

# STEVEN E. TAYLOR, PH.D., P.E., FELLOW ASABE

Professor and Associate Dean for Research, Auburn University Samuel Ginn College of Engineering  
Director, Auburn University Center for Bioenergy and Bioproducts  
Adjunct Professor, Auburn University School of Forestry and Wildlife Sciences

## Summary

<p><b>Employment</b></p> <ul style="list-style-type: none"><li>• Associate Dean for Research, Auburn University Samuel Ginn College of Engineering. July 2016 to present.</li><li>• Director, Auburn University Center for Bioenergy and Bioproducts. 2007 to present.</li><li>• Head, Auburn University Department of Biosystems Engineering. October 2003 to July 2016.</li><li>• Assistant Professor, Associate Professor, and Professor, Auburn University Department of Biosystems Engineering. 1989-present.</li></ul>	<p><b>Academic Leadership Accomplishments</b></p> <ul style="list-style-type: none"><li>• Led Biosystems Engineering department through major rebuilding effort that has resulted in highly productive and collegial faculty and staff and significant increases in student enrollment and extramural funding.</li><li>• Hired 9 new faculty; successfully managed 12 out of 12 promotion and tenure packets.</li><li>• Successfully led program through 4 ABET accreditation visits.</li><li>• Increased student enrollment from 52 to 211.</li><li>• Led the creation of new undergraduate option in Ecological Engineering, new M.S., new Ph.D., and new Accelerated BS-MS programs.</li><li>• Led efforts to obtain NSF and AAES funding for and managed a \$6.5 million renovation of 22,000 ft<sup>2</sup> Biological Engineering Research Laboratory.</li><li>• Led efforts to obtain funds for renovation of Corley Courtyard for new student teaching and collaboration space.</li><li>• Helped secure 4 new scholarship endowments.</li></ul>
<p><b>Professional Metrics</b></p> <ul style="list-style-type: none"><li>• \$42 million in total extramural funding as PI or co-PI (\$21+ million as lead investigator)</li><li>• 1 book, 1 book chapter, 78 refereed publications and conference proceedings, 70 papers presented at meetings, 8 non-refereed articles, 7 abstracts, 63 invited presentations, 31 extension presentations, 9 research reports.</li><li>• Previously taught 14 university courses.</li><li>• Previously taught 16 professional development courses.</li></ul> <p><b>Professional Recognition</b></p> <ul style="list-style-type: none"><li>• James R. and Karen A. Gilley Academic Leadership Award, American Society of Agricultural and Biological Engineers (ASABE). 2015</li><li>• AU Senate Award for Departmental Teaching Excellence. 2015.</li><li>• AU College of Agriculture Project Team Award. 2014.</li><li>• Fellow, ASABE. 2013.</li><li>• AU College of Agriculture Academy of Fellows. 2013.</li><li>• AU President's Collaborative Units Award. 2012.</li><li>• AU College of Agriculture Dean's Grantsmanship Award. 2012, 2013, 2014, 2015.</li><li>• Testified before U.S. House of Representatives. 2012.</li><li>• Innovator Award. Southern Growth Policies Board. 2009.</li><li>• USDA Grand Challenge Winner. 2008.</li><li>• Testified before U.S. Senate. 2007.</li><li>• U.S. Solar Decathlon – 3<sup>rd</sup> place. One of the AU Faculty Advisor group. 2002.</li><li>• Distinguished Young Engineer. Alabama Section ASABE. 1996.</li><li>• Outstanding Faculty Member. Biosystems Engineering Dept. 1992, 1996, 2000, 2001.</li><li>• George Marra Award for Excellence in Research (2<sup>nd</sup> Place). Society of Wood Science and Technology. 1991.</li><li>• Registered Professional Engineer. Alabama No. 19382</li></ul>	<p><b>Bioenergy Center Leadership Accomplishments</b></p> <ul style="list-style-type: none"><li>• Led the development of multidisciplinary faculty and staff teams focused on a new bioeconomy.</li><li>• Led \$2 million renovation of Forest Products Laboratory and acquisition of \$4+ million in laboratory equipment that includes highly specialized bench- and pilot-scale research reactor systems available to faculty across the university.</li><li>• Assisted or led major team efforts resulting in extramural funding of \$35+ million from US DOE, USDA, and NSF.</li></ul> <p><b>Professional Leadership and Service</b></p> <ul style="list-style-type: none"><li>• Energy Institute of Alabama.</li><li>• Alabama Joint Legislative Committee on Energy.</li><li>• Alabama Governor's Task Force on UAV's – R&amp;D Subcommittee.</li><li>• Chaired 9 international committees in ASABE.</li><li>• ANSI A190. Technical Review Board Member for Structural Glued Laminated Timber Standard.</li><li>• ANSI/AWC NDS National Design Specification for Wood Construction. Member Wood Design Standards Committee for American Wood Council.</li></ul>

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**Auburn University**

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## **PROFESSIONAL INTERESTS AND EXPERTISE**

Dr. Taylor is experienced in all major aspects of the land grant university mission: education, research, and outreach/extension. As Associate Dean for Research, he is responsible for coordination and promotion of the college's research through 8 academic departments and 11 research centers. As director for the Center for Bioenergy and Bioproducts, he has helped position Auburn University as a leader in bioenergy research and education. He fosters interdisciplinary collaboration and research team building; assists with the development of laboratory facilities and equipment; and provides oversight for sponsored programs activities across the Samuel Ginn College of Engineering.

In his previous role as Biosystems Engineering Department Head, he provided leadership for an accredited undergraduate program and graduate programs in Biosystems Engineering; a highly productive research program addressing engineering for agriculture, food, forestry, and natural resources; and strong outreach/extension programs focusing engineering on challenges in agricultural and forest products sectors. Under his leadership, the department achieved significant growth in student enrollment and in extramural funding, made major improvements in research and teaching infrastructure, and its faculty emerged as a group committed to collaboration and interdisciplinary education, research, and extension.

Dr. Taylor's academic background includes professional practice in education, research, and extension. His technical expertise is in structural wood engineering and forest engineering. He taught multiple courses for university students and practicing engineers, and he continues to carry a partial teaching load. His research focuses on engineering for forest operations and improved utilization of forest biomass for energy feedstocks as well as for structural products. He maintains a strong research presence in bioenergy and bioproducts. While he has not had a formal extension appointment, he has conducted extension and outreach activities through the College of Engineering, the College of Agriculture, the School of Forestry and Wildlife Sciences, and the Center for Bioenergy and Bioproducts.

## **EMPLOYMENT HISTORY**

Associate Dean for Research, Auburn University Samuel Ginn College of Engineering, July 2016 to present

Director, Auburn University Center for Bioenergy and Bioproducts, January 2007 to present

Professor and Head, Auburn University Department of Biosystems Engineering, October 2003 to present

Associate Professor, Auburn University Department of Biosystems Engineering, 1996 – 2003

Assistant Professor, Auburn University Department of Biosystems Engineering, 1989-1995

## **EDUCATION**

Ph.D., Texas A&M University, Agricultural Engineering, College Station, TX, December, 1988

M.E. with thesis, University of Florida, Agricultural Engineering, Gainesville, FL, August, 1985

B.S. Engr. with Honors, University of Florida, Agricultural Engineering, Gainesville, FL, December, 1983

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## LEADERSHIP ACCOMPLISHMENTS

### Biosystems Engineering Department

As department head, Dr. Taylor worked diligently to rebuild the Biosystems Engineering program at Auburn University. Highlights include:

- Recruited new faculty members and professional level support staff (post-doctoral fellows, research engineers, accountant, and engineering technicians) to revitalize programs.
  - o Successfully managed 12 out of 12 promotion and tenure packets for Biosystems Engineering faculty.
  - o Encouraged professional engineering registration by faculty and staff. Currently seven faculty and staff in Biosystems Engineering are registered Professional Engineers.
- Successfully led the department through four (three full and one interim) ABET engineering accreditation visits.
- Fostered an environment that led to significant growth and improvement in educational programs.
  - o Dr. Taylor was co-author on the entry that resulted in the department receiving the AU Senate Award for Teaching Excellence in 2015.
  - o Undergraduate student enrollment quadrupled in the last ten years to 211 students in 2016.
  - o Dr. Taylor led a project funded by the National Science Foundation (NSF) where a multi-disciplinary team of faculty from Biosystems Engineering, Chemical Engineering, and the Biggio Center for Teaching Excellence developed cross-disciplinary curriculum plans for biological engineering.
    - This NSF grant project opened the door for extensive collaboration with Chemical Engineering faculty.
    - The NSF grant project also created new concepts for existing curricula and it led to the creation of a new undergraduate option in Ecological Engineering, which began Fall 2011.
  - o New M.S. and Ph.D. programs in Biosystems Engineering were approved by the Alabama Commission on Higher Education in 2010 and began Fall semester 2010. Enrollment in these programs has reached 30 students.
  - o A new Accelerated Bachelors – Master program began Fall 2013. Several students have taken advantage of this program and are now enrolled in the M.S. degree program.
  - o A new relationship with Beijing University of Civil Engineering and Architecture has fostered the enrollment of undergraduate Chinese students in our Ecological Engineering major.
  - o Relationships with several international universities have fostered the growth of our M.S. and Ph.D. programs with graduate students originating in multiple countries in Asia, Africa, Europe, and South America.
  - o Dr. Taylor fostered development activities that have resulted in four new scholarship endowments and major increases in an existing scholarship endowment.

- Led efforts to upgrade departmental facilities:
  - Dr. Taylor assembled and led a six-member team of faculty and the university architect to develop a successful proposal to the National Science Foundation for funding to renovate the research laboratories for the department. This \$6.5 million project was completed in August 2013. The 22,000 ft<sup>2</sup> building has been renamed the Biological Engineering Research Laboratory.
  - Dr. Taylor helped faculty acquire additional laboratory space in the new 82,000 ft<sup>2</sup> Center for Advanced Science, Innovation, and Commerce.
  - Dr. Taylor led an effort to renovate the Corley courtyard to create space for student and alumni functions. This \$140,000 project was externally funded and was completed in 2014.
  - A new 30-seat student computer lab was created with 24-hour access by students.
  - A student design studio was created for the senior capstone design course.
  - Graduate student offices were renovated to accommodate increased student numbers.
  - Multimedia equipment and furniture were upgraded in classrooms.
  - Auburn's largest and most state-of-the art portfolio of Global Positioning System equipment is maintained by Biosystems Engineering and is available for use by students and faculty across the campus.
  - With the help of individual faculty efforts, new instructional equipment is available for fluid mechanics, biomaterials characterization, ecological engineering, alternative energy, automation, sensors, and controls.
  
- Fostered growth of research and extension programs
  - Departmental faculty were able to increase extramural funding for research and extension programs by over 250% over the last 10 years. Research and extension expenditures were \$3.5 million in FY2015 (for 10 total faculty members).
  - Major research and extension initiatives were developed in areas such as: ecological engineering, bioenergy and bioproducts, food safety engineering, automation and precision agriculture and forestry, and poultry technology.
  
- Fostered an environment of collaboration and openness to work with faculty and students from other disciplines such as Chemical Engineering; Civil Engineering; Industrial and Systems Engineering; Mechanical Engineering; Fisheries, Aquaculture, and Aquatic Sciences; Horticulture; Crop, Soil, and Environmental Science; Forestry and Wildlife Sciences; Animal Science; Poultry Science; and Landscape Architecture.

## **Center for Bioenergy and Bioproducts**

As Center Director, Dr. Taylor has worked to create a multidisciplinary program in bioenergy and bioproducts at Auburn University that positions Auburn faculty and students to be highly competitive in research and outreach on bioenergy and bioproducts. Highlights include:

- Played a major role in the multidisciplinary, systems approach woven into the original alternative energy plan presented to the Auburn University President and Board of Trustees in 2006.
- Provided vision behind infrastructure building that was set in motion in 2007 and continues through today.
  - o Oversaw the design and commissioning of Auburn's mobile gasification and power generation laboratory. This unit has traveled over 25,000 miles across the U.S. and has been viewed by over 20,000 people who learned about renewable energy technologies.
  - o Directed the design and commissioning of a cluster of laboratories in Auburn's Research Park:
    - Renovation of the Forest Products Laboratory to include:
      - Biomass fractionation laboratory
      - Biomass gasification laboratory
      - Catalytic liquid fuel production laboratory equipped by \$1 million gift from industry collaborators
      - Analytical laboratory
    - Led the design of new bioenergy laboratories in the Center for Advanced Science, Innovation, and Commerce.
    - All laboratories have been or will be used by multiple disciplines of faculty and students.
- Worked collaboratively with faculty from multiple disciplines and multiple universities to assemble teams to successfully compete for large interdisciplinary extramurally-funded projects.
  - o Worked with Alabama's congressional delegation to obtain over \$3.1 million in congressionally-directed federal funding for bioenergy research. Also worked with Alabama stakeholders, congressional delegation, and faculty teams to obtain over \$2.4 million in congressionally-directed federal funding for research in precision agriculture and forestry research and irrigation research.
  - o Assembled the investigator team and served as the lead PI of a \$10 million public-private partnership funded by the U.S. Department of Energy (DOE) to develop new machine systems to harvest and transport forest biomass. DOE funding was \$4.99 million and industry funding was \$5 million. Consortium partners included USDA Forest Service, Corley Land Services, and Tigercat, Inc.
  - o Assembled the Auburn University investigator team and serve as one of the Co-PI's of the USDA-NIFA-funded Southeastern Partnership for Integrated Biomass Supply Systems (IBSS). This consortium is led by the University of Tennessee, with other partners that include North Carolina State University, University of Georgia, Tuskegee University, Alabama A&M University, Genera Energy, and Arborgen Inc. The consortium received \$15 million in funding from the USDA AFRI program as one of five sustainable bioenergy coordinated agricultural projects funded in 2011. Dr. Taylor serves on the six-member executive leadership team of IBSS.
  - o Assembled the Auburn University investigator team and serve as one of the Co-PI's on a new \$4 million public-private partnership funded by the U.S. Department of Energy to advance logistics systems for southern pine and switchgrass biomass production systems. This project is led by the University of Tennessee with Auburn as a subcontractor. Other

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collaborating organizations include North Carolina State University, Idaho National Labs, Oak Ridge National Labs, Genera Energy, Herty Institute, Perkin Elmer, and John Deere.

- Serve as one of the Co-PI's for Auburn University's first NSF IGERT grant for graduate student research on biorefining.
- Provided vision for an Auburn Energy Partners program that was carried out through the Center and the Alabama Cooperative Extension System. The Energy Partners program worked with farmers and municipalities to implement bioenergy solutions at the community level.
- Served as spokesperson for, and active participant on behalf of Auburn University with federal and state policy making activities:
  - Testified before the U.S. Senate Committee on Energy and Natural Resources.
  - Testified before the U.S. House of Representatives Committee on Agriculture.
  - Provided numerous briefings for U.S. senators and congressmen, numerous Alabama legislators, the Governor of Georgia, and legislators and other elected officials from many states in the U.S., Canada, and Mexico (through the Energy Council).
  - Served as Co-chair of the Biofuels Subcommittee of the Alabama Joint Legislative Committee on Energy.

Based on these activities and the hard work of researchers and extension professionals, Auburn programs are recognized by surrounding states, regional organizations, and federal agencies such as USDA and DOE.

- In 2009, the Southern Growth Policies Board recognized the Natural Resources Management and Development Institute and the Center for Bioenergy and Bioproducts and presented it with one of its 2009 Innovators Awards.
- In 2008, USDA recognized the activities of the Center and its collaborating role with other members of the Alabama Agricultural Land Grant Alliance and recognized it as one of the Grand Challenge Winners for the document titled "Partnerships: The Pathway to a Vibrant Bioeconomy for Alabama."

## **HONORS, RECOGNITIONS, AND AWARDS**

- James R. and Karen A. Gilley Academic Leadership Award. American Society of Agricultural and Biological Engineers. 2015
- 2015 AU Senate Teaching Excellence Award. Co-author with Oladiran Fasina and Sushil Adhikari on departmental teaching summary and proposal for teaching improvement activities.
- Elected Fellow, American Society of Agricultural and Biological Engineers. 2013.
- 2014 AU College of Agriculture Team Project Award.
- 2012 AU President's Collaborative Units Award. Presented to Center for Bioenergy and Bioproducts.
- 2014, 2013, 2012 AU College of Agriculture Dean's Grantsmanship Awards.
- 2013 AU College of Agriculture Academy of Fellows.
- Testified before the U.S. House of Representatives Committee on Agriculture. Invited panelist to testify during hearings on the 2012 Farm Bill.
- Member of team receiving 2009 Innovator Award, The Future of Southern Energy, presented by Southern Growth Policies Board to the Auburn University Natural Resources Management & Development Institute.
- Co-author of bioenergy plan for Alabama recognized as a 2008 USDA Grand Challenge Winner. "Partnerships: The pathway to a vibrant bioeconomy for Alabama."
- Testified before U.S. Senate Committee on Energy and Natural Resources. Invited panelist to testify during hearings on transportation biofuels. 2007
- U.S. Department of Energy – Solar Decathlon Competition. Third Place Overall. One of several faculty advisors to the international competition for designing and building solar-powered homes.
- Council on Forest Engineering Student Paper Award. 2002. Co-author and faculty advisor to graduate student (Matthew Veal) who was the primary author on paper in proceedings of annual meeting of COFE.
- ASABE Student Poster Competition. First Place. 2002. Faculty advisor to undergraduate student (Matthew Veal) who presented the poster.
- Distinguished Young Engineer - Alabama Section ASABE – 1996
- Outstanding Faculty Member - Department of Biosystems Engineering, Auburn Univ., 2001
- Outstanding Faculty Member - Department of Biosystems Engineering, Auburn Univ., 2000
- Outstanding Faculty Member - Department of Agricultural Engineering, Auburn Univ., 1996
- Outstanding Faculty Member - Department of Agricultural Engineering, Auburn Univ., 1992
- George Marra Award for Excellence in Research and Writing, 2<sup>nd</sup> Place, Society of Wood Science and Technology, 1991
- Outstanding Faculty Member - Department of Agricultural Engineering, Auburn Univ., 1991
- Outstanding Reviewer - Structures and Environment Division, ASABE, 1990
- R.E. Stewart Graduate Excellence Award - Texas A&M University, 1989
- USDA National Needs Graduate Fellowship - Texas A&M University, 1985-1988
- Sigma Xi - Scientific Research Society
- Tau Beta Pi - Engineering Honor Society
- Alpha Epsilon - Agricultural Engineering Honorary
- Alpha Zeta - Agricultural Honor Society
- Gamma Sigma Delta - Agricultural Honorary
- Epsilon Lambda Chi - Engineering Leadership Circle

## **BOOKS and BOOK CHAPTERS**

Taylor, S.E. 2016. Auburn Speaks on Biofuels in the Southeast U.S. Auburn University, Auburn, AL. 226 pp.

Adhikari, S., S. Thangalazhy-Gopakumar, and S. Taylor. 2012. Gasification and pyrolysis for fuel and power production in Integrated Forest Biorefineries: Challenges and Opportunities. Lew Christopher (Ed.). Royal Society of Chemistry, London. ISBN-10: 978-1-84973-321-2. pp. 211-255.

## **REFEREED and PEER-REVIEWED ARTICLES and REPORTS**

Zhang, Z., Y. Wang, S. Taylor. 2017. In situ Esterification and Extractive Fermentation for Butyl Butyrate Production with *Clostridium tyrobutyricum*. *Biotechnology and Bioengineering*. Accepted for Publication.

Liu, Y., B. Via, Y. Pan, Q. Cheng, H. Guo, M. Auad, S. Taylor. 2017. Preparation and Characterization of Epoxy Resin Cross-linked with Wood Pyrolysis Bio-oil by Acetone Pretreatment. *Polymers*. In Press.

Zhang, J., S. Taylor, Y. Wang. 2016. Effects of end products on fermentation profiles in *Colstridium carboxidivorans* P7 for syngas fermentation. *Bioresource Technology* 218(2016):1055-1063.

Mahadevan, R., R. Shakya, S. Adhikari, O. Fasina, and S. Taylor. 2016. Fast Pyrolysis of Biomass: Effect of Blending Southern Pine and Switchgrass. *Transactions of ASABE* 59(1):1-6.

Mahadevan, R., S. Adhikari, R. Shakya, K. Wang, D. Dayton, M. Lehrich, S. Taylor. 2016. Effect of alkali and alkaline earth metals on in-situ catalytic fast pyrolysis of lignocellulosic biomass: a microreactor study. *Energy Fuels* 2016, 30, 3045–3056.

Pan, Y., Y. Pan, Q. Cheng, Y. Liu, C. Essin, B. Via, X. Wang, R. Sun, and S. Taylor. 2015. Characterization of epoxy composites reinforced with wax encapsulated microcrystalline cellulose. *J. Applied Polymer Science* *Accepted*.

Ravindran, H., S. Thangalazhy-Gopakumar, S. Adhikari, O. Fasina, M. Tu, B. Via, E. Carter, and S. Taylor. 2015. Production of bio-oil from underutilized forest biomass using and auger reactor. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects* 37(7):750-757.

Owen, K., O. Fasina, S. Taylor, and S. Adhikari. 2015. Thermal decomposition behavior of loblolly pine stemwood, bark and limbs/foilage using TGA and DSC techniques. *Transactions of ASABE* 58: 509-518.

Wadkins, J., A. Shrestha, O. Fasina, S. Adhikari, and S. Taylor. 2013. Frictional properties of ground loblolly pine chips. *Auburn University Journal of Undergraduate Research (AUJUS)*, 2: 26-31.

Via, B., S. Adhikari, and S. Taylor. 2013. Modeling for proximate analysis and heating value of torrefied biomass with vibration spectroscopy. *Bioresource Technology*. Vol. 133, pp. 1-8.

Ravindran, H., S. Adhikari, S. Gopakumar, O. Fasina, S. Taylor, and M. Tu. 2013. Co-Processing of Woody Biomass and Poultry Litter for Bio-oil Production with high pH. *Trans. of ASABE* Vol. 56(1), pp. 231-236.

Kohan, N., B. Via, and Taylor, S. 2012. Prediction of strand feedstock mechanical properties with near infrared spectroscopy. *Bioresources* 7(3):2996-3007.

Kohan, N., B. Via, and S. Taylor. 2012. A comparison of geometry effect on tensile testing of wood strands. *Forest Products Journal*. 62(3):167-170.

Abdoulmoumine, N., A. Kulkarni, S. Adhikari, S. Taylor, and E. Loewenstein. 2012. Economic analysis of municipal power generation from gasification of urban green wastes: case study of Fultondale, Alabama. *Biofuels, Bioproducts & Biorefining* 6(5): 521–533.

Chattanathan, S., S. Adhikari, and S. Taylor. 2012. Conversion of carbon dioxide and methane in biomass synthesis gas for liquid fuels production. *Int. J of Hydrogen Energy* Vol. 37, pp. 18031-18039.

Xie, R., M. Tu, Y. Wu, and S. Taylor. 2012. Reducing sugars facilitated carbonyl condensation in detoxification of carbonyl aldehyde model compounds for bioethanol fermentation. *RSC Advances*, 2: 7699-7707.

Gautam, G., S. Adhikari, S. Thangalazhy-Gopakumar, C. Brodbeck, S. Bhavnani, and S. Taylor. 2011. Tar analysis in syngas derived from pelletized biomass in a commercial stratified downdraft gasifier. *BioResources*. Vol. 6(4), pp. 4652-4661.

Gautam, G., S. Adhikari, C. Brodbeck, S. Bhavnani, O. Fasina, and S. Taylor. 2011. Gasification of wood chips, agricultural residues and waste using a downdraft commercial gasifier. *Trans of ASABE*. Vol. 54(5).

Harbuck, T., J. Fulton, M. Dougherty, S. Taylor, D. Eakes, and J. Sibley. 2011. In-field application uniformity evaluation of pressure-compensating subsurface-drip irrigation. *Applied Engineering in Agriculture*. 27(1): 43-50.

Thangalazhy-Gopakumar, S., Adhikari, S., Gupta, R., Tu, M., Taylor, S.E. 2011. Production of Hydrocarbon Fuels from Biomass using Catalytic Pyrolysis under Helium and Hydrogen Environments. *Bioresource Technology* 102:6742-6749.

Liu, S., Wang, Y., McDonald, T. P., and Taylor, S. E. 2008. Efficient production of biodiesel using radio frequency heating. *Energy & Fuels* 22 (3): 2116–2120.

Veal, M., S. Taylor, R. Rummer, R. Raper. 2005. Evaluation of site preparation plow energy requirements. *International Journal of Forest Engineering*. 16(2):100-105.

Veal, M., S. Taylor, R. Rummer, J. Baier. 2003. Development of a test device for evaluation of thrown object hazards. *Journal of Agricultural Safety and Health*. 9(2):119-131.

Taylor, S., M. Triche, L. Hislop, P. Morgan. 2002. Field Investigations of Stress-Laminated T-Beam and Box-Beam Timber Bridges. *Journal of Contemporary Wood Engineering* 12(1):13-19.

McDonald, T., E. Carter, S. Taylor. 2002. Using the global positioning system to map disturbance patterns of forest harvesting machinery. *Canadian Journal of Forest Research* 32:310-319.

Veal, M., S. Taylor, T. McDonald, D. McLemore, and M. Dunn. 2001. Accuracy of Tracking Forest Machines with GPS. *Transactions of ASABE* 44(6):1903-1911. ASABE, St. Joseph, MI.

Taylor, S., T. McDonald, M. Veal, T. Grift. 2001. Using GPS to Evaluate Productivity and Performance of Forest Machine Systems. *In Proceedings of the First International Symposium on Precision Forestry*. University of Washington, Seattle, WA. p. 151-155.

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McDonald, T., R. Rummer, S. Taylor, J. Valenzuela. 2001. Information Needs for Increasing Log Transport Efficiency. *In* Proceedings of the First International Symposium on Precision Forestry. University of Washington, Seattle, WA. p. 181-184.

Hill, D., S. Taylor, and T. Grift. 2001. Simulation of low temperature anaerobic digestion of dairy and swine manure. *Bioresource Technology* 78(2):127-131.

Taylor, S., M. Triche, P. Morgan, J. Bryant, L. Hislop. 2000. Evaluation of Stress-laminated wood T-beam and Box-beam bridge superstructures. Project No. 96-RJVA-2821. Peer-reviewed research report presented to the USDA Forest Service Forest Products Laboratory and the Federal Highway Administration. Madison, WI. 200 p.

Taylor, S., R. Rummer, K. Yoo, R. Welch, J. Thompson. 1999. What we know - and don't know - about water quality at stream crossings. *Journal of Forestry* 97(8):12-17.

Taylor, S. 1998. Statistical characterization of E-rated southern pine laminating lumber. Project 8901R. Peer-reviewed research report presented to the American Institute of Timber Construction. American Institute of Timber Construction. Englewood, CO. 468 p.

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Taylor, S., and D. Bender. 1991. Stochastic model for localized tensile strength and modulus of elasticity. *Wood and Fiber Science* 23(4):501-519.

Han, M., D. Bender, and S. Taylor. 1991. Computer generation of highly-skewed correlated random variables. *Transactions of the ASABE* 34(5):2279-2281.

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Taylor, S. and D. Bender. 1989. A method for simulating multiple correlated lumber properties. *Forest Products Journal* 39(7/8):71-74.

Taylor, S. and D. Bender. 1988. Simulating correlated lumber properties using a modified multivariate normal approach. *Transactions of the ASABE* 31(1):182-186.

Bender, D., S. Taylor and J. Swinnea. 1988. Load rate adjustment for tensile proof testing of southern pine 2 by 10's. *Forest Products Journal* 38(6):26-30.

### **PUBLISHED PROCEEDINGS**

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Pan, P., T. McDonald, S. Taylor, J. Fulton. 2012. Real-time monitoring mass-flow of wood chips based on force sensor. COFE Annual Meeting, COFE, Morgantown, WV. 7 pp.

Adhikari, S., S. Thangalazhy-Gopakumar\*, H. Ravindran\*, O. Fasina, and S. Taylor. 2010. Effect of pyrolysis temperature on physical properties of bio-oil from agricultural residues and woody biomass presented at 18th European Biomass Conference and Exhibition, Lyon, France.

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## **PAPERS AND POSTERS PRESENTED AT TECHNICAL MEETINGS**

Owen, K., O. Fasina, S. Taylor, R. Rummer, J. Klepac, S. Adhikari, and A. Shrestha. 2014. Thermal decomposition behavior of bark, stemwood and limbs/foilage of loblolly pine wood. ASABE Paper N. 141897578. ASABE, St. Joseph, MI.

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## **STEVEN E. TAYLOR, P.E.**

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### **ORAL PAPERS PRESENTED AT TECHNICAL MEETINGS**

Fasina, O., P. Srivastava, T. McDonald, S. Adhikari, M. Dougherty, S. Taylor. 2015. Spiralling engineering curriculum: writing transformation. Conversations in Celebration of Teaching and Expo. Auburn, AL. January 30.

Taylor, S., T. McDonald, D. Mitchell, J. Klepac, J. Thompson, R. Rummer, F. Corley, T. Gallagher, M. Smidt, O. Fasina, and G. Somerville. 2015. Advances in high tonnage supply systems for southern pine biomass. 37<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals. La Jolla, CA.

Eden M., C. Roberts, S. Taylor, S. Adhikari. 2014. Fuel and Oxygenate Co-Products from Biomass Fractionation and Advanced Catalytic Conversion Processes, USDA-AFRI Sustainable Bioenergy Project Director's Meeting, Arlington, VA.

Taylor, S. 2013. Advances in Logistics Systems for Biofuels Production in the Southeast U.S. Association for the Advancement of Industrial Crops, Annual Meeting. Washington, D.C.

Fasina, O., O. Oginni, S. Taylor, S. Adhikari, J. Fulton. 2013. Impact of biomass characteristics on logistics. Association for the Advancement of Industrial Crops, Annual Meeting. Washington, D.C.

Abdoulmoumine, N., S. Adhikari, A. Kulkarni, S. Taylor and E. Loewenstein. 2013. Techno-economic analysis of power generation from municipal green wastes presented at Annual International Meeting of American Society of Agricultural and Biological Engineers, July 21- 24, Kansas City, KS. (poster).

Adhikari, S., and S. Taylor. 2013. The SEED Fellowship: An Innovative Approach to Bioenergy Education. The Association for the Advancement of Industrial Crops (AAIC) annual meeting. October 12-16, 2013 (poster).

Adhikari, S. and S. Taylor. 2013. E2O: Southeast Energy Development Fellowship Program. Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) annual meeting. September 25-27, 2013.

Adhikari, S. 2012. Southeast Energy Development Fellowship Program. Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) annual meeting. December 12 and 13, 2012.

## STEVEN E. TAYLOR, P.E.

Taylor, S., and S. Adhikari. 2012 IBSS SEED Fellows. Southeastern Partnership for Integrated Biomass Supply Systems webinar series. September 26, 2012.

Abdoulmoumine, N., A. Kulkarni, S. Adhikari, S. Taylor, and E. Loewenstein. 2012. Economic analysis of municipal power generation from gasification of urban green wastes: case study of Fultondale, Alabama. Lignocellulosic Biofuels Conference at Auburn University on June 13-15, 2012. (poster).

Kulkarni, A., C. Brodbeck, S. Adhikari, S. Bhavnani and S. Taylor. 2012. Carbon balance, energy and exergy analyses of a commercial scale 25 kWe downdraft gasifier. Lignocellulosic Biofuels Conference at Auburn University on June 13-15, 2012. (poster).

Taylor, S., R. Rummer, F. Corley, T. Gallagher, O. Fasina, T. McDonald, and M. Smidt. 2012. High tonnage forest biomass production systems from southern pine energy plantations. Presented at the Workshop on Lignocellulosic Biofuels using Thermochemical Conversion, Auburn University, AL. June 13-15.

Eden, M., C. Roberts, S. Taylor and S. Adhikari. 2011. Fuel and oxygenate co-products from biomass fractionation and advanced catalytic conversion processes. National Institute of Food & Agriculture, Sustainable Bioenergy Project Director's Meeting October 24– October 26, Arlington, VA.

Eden, M., C. Roberts, S. Adhikari, and S. Taylor. 2010. Co-production of high value oxygenates and olefins through integrated biomass fractionation, gasification and advanced catalytic conversion. Frontiers in Biorefining: Biobased Products from Renewable Carbon meeting. October 19-October 22, St. Simons Island, GA.

Adhikari, S., M. Hall and S. Taylor. 2010. Producing biodiesel for municipal vehicle fleets from recycled cooking oil presented at 18th European Biomass Conference and Exhibition, May 3-7, 2010, Lyon, France.

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Taylor, S. 2008. Opportunities and Challenges for Woody Biomass in an Emerging Biorefining Industry. ASABE Paper No. 08-0030. ASABE Annual International Meeting, Providence, RI.

Taylor, S. 2006. Stream crossings to protect water quality. ASABE Paper No. 06-8025. ASABE Annual International Meeting. Portland, OR.

### **NON-REFEREED ARTICLES**

Fasina, O., P. Srivastava, M. Dougherty, S. Adhikari, T. McDonald, S. Taylor, M. Marshall. 2015. Incorporating ePortfolios in student learning. Resource 22(6):10-12.

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## **STEVEN E. TAYLOR, P.E.**

Taylor, S. 1994. Portable timber bridges for temporary stream crossings. American Pulpwood Association Technical Release No. 94-R-7. 2 pp.

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### **ABSTRACTS**

Shrestha, A., W. Sprinkle, W. Kadji, C. Brodbeck, O. Fasina, F. Corley, S. Taylor, and R. Rummer. 2012. Properties of southern pine from DOE high tonnage forest biomass production systems. Poster presentation at the Workshop on Lignocellulosic Biofuels using Thermochemical Conversion, Auburn University Hotel, AL., June 13-15.

Taylor, S., T. McDonald, and J. Fulton. 2005. Tactical precision forestry: sitespecific silvicultural operations in the southeast USA. XXII IUFRO World Congress, Brisbane, Australia. August 8-13. (Abstract and Presentation).

Taylor, S., M. Ritter, G. Murphy, and K. Keliher. 1994. Portable timber bridge systems for forest roads. Abstracts and Biographies. From the 48th Annual Meeting of the Forest Products Society, Forest Products Society, Madison, WI. pp 66.

Taylor, S., D. Bender, M. Triche, and F. Woeste. 1993. Monte Carlo simulation methods for engineered wood systems. Abstracts and Biographies: Your Future in the Wood Products Industry in a World of Change. From the 47th Annual Meeting of the Forest Products Society, Forest Products Society, Madison, WI. pp 52-53.

Taylor, S. 1992. Statistical characterization of end joint strength in wide glued-laminated timber beams. Abstracts and Biographies: Conservation Through Wise Management and Utilization, From the 46th Annual Meeting of the Forest Products Society, Forest Products Society, Madison, WI. pp 68-69.

Taylor, S., D. Bender, D. Kline, and K. Kline. 1990. Comparison of approaches for modeling the effect of length on lumber tensile strength. Abstracts and Biographies: Forest Industry's Response to Global Change in the 1990's, From the 44th Annual Meeting of the Forest Products Society, Forest Products Society, Madison, WI. pp 71-72.

## **STEVEN E. TAYLOR, P.E.**

Taylor, S., D. Bender, A. Burk, and J. Hooper. 1989. Statistical characterization of lumber and end joints for glued-laminated timber beams. Abstracts and Biographies: Impact of the Pacific Rim on North American Forest Products Industries, From the 43rd Annual Meeting of the Forest Products Society, Forest Products Society, Madison, WI. p. 26.

### **INVITED PRESENTATIONS**

Taylor, S., and C. Brodbeck. 2016. UAS Update. Alabama Farmer's Federation Commodity Organizational Meeting. Montgomery, AL.

Taylor, S. 2016. Biomass – possible new opportunities for landowners. Alabama Natural Resources Council. Millbrook, AL.

Taylor, S. 2015. Southeast partnership for integrated biomass supply systems: Year 5 update. NIFA Project Directors Meeting. Denver, CO.

Taylor, S. 2015. Building a biorefining community – education, extension, and outreach. NIFA Project Directors Meeting. Denver, CO.

Taylor, S. UAV applications in agriculture and forestry. Auburn Rotary Club. Auburn, AL.

Taylor, S. UAV applications in forest management. Alabama Treasure Forest Association. Alexander City, AL.

Taylor, S. 2015. Advances in high tonnage supply systems for southern pine biomass. Advanced Biofuels Feedstocks Conference. New Orleans, LA.

Taylor, S. 2014. Agricultural based biofuel technology. CLEER Advisory Board Invited Seminar. 2014 Global Energy and Environmental Issues Conference. The Energy Council. Point Clear, AL.

Taylor, S. 2014. Advancing woody biomass logistics systems. NewBio – Northeast Woody / Warm –Season Biomass Consortium Annual Meeting. Geneva, NY.

Eden M., C. Roberts, S. Taylor. 2014. Fuels and Chemicals from Lignocellulosic Biomass via Thermochemical Conversion and Gas-To-Liquids (GTL) Technologies, Invited Lecture, Korea Advanced Institute of Science and Technology (KAIST) ProBioRefine Workshop, Daejeon, South Korea.

Taylor, S., R. Rummer, F. Corley, G. Somerville, D. Mitchell. 2013. High tonnage harvest and transport systems for southern pine biomass. ASABE Annual International Meeting. Energy Day invited presentations. Kansas City, MO.

Eden M., C. Roberts, S. Taylor. 2013. Production of Transportation Fuels and High Value Co-Products from Biomass via Thermochemical Conversion and Gas-To-Liquids (GTL) Technologies, Invited Lecture, 9th World Congress of Chemical Engineering (WCCE-9), Seoul, South Korea.

Eden M., C. Roberts, S. Taylor. 2013. Transportation Fuels and High Value Co-Products from Biomass via Thermochemical Conversion and Gas-To-Liquids (GTL) Technologies, Invited Keynote Lecture, 3rd International Conference on Sustainable Chemical Product and Process Engineering (SCPPE), Dalian, China.

## **STEVEN E. TAYLOR, P.E.**

Eden M., C. Roberts, S. Taylor. 2013. Liquid Transportation Fuels and High Value Co-Products from Integrated Biomass Fractionation, Gasification and Advanced Catalytic Conversion, Invited Lecture, Inaugural Southeastern Conference (SEC) Academic Symposium, Atlanta, GA.

Taylor, S., S. Adhikari. 2012. IBSS SEED Fellows. Southeastern Partnership for Integrated Biomass Supply Systems webinar series.

Adhikari, S., C. Brodbeck, and S. Taylor. 2012. Biomass gasification for fuels and power. Invited Lecture presented at Thermochemical Conversion of Biomass-2012. North Carolina State University, Raleigh, NC.

Eden M., C. Roberts, S. Taylor, T. Gallagher, H. Tian. 2012. Multi- and Inter-disciplinary Project Development – Lessons Learned the Hard Way, Invited Workshop, Auburn University Research Week.

Taylor, S., R. Rummer, F. Corley. 2011. High tonnage forest biomass logistics systems for southern pine energy plantations. Agricultural Equipment Technology Conference. Atlanta, GA.

Eden M., C. Roberts, S. Taylor. 2011. Production of Transportation Fuels and High Value Co-Products through Integrated Biomass Fractionation, Gasification and Advanced Catalytic Conversion, Invited Lecture, 2nd International Congress on Sustainability Science and Engineering, Tucson, AZ.

Taylor, S. 2010. High tonnage harvesting and transport systems for forest biomass. Presented at Advances In Bioenergy: A Southern States Briefing. University of Tennessee, Knoxville, TN.

Eden M., C. Roberts, S. Adhikari, S. Taylor. 2010. Co-Production of High Value Oxygenates and Olefins through Integrated Biomass Fractionation, Gasification and Advanced Catalytic Conversion, Invited Lecture, Frontiers in Biorefining: Biobased Products from Renewable Carbon, St. Simons Island, GA.

Taylor, S., R. Rummer, F. Corley. 2009. High tonnage forest biomass logistics systems for southern pine energy plantations. Alabama Energy Conference. Alabama Department of Economic and Community Affairs and Auburn University. Auburn, AL.

Taylor, S. 2009. Lighting the future: Opportunities and challenges for biomass and bioenergy. Blackburn Academic Symposium. University of Alabama. Tuscaloosa, AL.

Taylor, S. 2009. Future uses for urban green waste: Bioenergy technologies at Auburn University and their applicability to urban forestry in Alabama. Alabama Urban Forestry Association Annual Meeting. Orange Beach, AL.

Taylor, S. 2009. Opportunities for Small Scale Biomass Gasification and Combined Heat and Power. Fourth Annual Energy Efficiency and Renewable Energy Conference. Alabama Department of Economic and Community Affairs. Prattville, AL.

Taylor, S., and L. Fillmer. 2009. The future of renewable energy and alternative fuels. National Association of State Departments of Agriculture. Montgomery, AL.

Taylor, S. 2009. Small-scale biomass gasification and renewable power generation. Alabama A&M University Rural Urban Interface Conference. Huntsville, AL.

Taylor, S. 2009. Auburn University Southeast Bioenergy Initiative. U.S. Department of Energy. Denver, CO.

## **STEVEN E. TAYLOR, P.E.**

Taylor, S. 2008. Biomass gasification opportunities. Forest to Finished Products Conference. University of Georgia. Athens, GA.

Taylor, S. 2008. Opportunities for biomass gasification and renewable power generation. Energy Council. Oklahoma City, OK.

Taylor, S. 2008. Small-scale biomass gasification and power generation. Georgia Energy Conference. Tifton, GA. August 12. Provided personal briefing to Georgia Governor Sonny Perdue.

Taylor, S. 2008. Generating renewable power through biomass gasification. Tuskegee University Energy Conference.

Taylor, S. 2008. Auburn University's Bioenergy and Bioproducts Programs. Alabama Logger's Council. Montgomery, AL.

Taylor, S. 2008. Auburn University's Bioenergy and Bioproducts Program Updates. Alabama Forestry Association. Destin, FL.

Taylor, S. 2007. On-farm systems for production of biodiesel and Auburn University's Energy Partners program. ALFA Commodity Conference. Mobile, AL.

Taylor, S. 2007. Auburn University's Bioenergy and Bioproducts Program. Alabama Forestry Association. Destin, FL.

Taylor, S. and C. Roberts. 2007. Auburn University's Bioenergy and Bioproducts Initiative. Alabama Farmer's Federation Legislative Briefing. Prattville, AL.

Taylor, S. 2007. Transportation biofuels needs and Auburn University's programs in bioenergy. U.S. Senate Committee on Energy and Natural Resources – Transportation Biofuels Hearings. Washington, D.C.

Taylor, S. 2006. Precision forestry: technologies for site-specific forest management. Southeast Section of the Society of American Foresters. Auburn, AL.

Taylor, S., J.P. Fulton, and T.P. McDonald. 2005. Precision Forestry: New Developments in Site-Specific Forest Management. War Eagle Chapter of the Society of American Foresters, Cottonton, AL.

Taylor, S. and J. Fulton. 2005. Update on Forestry Applications Using GPS. Presented to the Forest Division Organizational Group of Alabama Farmers Federation, Birmingham, AL.

Taylor, S. 2002. Forest road stream crossings and their impacts on water quality. Field presentation and demonstration for attendees of 25th Annual International Meeting of the Council on Forest Engineering. Auburn, AL.

Taylor, S. 2001. Energy requirements of forestry site preparation plows. Presented at regional meeting of forest industry professionals. USDA Forest Service Engineering Research Unit. Auburn, AL.

Taylor, S. 2001. Fundamentals of the Global Positioning System. Presented at the Alabama Crop Advisors Meeting. Auburn, AL.

## **STEVEN E. TAYLOR, P.E.**

Taylor, S. 2001. Fundamentals of the Global Positioning System. Presented at the Alabama Crop Advisors Meeting. Gulf Shores, AL.

Taylor, S. 2001. Applications of GPS in Biosystems Engineering. Presented at the Alabama Section ASABE Meeting. Auburn, AL.

Taylor, S. 1999. Applications of Portable Timber Bridges for Local Roads. Southeastern Local Roads Conference. Point Clear, AL.

Taylor, S. 1999. The Global Positioning System: How does it work and how can I use it. Education session presented at Auburn's Louise Kreher Forest Ecology Preserve. Auburn, AL.

Taylor, S. 1998. Environmental impacts from forest road stream crossings. Forest Stewardship Conference. Auburn, AL.

Taylor, S. 1998. Sediment production from forest road stream crossings. USDA Forest Service Shortcourse on Timber Sale and Harvesting Layout. Auburn, AL.

Taylor, S. and T. McDonald. 1998. Using computer simulation to improve wood supply system logistics. Presentation to Wood Supply Research Institute. Atlanta, GA.

Taylor, S. 1997. Forest road and stream crossing construction techniques in the US South. Presentation to international delegation from Yugoslavia. Auburn, AL.

Taylor, S. 1996. Portable timber bridge systems. Presented at the Alabama Highway Conference. Montgomery, AL.

Taylor, S. 1996. Modern timber bridges: New solutions for America's infrastructure needs. Presented at the 38th Annual Continuing Education Conference for County Judges and Commissioners. Texas A&M University. College Station, TX.

Taylor, S. 1995. Portable glulam timber bridge systems. Presented at the U.S. Forest Service Workshop on Temporary Timber Bridge Design and Construction. Bluefield, WV.

Taylor, S. 1995. Construction of forest roads and stream crossings. Presented at the Forest Industry Technical Education Workshop sponsored by the American Pulpwood Association. Auburn, AL.

Taylor, S. 1994. Stream crossings for improved water quality. Presented at the Alabama Engineers' Meeting of the USDA Soil Conservation Service. Auburn, AL.

Taylor, S. 1993. Portable bridge systems for temporary stream crossings. Presented at the Fall Meeting of the Southcentral Technical Division of the American Pulpwood Association. Jackson, MI.

Taylor, S. 1993. Construction of Low-Water Stream Crossings. Lecture presented at the Alabama Treasure Forest Landowner's Conference. Auburn, AL.

Taylor, S. 1993. Acceptable technology for stream crossings. Presented at the Southern Forest Products Association Workshop on Environmentally Acceptable Forest Operations. Atlanta, GA.

## **STEVEN E. TAYLOR, P.E.**

Taylor, S. 1991. Relationship of end joint strength to beam strength in wide glued-laminated timber beams. Presented at the meeting of the Technical Advisory Committee of the American Institute of Timber Construction, Denver, CO.

Taylor, S. 1991. Statistical characterization of end joint strength in wide glued-laminated timber beams. Presented at the meeting of the Technical Advisory Committee of the American Institute of Timber Construction, Denver, CO.

Taylor, S. 1990. Modeling the effect of length on lumber tensile strength. Presented at the meeting of the Technical Advisory Committee of the American Institute of Timber Construction, Las Vegas, NV.

Taylor, S. 1988. Modeling localized modulus of elasticity and tensile strength in laminating lumber. Presented at the meeting of the Technical Advisory Committee of the American Institute of Timber Construction, Madison, WI.

Taylor, S. 1988. Spatial variability of modulus of elasticity and tensile strength in laminating lumber. Presented at the meeting of the Technical Advisory Committee of the American Institute of Timber Construction, Las Vegas, NV.

### **EXTENSION/OUTREACH DEMONSTRATIONS AND PRESENTATIONS**

Taylor, S., C. Brodbeck, W. Hutto. 2015. Unmanned aerial vehicle demonstration for Cong. Mike Rogers. Auburn, AL. August 11, 2015.

Taylor, S., S. Adhikari, C. Brodbeck. 2014. Biomass gasification and gas-to-liquids demonstration for local media. Auburn, AL. November 7, 2014.

Taylor, S., C. Brodbeck. 2014. Biomass gasification and short rotation woody crop demonstration. Columbus, MS. September 30, 2014.

Taylor, S., C. Brodbeck. 2014. Biomass gasification demonstration. Knoxville, TN. October 5 and 10, 2014.

Taylor, S. 2013. Biomass gasification and gas-to-liquids demonstration for presidential delegation from Shanghai Ocean University. Auburn, AL. August 16, 2013.

Taylor, S., C. Brodbeck. 2013. Biomass gasification and electrical power demonstration. Atlanta, GA. June 4-7, 2013.

Taylor, S., C. Brodbeck. 2013. Bioenergy, biomass gasification, and liquid fuel production. Atlanta Hartsfield Jackson Airport. Atlanta, GA. April 22, 2013.

Taylor, S., S. Adhikari. 2013. Biomass gasification and gas-to-liquids demonstration for Nepalese Ambassador. Auburn, AL. March 2, 2013.

Taylor, S., C. Brodbeck. 2013. Renewable energy programs at Auburn University. SEC Academic Conference on Renewable Energy. Atlanta, GA. February 11-13, 2013.

## **STEVEN E. TAYLOR, P.E.**

Taylor, S., C. Brodbeck. 2012. Biomass gasification and renewable energy. Alabama 4-H Youth Day at Auburn University. Auburn, AL. November, 17, 2012.

Taylor, S., R. Rummer, F. Corley. 2012. High-tonnage southern pine biomass harvesting field demonstration. Andalusia, AL. June 19, 2012.

Taylor, S., C. Brodbeck. 2012. Bioenergy demonstration for legislative delegation. Auburn, AL. January 26, 2012.

Taylor, S., C. Brodbeck. 2011. Biomass gasification demonstration. Auburn, AL. October 28, 2011.

Taylor, S., C. Brodbeck. 2011. Bioenergy laboratory tour and biomass gasification demonstration. Auburn, AL. August 5, 2011.

Taylor, S., D. Mills. 2009. Biomass fractionation demonstration for Chinese Ambassador. Auburn, AL. October 21.

Taylor, S., D. Mills. 2009. Biomass fractionation demonstration to Cong. Mike Rogers. Auburn, AL. August 25.

M. Hall, S. Taylor, C. Brodbeck, L. Fillmer. 2009. Biomass gasification and power generation demonstration. Fultondale, AL. May 4-6.

Taylor, S., C. Brodbeck. 2009. Biomass gasification and power generation demonstration. Alabama A&M University. Huntsville, AL. April 23.

T. McDonald, S. Taylor, C. Brodbeck, L. Fillmer. 2009. Biodiesel production and biofuel testing demonstrations. Technology and Maintenance Council of the American Trucking Association. Orlando, FL. Feb 9-12.

Taylor, S., C. Brodbeck, L. Fillmer. 2008. Biomass gasification demonstration for Cong. Mike Rogers agricultural tour. Jacksonville, AL. October 22.

C. Brodbeck, S. Taylor, O. Fasina. 2008. Biomass gasification and biofuel demonstration at Sunbelt Agricultural Exposition. Moultrie, GA. October 14-16.

Taylor, S.E., C. Brodbeck, L. Fillmer. 2008. Biomass gasification and power generation demonstration for the Energy Council legislative group. Oklahoma City, OK. September 26.

Taylor, S., C. Brodbeck, L. Fillmer. 2008. Auburn University and Alabama Agricultural Land Grant Alliance demonstration of bioenergy programs. USDA Bioenergy Awareness Days. Washington, D.C. June 19-22.

Taylor, S., C. Brodbeck. 2008. Biomass gasification and power generation demonstration and continuing education lectures. Starkville, MS. June 4-5.

Taylor, S., C. Brodbeck, L. Fillmer. 2008. Auburn University programs in bioenergy and Bioproducts. Briefing and demonstration for Sen. Jeff Sessions. Auburn, AL. May 30.

## **STEVEN E. TAYLOR, P.E.**

Taylor, S., C. Brodbeck, L. Fillmer. 2008. Biomass gasification and power generation demonstration. Alabama Power corporate headquarters. Birmingham, AL. May 15.

Taylor, S., C. Brodbeck. 2008. Biomass gasification demonstration for southeast regional American Institute of Chemical Engineers student conference. Auburn, AL. April 5.

Taylor, S., C. Brodbeck, T. McDonald. 2008. Biomass gasification demonstration for Auburn Alumni Engineering Council. Auburn, AL. March 28.

Taylor, S., C. Brodbeck, L. Fillmer, T. Gallagher, O. Fasina. 2008. Auburn University bioenergy programs and biomass gasification demonstration. Alabama Energy Day. Sponsored by the Alabama Joint Legislative Committee on Energy. Montgomery, AL. January 22.

M. Hall, Taylor, S., C. Brodbeck, L. Fillmer. 2007. Biofuels field day at Dee River Ranch. Aliceville, AL. October 18.

Taylor, S. 2007. Briefing on Auburn University's programs in bioenergy and Bioproducts for USDA Undersecretary for Research, Education, and Economics. Birmingham, AL. Sept. 7.

### **OTHER RESEARCH REPORTS / CREATIVE CONTRIBUTIONS**

Taylor, S., T. McDonald, O. Fasina, D. Mitchell, J. Klepac, J. Thompson, E. Carter, J. Grace, F. Corley, T. Gallagher, M. Smidt, G. Somerville. 2014. High tonnage forest biomass production systems from southern pine energy plantations. Final report for U.S. Department of Energy Contract No. DE-EE0001036. 247 pp.

Aldrich, D., S. Taylor, N. Abdoulmoumine, S. Adhikari, E. Loewenstein, A. Kulkarni, C. Brodbeck, M. Hall. 2011. Municipal power generation from gasification of urban biomass wastes. Auburn University Center for Bioenergy and Bioproducts. Auburn, AL. 30 p.

Hall, M., S. Adhikari, S. Taylor. 2009. Producing biodiesel for municipal vehicle fleets from recycled cooking oil. Auburn University Center for Bioenergy and Bioproducts. Auburn, AL. 22 p.

Taylor, S., L. Fillmer, L. Parsons, B. Lawrence. 2009. Power through partnerships: Report on activities of Auburn University's mobile gasification and power generation unit. Auburn University Center for Bioenergy and Bioproducts. Auburn, AL.

Taylor, S., L. Fillmer, L. Parsons, E. Cebert, B. Vaughn. 2008. Partnerships: The pathway to a new bioeconomy for Alabama. Alabama Agricultural Land Grant Alliance submission to the USDA Grand Challenge competition.

Taylor, S. 2001. T-Section glulam timber bridge modules: modeling and performance. Project No. USFS-96-CA-2824. Research report presented to the USDA Forest Service Forest Products Laboratory. Madison, WI. 40 p.

Gober, J., M. Triche, S. Taylor. 1998. Modern timber bridges: an attractive option. Video production of the Alabama Forestry Commission. Montgomery, AL. 16 min.

## **STEVEN E. TAYLOR, P.E.**

Taylor, S., B. Stokes. 1992. The southern forest engineering center. Alabama Agricultural Experiment Station Bulletin, Auburn University, Auburn, AL. 11 p. This was a new publication describing programs in the Southern Forest Engineering Center.

Taylor, S., R. Tufts, D. Sirois. 1989. The center for southern forest engineering. Alabama Agricultural Experiment Station Bulletin, Auburn University, Auburn, AL. 10 p. This was a new publication describing programs in the Forest Engineering Center.

### **GRADUATE STUDENTS DIRECTED**

M. Spruce. 1994. Evaluation of the Global Positioning System as a means of tracking forest machine movement. Master of Science, Agricultural Engineering.

J. Thompson. 1996. Water quality impacts from forest road stream crossings. Master of Science, Agricultural Engineering.

J. Franklin. 1999. Design provisions for portable longitudinal glued-laminated timber deck bridges for use in forestry operations. Master of Science, Agricultural Engineering.

R. Welch. 2001. Life-cycle water quality impacts from low-water stream crossings. Master of Science, Agricultural Engineering.

D. McLemore. 2002. Life-cycle water quality impacts of culvert stream crossings. Master of Science, Civil Engineering.

L. Montgomery. 2002. Life-cycle water quality impacts of portable bridge stream crossings and their road approaches. Master of Science, Civil Engineering.

M. Veal. 2003. Modeling tip over and rollover behavior of excavators. Master of Science, Mechanical Engineering.

D. Mitchell. 2008. Extended working hours in the southeastern logging industry. Doctor of Philosophy, Forestry and Wildlife Sciences. Co-advised with Dr. Thomas Gallagher.

Xiaofei Wang. 2015. Comparison between radio frequency and water bath heating assisted alkaline pretreatment on lignocellulosic biomass. Doctor of Philosophy, Biosystems Engineering. Co-advised with Dr. Yifen Wang.

### **GRADUATE STUDENT SUPERVISORY COMMITTEE SERVICE**

M. Yeh. 1990. Time-dependant structural behavior of wood composite panels. Doctor of Philosophy, Forestry. Outside Reader.

K. Fridley. 1990. Load-duration behavior of structural lumber: effect of mechanical and environmental load histories. Doctor of Philosophy, Civil Engineering. Outside Reader.

K. Foo. 1993. Predicting rutting in hot mix asphalt. Doctor of Philosophy. Civil Engineering. Outside Reader.

## **STEVEN E. TAYLOR, P.E.**

Y. Abubakar. 1995. Equilibrium moisture properties of southern runner peanut hulls. Master of Science, Agricultural Engineering. Committee Member.

J. Rogers. 1995. Biological treatment study of constructed wetlands treating poultry waste. Master of Science, Agricultural Engineering. Committee Member.

J. Payton. 1997. Temperature effects in constructed wetlands for poultry wastewater treatment. Master of Science, Agricultural Engineering. Committee Member.

Q. Ling. 1997. Effects of machine and operational parameters on the performance of a spinner-type spreader broadcasting poultry litter and wood ash. Doctor of Philosophy, Agricultural Engineering. Committee Member.

W. Pitts. 1998. Evaluation of WEPP and GLEAMS for prediction of surface erosion and runoff on grazed pasture in the Tennessee Valley region of Alabama. Master of Science, Agricultural Engineering. Committee Member.

H. Boatwright. 1999. Stabilization of heavy clay soils on forest roads using a lime/ash admixture. Master of Science, Forestry. Committee Member.

S. Shrestha. 2002. Opportunities and limitations of animal logging in the US south. Doctor of Philosophy, Forestry and Wildlife Sciences. Outside Reader.

P. Parajuli. 2003. Application of WEPP, and AGNPS computer models for simulation of sediment yield and nutrient losses. Master of Science in Agronomy and Soils (Environmental Science). Committee Member.

J. Pu. 2003. Duration of load behavior of southern yellow pine laminated veneer lumber. Doctor of Philosophy, Forestry and Wildlife Sciences. Outside Reader.

H. Harraz. 2007. Radio frequency heating for dehydration and pest control of in-shell peanuts. Master of Science, Chemical Engineering. Committee Member.

N. Sammons. 2009. A Framework For Optimal Biomass-Based Polygeneration Facility Product Allocation. Doctor of Philosophy, Chemical Engineering. Outside Reader.

B. O'Neil. Ongoing. Small-scale harvesting systems for forest biomass production. Doctor of Philosophy, Forestry and Wildlife Sciences. Committee Member.

N. Kohan. 2011. Improving the performance of oriented strand board using near infrared spectroscopy for material properties determination. Master of Science, Forestry and Wildlife Sciences. Committee Member.

D. Bacik. 2011. Incorporating Green Chemistry Principles in Heterogeneous Catalysis Operations. Doctor of Philosophy, Chemical Engineering. Committee Member.

S. Bombareddy. 2013. Integrated framework for Process & Product Synthesis/Design. Doctor of Philosophy, Chemical Engineering. Outside Reader.

## STEVEN E. TAYLOR, P.E.

S. Hada. 2013. Chemical product formulation through multivariate characterization, modeling, and design. Doctor of Philosophy, Chemical Engineering. Outside Reader.

A. Poncet. 2016. Optimization of standard depth control system to improve row-crop planter performance in the southeast U.S. Doctor of Philosophy, Biosystems Engineering. Committee Member.

N. Sadhwani. 2017. Conversion of carbon dioxide and biomass for fuels and chemical precursor through gasification: experimental and modeling approach. Doctor of Philosophy, Chemical Engineering. Outside Reader.

### **PROFESSIONAL DEVELOPMENT COURSES TAUGHT FOR PROFESSIONAL ENGINEERS**

**Designing Modern Timber Bridges.** 2000. 6 hr. Professional Development videotape shortcourse with published course notes for Auburn University Extension Service - Engineering Professional Development Series.

**Designing with Wood: The Basics.** 1998. 3 hr Professional Development videotape shortcourse with published course notes for Auburn University Engineering Extension Service - Engineering Professional Development Series.

**Designing with Wood: Allowable Stress Design.** 1998. 3 hr Professional Development videotape shortcourse with published course notes for Auburn University Engineering Extension Service - Engineering Professional Development Series.

**Designing with Wood: Load and Resistance Factor Design.** 1998. 3 hr Professional Development videotape shortcourse with published course notes for Auburn University Engineering Extension Service - Engineering Professional Development Series.

**Design Fundamentals for Wood Construction.** 1994-1997. 3 hr satellite / video shortcourse with published course notes for Auburn University Engineering Extension Service Professional Development Series.

**Timber Bridge Design, Construction, and Maintenance.** 1993. 8 hr shortcourse on timber bridge fundamentals delivered through Auburn University - Federal Highway Administration Technology Transfer (T<sup>2</sup>) Program. Team taught.

**Applications of GPS in Biosystems Engineering.** Alabama Section ASABE continuing education shortcourse. Auburn, AL. March 2.

### **PROFESSIONAL DEVELOPMENT COURSES TAUGHT FOR AGRICULTURAL PRODUCERS, CROP ADVISORS, AND EXTENSION AGENTS**

**Advanced Geospatial Training.** Tennessee Valley Research and Education Center. Belle Mina, AL. May 15-17, 2002. Classroom instruction and field lab exercises.

**Fundamentals of GPS. Precision Agriculture Shortcourse.** US Space and Rocket Center. Huntsville, AL. January 17, 2002. Classroom instruction followed by field lab exercises.

## **STEVEN E. TAYLOR, P.E.**

**Fundamentals of GPS. Certified Crop Advisor Continuing Education Shortcourse.** Auburn University. December 17, 2001. Classroom instruction followed by field lab exercises.

**Fundamentals of GPS. Certified Crop Advisor Continuing Education Shortcourse.** Gulf Shores. August 9, 2001. Classroom instruction followed by field lab exercises.

**Fundamentals of GPS. Precision Agriculture Shortcourse.** US Space and Rocket Center. Huntsville, AL. January 8, 2001.

**Fundamentals of GPS.** Extension agent training – classroom lecture and field exercise. Auburn, AL. May 23, 1999.

### **PROFESSIONAL DEVELOPMENT SEMINARS PRESENTED**

**Forest Road and Bridge Construction.** 1995. Lecture presented on construction of forest roads and portable bridges at the American Pulpwood Association (APA) Timber Harvesting and Procurement Workshop in Auburn, AL on July 26, 1995. Participants were logging contractors and other members of APA.

**Portable Bridges for Temporary Stream Crossings.** 1993. Lecture presented on portable bridges at the American Pulpwood Association (APA) Timber Harvesting and Procurement Workshop in Auburn, AL on August 4, 1993. Participants were logging contractors and other members of APA.

**Portable Timber Bridges for Forest Roads.** 1994. Seminar presented at the Spring Meeting of the Alabama Section of ASABE on May 13, 1994 in Auburn, AL. Participants were students and engineers from private industry and local, state, and federal agencies. A course packet was developed and provided to the seminar registrants.

### **PROFESSIONAL AND LEADERSHIP DEVELOPMENT ACTIVITIES**

**Food Systems Leadership Institute. 2013.** Graduated as one of the FSLI Fellows in Cohort 7.

**LEAD21. 2006-2007.** Completed USDA LEAD21 academic administrator leadership course.

**Academic Administrators training course. 2005.** Completed training shortcourse for new academic administrators. University of Nebraska, Lincoln, NE.

## STEVEN E. TAYLOR, P.E.

### CONTRACTS AND GRANTS RECEIVED

Project Coordinator underlined

<u>Rials, T., (UT)</u> N. Labbe, S. Taylor (AU), S. Kelley (NCSU)	Next generation logistics systems for delivering optimal biomass feedstocks to biorefining industries in the southeast U.S.	US Department of Energy	10/15/2015 – 09/30/2018	\$ 4 million
<u>Srivastava, P.,</u> O. Fasina, S. Taylor, P. Chowdry	Transforming biology-based engineering education using a hybrid pedagogical approach	USDA Higher Education Challenge Grants	09/01/2012 – 09/30/2015	\$142,760
<u>Fasina, O., M.</u> Tu, B. Via, S. Taylor	Navel stores chemicals production from southern forests by innovative treating	Alabama Department of Commerce	10/01/2013 – 09/30/2013	\$ 204,351
<u>Taylor, S.</u>	Demonstration of renewable electrical power	University of Florida	06/01/2011 – 09/30/2011	\$2,958
<u>Taylor, S.</u>	Cooperative Agreement	USDA ARS	10/01/2011 – 09/30/2012	\$67,055
<u>Eden, M., C.</u> Roberts, S. Taylor, T. Gallagher, P. Raju	IGERT: Integrated biorefining for sustainable production of fuels and chemicals	NSF	09/01/2011 – 09/30/2016	\$3 million
<u>Adhikari, S., S.</u> Taylor, C. Roberts, M. Eden	Systems based approaches for optimizing biopower production and carbon capture from woody biomass – Phase I: gasification of woody biomass and downstream warm gas cleanup strategies	Electric Power Research Institute	07/01/2011 – 09/30/2013	\$374,995
<u>Taylor, S.</u>	Biomass information support	USDA Forest Service	10/01/2010 – 09/30/2013	\$60,000
<u>Taylor, S.</u>	Cooperative Agreement	USDA ARS	10/01/2010 – 09/30/2011	\$70,803
<u>Rials, T. (UT), S.</u> <u>Taylor (AU), S.</u> <u>Kelley (NCSU)</u>	Southeast partnership for integrated biomass supply systems (IBSS)	USDA-NIFA	09/01/2010 – 07/30/2016	\$15 million
<u>Eden, M., C.</u> Roberts, S. Taylor, S. Adhikari	Value oxygenate and olefin co-products from biomass fractionation and advanced catalytic conversion processes	USDA-NIFA	09/01/2009 – 09/30/2015	\$1 million
<u>Taylor, S., C.</u> Roberts, M. Eden, S. Adhikari	Biomass to liquid fuels and electric power research	U.S. Department of Energy (congressionally-directed funding)	06/01/2010 – 09/30/2012	\$1,450,000

## STEVEN E. TAYLOR, P.E.

<u>Taylor, S.E.</u> , O. Fasina, Y. Wang, P. Srivastava, J. Fulton	Next generation biological engineering research through renovation of laboratories at auburn university	National Science Foundation	05/01/2010 – 09/30/2013	\$4,688,599
<u>Taylor, S.E.</u> , R. Rummer, F. Corley	High tonnage feedstock supply systems for southern pine energy plantations	U.S. Department of Energy	05/01/2010 – 06/30/2014	\$4,990,000
M. Eden, C. Roberts, S. Adhikari, S. Taylor	Integrated biorefinery optimization through biomass fractionation, gasification and advanced catalytic conversion processes	U.S. Department of Transportation – Southeast Regional Sungrant Program	05/01/2010 – 09/30/2012	\$250,000
<u>Taylor, S.E.</u> , C. Roberts, M. Eden	Systems based approaches for conversion of biomass to bioenergy in bioproducts	U.S. Department of Energy (congressionally directed funding)	12/17/2009 – 12/31/2011	\$951,500
<u>Taylor, S.E.</u>	USDA/ARS Cooperative Agreement	USDA National Soil Dynamics Laboratory	10/01/2009 – 09/30/2010	\$14,630
<u>Taylor, S.E.</u>	Demonstration of biomass gasification and power generation	Virginia Tech University	09/01/2009 - indefinite	\$4,400
<u>Taylor, S.E.</u>	Demonstration of biomass gasification and power generation	Mississippi State University	09/01/2009 - indefinite	\$5,499
<u>Taylor, S.E.</u>	Demonstration of biomass gasification and power generation	Northwest Florida Renewable Energy Center, LLC	09/01/2009 - indefinite	\$2,834
<u>Taylor, S.E.</u> , D. Mills, Y. Lee	Optimization of pretreatment conditions for enzymatic conversion of rice straw into sugars	Samsung	06/01/2009 - indefinite	\$5,000
J. Hairston, D. Rodekhor, S. Taylor, et al.	Mitigating local and regional agricultural droughts by increased irrigation	NOAA (congressionally directed funding)	10/01/2009 – 09/30/2011	\$ 50,000
<u>Taylor, S.E.</u>	USDA/ARS Cooperative Agreement	USDA National Soil Dynamics Laboratory	12/18/2008 – 09/30/2009	\$89,494
<u>Taylor, S.E.</u> , S. Adhikari, O. Fasina, E. Loewenstein	Municipal power generation from gasification of urban biomass wastes	Alabama Department of Economic and Community Affairs	10/01/2008 – 09/30/2010	\$69,767

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<u>Taylor, S.E.</u>	Southeast bioenergy center	U.S. Department of Energy (congressionally directed funding)	09/15/2008 – 06/30/2010	\$492,000
<u>Taylor, S.E.</u>	Southeast bioenergy project at Auburn University	USDA CSREES (congressionally directed funding)	09/10/2008 – 09/30/2010	\$208,348
<u>S. Taylor and Mark Hall</u>	Educational program development for municipal fleet biodiesel production	ADECA	10/01/07 – 09/30/08	\$ 24,990
<u>S. Taylor and L. Fillmer</u>	Support of mobile gasification and power generation unit	Alabama Power	indefinite	\$100,000
<u>S. Taylor</u>	USDA/ARS Cooperative Agreement	USDA National Soil Dynamics Lab	10/01/07 – 09/30/08	\$8,602
<u>S. Taylor, J. Fulton, T. McDonald, and Mark Hall</u>	Bioenergy and bioproducts demonstration vehicle	Wheat and Feed Grain Committee	03/01/07 - 02/28/10	\$5,000
<u>T. McDonald, T., O. Fasina, J. Fulton, S. Taylor</u>	Lab-scale teaching tools for biofuel testing	Auburn University, GFE	02/07 – 02/08	\$ 9,000
<u>S. Taylor</u>	USDA/ARS Cooperative Agreement	USDA National Soil Dynamics Lab	10/01/06 – 09/30/07	\$34,223
<u>J. Hairston, D. Rodekhor, S. Taylor, et al.</u>	Mitigating local and regional agricultural droughts by increased irrigation	NOAA (congressionally directed funding)	10/01/2006 – 09/30/2007	\$ 328,440
<u>J. Fulton, P. Mask, J. Shaw, T. McDonald, M. Dougherty, P. Srivastava, M. Smidt, S. Taylor</u>	Precision agriculture and forestry	USDA CSREES (congressionally directed funding)	9/13/2006 – 9/30/2008	\$ 555,057

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<u>S. Taylor</u>	Norman E Borlaug agricultural science and technology fellowship program	USDA- Foreign Ag. Service	9/25/2006 – 10/01/2006	\$ 13,513
J. Chappell, O. Fasina, J. Sibley, S. Taylor	Energy efficient integrated aquaculture-vegetable greenhouse production system	ADECA	10/02/2006 – 09/30/2007	\$ 20,000
<u>S. Taylor</u>	USDA/ARS Cooperative Agreement	USDA National Soil Dynamics Lab	10/01/05 – 09/30/06	\$ 43,734
<u>S. Taylor</u> , O. Fasina, C. Roberts, S. Duke, J. Groccia	Developing cross disciplinary curricula in biological engineering	National Science Foundation	08/15/05 – 09/30/06	\$ 99,875
<u>S. Taylor</u>	USDA/ARS Cooperative Agreement	USDA National Soil Dynamics Lab	10/01/04 – 09/30/05	\$ 43,624
J. Fulton, P. Mask, T. McDonald, J. Shaw, P. Srivastava, M. Smidt, M. Dougherty, and S. Taylor.	Precision agriculture and precision forestry – Alabama	USDA CSREES (congressionally directed funding)	08/01/05 to 07/31/07	\$561,821
J. Fulton, M. Dougherty, S. Taylor	Student design studio for corley building	Auburn University Concessions Board	11/15/05 – 08/30/06	\$ 12,000
T. McDonald, J. Fulton, and S. Taylor	A device to monitor hand planting.	Woodland Specialists	indefinite	\$5,000
J. Chappell, A. Davis, Y. Wang, O. Fasina, D. Rouse, S. Taylor	Catfish byproduct recovery using drying and dehydration	Alabama Catfish Producers and Alabama Dept. of Agriculture and Industries	1 year	\$ 80,000
<u>Chappell, J.</u> , Kemble, J., Fasina, O.O., Dougherty, M. and Taylor, S.	Demonstration of an energy efficient integrated aquaculture – vegetable production system	Alabama Department of Economic and Community Affairs (ADECA) and Auburn University:	10/05 – 09/07	\$100,000.
<u>S. Taylor</u>	USDA/ARS Cooperative Agreement	USDA National Soil Dynamics Lab	10/01/04 – 09/30/05	\$ 43,734
<u>T. McDonald</u> , P. Mask, J. Fulton, J. Shaw, S. Taylor	Precision ag and precision forestry - Alabama	USDA CSREES (congressionally directed funding)	07/01/04 – 06/30/06	\$ 544,330

## STEVEN E. TAYLOR, P.E.

<u>J. Fulton, S. Taylor</u>	Geospatial equipment and classroom multimedia equipment	Auburn University GFE Grant		\$ 25,000
<u>T. Gallagher, M. Smidt, R. Tufts, T. McDonald, S. Taylor, R. Rummer</u>	How to improve transport efficiency and cost	Wood Supply Research Insitute	01/01/04 – 12/31/04	\$45,200
<u>J. Fulton, P. Mask, C. Burmester, J. Shaw, S. Taylor, S. Norwood, C. Norris</u>	Variable-rate nitrogen management for Tennessee Valley corn	Wheat and Feed Grain Committee	03/01/04 to 02/28/07	\$7,000
<u>S. Taylor</u>	USDA/ARS Cooperative Agreement	USDA National Soil Dynamics Lab	10/01/03 – 09/30/04	\$ 43,486
<u>S. Taylor</u>	Developing data for design standards for excavator tip/roll over protective structures	USDA Forest Service – Southern Forest Experiment Station	05/01/03 – 12/30/04	\$ 11,000
<u>T. McDonald</u> S. Taylor S. Vinyard	Poultry house distributed power generation using recycled vegetable oils	ADECA	11/01/03 – 10/31/05	\$49,996
P. Mask, <u>T. McDonald,</u> <u>S. Taylor</u> J. Shaw	Precision ag and precision forestry - Alabama	USDA CSREES (congressionally directed funding)	09/15/03 – 09/30/05	\$ 446,360
<u>S.E. Taylor</u>	Renovation of classrooms in Corley building	Auburn University GFE Grant	10/01/03 – 9/30/04	\$ 25,000 (approx)
<u>S.E. Taylor</u>	Qualification testing of high-strength southern pine glued-laminated timber beams	Boozar Laminated Beams, Inc.	04/15/03 – 04/14/04	\$ 2,800

## STEVEN E. TAYLOR, P.E.

<u>J. Baier</u> , J. Shaw, R. Raper, P. Mask, C. Burmester, L. Curtis, S. Taylor, B. Norris, D. Harkins	Evaluation of integrated technologies including pressure compensated subsurface drip irrigation, precision vehicle guidance, field mapping, and yield mapping	AU AAES Foundation Grant	6/01/2003 – 5/30/06	\$ 118,430
<u>J. Baier</u> <u>T. McDonald</u> S. Taylor R. Tufts	Erosion and recreational trails: construction and maintenance practices to minimize watershed impacts	AU Envir. Institute	5/01/03 – 5/30/05	\$ 99,600
<u>T. McDonald</u> <u>J. Baier</u> S. Taylor	Monitoring off-trail sediment production on the Kentuck ORV system	USDA Forest Service – National Forests in AL	5/20/03 – 04/30/07	\$ 9,730
<u>Taylor, S.E.</u>	Sawn lumber portable bridge plan development for the USDA Forest Service – Forest Products Laboratory	USDA Forest Service – Forest Products Laboratory	08/01/02 - 09/30/03	\$ 17,856
<u>J.W. Baier</u> S.E. Taylor	GIS development for local water districts	EPA – Mississippi Water Resources Institute	05/01/02 - 04/03/02	\$11,000
<u>S.E. Taylor</u>	Modeling behavior of excavator tip/roll-over protective structures	USDA Forest Service – Southern Research Station	06/01/02 - 12/31/03	\$ 27,020
<u>S.E. Taylor</u>	GPS equipment for spatial technology education	Auburn University Provost – GFE Equipment Funds	03/01/02 - 12/31/02	\$ 21,500
<u>P. Mask</u> J.N. Shaw S.E. Taylor	Precision agriculture, Tennessee Valley	USDA	06/01/02 - 05/31/04	\$ 449,280
<u>J.W. Baier</u> S.E. Taylor	In-stream use of polyacrylamide to reduce sediment production	Auburn University Vice President for Research – Mentoring Program	01/01/02 - 12/31/02	\$ 4,000
<u>S.E. Taylor</u>	Engineering design and testing for thrown object device / forestry site preparation performance monitoring	USDA Forest Service– Southern Research Station	06/01/01 - 12/30/01	\$ 10,285
<u>S.E. Taylor</u>	Forest machine operator protective structure testing center	USDA Forest Service– Southern Research Station	09/01/00 - 09/30/02	\$ 17,935

## STEVEN E. TAYLOR, P.E.

<u>T.E. Grift</u> S.E. Taylor	Measurement of tree diameters during the cutting process	USDA Forest Service– Southern Research Station	08/01/00 - 09/30/02	\$ 9,400
<u>S.E. Taylor</u> K.H. Yoo R.B. Rummer	Technology for reducing water quality impacts from forest road stream crossings	USDA - National Research Initiative Competitive Grants Program	09/01/97 - 09/31/2000	\$ 91,500
<u>S.E. Taylor</u> M.H. Triche	Evaluation of stress-laminated wood t and box beam bridge superstructures	USDA Forest Service and Federal Highway Administration	09/01/96 - 08/31/97	\$ 64,250
<u>S.E. Taylor</u>	Monitoring and standard plans development for portable timber bridges	USDA Forest Service Forest Products Laboratory	09/23/96 - 09/30/99	\$ 20,000
<u>S.E. Taylor</u>	Interfacing GPS with GIS for forest planning activities	USDA Forest Service Southern Research Station	08/01/96 - 12/31/97	\$ 25,000
<u>S.E. Taylor</u>	General wood engineering research	American Institute of Timber Construction	Indefinite	\$ 2,022
<u>S.E. Taylor</u>	General wood engineering research	Anthony Forest Products, Inc.	Indefinite	\$ 3,300
<u>S.E. Taylor</u>	Amendment to water quality effects of alternative temporary stream crossings for forest operations	USDA Forest Service Southern Research Station	9/15/95 - 9/15/97	\$ 20,500
<u>S.E. Taylor</u>	Water quality effects of alternative temporary stream crossings for forest operations	USDA Forest Service Southern Research Station	9/15/94 - 9/15/96	\$ 10,000
<u>S.E. Taylor</u>	Determining properties and performance of structural wood components	USDA - National Research Initiative Competitive Grants Program	9/15/94 - 9/30/95	\$ 36,100
<u>S.E. Taylor</u>	Statistical characterization of e-rated southern pine laminating lumber	American Institute of Timber Construction	5/01/94 - 11/01/95	\$ 32,200
<u>S.E. Taylor</u>	Development of portable timber bridge systems	USDA Forest Service Forest Products Laboratory	9/01/93 - 8/31/96	\$ 42,000

## STEVEN E. TAYLOR, P.E.

<u>S.E. Taylor</u>	Development and testing of portable timber bridge designs	USDA Forest Service Timber Bridge Initiative	10/01/92 - 9/30/94	\$ 18,400
<u>S.E. Taylor</u> R.A. Tufts R.W. Brinker K.H. Yoo B.G. Lockaby R.H. Jones	Developing scientifically-based recommendations for silvicultural best management practices	AU AAES/ACES Environmental Quality Competitive Grants Program	8/01/92 - 9/30/94	\$ 97,000
<u>S.E. Taylor</u> J.H. Wilhoit R.A. Tufts R.W. Brinker B.L. Lanford	Intelligent data acquisition and management systems for forest machines	USDA Forest Service Southern Research Station	9/18/91 - 12/31/92	\$ 20,500
<u>S.E. Taylor</u>	Statistical characterization of end joint strength in wide glued-laminated timber beams	American Institute of Timber Construction	7/1/90 - 9/31/91	\$ 12,169
<u>S.E. Taylor</u>	Investigation of the effect of length on lumber tensile strength and its impact on structural reliability	A.U. Research Grant-in-Aid Program	6/1/89 - 2/28/91	\$ 3,000
TOTAL Contracts and Grants Awarded While at Auburn University				<b>\$41,777,755</b>

### **SELECTED COLLABORATORS in RESEARCH and EDUCATION**

**Alabama Power Corporation.** Collaborator in bioenergy research.

**American Institute of Timber Construction.** Industry association for manufacturers of glued-laminated timbers and other engineered wood products. Sponsor of various research projects.

**Anthony Forest Products.** Cooperator in research on engineered wood products.

**Bush Hog Corporation.** Cooperator in teaching senior capstone course in Biosystems Engineering.

**Caterpillar Corporation.** Cooperator in precision forestry research, timber bridge research, stream crossing research, and in various student related activities.

**Community Power Corporation.** Collaborator in biomass gasification research and outreach.

**Conoco Phillips.** Collaborator in biofuels research.

**Corley Land Services.** Cooperator in forest engineering research and education.

**Environmental Protection Agency.** Cooperator through the **Mississippi Water Resources Research Institute** on mapping rural water districts.

**Gas Technology Institute.** Collaborator in biomass gasification research.

**Georgia Pacific Corporation.** Cooperator in portable bridge and stream crossing research.

**International Paper Corporation.** Cooperator in precision forestry and forestry tillage research.

**John Deere.** Collaborator in forest engineering research.

**Kimberly Clark Corporation.** Cooperator in portable bridge and stream crossing research.

**Kior, Inc.** Collaborator in biofuels research.

**Mead-Westvaco Corporation, Coated Board Division.** Cooperator in stream crossing and precision forestry research.

## STEVEN E. TAYLOR, P.E.

**Purevision Technology.** Collaborator in bioenergy research.

**Rentech Inc.** Collaborator in biofuels research.

**RES Kaidi, Inc.** Collaborator in biofuels research.

**Savannah Forestry, Inc.** Cooperator in teaching senior capstone course in Biosystems Engineering.

**Southern Company.** Collaborator in bioenergy research.

**Structural Wood Systems, Inc.** Manufacturer of structural glued-laminated timbers.

**TigerCat, Inc.** Cooperator in forest engineering and bioenergy research.

**TimberJack, Inc.** Cooperator in teaching senior capstone course in Biosystems Engineering.

**International Paper (and Union Camp Corporation).** Cooperator in precision forestry research and in teaching senior capstone design course.

**USDA Forest Service.** Cooperator in all forest engineering research and in teaching senior capstone design.

**USDA NIFA.** Collaborator in bioenergy research and outreach.

**U.S. Department of Energy.** Collaborator in bioenergy research.

### UNIVERSITY COURSES TAUGHT

#### ***Semester System***

BSEN-4300	<b>Professional Practice in Biosystems Engineering.</b> 2 Cr. (Team taught)
BSEN-5230/6230	<b>Engineered Wood Structure Design.</b> 3 Cr.
FOEN-3000	<b>Introduction to Forest Operations.</b> 2 Cr. (Team taught)
BSEN-4310	<b>Engineering Design for Biosystems.</b> 4 Cr. (Senior Capstone Design Course)
FOEN-6710	<b>Timber Harvesting Analysis Methods.</b> 3 Cr. (Team taught)
BSEN-6220	<b>Introduction to Spatial Technologies in Biosystems.</b> 3 Cr. (Team taught)

#### ***Quarter System***

BSEN/FOEN-0201	<b>Introduction to Biosystems Engineering.</b> 4 Cr. (Team taught)
FOEN-0300	<b>Introduction to Forest Operations.</b> 2 Cr. (Team taught)
BSEN/FOEN-0403	<b>Applied Structural Analysis and Design.</b> 3 Cr.
BSEN/FOEN-0430	<b>Engineering Design for Biosystems I.</b> 4 Cr. (Senior Capstone Design Course)
BSEN/FOEN-0530	<b>Engineering Design for Biosystems II.</b> 4 Cr. (Senior Capstone Design Course)
FOEN-0572	<b>Engineering Design of Forest Harvesting Systems.</b> 4 Cr. (Team taught)
CIVL-0569	<b>Design of Timber Structures.</b> 3 Cr.
BSEN-0612	<b>Simulation Methods in Engineering II.</b> 5 Cr. (Team taught)

### UNIVERSITY SERVICE

#### **Auburn University**

Chair.	This is Research Committee. 2017.
Member.	University Budget Advisory Committee. 2014 – 2016.
Member.	Implementation Committee for AU Strategic Plan – Research. 2013.
Member.	Council for Energy, Environment, and Economic Research. 2012-2014.
Member.	Energy and Environment Task Force. 2011-2012.
Chair.	Faculty Operations and Management Committee for Center for Advanced Science, Innovation, and Commerce. 2012 to present.
Director.	Center for Bioenergy and Bioproducts. 2007 to present.
Member.	Alternative Energy Committee. 2006.
Senator.	Departmental representative to the Auburn University Senate. 1990 to 1993; 2000 - 2002.
Member.	Facilities and Instructional Technology Review Committee for Semester Transition. 1997-2000.

# **STEVEN E. TAYLOR, P.E.**

## **College of Agriculture**

- Chair. Search Committee for Director, School of Fisheries, Aquaculture, and Aquatic Sciences. 2013-2015.
- Chair. Search Committee for Head, Crop, Soil, and Environmental Science Department. 2012-2013.
- Chair. Search Committee for Head, Horticulture Department. 2005.
- Chair. Regional Administrative Committee SAC-05 for USDA-CSREES. 2008.
- Member. Search Committee for Director, AU Water Resources Center. 2014-2015.
- Member. College of Agriculture Strategy Leadership Team. 1997-1998.
- Member. College of Agriculture Futuring Team. 1999.
- Member. College of Agriculture Alumni Committee. 1990 to 1993.
- Member. College of Agriculture Faculty Conference Committee. 1990.
- Member. College of Agriculture – Dean Search Committee. 2001.
- Member. York Lecture Committee. 1998 to 2005.

## **Samuel Ginn College of Engineering**

- Member. College of Engineering Scholarship Committee. 1990 to 2007.
- Member. College of Engineering Faculty Council. 1998-2002.
- Advisor. Solar Decathlon. 2002.

Dr. Taylor served as one of the team of faculty advisors for the Solar Decathlon project. Dr. Taylor reviewed the architectural plans, conducted structural design calculations for structural components and connections, assisted with procuring materials, and assisted with construction of the house. Dr. Taylor devoted several hundred hours to the project.

## **Biosystems Engineering Department**

- Chair. Departmental Marketing Committee. 1990 to 1992.
- Chair. Departmental Minority Introduction to Engineering Program (MITE). 1990, 1991.
- Co-Chair. Departmental Minority Introduction To Engineering Program. 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999.
- Chair. Departmental E-Day Activities. 1991.
- Chair. Departmental Seminar Committee. 1992 to 1993.
- Member. Departmental/Program Name Self Study Committee. 1994 to 1996.
- Member. Departmental Recruiting and Public Relations Committee. 1992 to 1995.
- Member. Departmental Computer Committee. 1990 to present.
- Member. Departmental Sunbelt Ag Expo Committee. 1990.
- Chair. Southeast Region ASABE Student Branch Rally held in Auburn. 2001.

# **STEVEN E. TAYLOR, P.E.**

## **School of Forestry and Wildlife Sciences**

- Member. Search Committee for forest engineering faculty position. 2002.
- Member. Advisory group for Louise Kreher Forest Ecology Preserve. 1999 – 2003.
- Member. Land Management Task Group for Louise Kreher Forest Ecology Preserve. 2001 – 2003.

Other contributions to the Louise Kreher Forest Ecology Preserve include:

- Coordinated the development of GPS-based maps of trails, educational exhibits, and geographical features. 1999 – 2003.
- Coordinated the design and construction of a pedestrian bridge. Although the bridge was designed by students in FOEN-6230, I developed the final design, procured the components, and coordinated the construction by students and faculty in Biosystems Engineering. 2001.

## **GOVERNMENT AGENCY, LEGISLATIVE, and POLICY SERVICE**

Senior Policy Advisor. The Energy Institute of Alabama

Member. Alabama Joint Legislative Committee on Energy. 2007 to present.

Member. Subcommittee on Research and Education. Alabama Governor's Task Force on UAVs. 2014 to present.

Member. Southeast Region Sungrant Program Advisory Committee. 2009 to present.

- Testified before the U.S. House of Representatives Agriculture Committee on Farm Bill. 2012.
- Testified before the U.S. Senate Committee on Energy and Natural Resources. 2007.
- Provided background information on bioenergy topics to Sen. Jeff Sessions; Congressman Mike Rogers; USDA Undersecretary for Research, Education, and Economics (REE); and staffers for the Senate and House agriculture committees on multiple occasions for use in development of legislation including the 2008 Farm Bill, the proposed legislation on the Federal Renewable Electricity Standard, and USDA extramural funding programs. 2007 to present.
- Participated in the Alabama Governor's Advisory Committee on Energy. 2007.
- Co-organized and co-sponsored Alabama Energy Day with Alabama Joint Legislative Committee on Energy. January, 2008.
- Hosted technical tours for Sen. Jeff Sessions; Congressman Mike Rogers; and USDA Undersecretary for REE at events in Auburn, AL; Birmingham, AL; Jacksonville, AL; and Washington, D.C. 2007, 2008, and 2009.
- Accompanied Alabama Department of Agriculture and Industries Commissioner Ron Sparks and several Alabama legislators on two-week trade mission to Argentina and Brazil. September, 2008.
- Participated in Alabama Lieutenant Governor's Committee on Energy. 2009.
- Participated in Alabama Governor's effort to develop a Roadmap for Science and Technology. 2009.
- Co-organized and co-hosted the Alabama Energy Conference with the Alabama Department of Economic and Community Affairs. Auburn, AL. 2007, 2008, 2009.
- Conducted bioenergy briefings and demonstrations for the Energy Council – a group composed of legislators from multiple states in the U.S., Canada, and Mexico. 2008.
- Conducted bioenergy briefings and demonstrations for the National Association of State Departments of Agriculture. Montgomery, AL. 2009.

## **STEVEN E. TAYLOR, P.E.**

- Conducted bioenergy briefings and demonstrations for the German Consul General and Chinese Ambassador. Auburn, AL. 2009.

### **INTERNATIONAL SERVICE**

Advisor to Chilean Forest Products Industry. 2004. Advised forest industry professionals on the use of precision forestry technologies. CORMA Corporacion Chilena de la Madera. Areas near Concepcion, Chile. November 15-19.

Volunteer for Humanitarian Activities. 2008, 2010, 2011, 2012, 2013. Mission Lazarus. Jayacan, San Marcos de Colon, Choluteca, Honduras.

Volunteer for Humanitarian Activities. 2014, 2015. Mission Upreach. Santa Rosa de Copan, Copan, Honduras.

### **PROFESSIONAL AFFILIATIONS**

**Registered Professional Engineer; Alabama No. 19382**

#### **American Forest and Paper Association – American Wood Council**

- Member, Wood Design Standards Committee, 2001 to present.

Dr. Taylor serves on the Wood Design Standards Committee as a professional engineer and as a researcher familiar with structural wood design. This committee develops the ANSI/AWC-NDS National Specification for Wood Construction. The latest edition is ANSI/AWC-NDS-2015.

#### **Structural Glued Laminated Timber Industry (coordinated by American Plywood Association; previously coordinated by American Institute of Timber Construction)**

- Past Member, Technical Advisory Committee,
- Member, Technical Review Board for ANSI/AITC A190, 1999 to present

Dr. Taylor has been elected by the American Plywood Association to serve several terms on their Technical Review Board for the American National Standards Institute (ANSI) A190.1 standard that dictates the manufacturing requirements for structural glued-laminated timbers. Manufacturers must comply with this ANSI standard for their products and engineering design values to be accepted for use by the model building codes in the U.S. This Technical Review Board is composed of one elected representative from the laminating industry, one professional member elected from the consulting structural engineering community, one representative elected from the wood supply industry, and one representative elected from the academic/research community. Dr. Taylor has been selected to represent the U.S. wood engineering academic/research community on this Board for the last 14 years.

# **STEVEN E. TAYLOR, P.E.**

## **PROFESSIONAL AFFILIATIONS, continued**

### **American Society of Agricultural and Biological Engineers**

- Chair, President's Task Force on Refereed Publications (2015-2017)
- Chair, Fellows Committee (E-08)
- Past Chair, Steering Committee for Academic Administrators (ED-210/1)
- Past Chair, Academic Administrators Committee (ED-210)
- Past Chair, Structures Committee (SE-20)
- Past Chair, Wood Construction and Design Committee (SE-201)
- Past Chair, Forest Engineering Committee (currently T-12)
- Past Chair, Paper Awards Committee (M-141)
- Past Chair, Alabama Section
- Member, Fellows Screening Committee (M-131)
- Member, Gilley Academic Leadership Award Committee (M-166)
- Member, Bioenergy Committee (ES-100)
- Member, Forest Engineering Committee (T-12)
- Member, Structures Committee (PAFS-20)
- Member, Academic Administrator's Committee (EOPD-210)
- Past Member, Accreditation Committee (ED-204)
- Reviewer, Transactions of ASABE and Applied Engineering in Agriculture
- Advisor, Alabama Student Branch 1989-1991, 1999-2000
- Past Member, Dairy Housing Committee (SE-403)
- Past Member, Environmental Physiology Committee (SE-301)
- Past Member, Structures and Environment Division Steering Committee (SE-02)
- Associate Editor, Structures and Environment Division
- Advisor, Southeast Region Student Branch, 2000-2001

### **American Society of Engineering Education**

- Member

### **American Society of Civil Engineers**

- Member

### **Engineers Without Borders**

- Member

### **Forest Products Society**

- Past Secretary, Southeast Section
- Past Trustee, Southeast Section

### **Society of Wood Science and Technology**

- Past Chair, George Marra Awards Committee

### **National Society of Professional Engineers**

- Past Coordinator, MATHCOUNTS program
- Past Chair, Auburn Chapter