

CURRICULUM VITAE

JOSHUA J. JACKSON, Ph.D., EIT

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EDUCATION

Doctor of Philosophy. Biosystems and Agricultural Engineering. University of Kentucky, Lexington, KY. Completion Date: August 5, 2015. Dissertation Topic: Optimal Uses of Biomass Resources in Distributed Applications. (GPA 3.88/4.0) Advisor: Michael Montross.

Masters of Science. Animal Science. University of Kentucky, Lexington, KY. Completion Date: December 16, 2011. Thesis Topic: Duration of Grazing High Versus Low Endophyte (Neotyphodium coenophialum)-Infected Tall Fescue by Growing Steers Differentially Affects Blood Concentrations of Prolactin, Enzymes, and Metabolites. (GPA 3.90/4.0) Advisor: Jamie Matthews.

Bachelor of Science. Animal Science. University of Kentucky, Lexington, KY. Completion Date: May 6, 2007. (GPA 3.95/4.0)

PROFESSIONAL EXPERIENCE

Livestock Systems Assistant Extension Professor. University of Kentucky. Department of Biosystems and Agricultural Engineering. Lexington, KY. (70% Extension, 20% Research, 10% Teaching)

Post-Doctoral Scholar. University of Kentucky. Department of Biosystems and Agricultural Engineering. Lexington, KY. Supervisors: Sue E. Nokes and Michael Montross. (2015-2016)

Graduate Research Assistant. University of Kentucky. Department of Biosystems and Agriculture Engineering. Lexington, KY. Supervisor: Michael Montross. (2011-2015)

Graduate Research Assistant. University of Kentucky. Department of Animal and Food Science. Lexington, KY. Supervisor: Jamie Matthews. (2007-2009)

LICENSURE & CERTIFICATE

Engineer in Training FE passed April 13, 2013

REFEREED PAPERS

1. Turner, A.P., M.D. Montross, **J.J. Jackson**, N.K. Koeninger, S.G. McNeill, M.E. Casada, J.M. Boac, R. Bhadra, R.G. Maghirang, S.A. Thompson. 2016. Stored Grain Surface Estimation Using a Low Density Point Cloud Transactions of ASABE
2. C. Rodrigues, **J.J. Jackson**, M. Montross. 2016 A Molar Basis Comparison of Calcium Hydroxide, Sodium Hydroxide, and Potassium Hydroxide on the Pretreatment of Switchgrass and Miscanthus Under High Solids Conditions. Industrial Crops and Products
3. Turner, A.P., M.D. Montross, **J.J. Jackson**, N.K. Koeninger, S.G. McNeill, M.E. Casada, J.M. Boac, R. Bhadra, R.G. Maghirang, S.A. Thompson. 2016. Error Analysis of Stored Grain Inventory Determination. Transactions of ASABE (accepted)
4. **Jackson J**, Turner A, Mark T, Montross M. Densification of Biomass Using a Pilot Scale Flat Ring Roller Pellet Mill. Fuel Processing Technology. 2016;148:43-9.
5. **Jackson JJ**, Lindemann MD, Boling JA, Matthews JC. Summer-Long Grazing of High vs. Low Endophyte (*Neotyphodium coenophialum*)-Infected Tall Fescue by Growing Beef Steers Results in Distinct Temporal Blood Analyte Response Patterns, with Poor Correlation to Serum Prolactin Levels. Frontiers in Veterinary Science. 2015;2:77.

REFEREED PAPERS (IN REVIEW)

1. **Jackson, J.J.**, M. Montross. 2016. Case Study of Transportation Benefits Using GIS in Distributed Preprocessing of Corn Stover into Biobutanol. Biomass and Bioenergy

NON-REFEREED CONFERENCE PAPERS, PRESENTATIONS, AND ABSTRACTS

1. **Jackson, J.J.**, M.D. Montross, 2016. Distributed preprocessing of corn stover into either a densified liquid or solid fuel: a GIS case study. ASABE International Meeting, Orlando, FL, July 16-20
2. **Jackson, J.J.**, A. Turner, N.K. Koeninger, N.K., M.D. Montross, 2015. Composition and Enzymatic Hydrolysis of Biomass Pretreated with Alkaline Hydrogen Peroxide Spray. ASABE International Meeting, New Orleans, LA, July 26-29
3. Koeninger, N.K., M.D. Montross, C.T. Agouridis, A. Turner, **J.J. Jackson**. Determining Soil Erosion with Varying Corn Stover Cover Factors. ASABE International Meeting, New Orleans, LA, July 26-29.
4. **Jackson, J.J.**, M. Montross. 2015 A Geographic Information System Model to Optimize the Location of Biobutanol Facilities. ASABE International Meeting, New Orleans, LA, July 26-29.
5. **Jackson, J.J.**, M. Montross. 2013. Pretreatment of Biomass Using an Alkaline Hydrogen Peroxide Spray. ASABE International Meeting, Kansas City, KS July 21-24
6. Turner, A.P., C. Rodrigues, D. Schiavone, **J.J. Jackson**, M.D. Montross, S.G. McNeill, J.M. Boac, R. Bhadra, S. Thompson, M.E. Casada, R. Maghirang. 2013. Field Measurement of Packing in Stored Grain. ASABE International Meeting, Kansas City, KS July 21-24
7. Gray, K., S. Nokes, M.D. Montross, A. Modenbach, **J.J. Jackson**. 2013. Investigation of Alkaline Hydrogen Peroxide Pretreatment for its Use in an On-Farm Butanol Bioprocessing Facility ASABE International Meeting, Kansas City, KS July 21-24
8. Adams, W.C., M. Montross, A. Turner, **J.J. Jackson**. 2013. Using Neutron Thermalization to Determine the Dry Matter Content of Baled Biomass. ASABE International Meeting, Kansas City, KS July 21-24.

9. **Jackson, J.J.**, S.G. McNeill, M.D. Montross. 2012. Designing a Feedlot Operation Using ArcGIS and AutoCAD-An Extension Method. ASABE International Meeting, Dallas, TX July 29-August 1.
10. Adams, W.C., M.D. Montross, A. Turner, **J.J. Jackson**, L. Mathis, W. Hammond, N. Bush, M. Fogle. 2012. Evaluation of Current Technology for the Determination of Representative Bale Moisture Content ASABE International Meeting, Dallas, TX July 29-August 1.
11. **Jackson, J.J.**, W. Adams, M.D. Montross, J.M. Phillips. 2011. The Effect of Moisture Content and Binders on the Pelleting of Switchgrass and Miscanthus. ASABE International Meeting, Louisville, KY August 7-10.
12. Adams W.C., M.D. Montross, **J.J. Jackson**, S. DeBolt. 2011. Biomass Pellet Gasification Characteristics. ASABE International Meeting, Louisville, KY August 7-10.

EXTENSION ACTIVITIES

Extension Presentations

1. **Jackson, J.J.** UAV Potential for Livestock. Beef Bash Field Day 2016
2. **Jackson, J.J.** Pelletization of Lignocellulosic Material. Quicksand Field Day 2012
3. **Jackson, J.J.** Pelletization of Lignocellulosic Material. Bracken County Field Day. 2012

College Extension Events

1. National Farm Machinery Show BAE Exhibit. Grain Surface/Volume Determination Using Laster Distance Meters. 2013
2. National Farm Machinery Show BAE Exhibit. Biobutanol Display. 2012

Extension Field Days

1. Morehead State Bioenergy Field Day. Displayed mobile pelleting unit and biobutanol display. 2012
2. Princeton Field Day. Displayed mobile pelleting unit and biobutanol display. 2012
3. Bracken County Field Day. Displayed mobile pelleting unit and biobutanol display. 2012

Other Extension Activities

GIS assistance for disease outbreak prevention and response. Helping develop, improve, update, and modify maps for the KY Poultry Federation with Jennifer Hall (2012-Present)
 Farm visits for improving two different beef operations with Sam McNeill (2012-2013)

TEACHING EXPERIENCE

BAE 103. Energy in Biological Systems. Spring 2011. University of Kentucky (Taught recitation and graded homework)
 BAE 102. Introduction to Biosystems Engineering Fall 2015. University of Kentucky (graded homework and attended design team group meetings)
 BAE 201 Economic Analysis of Biosystems Fall 2015. University of Kentucky (Taught course for 2 weeks including preparing material, office hours, assigned and graded homework)

COMPETITIVE GRANTS (FUNDED)

1. Jackson, J.J. 2015 Forage and Resource Management Tool for Beef Producers Implementing Rotational Grazing. USDA-AFRI Post Doctoral Fellowships^{1,2} \$149,952. Mentors: M.D. Montross and J. Lehmkuhler
2. Devorak, J., J.J. Jackson, M. Sama, and M.D. Montross, and B. Geoff. 2016 LIDAR and photogrammetry to map alfalfa yield and quality using Unmanned Aircraft Systems USDA-Alfalfa Forage Research^{1,2} \$250,00

COMPETITIVE GRANTS (NOT FUNDED)

1. Dvorak, J., J.J. Jackson, M. Sama, and M.D. Montross, B. Geoff, T. Mark, J. Shockley, and K. Burdine .2016 Mapping yield and quality in forage crops using unmanned platforms USDA-AFRI^{1,2} \$500,000
2. Hoagg J., J.J. Jackson, M. Sama, and R. Yang. 2016 Autonomous Unmanned Aerial Robots for Livestock Health Monitoring. NSF-NRI^{1,2} \$996,158.
3. Jackson, J.J. 2014 Forage and Resource Management Tool for Beef Producers Implementing Rotational Grazing. USDA-AFRI Post Doctoral Fellowships^{1,2} \$149,952. Mentors: M.D. Montross and J. Lehmkuhler
4. Montross, M.D., W. Burris, R. Smith, and T. Mark 2013 (Morehead State University). Feasibility of Alkaline Hydrogen Peroxide Treated Switchgrass as a Feedstock in Growing Cattle Diets. USDA-AFRI^{1,2} \$500,000
5. Montross. M.D., S. McNeill, and J. Dvorak. 2013 Determining Baled Biomass Dry-Matter Content Using Neutron Thermalization USDA-AFRI^{1,2} \$500,000

¹ External, ² Federal

PENDING GRANTS

1. Jackson, J.J., M. Arnold, T. Mark, and J. Dvorak, 2016 Precision Cattle Management using Near Field Communications (NFC) and Apps. USDA-NIFA-CARE^{1,2} \$299,604
2. Montross, M.D., S. Nokes, B. Lynn, B. Knutson, S. Rankin, M. Flythe, J. Jackson, J. Lehmkuhler. 2016 Addressing the Animal Protein Paradox: Secure and Sustainable Food Production Through a Systems Approach to Plant-Derived Antimicrobials. USDA Food Safety Challenge \$1,200,000

AWARDS/HONORS

Gamma Sigma Delta (2009)

Alpha Zeta (2005)

Kentucky Angus Association Herdsman of the Year (2004)

PROFESSIONAL ORGANIZATIONS

American Society of Agricultural and Biological Engineers (2006-Present)

American Society of Animal Science (2008)

Kentucky Cattlemen Association (2014-2016)

American Angus Association (Dividing Ridge LLC-Family Farm)

PROFESSIONAL DEVELOPMENT

Training

Hyperspectral Imaging and Data Analysis. 2016 ASABE CPD Course. Orlando, FL

Purdue Prospective Faculty Workshop. March 1-3 2015

PROFESSIONAL MEETINGS ATTENDED

ASABE Annual International Meeting. Orlando, FL. 2016

ASABE Annual International Meeting. New Orleans, LA. 2015

International Biomass Conference and Exposition. Orlando, FL. 2014

ASABE Annual International Meeting. Kansas City, MO. 2013.

ASABE Annual International Meeting. Dallas, TX. 2012.

ASABE Annual International Meeting. Louisville, KY. 2011.

Joint ADSA-ASAS Annual Meeting. Indianapolis. IN. 2008

ASABE Annual International Meeting. Minneapolis, MN. 2007.

SERVICE

Departmental

Research and Graduate Studies Committee 2015

Graduate Recruitment Weekend 2014

Graduate Recruitment Weekend 2013

Graduate Recruitment Weekend 2012

Seminars

Montross, M.D., **J.J. Jackson**, A.P. Turner, and W.C Adams. Using Microsoft Skydrive for Collaborative Work 4/5/11

Other Service

1. Exhibitor/Recruiter. University of Kentucky Engineering Day. Lexington, KY. 2013.

2. Exhibitor/Recruiter. University of Kentucky Engineering Day. Lexington, KY. 2012.

EXTRACURRICULAR ACTIVITIES

Alpha Epsilon (Vice-President 2013)

Volunteer 4-H Leader (Livestock Club and Beef Show involvement 2003-present)