

## Blair L. Stringam, PhD

### **NMSU Plant and Environmental Sciences**

Box 30003 MSC 3Q  
Skeen Hall Room N 127  
Las Cruces, N.M. 88003-8003

blairs@nmsu.edu  
(W) 575-646-7665

### **Education**

- 1998 Doctor of Philosophy, Biological and Agricultural Engineering, Utah State University.  
Department of Biological and Irrigation Engineering.
- 1992 Master of Science, Agricultural and Irrigation Engineering. Utah State University.  
Department of Biological and Irrigation Engineering
- 1988 Bachelor of Science, Agricultural Engineering. University of Alberta. Department of  
Agricultural Engineering
- 1984 Technical Diploma, Agricultural Engineering, Olds College Department of Agricultural  
Engineering and Agricultural Mechanics

### **Areas of Expertise**

Irrigation, Water Measurement, Water Management, Open Channel Flow Modeling, Sensor Design, Sensor Applications, Control Systems, Precision Agriculture

### **Professional Experience**

College Rank Associate Professor Sept 2009 – present, Plant and Environmental Sciences, College of Agriculture, Consumer and Environmental Sciences, New Mexico State University, Las Cruces, New Mexico. Responsibilities include teaching undergraduate/graduate courses in Irrigation and Drainage as well as Water Measurement, Introductory Soils, and Introductory Environmental Science. As well as conducting irrigation and water resources research.

College Assistant Professor July 2008 – Sept 2009, College of Agriculture, Consumer and Environmental Sciences, New Mexico State University, Las Cruces, New Mexico. Responsibilities include agricultural extension and conducting irrigation and water resources research.

Assistant Professor Aug 2006 – July 2008, Agricultural Systems Management, Department of Biological and Agricultural Engineering, University of Idaho, Moscow, Idaho. Responsibilities include teaching undergraduate courses in ASM including Machinery Management, Precision Agriculture, Senior Capstone design, Rural Electrification, and Farm Structures. Additional responsibilities include advising undergraduate students and conducting irrigation research.

Assistant Professor Dec 2001 – Aug 2006, Agricultural Operations Technology, Department of Entomology, Montana State University, Bozeman, Montana. Responsibilities include teaching undergraduate courses in AOT including Water Management, Senior Capstone design, Machinery Management, Rural Electrification, and Farm Structures. Additional responsibilities include advising undergraduate students and conducting irrigation research.

Hydraulic Engineer June 1997 - Dec 2001, US Bureau of Reclamation Water Resources Research Laboratory, Denver, Colorado. Investigated automation equipment which may be used for water resource applications, designed irrigation water monitoring and control systems, and conducted research in water resources.

Research Engineer Nov 1992 - June 1997, Department of Biological and Irrigation Engineering, Utah State University, Logan, Utah. Designed and installed low cost irrigation canal monitoring and control systems. Duties included research, sensor development, control engineering, and software development. Taught classes in instrumentation, basic electronics, open channel flow measurement, canal automation.

Water Resource Engineer May 1988 - Sept 1989, UMA Engineering, Lethbridge, Alberta, Canada. Responsibilities consisted of assisting in the development, installation, and testing of an automated irrigation canal system and control structures.

### **Refereed Publications**

- Sigala, J., Unc, A., and B. Stringam, (2018). "Examination of Particle Dispersion When Saline Concentrate is Released in Septic Tank Waterwater" Sustainable Water Resources Management. (recently accepted article).
- Omer F.O., Manoj K. S., Stringam, B.L., Gard, C., (2017). "Irrigation Water Salinity Effects on germination and Emergence of Six Halophytes". Paper accepted for publication in the Agricultural Water Management Journal.
- Sharma, P., Shukla, M., Stringam, B. and D. M. VanLeeuwen, (2017). "Alternate Approaches to Determine Spatial Dependence of Some Soil Properties", Journal of Agricultural Engineering (GSTF). 3(1) p. 10-23.
- Sigala, J., Stringam, B., A. Unc, (2017). "In Vitro Examination of the Application of Saline Concentrate to Septic Tank Wastewater" Sustainable Water Resources Management. 3(2) p. 157-162.
- González-Delgado, A.M., Manoj K. Shukla, M.K., Stringam, B., and M. Parsheh, (2015). "Evaluation of Soil Compaction and Sealant Application for Compacted Earthen Liners" Paper accepted GSTF – Journal of Agricultural Engineering Vol. 2 No. 1
- Stringam, B.L. Gill, T., and B. Sauer (2015). "Integration of Irrigation District Personnel with Canal Automation Projects". Vol (34) p. 33-40, Irrigation Science.
- Stringam, B. Wahl, T., (2014) "Ratio controller for regulation of turnout flow rate". International Commission on Irrigation and Drainage Journal. Vol 64. p. 69-76
- Stringam, B., and Grover, K. (2014) "Crop yield function and evapotranspiration comparison for crops near Hatch, New Mexico". Journal of Arid Land Studies. Vol. 24(1) p. 125-128
- Stringam, B.L. and T. Gill (2012). " Simplified overshot gate constructed and maintained by irrigation districts". International Commission on Irrigation and Drainage Journal, Vol. 61. p. 666-672.
- Stringam, B.L. and B.G.Swan (2012). "Model tractor teaching tool" Journal of Agricultural Systems, Technology, and Management (JASTM), Vol 23. p. 1-12.
- Stringam, B.L. (2010). "Design of a single-pool downstream controller using quantitative feedback control theory". J. Irri. Drain Eng., ASCE, Vol (136)10 p.685-691
- Stringam, B.L. and J. Olsen. (2009) "Design and analysis of a swinging drag body flowmeter for irrigation pipe". Irrig Drainage Syst, Springer Science. Vol. 23
- Stringam, B.L. and B.C. Esplin. (2006) "Automation of the Eastbench Irrigation Main Canal." International Commission on Irrigation and Drainage Journal, Vol. 55. p. 395-402
- Stringam, B.L. and K.H. Frizell. (2005). "Flume or Weir Continuous Water Flow Rate Recorder for Irrigation Use." International Commission on Irrigation and Drainage Journal, Vol. 53. p. 59-66
- Stringam, B.L, B.W. Sauer, and C.A. Pugh. (2003). "Accurate Water Delivery Using a Simplified Automated Farm Turnout." International Commission on Irrigation and Drainage Journal, Vol. 52. p. 355-361

- Walker, W.R. and B.L. Stringam. (1999). "Low Cost Adaptable Canal Automation For Small Canals." International Commission on Irrigation and Drainage Journal, Vol. 48. No. 3, p. 39-46
- Poe, S.E., D. Bullock, B.M. Miller, B. Stringam. (1994). "Livestock Ventilating System Instructional Model." Journal of Agricultural Mechanization, (8), 43-50
- Stringam, B.,J. Leonard, and S. Yamimchuk. (1989). "A Universal Sensor Linearizing Circuit." Computers and Electronics for Agriculture, Elsevier Science Publishers, (4), 81-84.

### **Patents**

- Stringam, B.L., K.H. Frizell, and B.W. Mefford "Continuous Flow Measurement Recorder and Recording Method." United States Patent No. 6,907,779 Awarded June 21, 2005.
- Stringam, B.L. and C.A. Pugh, "Automated Farm Turnout." United States Patent No. 6,427,718 Awarded August 6, 2002.

### **Proceedings**

- Stringam, B.L., B.T. Wahlin and T.L. Wahl (2017). "Design Factors That Improve Canal Downstream PI Controller Performance and Eliminate Instability Problems." USCID 10<sup>th</sup> International Conference on Irrigation and Drainage, Finding the Balance – Improving Infrastructure, Water Management, and the Environment in a World with Limited Funding and Ample Regulations, Sacramento, California.
- Stringam, B.L., B.T. Wahlin and T.L. Wahl (2017). "Comparing Three PI Tuning Methods for Downstream Water Level Control." 23<sup>rd</sup> International Congress on Irrigation and Drainage, Mexico City, Mexico.
- Stringam, B.L., Berg, D., Shukla, M., and K. Grover (2015). "Using the TI 84 for Irrigation Scheduling Training." Emerging Issues in Water Management Governance, US Committee on Irrigation and Drainage, Albuquerque, NM.
- Sharma, H., Shukla, M. K., Bosland, P., Stringam, B., Uchanski, M. E., (2013). "Chile Root Water Uptake Under Partial Root Drying: A Greenhouse Drip Irrigated Study" Irrigation Show & Education Conference, Irrigation Association, Austin, TX
- Stringam, B. and G. Merkley, (2013). "Matlab/Simulink Nonlinear Hydraulic Models for Testing Canal Gate Control Algorithms". The Agriculture/Urban Water Interface – Conflicts and Opportunities, US Committee on Irrigation and Drainage, Denver, Colorado.
- Stringam, B.L., Bleiweiss, M.P., and A.S. Bawazir (2012). "Internet Evapotranspiration Tool to Help Water Users Estimate Water Requirements" Managing Irrigation Systems in Today's Environment, US Society on Irrigation and Drainage, Reno, Nevada. Nov 13 – Nov16.
- Stringam, B.L., Craig, K., McCaig, M. and J. Prozniak (2012). "Overshot Gate Development and History" Managing Irrigation Systems in Today's Environment, US Society on Irrigation and Drainage, Reno, Nevada. Nov 13 – Nov16.
- Stringam, B.L. (2011). "ET Internet Tool." Southern Region Water Conference "Innovations and Partnerships for Clean Water" Athens, Georgia. Sept 2011
- Stringam, B.L. (2011). "Model Tractor Teaching Tool" New Mexico Section of the American Society of Agricultural and Biological Engineers Section Meeting. April 2011
- Stringam, B.L. and T. Gill, (2010). "Low Cost Linear Actuators for Canal Gate Control". US Society on Irrigation and Drainage, Fort Collins, Colorado. Sept 28 – Oct1
- Stringam, B.L and P. Elser. (2005). "A Suggested Criteria for the Selection of RTU'S and Sensors." SCADA and Related Technologies for Irrigation District Modernization, USCID, Vancouver, Washington.

### **Extension Publications**

- Henry, C.G. and B.L. Stringam, (2013). "How to Read Electrical Meters" Irrigation Smart Extension Publication, LSU AgCenter Pub. 3241-I, [www.LSUAgCenter.com](http://www.LSUAgCenter.com)
- Henry, C.G., Massey, J.H., Pringle, H.C., Krutz, L.J. and B.L. Stringam, (2013). "Tips for Conserving Irrigation Water in the Southern Region" Irrigation Smart Extension Publication, LSU AgCenter Pub. 3241-K, [www.LSUAgCenter.com](http://www.LSUAgCenter.com)
- Henry, C.G. and B.L. Stringam, (2013). "Variable Frequency Drives (VFD)" Irrigation Smart Extension Publication, LSU AgCenter Pub. 3241-B, [www.LSUAgCenter.com](http://www.LSUAgCenter.com)
- Stringam, B.L. (2013). "Pump Efficiency" Irrigation Smart Extension Publication, LSU AgCenter Pub. 3241-J, [www.LSUAgCenter.com](http://www.LSUAgCenter.com)
- Stringam, B.L. (2013). "Soft Starters for Electric Motors" Irrigation Smart Extension Publication, LSU AgCenter Pub. 3241-C, [www.LSUAgCenter.com](http://www.LSUAgCenter.com)
- Stringam, B.L. (2013). "Understanding Water Horsepower." Irrigation Smart Extension Publication, LSU AgCenter Pub. 3241-A, [www.LSUAgCenter.com](http://www.LSUAgCenter.com)
- Stringam, B.L. (2013). "Understanding Horsepower and Water Horsepower Efficiency and Fuel Consumption Costs for Irrigation Pumps" Cooperative Extension Publication, College of Agricultural, Consumer and Environmental Sciences, Guide M-227, <http://aces.nmsu.edu/pubs>

### **Grants and Contracts**

- Randall, J. (PI), Heerema, R., Holguin, O., Stringam B. (2017). New Mexico Department of Agriculture \$81,700  
Responsibilities: Study the mitigation of alternate bearing pecan trees grown under deficit irrigation.
- Shukla, M., Stringam B.L., Bengal, A. (2017). New Mexico State Agricultural Experiment Station \$8,000  
Responsibilities: Study how to increase Chile Pepper yields when brackish groundwater and RO concentrate is used for irrigation.
- Stringam B.L., Shukla, M. (2014, 2015). New Mexico WRRRI Water Research Grant Program \$30,000  
Responsibilities: Study the ground water along the Rio Grande between Garfield, NM and Fabens, TX to try to determine sources of salts and the influence of the Rio Grande on the water table.
- Runyan C., Stringam B.L. (2010 to 2013). Efficient Irrigation for Water Conservation on the Rio Grande Basin, USDA \$132,000  
Responsibilities: Work with the researcher from New Mexico and Texas on water quality and quantity issues. (I took over this grant from Craig Runyan)
- Runyan C., Stringam B.L. (2011, 2012). Southern Region Water Resource Project, USDA \$92,000  
Responsibilities: Work with surrounding states on water quality and quantity issues. (I took over this grant from Craig Runyan)
- Stringam B.L. (2011, 2012). Consequences and Possible Solutions for Small Scale Saline Water Residue Disposal in New Mexico – Proof of Concept, Energy and the Environment (IEE) and Water Resources Research Institute (WRRRI) \$50,000  
Responsibilities: Determine the consequences of introducing saline concentrate into a septic system.
- Sheffied, R.E, Kenny, N., Stringam B.L., (2011, 2012 ). Multi-State "Hands -On" Training on Irrigation Pumping Plant Testing to Reduce Water And Energy Use in Southern Region States, Southern Regional Water Resource Project (\$8,967 for my portion of the grant) \$44,591

Responsibilities: Develop the materials for a train the trainer course on pump efficiency testing.

Stringam B.L. (2010, 2011, 2012 ). Internet Evapotranspiration Tool to Help Water Users Estimate Water Requirements and Conserve Water for Use in Southern Region States, Southern Regional Water Resource Project \$38,000

Responsibilities: Develop an evapotranspiration internet site that water users can use with a minimum of data that has to be entered into the site.

### **Consulting Experience**

Elephant Butte Irrigation District, Las Cruces, New Mexico, Oct 2013, assisted the district in the development of an overshoot gate design and the calibration of the gate for water measurement.

Dipp Farms, Anthony, New Mexico, Oct 2012 to 2016, I evaluated soil and water on the farm property and recommended that they drill additional irrigation wells. I conduct irrigation evaluation work throughout the year.

Moon Lake Water Users, Roosevelt, Utah, July 2003, visited to inspect their canal automation system and make recommendations for future system modifications.

MPE engineering in Lethbridge, Alberta, Canada, December of 1996, I assisted in designing a Fuzzy Logic control system to perform downstream control on a canal system in Southern Alberta, Canada.

USAID, February 1993, Consultant to the Irrigation Support Project for Asia and the Near East (ISPAN) to evaluate a data collection supervisory control system on the Tungabhadra HL Canal in Karnataka State. This project evaluated the telemetry and sensor system which was developed by Bharat Electronics, Ltd. of New Delhi.

Komex International Ltd. Calgary, Alberta, Canada, October 1992, I designed irrigation water tail-end measuring stations. The stations were designed to be used in multiple irrigation sites throughout Southern Alberta.

### **Honors and Awards**

- Kringle the Cat Distinguished Teaching Award. In the spring of 2017 from NMSU-ACES
- Honorary Chapter Degree. In the spring of 2006 from MSU Collegiate FFA.
- USBR Report of Invention, 2002
- USBR Star Award, 1999

### **Organization Membership and Activities**

- US Committee on Irrigation and Drainage
- ASCE, Environmental and Water Resources Institute
- Western Water Resources Coordinating Committee (WERA 1020)
- US Bureau of Reclamation Technical Reviewer