

## Publications Objective 1

Sserunjogi, M. (2020). Physical disturbance as a non-chemical approach to control weevils in stored maize. Unpublished M.S. Thesis. Iowa State University, Ames, USA.

Sserunjogi, M., Bern, C. J., Brumm, T. J., Maier, D. E. (2020). Physical Disturbance Time Interval for Control of Maize Weevils in Stored Maize. ASABE Virtual Annual International Meeting. Omaha, Nebraska, July 13-15, 2020.

Sserunjogi, M., Bern, C. J., Brumm, T. J., Maier, D. E., Phillips, T.W. (2020). Mechanical Stirring of Maize Stored in on-Farm Steel Bins to Control Maize Weevils – a preliminary study. ASABE Virtual Annual International Meeting. Omaha, Nebraska, July 13-15, 2020.

Dantes, Princess Tiffany Galaura, "NIR hyperspectral imaging for animal feed ingredient applications" (2020). Graduate Theses and Dissertations. 18113.

<https://lib.dr.iastate.edu/etd/18113>

Rosentrater, K.A. 2020. ANSI/ASABE D606 Properties and Relationships for Distillers Dried Grains with Solubles (DDGS). St Joseph, MI: American Society of Agricultural and Biological Engineers.

Oliveira, M.C. and K.A. Rosentrater. 2020. An environmental and economic analysis of flocculation technology applied to a corn-based ethanol plant. *Processes*, 8(271), 1-20.

Sabillón L, Stratton J, Rose DJ, Bianchini A. Microbiological survey of equipment and wheat-milled fractions of a milling operation. *Cereal Chemistry*.

Sabillón L, Stratton J, Rose DJ, Eskridge K, Bianchini A. Effect of high-pressure processing on the microbial load and functionality of sugar-cookie dough. *Cereal Chemistry*.

Gulati P, Brahma S, Graybosch RA, Chen Y, Rose DJ. 2020. In vitro digestibility of proteins from historical and modern wheat cultivars. *Journal of the Science of Food and Agriculture* 100: 2579-2584.

Cabas-Lühmann, P. A. and Manthey, F. A. 2020. Effect of hydration on physical grain quality of durum wheat. *Cereal Chemistry*, 97:877– 887. <https://doi.org/10.1002/cche.10311>. NIFA Support was acknowledged for this publication.

Yang Lan, Jae-Bom Ohm, Bingcan Chen, Jiajia Rao (2020). Physicochemical properties and aroma profiles of flaxseed proteins extracted from whole flaxseed and flaxseed meal. *Food hydrocolloids*, 104, 105731. NIFA Support was not acknowledged for this Publication.

Yang Lan, Jiajia Rao. Poster: Effect of Demucilaging Method on the Structural, Rheological and Tribological Properties of Flaxseed Protein. In: 2020 American oil chemists' society (AOCS) annual meeting. June, 2020. NIFA Support was not acknowledged for this abstract.

López, A. M. M., Ohm, J. B., Manthey, F. A., Rao, J., & Simsek, S. Gluten extraction from deoxynivalenol contaminated wheat by wet milling. *Food Control*, 120, 107513. NIFA Support was not acknowledged for this Publication.

Lee, K. M., Yarbrough, D., Kozman, M., Herrman, T. J., Park, J. H., Wang, R., and Kurouski, D. 2020. A rapid and convenient screening method for detection of restricted monensin, decoquinat, and lasalocid in animal feed by applying SERS and chemometrics. *Food and Chemical Toxicology*. 144: 111633.

Lee, K. M., Yarbrough, D., Kozman, M., Herrman, T. J., Park, J. H., Wang, R., and Kurouski, D. 2020. Rapid detection and prediction of chlortetracycline and oxytetracycline in animal feed using surface-enhanced Raman spectroscopy (SERS). *Food Control*. 114:107243.

Lee, K. M., Yarbrough, D., Kozman, M., Herrman, T. J., Park, J. H., Wang, R., and Kurouski, D. 2020. Sensitive SERS characterization and analysis of chlorpyrifos and aldicarb residues in animal feed using gold nanoparticles. *Journal of Regulatory Science*. 8: 1-14.

Park, J. H., Thomasson, J. A., Lee, K. M., Suh, C. P. C., Perez, J. L., and Herrman, T. J. 2020. VOCs determination by adsorbent-Raman system in food and botanicals. *Analytical Methods*. 12:595–1605.

Herrman, D. A., Brantsen, J. F., Ravisankar, S., Lee, K. M., and Awika, J. 2020. Stability of 3-deoxyanthocyanin pigment structure relative to anthocyanins from grains under microwave assisted extraction. *Food Chemistry*. 333: 127494.

Ioerger, B.P., Bean, S.R., Tilley, M., and Lin, H. 2020. Improved method for extracting sorghum polymeric proteins. *J. Cereal Sci.* 91, 102876.

Burgos, C.C., Cox, S., Ioerger, B., Perumal, R., Hu, Z., Herald, T.J., Bean, S.R., and Rhodes, D.H. 2020. Advancing provitamin A biofortification in sorghum: Genome-wide association studies of grain carotenoids in global germplasm. *The Plant Genome*. 13, e20013

Weerasooriya, D., Bandara, A., Dowell, F., Peiris, S., Bean, S.R, Perumal, R., Adee, E., and Tesso, T. 2020. Performance of grain sorghum hybrids resistant to acetolactate synthase (ALS) and acetyl coenzyme-A carboxylase (ACCase) inhibitor herbicides. *Crop Science*. In press

Xu, Y., Li, J., Xin, Z., Bean, S. R., Tilley, M., and Wang, D. 2020. Water-soluble sugars of pedigreed sorghum mutant stalks and their recovery after pretreatment. *Applied Sciences*. 10, 5472.

Peiris, K.H.S., Bean, S.R., and Tilley, M. 2020. Analysis of sorghum content in corn-sorghum bioethanol feedstock by near infrared spectroscopy. *J. Near Infrared Spectroscopy*. 28, 267-274.

Arthur, F.H., Bean, S.R., Smolensky, D., Cox, S., Lin, H., and Peiris, K.H. 2020. Development of *Rhizophthera dominica* (Coleoptera: Bostrychidae) on sorghum: quality characteristics and varietal susceptibility. *J. Stored Products Research*. 87, 101569.

Duressa, D., Bean, S.R., St. Amand, P., and Tesso, T. 2020. Identification of  $\alpha$ -kafirin alleles associated with protein digestibility in grain sorghum. *Crop Science*. 60, 2467-2478.

Peiris, K.H.S., Bean, S.R., and Jagadish, S.V.K. 2020. Extended multiplicative signal correction to improve prediction accuracy of protein content in weathered sorghum grain samples. *Cereal Chem.* 97, 1066-1074.

Pontieri, P., Triosi, J., Romano, R., Pizzolante, G., Bean, S.R., Tilley, M., Motto, M., Aletta, M., Del Guidice, F., Sicardi, M., Alfiano, P., and Del Guidice, L. 2020. Nutritional composition of selected white food-grade waxy sorghum variety grown in the Mediterranean area. *Australian J. Crop Science*. 14, 1525-1532.

Arthur, F.H., Bean, S.R., Smolensky, D., Gerken, A.R., Siliveru, K., Scully, E.D., and Baker, N. 2020. Development of *Tribolium castaneum* (Coleoptera: Tenebrionidae) on sorghum milling fractions. *J. Stored Products Research*. 87, 101606.

Ostmeyer, T., Bheemanahalli, R., Srikanthan, D., Bean, S.R., Peiris, K.S.H., Madasamy, P., Perumal, R., Jagadish, S.V.K. 2020. Quantifying the agronomic performance of new grain sorghum hybrids for enhanced early-stage chilling tolerance. *Field Crops Research*. 258, 107955.

Li, J., Lin, H., Bean, S.R., Sun, X.S., and Wang, D. 2020. Evaluation of adhesive performance of a mixture of soy, sorghum and canola proteins. *Industrial Crops and Products*. 157, 112898.

## **Publications Objective 2**

Wilson, S., Mohammadi Shad, Z., Oduola, A., Zhou, Z., H. J., Carbonero, F., Atungulu, G. G.\*. (2020). Decontamination of Mycotoxigenic Fungi on Shelled Corn Using Selective Infrared Heating Technique. *Cereal Chemistry*. <https://doi.org/10.1002/cche.10394>

Luthra, K., Shafiekhani, S., Sadaka, S. S., Atungulu, G. G.\*. (2020). Determination of Moisture Sorption Isotherms of Rice and Husk flour Composites. *Applied Engineering in Agriculture*, 36(6), 859-867. doi: 10.13031/aea.13822

Smith, D. L., Atungulu, G. G.\* , Wilson, S., Mohammadi Shad, Z. (2020). Deterrence of *Aspergillus Flavus* Regrowth and Aflatoxin Accumulation on Shelled Corn Using Infrared Heat Treatments. *Applied Engineering in Agriculture*, 36(2), 151-158.

Shafiekhani, S., Atungulu, G. G.\*. (2020). Effect of rice chilling on drying, milling and quality characteristics. *Applied Engineering in Agriculture*, 36(5), 767-776. doi: 10.13031/aea.13895

Oduola, A. A., Bowie, R., Wilson, S., Mohammadi Shad, Z., Atungulu, G. G.\*. (2020). Impacts of broadband and selected infrared wavelength treatments on inactivation of microbes on rough rice. *Journal of Food Safety*, 40(2). 10.1111/jfs.12764

Bruce, R. M., Atungulu, G. G.\* , Sadaka, S. S. (2020). Impacts of size fractionation, commingling, and drying temperature on physical and pasting properties of broken rice kernels. *Cereal Chemistry*, 97(2), 256-269. 10.1002/cche.10241

Mohammadi Shad, Z., Atungulu, G. G.\*. (2020). Physical Integrity of Long-Grain Hybrid, Pureline, and Medium-Grain Rice Kernels as Affected by Storage Conditions. *Applied Engineering in Agriculture*, 36(4). doi: 10.13031/aea.13727

Bruce, R. M., Atungulu, G. G.\* , Sadaka, S. S. (2020). Physicochemical and functional properties of medium-sized broken rice kernels and their potential in instant rice production. *Cereal Chemistry*, 97(3), 681-692. 10.1002/cche.10284

Smith, D. L., Atungulu, G. G.\* , Mauromoustakos, A. (2020). Processing Parameters for One-Pass Drying of High-Moisture Parboiled Rough Rice with 915 MHz Microwaves. *Transactions of the ASABE*. doi: 10.13031/trans.14003.

Lee, H.J., C. Lee, and D. Ryu. 2020. Effects of baking soda and fructose in reduction of ochratoxin A in rice and oat porridge during retorting process. *Food Control* 116:107325.

X. Cheng, Chavez, R.A., and M. J. Stasiewicz. 2020. When to use one-dimensional, two-dimensional, and Shifted Transversal Design pooling in mycotoxin screening. *PLOS ONE*. 15(8) E0236668. <https://doi.org/10.1371/journal.pone.0236668>.

Chavez, R.A., X. Cheng, and M. J. Stasiewicz. 2020. A review of the methodology of analyzing aflatoxin and fumonisin in single corn kernels and the potential impacts of these methods on food security. *Foods* 9(3). <https://doi.org/10.3390/foods9030297>

Sharma, R, C. R. Hurburgh, and G. A. Mosher. 2020. Developing Guidance Templates and Terminology to Support Multiple Traceability Objectives in the Grain Supply Chain. *Cereal Chemistry* (accepted)

Dolphin, C.J., G.A. Mosher, R.P.K. Ambrose, and Ryan, S.J. 2020. Meeting the tolerance: How successful is coexistence in commodity corn handling systems. *Applied Engineering in Agriculture*, 36(5), 777-784.

Salish, K., G.A. Mosher, and R.P.K. Ambrose. 2020. Developing a Graphical User Interface (GUI) to predict the contamination of GM corn in non-GM corn. *Applied Engineering in Agriculture*, 36(1), 25-31.

Pizarro, M., E. Bowers, and G. Mosher. 2020. Isolation and segregation of non-GM feed: A cost estimation model. Presentation given virtually at the American Society of Agricultural and Biological Engineers, July 2020.

Sharma, R, C. R. Hurburgh, and G. A. Mosher. 2020 . Developing Guidance Templates and Terminology to Support Multiple Traceability Objectives in the Grain Supply Chain. *Cereal Chemistry* (acc).

Maier, D.E. (editor). Advances in Post-Harvest Management of Cereals and Grains. Burleigh Dodds Science Publishing. <https://www.bdschapters.com/webshop/open-access/developments-in-the-use-of-hermetic-bags-for-grain-storage/>

Aby, R.G., & Maier, D.E. 2020. Advances in techniques for monitoring the quality of stored cereal grains. In Advances in postharvest management of cereals and grains (pp. 363-387). Burleigh Dodds Sciences Publishing, Cambridge, UK (ISBN: 978 1 78676 352 5; <https://shop.bdspublishing.com/store/bds/detail/workgroup/3-190-89119>)

Mompremier, R.K. 2020. Field testing of PICS bag maize storage in Haiti. American Society of Agricultural and Biological Engineers K. K. Barnes Undergraduate Student Paper Competition entry.

H.H. Tenboer, G.A. Mosher, and C.R. Hurburgh. 2020. A quantitative model to characterize granular flow behavior: A measure of grain layer mixing in storage facilities. ASABE Paper # 2000735. Doi: <https://doi.org/10.13031/aim.20>

H.H. Tenboer, G.A. Mosher, and C.R. Hurburgh. A quantitative model to characterize granular flow and mixing of grain layers. In process.

H.H. Tenboer. Verification of a quantitative model to characterize granular flow – A measure of mixing of grain layers. M.S. Thesis, Iowa State University, Ames, IA.

Bowers, E.L. and Mosher, G.A. Role of worker decision-making in effective FSMA implementation. Prepared for presentation at 2020 NC-213.

Athanassiou, C. G., T. W. Phillips, F. H. Arthur, M. J. Aikins, P. Agrafioti and K. L. Hartzler. 2020. Efficacy of phosphine fumigation for different life stages of *Trogoderma inclusum* and *Dermestes maculatus* (Coleoptera: Dermestidae). *J. Stored Prod. Res.* Vol 86. <https://doi.org/10.1016/j.jspr.2019.101556>

Hasan, M. M., Athanassiou, C. G., Schilling, M. W., Phillips, T. W. 2020. Biology and management of the red-legged ham beetle, *Necrobia rufipes* DeGeer (Coleoptera: Cleridae). *J. Stored Prod. Res.* Vol. 88, <https://doi.org/10.1016/j.jspr.2020.101635>

Nayak, M. K., G. J. Darglish, T. W. Phillips and P. R. Ebert. 2020. Resistance to the fumigant phosphine and its management in insect pests of stored products: a global perspective. *Ann. Rev. Entomol.* 65: 333-350.

Ramadan, G. R. M., Abdelgaleil, S. A. M., Shawir, M. S., El-bakary, A. S., Zhu, K. Y., Phillips, T. W. 2020. Terpenoids, DEET and short chain fatty acids as toxicants and repellents for *Rhyzopertha dominica* (coleoptera: Bostrichidae) and *Lasioderma serricorne* (Coleoptera: Ptinidae). Vol. 87, <https://doi.org/10.1016/j.jspr.2020.101610>

Ramadan, G. R. M., K. Y. Zhu, S. A. M. Abdelgaleil, M. S. Shawir, A. S. El-bakary, P. A. Edde, and T. W. Phillips. 2020. Ethanedinitrile as a fumigant for *Lasioderma serricorne* (Coleoptera: Anobiidae), and *Rhyzopertha dominica* (Coleoptera: Bostrichidae): toxicity and mode of action. *J. Econ. Entomol.* Online doi: 10.1093/jee/toz343

Alemayehu, S., F. Abay, K. M. Ayamut, D. Assefa, A. Chala, R. Mahroof, J. Harvey, and Bh. Subramanyam. 2020. Evaluating different hermetic storage technologies to arrest mold growth, prevent mycotoxin accumulation and preserve germination quality of stored chickpea in Ethiopia. *Journal of Stored Products Research*, 85, 101526. DOI: <https://doi.org/10.1016/j.jspr.2019.101526>.

Molla, A., S. Alavi, Bh. Subramanyam, and N. Gabbiye. 2020. Drying characteristics of maize grain in solar bubble dryer. *Journal of Food Process Engineering*, 43, 13312. DOI: <https://doi.org/10.1111/jfpe.13312>.

Molla, A., N. Gabbiye, Bh. Subramanyam, M. Admasu, K. Kalsa, and S. Alavi. 2020. Effects of grain drying methods on postharvest insect infestation and physicochemical characteristics of maize grain. *Journal of Food Process Engineering* 13423. DOI: <https://doi.org/10.1111/jfpe.13423>.

Anthony, K. D. J., R. Maghirang, D. W. Hagstrum, K. Y. Zhu, and Bh. Subramanyam. 2020. Using dynamic dew point isotherms to determine the optimal storage conditions of inert dust-treated hard red winter wheat. *Grain & Oil Science Technology*, 06.004. DOI: <https://doi.org/10.1016/j.gaost.2020.06.004>.

Stamenković, O.S., K. Siliveru, V.B. Veljković, I.B. Banković-Ilić, M.B. Tasić, I.A. Ciampitti, I.G. Đalović, P.M. Mitrović, V.Š. Sikora, P.V.V. Prasad. 2020. Production of biofuels from sorghum. *Renewable and Sustainable Energy Reviews*, 124: 109769. <https://doi.org/10.1016/j.rser.2020.109769>

Arthur, F.H., S. R. Bean, D. Smolensky, A. R. Gerken, K. Siliveru, E. D. Scully, and N. Baker. 2020. [Development of \*Tribolium castaneum\* \(Herbst\) \(Coleoptera: Tenebrionidae\) on sorghum milling fractions](https://doi.org/10.1016/j.jspr.2020.101606). *Journal of Stored Products Research*, 87: 101606. <https://doi.org/10.1016/j.jspr.2020.101606>.

Pezzali, J. G., A. Suprabha Raj, K. Siliveru, and C. G. Aldrich. 2020. Characterization of white and red sorghum flour and their potential use for production of extrudate crisps. *PloS One*, 15: e0234940. <https://doi.org/10.1371/journal.pone.0234940>

Gustin, J.L., Frei, U.K., Baier, J., Armstrong, P., Lübberstedt, T., Settles, A.M. Classification approaches for sorting maize (*Zea mays* subsp. *mays*) haploids using single-kernel near-infrared spectroscopy. *Plant Breed.* 2020; 139: 1103–1112. <https://doi.org/10.1111/pbr.12857>

Al-Amery, M., Fowler, A., Unrine, J.M., Armstrong, P.R., Maghirang, E.B., Su, K., De Melo, J., Yuan, F., Shu, Q., Hildebrand, D. 2020. Generation and characterization of a soybean line with a *Vernonia galamensis* diacylglycerol acyltransferase-1 gene and a myo-inositol 1-phosphate synthase knockout mutation. *Lipids*. 12253. <https://doi.org/10.1002/lipd.12253>.

Hacisalihoglu, G., Freeman, J., Armstrong, P.R., Seabourn, B.W., Porter, L.D., Settles, A.M. and Gustin, J.L. 2020. Protein, weight, and oil prediction by single-seed near-infrared spectroscopy for selection of seed quality and yield traits in pea (*Pisum sativum*). *J Sci Food Agric*, 100: 3488-3497. <https://doi.org/10.1002/jsfa.10389>

Rodriguez, F.S., Armstrong, P.R., Maghirang, E.B., Yaptenco, K.F., Scully, E.D., Arthur, F.H., Brabec, D.L., Adviento-Borbe, A.A., Suministrado, D.C. 2020. NIR spectroscopy detects chlorpyrifos-methyl pesticide residues in rough, brown, and milled rice. Transactions of the ASABE. 36(6):983-993.

Serson, W., Armstrong, P., Maghirang, E., AL-Bakri, A., Phillips, T., AL-Amery, M., Su, K., Hildebrand, D. 2020. Development of whole and ground seed near-infrared spectroscopy calibrations for oil, protein, moisture, and fatty acids in calibrations of *Salvia hispanica*. J. Chem. Soc. 97: 3-13.

### Publications Objective 3

Maier, D.E. (editor). Advances in Post-Harvest Management of Cereals and Grains. Burleigh Dodds Science Publishing. <https://www.bdschapters.com/webshop/open-access/developments-in-the-use-of-hermetic-bags-for-grain-storage/>

Chikez H.B. and Maier D.E. Analyzing Post-Harvest Loss in Kenya and Tanzania: Lessons learned from the Yieldwise Initiative Data. Consortium for Innovation in Post-Harvest Loss and Food Waste Reduction (Webinar), August 26, 2020.

Chikez H.B., Maier D.E., Olafsson S., and Sonka S. Predicting the impact of various agricultural practices on Post-Harvest Loss (PHL): The case the mango value chain in Kenya. 2020 ASABE Annual International Meeting (Virtual and On Demand), July 13-15, 2020.

Chikez H.B. and Rosentrater K.A. Predicting the specific mechanical energy (SME) of a single screw extrusion process. 2020 ASABE Annual International Meeting (Virtual and On Demand), July 13-15, 2020.

Achhami, B. B., G. V .P. Reddy, J. D. Sherman, R. K. D. Peterson, and D. K. Weaver. 2020. Multiple decrement life tables of *Cephus cinctus* Norton (Hymenoptera: Cephidae) across a set

of barley cultivars: The importance of plant defense versus cannibalism. *PLOS ONE* 15 (9), e0238527.

Achhami, B. B., G. V .P. Reddy, J. D. Sherman, R. K. D. Peterson, and D. K. Weaver. 2020. Antixenosis, antibiosis, and potential yield compensatory response in barley cultivars exposed to wheat stem sawfly (Hymenoptera: Cephidae) under field conditions. *Journal of Insect Science* 20 (5), September 2020, 9: 1-14.