

Walter Ac-Pangan

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EDUCATION

- Ph.D. Candidate in Agricultural Economics** 2021 – Present
Kansas State University (Manhattan, KS)
- M.Sc. Agricultural Economics** 2021
Kansas State University (Manhattan, KS)
- B.Sc. in Agribusiness Management** 2017
Zamorano University, Pan-American Agricultural School (Honduras)

RESEARCH INTERESTS

Forecasting and Machine Learning, Production Economics.

RESEARCH AND WORKING MANUSCRIPTS

- **Ac-Pangan, W.** Hendricks, N., Zereyesus, Y. A., Kee, J. (2024) Forecasting Grain Supply of Low and Middle-Income Countries. (Submitted to Journal of the Agricultural and Applied Economics Association).
- Zereyesus, Y. A., Kee, J., Morgan, S., Jelliffe, J., Nava, N., Cardell, L., **Ac-Pangan, W.** (2023). Does trade openness affect global grain supply response?. (Submitted to Food Policy).
- **Ac-Pangan, W.** Coffey, B.K. (2023) An Analysis of Live Cattle Basis Prediction Errors (Resubmitted to Journal of Agricultural and Applied Economics).
- **Ac-Pangan, W.** Hendricks, N. (2024) Using Machine Learning to Forecast Crop Acreage in the US. (In progress).
- **Ac-Pangan, W.** Hendricks, N. (2024) . Effects of Non-Tariff Trade Barriers in Grain Markets: The Case of Rice Export Ban Imposed by India. (In progress).
- Jo, Francis. Reyes, P. Hendricks, NP., **Ac-Pangan, W.** (2024) A Unified Algorithm For Penalized Likelihoods In Model Selection Of Spatial-Temporal Models For Lattice Data. (In progress).
- **Ac-Pangan, W.** (2024) Cocoa Commodity Market Analysis: An Overview of Supply Situation 2014 - 2024. (In progress).

PEER-REVIEW PUBLICATIONS

- Rossi, L., Hallman, L. M., Adams, S. N. **Ac-Pangan, W.** (2020). Impact of a Soil Conditioner Integrated into Fertilization Scheme on Orange and Lemon Seedling Physiological Performances. *Plants*, 9(7), 812. Available at: <https://doi.org/10.3390/plants9070812>
- Adams, S. N., **Ac-Pangan, W.**, Rossi, L. (2019). Effects of Soil Salinity on Citrus Rootstock 'US- 942' Physiology and Anatomy, *HortScience* horts, 54(5), 787-792. Available at: <https://doi.org/10.21273/HORTSCI13868-19>

OTHER PUBLICATIONS

- Zereyesus, Y. A., Kee, J., Hendricks, NP., **Ac-Pangan, W.**, Cardell, L., Nava, N.J., Jellife, J., Morgan, S. (2023). Special Article: Projecting Long-Term Staple Grain Production for the International Food Security Assessment: A Time Series Cross-Validation Approach. USDA ERS. International Food Security Assessment, 2023-2033. Page 38-47. Available at: <https://www.ers.usda.gov/webdocs/outlooks/107271/gfa-34.pdf?v=916.1>
- **Ac-Pangan, W.** Plan de negocios para el establecimiento de una exportadora de cacao fino de aroma en Cobán, Alta Verapaz, Guatemala. Zamorano University Wilson Popenoe Library. Available at: <https://bdigital.zamorano.edu/bitstream/11036/6136/1/AGN-2017-001.pdf>

CONFERENCE AND PAPER PRESENTATIONS

- **Ac-Pangan, W.**, Sharma, P., Kim, J. (2024). Drivers of the Establishment of New Local Food Manufacturing Businesses in the Heartland Region. USDA-AMS Local Food Economics Data Visualization Challenge presented at American and Applied Economics Association Meeting (AAEA), July 28, 2024. New Orleans, Louisiana.
- **Ac-Pangan, W.**, Hendricks, N., Zereyesus, Y. A., Kee, J., Morgan, S., Jellife, J., Nava, N., Cardell, L. (2023). Global grain supply forecasting. Selected paper presented at American and Applied Economics Association Meeting (AAEA), July 24, 2023. Washington, DC. <https://ageconsearch.umn.edu/record/335783?ln=en>
- Zereyesus, Y. A., Kee, J., Morgan, S., Jellife, J., Nava, N., Cardell, L., Hendricks, N., **Ac-Pangan, W.** (2023). Does trade openness affect global grain supply response? Selected paper presented at American and Applied Economics Association Meeting (AAEA), July 24, 2023. Washington, DC. <https://ageconsearch.umn.edu/record/335666?ln=en>
- Jo, Francis. Reyes, P. Hendricks, NP., **Ac-Pangan, W.** (2023) A Unified Algorithm For Penalized Likelihoods In Model Selection Of Spatial-Temporal Models For Lattice Data. Research and the State, Graduate Student Poster Session. Kansas State University. April 20, 2023. Manhattan, KS. Available at: <https://www.k-state.edu/grad/student-success/research-forums/docs/research-state/2023-RS-Abstract-Booklet.pdf>
- **Ac-Pangan, W.**, Hendricks, N. (2023). Improving existing methods of IFSA supply forecasting. Selected paper presented at the 2021 NCCC-134 Annual Conference, Applied Commodity Price Analysis, Forecasting and Market Risk Management. April 24, 2023. St. Louis, MO. Available at: https://legacy.farmland.illinois.edu/nccc134/conf_2023/pdf/Ac-Pangan_Hendricks_Zereyesus_Kee_NCCC-134_2023.pdf
- **Ac-Pangan, W.** Coffey, B. (2021) How do changes in market fundamentals affect the hedging in US live cattle markets? Selected paper presented at the 2021 NCCC-134 Annual Conference, Applied Commodity Price Analysis, Forecasting and Market Risk Management. April 19-20, 2021. (Online). <https://ageconsearch.umn.edu/record/316401>
- Hallman, L., Rossi, L., **Ac-Pangan, W.**, Adams, S. N. (2019). Optimal Nutrient Concentrations and Use of Root Growth Enhancers to Improve Citrus Root Health. Poster presented at American Society for Horticultural Science (ASHS 2019 Annual Conference), July 24, 2019. Las Vegas, Nevada. Available at: <https://ashs.confex.com/ashs/2019/webprogramarchives/Paper30104.html>
- Adams, S. N., **Ac-Pangan, W.**, Rossi, L. (2019). Effects of Soil Salinity on Citrus Rootstock 'US-942' Physiology and Anatomy, HortScience horts, 54(5), 787-792. Poster presented at American Society for Horticultural Science (ASHS 2019 Annual Conference), July 24, 2019. Las Vegas, Nevada. Available at: <https://ashs.confex.com/ashs/2019/webprogramarchives/Paper30091.html>

RESEARCH EXPERIENCE

Department of Agricultural Economics, Kansas State University

Graduate Research Assistant

Aug 2021 – Present

Cooperative Agreement with USDA Economic Research Service

- Development of a global grain supply forecasting models using econometric (OLS, FEOLS, POISSON), ARIMA and Machine Learning (Random Forest, Extreme Gradient Boosting) techniques to predict yield, area and production at the country level.
- Evaluation of different approaches to improve the forecast using as linear and nonlinear trends with natural cubic splines, pooled panel, country-specific estimates. Model performance was validated through out-sample forecasting using accuracy measures (RMSE, MAE, MAPE and MSE). The models are estimated using production, price and climate data from 78 countries.
- Developed skills in forecasting methods, data wrangling, and manipulation of diverse geospatial datasets (raster, bricks, point, lineal, and polygon data), and spatial interpolation.

Graduate Research Assistant

May 2020 – Jul 2021

- Data analysis of Live Cattle Markets Fundamentals in the regions of KS, NE, CO, IO-MN, and TX-OK-NM using Bloomberg Terminals, LMIC, and USDA-AMS databases.
- Forecasting and analyzing live cattle prices, basis, and hedging errors.

Graduate Research Assistant

Aug 2019- Apr 2020

- Evaluation of Phone Pilot Survey to estimate the family income in rural areas of Kenya.
- Analysis and data management of surveys to get information about the family food consumption in Yemen.
- Assistant with data management, creation of codebooks for releasing data to the public.

Department of Horticultural Science, University of Florida

Research Scholar

May – Dec 2018

Plant breeding and Root Physiology in Citrus Crops

- Segregation of citrus families for HLB tolerance: Germplasm block
- Analysis of Citrus Trees Affected for HLB through DNA analysis using PCR and QPCR
- Influence of grafting on root system architecture on HLB-affected citrus rootstocks (Rhizotrons).
 - Role of nutrition and root enhancers in growth and root citrus health.
 - Effects of soil salinity on 'US-942' citrus physiology and root anatomy
 - Pesticides management in Ag Tree Crops. Certified with Florida Pesticides License No. PB12285

TEACHING EXPERIENCE

Department of Economics, Kansas State University

Guest Lecture for ECON 890 Computational Methods for Economics

Mapping in Python

March 2024

Random Forest Models for Global Grain Supply Forecasting

May 2024

(8 Graduate students)

Department of Agricultural Economics, Kansas State University

Instructor

Aug – Dec 2021

AGEC 115 – Decision Tools For Ag Economics and Agribusiness (22 Undergraduate students).

Freshmen Level Course

Instructor

R Programming Language Camp for first-year M.S. and Ph.D. students.

(10 Graduate students)

Aug 2023

(14 Graduate students)

Aug 2024

Instructor

Aug – Dec 2021

AGEC 632 – Agribusiness Logistics (23 Undergraduate students). Senior Level Course

Graduate Teaching Assistant

Aug – Dec 2019

AGEC 615 – Global Agricultural Development (56 Undergraduate students)

Senior level Course

AGEC 120 – Agricultural Economics and Agribusiness (17 Undergraduate students)

Freshmen level Course

Department of Grain Science, Kansas State University

English - Spanish Translator and Interpreter

Jun – Aug 2021

Educational Program USSSEC – International Grain Program at Kansas State University Practical and Strategic Education for the Next Generation of Agribusiness Leaders Online Course Taught in Mexico and Colombia

INDUSTRY EXPERIENCE

Oro del Pacifico S.A. (Guatemala)

Jan - Apr 2018

Production Assistant Manager of Shrimp Farms

QualiTech Company, (Chaska, Minnesota)

Jan - May 2017

Lab Research Assistant in the AG Nutrition Department

LEADEARSHIP AND AWARDS

- AAEEA-Graduate Student Section / USDA-Agricultural Marketing Services Travel Award (New Orleans, Louisiana. 2024)
- KSU - Graduate Student Council Travel Award (Manhattan, Kansas. 2024)
- First place in IFAMA Case Study Competition (Graduate Level Category) (Christchurch, New Zealand. 2023)
- KSU - Graduate Student Council Travel Award (Manhattan, Kansas. 2023)
- Treasurer of the Graduate Student Agricultural Economics Association (Kansas State University, Manhattan, KS. 2023)
- First place in academic performance at Department of Agribusiness (*Summa Cum Laude*) (Zamorano University, Honduras. 2017)
- President of the Students Association at Department of Agribusiness (Zamorano University, Honduras. 2016-2017)
- Learning by Doing Award (Zamorano University, Honduras. 2016)
- Outstanding Academic Performance Award (Zamorano University, Honduras. 2015 - 2017)
- Outstanding Academic Performance Award (Escuela Nacional Central de Agricultura (ENCA), Guatemala. 2012-2013)

PROFESSIONAL MEMBERSHIPS

Agricultural & Applied Economics Association (AAEA)

2021 - Present

Applied Commodity Price Analysis, Forecasting and Market Risk Management (NCCC-134)

2021 - Present

International Food and Agribusiness Management Association (IFAMA)

2022 - Present

ADDITIONAL TRAINING AND SKILLS

Languages:

- English (Professional proficiency)
- Spanish (Native Speaker)

Software and Computational Languages Experience:

- R Studio/R Markdown/R Shiny
- Python (NumPy, SciPy, Pandas, SciKit-Learn, Matplotlib, TensorFlow)
- Visual Studio Code, Google Colab, Jupyter, Github
- Latex/Overleaf
- @Risk
- STATA
- SAS