JAAEA*.
  - a. Master’s Advisee at Purdue
  - b. Eli Presented this paper at the 2021 NCCC-134 meetings.
  - c. I gave this paper to Dept Seminar at Virginia Tech, 2021-04-14.

#### **A.1 Working Papers and Projects in Preparation**

1. Hughes, M.\* M. Ma, and M. Mallory. “U.S. Milk Price Leadership Among Production Leaders” Working Paper.
  - a. Ph.D. student at Purdue
  - b. Megan will present at 2021 AAEA Meetings in Austin TX.
  - c. Paper grew out of the term paper Megan Hughes wrote for AGECE 605.
  - d. Target Journal: *Journal of the Agricultural and Applied Economics Association*.
  - e. Target Submission Date: 2022-03-01
2. Naughton, C.\*, and M. Mallory. “Interest Rates and Commodity Overshooting Revisited.” Working Paper.
  - a. Master’s advisee at Illinois
  - b. Target Journal: *Journal of International Money and Finance*
  - c. Target Submission Date: 2022-08-31
3. Han, S.\*, M. Mallory, and M. Robe. “Predictive Power of the O/F Ratio in Commodity Futures Markets.” In preparation.
  - a. Ph.D. Advisee at Illinois
  - b. Target Journal: *Journal of Commodity Markets*
  - c. Target Submission Date: 2022-08-31
4. Wang, H.\*, and M. Mallory. “Term Structure of VIX Futures.” In preparation
  - a. Ph.D. Advisee at Illinois
  - b. Target Journal: *Journal of Empirical Finance*
  - c. Target Submission Date:

- d. 2022-09-01
- 5. Ortez, M., N. Widmar, and M. Mallory. "The Role of Online Media on Dairy Prices." In preparation.
  - a. Serve on Mario's Purdue Ph.D. committee
  - b. Target Journal: TBD
  - c. Target Submission Date: TBD
- 6. David, R.\*, Chenarides, L. and M. Mallory. "Farmer's Market Profitability and Vendor Mix Optimization." In preparation.
  - a. Ph.D. student at Arizona State (advised by Chenarides)
  - b. Target Journal: *AJAE*
  - c. Target Submission Date: TBD
- 7. Retter, J.\*, M. Mallory. "A Test of Futures Market Disequilibrium Using Twelve Different Technical Trading Systems: An Update"
  - a. Purdue Undergraduate Honors Thesis advisee
  - b. Target Journal: *Quantitative Finance*
  - c. Target Submission Date: 2022-05-01
- 8. Ma, M., H. Wang, and M. Mallory. "Shocks and Recovery in Vertical Price Transmission in Chinese Hog Markets Due to African Swine Fever" In preparation.
  - a. Target Journal: TBD
  - b. Target Submission Date: TBD
- 9. Hu, Xiaoyu, and Mallory, M. "Forecasting Commodity Production Spreads." In preparation.
  - a. 1<sup>st</sup> year Ph.D. Student in Purdue Ag Econ
  - b. Target Journal
  - c. Journal of Commodity Markets
  - d. Target Submission Date: 2022-08-31.

## **B. Staff Papers and Case Studies**

## **C. Dissertation**

1. Mallory, M. "Three Essays Concerning Agriculture and Energy." Ph.D. Dissertation, Iowa State University, August 2009.

## **D. Book Chapters (only chapter authors listed)**

## **4. Invited Seminars Presented at Conferences, Annual Meetings of Professional Associations, and Other Academic Audiences (\*denotes presenter)**

1. "All Correlations Go to One in a Crisis: The Cattle Crush Spread During the COVID 19 Crisis." April 14, 2021. Virginia Tech Department Seminar. Virtual.

2. "OARES Ask the Editors Panel" Sept 16, 2020. Online Agricultural and Resource Economics Seminar.
3. "Biting off More than You Can Chew: Market Making in a Pro-Rata Futures Market." Invited Seminar, Purdue Agricultural Economics Department. West Lafayette, IN, April, 26, 2019.
3. "Where to Hedge? Understanding the Dynamics of Corn Hedging in Brazil and the U.S." Seminar, Morrison School of Agribusiness Seminar Series. Tempe, AZ, February 8, 2019.
4. "Measuring Price Discovery between Nearby and Deferred Contracts in Storable and Non-Storable Commodity Futures Markets." Seminar, Commodity Futures Trading Commission, Washington DC, August 23, 2017.
5. "Measuring Price Discovery between Nearby and Deferred Contracts in Storable and Non-Storable Commodity Futures Markets." Seminar, USDA ERS, Washington DC, August 24, 2017.
6. "Measuring Price Discovery between Nearby and Deferred Contracts in Storable and Non-Storable Commodity Futures Markets." Seminar, University of Wisconsin, October, 2017.
7. "The Components of the Bid-ask Spread: Evidence from the Corn Futures Market." Seminar, Department of Agricultural Economics and Economics, Montana State University, September 23, 2016.
8. "Exchange Rate Effect on Carbon Credit Price via Energy Markets." IPAM Workshop III: Commodity Markets and Their Financialization, University of California, Los Angeles, May 6, 2015.
9. "How Market Efficiency and the Theory of Storage Link Corn and Ethanol Markets." Invited presentation at the Agricultural Economics Department, Oklahoma State University. April 6, 2012.
10. "Optimal Portfolio Design to Reduce Climate-Related Conservation Uncertainty in the Prairie Pothole Region." Invited presentation at the Center for Earth and Environmental Science, Indiana University-Purdue University Indianapolis. April 18, 2012.
11. "How Market Efficiency and the Theory of Storage Link Corn and Ethanol Markets." Invited presentation at the Department of Economics, Illinois State University, October 10, 2012.
12. "How Market Efficiency and the Theory of Storage Link Corn and Ethanol Markets." Invited presentation at the Department of Agricultural Economics, University of Kentucky, October 12, 2012.

## **5. Involvement in Graduate Program**

Graduate students have been a crucial component of my research program. I view advising graduate students as one of my most valuable contributions to the department. During my career I have advised 7 Ph.D. students, 6 master’s students, as well as serving on 13 Ph.D. committee’s and 6 master’s committees.

I advise M.S. student Eli Mefford who expects to graduate in May 2022. This collaboration has produced the paper Mefford and Mallory (2022) from section 3.A1. I was invited to present this paper at Virginia Tech’s Ag Econ department seminar and Eli presented this paper at the NCCC 134 meeting in April 2021. Graduate student presentations are common at the NCCC 134 meetings, but it is rare that a first year Master student has a paper ready to go for this conference.

Beginning in Fall 2021 I am funding and advising incoming first year Ph.D. student Xiaoyu Hu. He has been working his way through our rigorous first year requirements while doing well in his research assistantship with me. For his project, he is working on forecasting models for commodity production spreads. I anticipate that we will have a working paper draft by the end of the summer, assuming he is able to successfully pass his qualifying exams in May.

In addition to advising individual graduate students, the AGEC 605 class I co-teach with Meilin Ma is becoming a key component in our graduate program. Our first offering of the class in Spring 2020 attracted 10 and Spring 2021’s offering attracted 12 Ph.D. and Master’s students. To my knowledge at least 2 Ph.D. students have used the term paper required in the class to learn new techniques and incubate ideas for their second year Prospectus exam. For more details about the class, see section B.

|                  | M.S.      |             | Ph.D.     |             |
|------------------|-----------|-------------|-----------|-------------|
|                  | Completed | In Progress | Completed | In Progress |
| Major Professor  | 3         | 3           | 4         | 3           |
| Committee Member | 6         | 0           | 9         | 2           |

## **Graduate Students**

### **1. Major Professor/Committee Chair**

#### **Ph.D. Degree**

1. Tianwei Zhang, Illinois 2011. “Three Essays on Patronage Refunds and the Capital Structure of Farm Credit System Associations.”
2. Jongmin Yu, Illinois 2013. “Three Essays on Emission Credit Markets.”
3. Christina Jolejole, (co-advisor) Illinois 2014. “Three Essays on Food Security.”
4. Beth Miller (co-advisor), Illinois 2016. “Market Entry and Exit in the Spatial Ethanol Industry.”
5. Xue Han, Expected Illinois 2022. “Bubbles and Informed Trading in Agricultural Futures Markets.”
6. Wang Heng, Expected Illinois 2022. “Risk Premium in CBOE VIX Futures.”
7. Xiaoyu Hu, Expected Purdue 2025.



### **Master's Degree**

1. Quanbiao Shang, Illinois 2016. "The Components of the Bid-Ask Spread: Evidence from the Corn Futures Market."
2. Menas Falakos, Illinois 2016. "Can Volatility Based Technical Signals Capture Consistent Abnormal Equity Index Returns?"
3. Felipe Grimaldi, Illinois 2019. "The Impact of Brazil on Global Grain Dynamics: A Study on Cross-Market Volatility Spillovers."
4. Conner Naughton, Expected Illinois 2021. "Commodity Speculation and Overshooting Theory."
5. Matt Nolan, Expected Illinois 2022. "Spatial Analysis of Corn Basis."
6. Eli Mefford, Expected Purdue 2022.

## **2. Committee Member**

### **Ph.D. Degree**

1. Andres Trujillo, Illinois 2013
2. Payal Shaw, Illinois 2013
3. Xiaoli Liao, Illinois 2013
4. Xiaoyang Wang, Illinois 2013
5. Tisorn Songsermsawas, Illinois 2015
6. Kishore Joseph, Illinois 2015
7. Xin Li, Illinois, 2016
8. Aparna Howlader, Illinois 2019
9. Aditya Shrivinas, Illinois 2019
10. Zhepeng Hu, Illinois 2020
11. Quanbiao Shang, Expected Illinois 2022
12. Kendra Morrissette, Expected Purdue 2021
13. Mario Ortez, Expected Purdue 2023

### **Master's Degree**

1. Luiz Figer, Illinois 2011.
2. Hala Zahran, Illinois 2013.
3. Anamaria Guadencio, Illinois 2013.
4. Andres Bautista, Illinois 2015.
5. Cody Brandt, Illinois 2016.
6. Rachael Richardson, Illinois 2019.

## **6. Research Grants and Outside Support**

External funding indicated by \*; # indicates internal funding. The portion to Mallory is indicated where funding was shared.

Summary Table of Funding Support

|                  | Allocated to Mallory | Total     |
|------------------|----------------------|-----------|
| External Sources | \$155,096            | \$496,731 |
| Internal Sources | \$107,925            | \$289,000 |
| Total            | \$263,021            | \$785,731 |

## A. Current Grants

## B. Pending Grants

### 1. Forecasting Methods for U.S. Commodity Production Margins (Submitting July 2022)

|                         |                |
|-------------------------|----------------|
| Agency/Title:           | USDA NIFA AFRI |
| Duration of Funding:    | 2022-2025      |
| Total Amount of Award:  | \$500,000      |
| Role:                   | PI             |
| Total amount to Mallory | \$500,000      |

## C. Past Extramural Funded Grant Activities

### 1. Food Price Forecasting Issues, Techniques and Opportunities Workshop

|                         |                                       |
|-------------------------|---------------------------------------|
| Agency/Title:           | Economic Research Service of the USDA |
| Duration of Funding:    | 2015                                  |
| Total Amount of Award:  | \$35,000                              |
| Role:                   | PI                                    |
| Total amount to Mallory | \$35,000                              |

### 2. Spatial Conservation and Investment Portfolios to Manage Climate-Related Risk

|                         |                             |
|-------------------------|-----------------------------|
| Agency/Title:           | National Science Foundation |
| Duration of Funding:    | 2013-2016                   |
| Total Amount of Award:  | \$402,539                   |
| Role:                   | Co-PI                       |
| Total amount to Mallory | \$78,000                    |

### 3. Economic Tools for Conservation Decision Making and Land Management under Climate Change

|                         |                                 |
|-------------------------|---------------------------------|
| Agency/Title:           | United States Geological Survey |
| Duration of Funding:    | 2012                            |
| Total Amount of Award:  | \$34,192                        |
| Role:                   | Co-PI                           |
| Total amount to Mallory | \$17,096                        |

#### 4. A Comparison of the Economics of Some Alternative Biofuel Policies

|                         |                               |
|-------------------------|-------------------------------|
| Agency/Title:           | Illinois Corn Marketing Board |
| Duration of Funding:    | 2010                          |
| Total Amount of Award:  | \$25,000                      |
| Role:                   | PI                            |
| Total amount to Mallory | \$25,000                      |

#### D. Past Intramural Grant Activities

##### 1. State of Agricultural Policy in India and Brazil

|                         |  |
|-------------------------|--|
| Agency/Title:           | ADM Institute for the Prevention of Postharvest Loss, University of Illinois |
| Duration of Funding:    | 2011   |
| Total Amount of Award:  | \$44,000   |
| Role:                   | PI   |
| Total amount to Mallory | \$44,000   |

##### 2. Developing a Collaboration with Faculty and Students at the Indian Statistical Institute, Delhi on the Marketing of Grains and Oilseeds in India

|                         |   |
|-------------------------|---|
| Agency/Title:           | Office of International Programs, College of ACES International Seed Grants Program, University of Illinois |
| Duration of Funding:    | 2011  |
| Total Amount of Award:  | \$2,500   |
| Role:                   | PI  |
| Total amount to Mallory | \$2,500   |

##### 3.

|                         |  |
|-------------------------|--|
| Agency/Title:           | College of ACES Karl E. Gardner Teaching Enhancement Grant, University of Illinois |
| Duration of Funding:    | 2011   |
| Total Amount of Award:  | \$2,000  |
| Role:                   | PI   |
| Total amount to Mallory | \$2,000  |

##### 4. Reducing Postharvest Losses of Grain and Oilseed Crops in India

|                         |   |
|-------------------------|---|
| Agency/Title:           | William and Flora Hewlett International Research Travel Grant, University of Illinois |
| Duration of Funding:    | 2012  |
| Total Amount of Award:  | \$2,500   |
| Role:                   | PI  |
| Total amount to Mallory | \$2,500   |

## 5. Supply Chain Policy and Strategy Analysis for Prevention of Postharvest Loss

|                         |  |
|-------------------------|--|
| Agency/Title:           | ADM Institute for the Prevention of Postharvest Loss, University of Illinois |
| Duration of Funding:    | 2012-2014  |
| Total Amount of Award:  | \$238,000  |
| Role:                   | Co-PI  |
| Total amount to Mallory | \$56,925   |

## 7. Evidence of National and International Recognition

1. Editorial Roles
  - a. Co-Editor. *Applied Economics Perspectives and Policy*. 2020-present.
    - i. *AEPP* is a leading agricultural economics journal (3<sup>rd</sup> by impact factor from the Journal Citations Report)
2. Invitations to Professional Service Activities
  - a. AAEA reviewer of selected papers. 2011.
  - b. AAEA selected papers topic leader. 2012, 2014-2015.
  - c. AAEA Dissertation Award Reviewer. 2018-2019.
  - d. AAEA Quality of Research Discovery Award Selection Committee. 2020, 2021.
3. Elected Leadership Roles
  - a. Agricultural and Rural Finance Markets in Transition, NC1177 Multi-state Research Project. Secretary, 2011; President, 2012; Past President, 2013.
  - b. Agricultural Finance and Management section of AAEA. Chair-elect 2011; Chair, 2012; Past Chair, 2013.
  - c. Econometrics section of AAEA, Chair-Elect, 2019; Chair, 2020; Past Chair, 2021.
  - d. Applied Commodity Price Analysis, Forecasting, and Market Risk Management, NCCC 134 Multi-state Research Coordinating Committee. Co-Chair. 2020-2025.
4. Visiting Scholar Invitations
  - a. Invited to Brazilian Federal Agency Support for Graduate Education Visiting Professor Program. 2020. \*Cancelled due to COVID 19
5. Peer Review for Academic Journals
  - a. *American Journal of Agricultural Economics*
  - b. *Agricultural Economics*
  - c. *Agricultural and Resource Economics Review*
  - d. *Agribusiness*
  - e. *Applied Financial Economics*
  - f. *Agricultural Finance Review*
  - g. *Biomass and Bioenergy*
  - h. *Canadian Journal of Agricultural Economics*
  - i. *Journal of Agriculture and Resource Economics*
  - j. *Energy Economics*
  - k. *Energy Policy*

- l. *Ecological Economics*
  - m. *Journal of Commodity Markets*
  - n. *Journal of Agricultural and Applied Economics*
  - o. *Environmental and Resource Economics*
  - p. *Journal of Environmental Economics*
  - q. *Journal of Policy Analysis and Management*
  - r. *Quarterly Journal of Economics*.
- 6. External Review for Governmental Agency Reports
    - a. Economics Research Service of the USDA
    - b. United States Geological Survey.
  - 7. Invitations for Research Seminar Invitations
    - a. Invited to give 8 research seminar presentations at academic, government, and regulatory institutions since last promotion in 2016. See section A.4 for details.

## **8. International Activities**

- 1. A delegation of seven traveled to several locations in India with the University of Illinois College of ACES Global Academy, January 2011. We met with representatives met with several government, non-profit, and academic groups to scout out international collaboration and research opportunities.
- 2. Traveled to the Indian Statistical Institute in Delhi to develop collaborations with faculty there on commodity markets in rural India. The trip was funded by the University of Illinois College of ACES International Programs Grant. August 2011.
- 3. Traveled to the Western Agricultural Economics Association annual meeting in Banff, Alberta Canada to present a research paper at the conference. June 2011.
- 4. Received a grant from the ADM Institute for the Prevention of Post-Harvest Loss at the University of Illinois to study how smallholder farmers in India might capture more value post-harvest, through storage and access to credit. 2012-2014.
- 5. Developed and delivered an instructional module for the Integrated Food Policy Research Program Short Course designed for representatives from the Bangladesh Ministry of Food. The program was developed for the World Bank and administered by the ADM Institute for the Prevention of Post-Harvest Loss at the University of Illinois. My short course was an introduction to forward contracts and exchange traded futures contracts and how these contracts facilitate the ability to transfer price risk away from farmers. It also discussed inefficiencies and consequences of using government stockholding as an instrument for farmer price support. August 31, 2018.

## **9. Interdisciplinary Activities**

- 1. Conservation portfolio research. Our research team includes two economists and two ecologists. We developed a model to diversify spatial targets for conservation sights in the face of the threat of climate change. If climate change impacts the spatial patterns of habitat

and other ecosystem services, current conservation efforts may greatly be reduced in their efficacy. Using climate models of possible future habitat scenarios and portfolio theory from finance allows one to develop diversified spatial targets for conservation. Interdisciplinary teammates: Glenn Gutenspergen ecologist with the United States Geological Survey; Jenn Fratterigo Ecologist in the Department of Natural Resources and Environmental Sciences, University of Illinois; Amy Ando economist in the Department of Agricultural and Consumer Economics. This multidisciplinary research project has generated publications in top general interest journals including the *Proceedings of the National Academy of Sciences* and in funding from the National Science Foundation.

## **SECTION B. LEARNING**

My philosophy of teaching is that engaged learners get the most out of educational experiences. This simple idea guides my instructional choices in a wide range of settings, whether it is teaching undergraduates in my Advanced Commodity Marketing course, teaching Master's and Ph.D. students with Dr. Ma in our Agricultural Markets and Price Analysis course, or supervising graduate student research.

**AGEC 421, Advanced Commodity Marketing** This is an upper level undergraduate class in the Agricultural Economics area of study. In this class I have two main goals. First, I want students to leave the class as competent analysts of commodity markets. In order to accomplish this I focus on introducing them to the main fundamentals professional commodity analysts focus on as they are producing material for their clients. I make sure they are well versed in the timeline of production in major U.S. commodities like corn, soybeans, wheat, livestock, and energy markets, especially in cases where weather and biological factors impact prices. Then we cover all the USDA reports and other sources they can access to find up-to-date information about market fundamentals. My second main goal is that they are proficient users of Microsoft Excel and are able to do analytics in the same fashion as professional commodity analysts. This often means we pull data from USDA, land grant extension websites, or other sources. We use this data and use basic Excel functions like charting and creating formulas in Excel; we also use more advanced Excel skills like pivot tables and regression analysis. These are all done in the context of learning what analysis is important to follow commodity market fundamentals (e.g, stocks-to-use ratio and price, percent of crop rated good to excellent and final yield, export's pace of use compared to WASDE forecasts).

I revamped the course since coming to Purdue by consolidating some material and developed new material for the course on options contracts and how they can be used for risk management and speculation. This year I am consolidating my existing material further and developing a chapter on marketing strategies that complement crop insurance.

**AGEC 605, Agricultural Markets and Price Analysis** This is a graduate field course taken by both master's and Ph.D. students. I teach the class with Dr. Meilin Ma. Dr. Ma teaches the first

half of the class and gives the students a good theoretical foundation on agricultural markets. At midterm I take over and the class begins to have a bit more of an applied focus. We introduce students to the classic topics of study in the field of agricultural markets and price analysis like how prices can be expected to behave as they move through space, time, and form. Futures markets functions and behavior, and price discovery. In order for students to leave the class with an ability to conduct original research in the area, we cover briefly standard principles and models in time series econometrics and highlight how literature in the field of commodity price analysis builds and tests hypotheses with these empirical models. For many students it is their first exposure to time series econometrics and the statistical programming language R. Highlights of the course are a “Writer’s Workshop” where Dr. Ma and I teach best practices for writing research papers; an “Introduction to Time Series” where I give a very high level overview of time series econometrics and the workhorse models used therein; an “R Bootcamp” where I teach basic principles in R programming, the tidyverse, and fitting time series models; and the final paper assignment where students choose a topic and write a paper on applied price analysis. The term paper has been fruitful for several students. Two students have leveraged the term paper to include it in their dissertation, and one student is presenting the paper this year at the AAEA meetings in Austin. This spring the course did not make due to a recent small incoming graduate class sizes as well as an unexpected scheduling conflict with one of the Economics department’s core classes our first year students take.

**AGEC 220, Economics of Agricultural Markets** This is a course taught early in our undergraduate program to majors in all of our concentrations. The course covers microeconomics from the perspective of how micro econ shapes the agricultural industry. This semester is my first teaching the course so I am actively developing materials for the class. I draw from many resources including text books covering intermediate microeconomics to agricultural prices and marketing. One goal I have in the course is to highlight for our students how different economic primitives (like nature of the firms cost across industries like crop production versus the livestock/meat marketing chain) influence industrial organization.

**Supervising Undergraduate Research/Honors Thesis** I am currently advising Jaden Retter, Junior in Ag Econ, on a research project where he evaluates back tests of several strategies in all the major commodity futures contracts. This project is an update of Lukac et al. 1988.<sup>1</sup> Jaden applied to the Martin Agricultural Research Fund Scholarship with this project and won the competitive \$2000 scholarship for the 2021/2022 school year.

## **1. Courses Taught at Purdue University**

| <b>Semester</b> | <b>Course</b> | <b>Credit Hours</b> | <b>Class Size</b> | <b>Course Summary</b> | <b>Instructor Summary</b> |
|-----------------|---------------|---------------------|-------------------|-----------------------|---------------------------|
|-----------------|---------------|---------------------|-------------------|-----------------------|---------------------------|

<sup>1</sup> Lukac, L. P., Brorsen, B. W., & Irwin, S. H. (1988). A test of futures market disequilibrium using twelve different technical trading systems. *Applied Economics*, 20(5), 623-639.

|             |          |   |    |                |                |
|-------------|----------|---|----|----------------|----------------|
| Spring 2020 | AGEC 421 | 3 | 45 | NA*            | NA*            |
| Spring 2020 | AGEC 605 | 3 | 10 | NA*            | NA*            |
| Spring 2021 | AGEC 421 | 3 | 23 | 4.27           | 4.27           |
| Spring 2021 | AGEC 605 | 3 | 12 | 4.64           | 4.82           |
| Spring 2022 | AGEC 421 | 3 | 24 | <i>current</i> | <i>current</i> |
| Spring 2022 | AGEC 220 | 3 | 75 | <i>current</i> | <i>current</i> |

\* Due to the COVID-19 pandemic in 2020, and the mid-semester shift to online teaching, course evaluations were not conducted.

## **2. Courses Taught at other Universities**

### **University of Illinois**

ACE 428, Commodity Futures and Options Markets This course gives a detailed introduction into the mechanics of commodity futures and options contracts. Students learn exactly what futures and options contracts are, different order types and the risk profiles associated with them, and how various risk management and speculative strategies can be implemented. The course has evolved as I have experimented with different teaching styles to teach advanced material to such a large class. This junior-senior level has enrollment from eighty to one hundred students. When I began teaching the class, I delivered lectures via power point, and I did not have vary many exercises or activities developed to illustrate the concepts with concrete examples. Over time I developed a series of activities that have improved understanding. Also, in 2011 I experimented with a ‘flipped classroom’, where I asked students to read material and watch short videos before coming to class; then in class we did hands on exercises to illustrate the concepts. Between increasing the number of hands-on activities and employing the ‘flipped’ classroom, my evaluations increased consistently. In a smaller class setting, I think old-fashioned chalkboard style lectures combined with the activities I have developed would really work well.

ACE 520, Food Commodity Markets This course covers the academic literature in food commodity markets. It is a Ph.D. field course, with small enrollment. I taught the course in a seminar style, where I would assign journal articles to read and then we would discuss the methods and results together as a class. This allowed me to get to know several Ph.D. students this way, and I ended up advising four Ph.D. students as a result of these relationships.

ACE 500, Microeconomic Theory This course is the core microeconomics class in our Master’s program. We typically have 10 to 20 students enrolled. I teach this course in a traditional lecture format, and I assign exercises from the textbook to the students for practice in learning the methods and techniques. I give the students solutions for all the exercises, and I do not collect or grade them. I tell the students that since they are in graduate school now, they must figure out how to work hard independently, and learn how to gauge their own understanding. Students often think they have worked hard in preparation for the first exam and then experience the worst grade of their life. This causes the students a lot of temporary anxiety, but it makes them realize how seriously they have to take graduate school, and how to really come to terms with their own understanding. I want them to learn to keep pushing themselves until they have truly mastered the material.



ACE 427, Commodity Price Analysis This course is complimentary to the ACE 428 course in Illinois' program. While 428 teaches the mechanics of futures and options markets, 427 focuses on teaching students what affects the movement of commodity prices. This is effectively the same course as Purdue's AGECE 421 that I am teaching now.

ACE 264, Applied Statistical Methods and Data Analytics II This course gives undergraduate students exposure to multiple regression models using OLS, common issues such as heteroscedasticity, and endogeneity, and common techniques to mitigate these issues. The class has a lab session every week where students learn how to apply the statistical techniques they are learning in the R programming language.

### **Iowa State University**

ECON 101, Principles of Microeconomics

ECON 207, Mathematics for Economists

|                        | Semester    | Course   | Rate the instructor's overall teaching effectiveness | Rate the overall quality of this course |
|------------------------|-------------|----------|--|---|
| Iowa State University  | Summer 2006 | ECON 101 | 4.26   | 4.11                                    |
|                        | Fall 2006   | ECON 207 | 5.00   | 4.55                                    |
| University of Illinois | Fall 2009   | ACE 428  | 2.8  | 3.2                                     |
|                        | Fall 2010   | ACE 428  | 3.0  | 3.5                                     |
|                        | Fall 2010   | ACE 520  | 4.6  | 4.6                                     |
|                        | Fall 2011   | ACE 428  | 3.8  | 4.0                                     |
|                        | Fall 2011   | ACE 500  | 3.6  | 3.8                                     |
|                        | Fall 2012   | ACE 520  | 4.7  | 4.7                                     |
|                        | Fall 2012   | ACE 500  | 4.4  | 4.4                                     |
|                        | *Fall 2013  | ACE 500  | 4.7  | 4.3                                     |
|                        | *Fall 2014  | ACE 500  | 4.4  | 4.1                                     |
|                        | Fall 2015   | ACE 500  | 4.5  | 4.2                                     |
|                        | Fall 2016   | ACE 500  |  |   |
|                        | Fall 2017   | ACE 500  |  |   |
|                        | Fall 2015   | ACE 427  | 3.7  | 3.9                                     |
|                        | Fall 2016   | ACE 427  |  |   |
|                        | Fall 2017   | ACE 427  |  |   |
|                        | Fall 2018   | ACE 427  |  |   |
|                        | Spring 2019 | ACE 264  |  |   |

### **3. Advising, Counseling, and Recruiting Students**

1. Active in recruiting new graduate students. Emailed four admitted graduate students who would enter in Fall 2020. Talked to two by phone or video conference.

2. Currently advising one Master's student and have one incoming Ph.D. student at Purdue.
3. Advising one undergraduate honor's thesis project.
2. Quantitative trading club co-advised with Dr. Sung Kim. We did a soft launch of the trading club in Fall of 2020. Due to the pandemic, we held only a few meetings virtually to organize the club for the CME Group University Trading Challenge. In the 2021 school year we held four in-person meetings with two outside speakers. We had three teams compete in the CME University Trading Challenge. Other topics included learning how to develop and evaluate trading strategies on commodity futures. We have had thirty-six students engage with the group so far. This semester we plan more in person talks from industry speakers, and other activities may include additional trading contests, study groups for the series three license exam, or travelling to industry conferences depending on student interest.

## **SECTION C. ENGAGEMENT**

### **1. Current Outreach Efforts**

While I enjoy the daily work of conducting research and teaching students, I have a strong drive to ensure these efforts have a larger impact on our society. I seek opportunities to bring research and teaching activities to the public in a variety of formats.

1. Developed and maintain public website for education about Price Analysis. [mindymallory.com/PriceAnalysis](http://mindymallory.com/PriceAnalysis). Used in price analysis courses in at least 6 agricultural economics departments.
  - a. Added chapters on options contracts in 2021
2. Mintert, J. and M. Mallory. "2020 Corn Price Outlook." Purdue Agricultural Economics Report. December 2020.
3. Mallory, M. "COVID-19 Impacts on U.S. Soybean and Wheat Exports." Purdue Agricultural Economics Report. April 2020.
4. Mallory, M. "U.S. Grain Production and Marketing." Zhejiang University/Nanjing Agricultural University Virtual Workshop. August 2020, August 2021, January 2022.
5. Mefford, E. and M. Mallory. "All Correlations Go to One in a Crisis: The Cattle Crush Spread During the COVID 19 Crisis." Purdue Agricultural Economics Report. April 2021

### Future plans for Outreach Activities

1. Continue writing articles for PAER that communicate research findings.
2. Develop web application for Center for Commercial Agriculture that incorporates basis forecasts developed by the center into the Center's crop basis tool.

3. Work with Center for Commercial Agriculture faculty to determine other opportunities to develop web applications that can serve farmer and other stakeholder needs.

## **2. Presentations in Continuing Education Conferences, Schools, Workshops, or Meetings**

1. “Biofuels, Carbon Markets, and Marketing in the Corn Belt” at the joint annual meeting of the Illinois Corn Marketing Board and the Illinois Corn Growers Association. Urbana, IL. January 20, 2010.
2. “The U.S. Ethanol Import Tariff” Illinois Agricultural Leadership Program. Mahomet, IL. February 5, 2011.
3. “Marketing Commodities in a Global Economy.” Global Academy of Leaders, Brazil. Champaign, IL. September 21, 2011.
4. “Commodity Futures Markets and Global Commodities Markets.” Presented to Ministry of Food delegation from Bangladesh as part of a World Bank short course administered by University of Illinois. Champaign, IL. August 31, 2018.
5. “Marketing Alternatives.” Midwest Agricultural Banking School. December 4, 2019. December 1, 2021.

## **3. Publications Related to Continuing Education Programs**

### **A. Extension Publications and Output**

1. Irwin, S., D. Good, and M. Mallory. October 4, 2010. “Could a Variable Ethanol Blenders’ Tax Credit Work?” Agricultural Policy Brief, University of Illinois Department of ACE. APBR-10-01.
2. Grajdura, S. and M. Mallory. February, 13, 2015. “Trading Off Fracked Natural Gas for Coal in China.” Policy Matters, University of Illinois Department of ACE.
3. Jolejole-Foreman, C., and M. Mallory. November 17, 2014. “Little Evidence that the National Food Authority Can Influence the Price of Rice in the Philippines.” Policy Matters, University of Illinois Department of ACE.
4. Horezeanu, L., and M. Mallory. April 23, 2015. “Why Formal Credit Eludes African Smallholder Farmers and the Role of Village Moneylenders.” Policy Matters, University of Illinois Department of ACE.
5. Developed and maintain public website for education about Price Analysis. [mindymallory.com/PriceAnalysis](http://mindymallory.com/PriceAnalysis). Used in price analysis courses in at least 6 agricultural economics departments.
6. Mintert, J. and M. Mallory. “2020 Corn Price Outlook.” Purdue Agricultural Economics Report. December 2020.
7. Mallory, M. “COVID-19 Impacts on U.S. Soybean and Wheat Exports.” Purdue Agricultural Economics Report. April 2020.

8. Mefford, E. and M. Mallory. "All Correlations Go to One in a Crisis: The Cattle Crush Spread During the COVID 19 Crisis.' Purdue Agricultural Economics Report. April 2021.

#### **4. Public and/or Government Service Activities, University and Departmental Committees**

##### College and University Committees

1. College Academy of Teaching Excellence Committee. University of Illinois. 2018-2019
2. Faculty Senate. University of Illinois 2015-2017.
3. Faculty Senate Budget Committee. University of Illinois. 2017-2018.
4. College Courses and Curriculum. University of Illinois. 2018-2019.
5. College Professional Staff Awards & Specialized Faculty Teaching Award. University of Illinois. 2019.
6. Visioning Future Excellence at Illinois planning meeting, February 24, 2012
7. Faculty Senate, Purdue University. 2020-2021.

##### Department Committees

1. C.J. Elliot Award Selection Committee. University of Illinois. 2010, 2019.
2. Undergraduate Programs Committee. University of Illinois. 2010-2013, 2017-2019.
3. Graduate Curriculum Committee. University of Illinois. 2010-2013.
4. ACE Departmental Seminar Series Co-organizer, 2010-2012.
5. Ph.D. Core Exam Committee. University of Illinois. 2011-2012.
6. Grievance Committee Alternate. University of Illinois. 2010-2011.
7. Department Search Committee, TCC Foundation Endowed Professor in Derivatives Trading. University of Illinois. 2011.
8. Ph.D. Core exam grader. University of Illinois. 2011-2012.
9. Department Faculty Advisory Committee. University of Illinois. 2012-2014.
10. Agribusiness Faculty Search Committee. University of Illinois 2013.
11. Energy Economics Faculty Search Committee. University of Illinois. 2013.
12. Graduate Admissions Review Committee. University of Illinois. 2012-2014.
13. Gardner Endowed Professor/Chair in Agricultural Policy Faculty Search. University of Illinois. 2016.
14. Undergraduate Coordinator. University of Illinois. 2016-2018.
15. Undergraduate Courses and Curriculum. University of Illinois. 2018-2019.
16. Promotion and Tenure. University of Illinois. 2019.
17. Ag Finance Faculty Search. University of Illinois. 2019.
18. Diversity and Inclusion Committee. 2019-2020.
19. Ag Policy Faculty Search Committee. 2019-2020.
20. Best Ph.D. dissertation in Agricultural Economics Department Selection Committee. 2019, 2020.

21. Bilsland Dissertation Completion Fellowships Selectin Committee. 2020.
22. Graduate Committee. 2020-.
23. Agribusiness Marketing Faculty Search Committee. 2021-2022.

*Mindy L. Mallory*  
*SUMMARY OF SUPPORTING STRENGTHS*

| <b><u>A. Discovery</u></b>  | <b><u>Page</u></b> |
|---|--------------------|
| 1. Current Research Program   | 2                  |
| Highlighted articles with impact factors and citations  |                    |
| -2. Published Work  | 7                  |
| 28 refereed journal articles  |                    |
| - 24 invited or selected conference papers  |                    |
| -3. Unpublished Work  | 12                 |
| 4. Invited Speaker 12 times to department seminars and other academic settings                  | 14                 |
| 5. Involvement in Graduate Program  | 15                 |
| Advised 12 graduate students and served on 17 graduate committees                               |                    |
| -6. Research Grants and Outside Support   | 17                 |
| Total funding of \$785,731  |                    |
| -7. Evidence of National and International Recognition  | 19                 |
| Co-editor <i>Applied Economics Perspectives and Policy</i>                                      |                    |
| -Leadership in two AAEA sections, and two USDA regional research groups/coordinating committees |                    |
| -8. International Activities  | 21                 |
| 9. Interdisciplinary Activities   | 21                 |
| Interdisciplinary research group published in <i>PNAS</i> and funded by NSF                     |                    |
| -   |                    |
| <b><u>B. Learning</u></b>   | 22                 |
| 1. Courses Taught at Purdue University  | 23                 |
| AGEC 421 Advanced Commodity Marketing   |                    |
| -AGEC 605 Agricultural Markets and Price Analysis   |                    |
| -2. Courses Taught at other Universities  | 23                 |
| 3. Advising Counseling and Recruiting Students  | 25                 |
| <b><u>C. Engagement</u></b>   | 25                 |
| 1. Current Outreach Efforts   | 25                 |
| 2. Presentations in Continuing Education Conferences, Schools, or Workshops                     | 26                 |
| 3. Publications Related to Continuing Education Programs  | 26                 |
| 4. Public and/or Government Service Activities, University and Departmental Committees          | 27                 |

**Mindy L. Mallory**  
**Associate Professor**

**Professional Development Plan: Ensuring the Effectiveness of Commodity  
Marketing Alternatives**

My program focuses on commodity markets and ensuring that our spot, forward, futures, and options markets function efficiently and to the benefit of all parties that engage in trade: including the farmer, rancher, merchandiser, end user and speculator. There are a myriad of intentions behind the transactions in these diverse markets. Farmers need to sell their physical production to produce income for their families and cash flow for their businesses, and they need access to the risk management benefits offered from the forward, futures, and options markets. The same is true for the merchandiser and end user. Even the speculator needs the markets to function fairly so they can take positions with calculated levels of risk. My research program focuses on measuring current market conditions and quality metrics, as well as determining market structure due to fundamental drivers like weather, trade policy and international competition, and how participants in diverse markets can manage risk when conventional commodity derivatives like futures and forward markets are not available. My research is closely tied to the issues both our stakeholders and our students face. I strive to bring the knowledge gained from my research program to help stakeholders better manage the risk in their business and help our students to understand how to manage risk in their future endeavors, whether in a job or managing their own business. As I grow my research, teaching, and outreach programs here at Purdue, activities in each of the three pillars are synergistic with and provide insight for the others.

*Research*

My research program will continue to focus primarily on traditional commodity price analysis of Midwestern commodities like corn, soybeans, wheat, and livestock. Futures markets are impacted by high frequency traders and market-makers in ever more complicated ways. I will devote significant effort to understanding how this affects market quality and if market rules and specifications could be modified to the benefit of all market users. The lingering trade tensions continue to impact the structure of global commodity markets, and my research program will continue to evaluate its effects and offer policy alternatives that can be mutually beneficial for both parties. Climate change will certainly bring risks to every corner of agricultural and resource markets. My research program has always investigated how smart tactics can mitigate risks in many different agricultural and resource markets, my program will continue to push the boundaries in these areas. Finally, Covid-19 brings unprecedented challenges to humanity as both a public health crisis and an economic crisis. The impacts on commodity markets will be profound and long-lived. My research program will study these issues.

I aim to accomplish this continuation and expansion of my research program by leveraging the incredible asset we have in our graduate students. My approach is to recruit several Masters and Ph.D. students in the next few years, mentor them and give them training in the research methods of price analysis so they can begin their own graduate research, and also help me to scale my research program in a mutually beneficial relationship. My plan is to fund this effort in two ways. First, I will use my startup and resources of the Clearing Corporation Foundation Chair to fund graduate student research. Second, I will seek external funding for this research from sources like USDA NIFA grants, National Science Foundation grants, USDA ERS cooperative agreements, and CFTC cooperative agreements.

### *Learning*

I am excited that I am able to contribute to the teaching mission of our department by teaching classes that are so closely related to my passion of commodity markets. I will continue to bring my expertise and research to both my undergraduate class and the graduate class I teach with Dr. Meilin Ma. I view it as the most direct way my efforts and knowledge can impact the future generation of farmers, business people, and scholars.

One way that I contribute to undergraduate and graduate programs is in advising, a quantitative/algorithmic trading club. The club introduces our students to a quantitative approach to examining market trading strategies. While undergraduate students might often balk at some of our more quantitative offerings, the cache of learning to trade, and the employment prospects that knowledge opens up seems to appeal to them. We had a successful soft launch of the club in Fall of 2020, with 4-6 students participating regularly. We had a team compete in the CME Group's University Trading Challenge. In 2021 we saw engagement with the club grow and we entered three teams in the CME University Trading Challenge. In addition, we hosted two outside speakers. The effort might remain simply and undergraduate club, or if there is enough interest and if our teaching needs do not call me in another direction this effort could evolve into a course in our elective curriculum. Such a club or class would really set our program apart from what is available at other Agricultural Economics departments around the country.

### *Outreach*

As with my teaching program, my outreach efforts are informed by and inexorably linked to my research program. My highest hope is that my outreach program will bring knowledge and insight to our stakeholders that can help them build more robust and resilient businesses. My plan is to continue to contribute to department efforts like the Purdue Agricultural Economics Report, and doing a session for the Midwest Ag Banking School on commodity marketing as the need and opportunities arise. Additionally, my plan is to work together with the Center for Commercial Agriculture to develop tools that are user friendly and provide novel insights for the user. For example, Dr. Mintert and Dr. Thompson and I are developing a web-based tool that can pull in historical corn and soybean basis data and



provide a county by county basis forecast over several forecast horizons. The tool will be unique in that it pulls in the most recent available data from our data provider and generates an up-to-date forecast with every refresh of the web page. Further, being a web-based tool that can be designed with a mobile phone user in mind, it will highly accessible and impactful. In the future, as needs become apparent, my skills in this area can help develop additional web applications that bring value to the Center's stakeholders.