

# Technology Transfer from Subsurface Drip Irrigation Studies

## KSU Northwest Research-Extension Center, March 1989 – December 4, 2015

### BOOKS AND BOOK CHAPTERS

Lamm, F.R., J.E. Ayars, and F.S. Nakayama (Eds.). 2007. **Microirrigation for Crop Production - Design, Operation and Management**. Elsevier Publications. 608 pp.

Lamm, F.R. and C.R. Camp. 2007. **Subsurface drip irrigation**. Chapter 13 in *Microirrigation for Crop Production - Design, Operation and Management*. F.R. Lamm, J.E. Ayars, and F.S. Nakayama (Eds.), Elsevier Publications. pp. 473-551.

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### REFEREED JOURNAL ARTICLES

Lamm, F. R. 2015. **Cotton, Tomato, Corn, and Onion Production with Subsurface Drip Irrigation - A Review**. Trans. ASABE (accepted for publication)

Lamm, F. R., D. M. O'Brien, and D. H. Rogers. 2015. **Economic comparison of subsurface drip and center pivot sprinkler irrigation using spreadsheet software**. Applied Engineering in Agric. 31(6):929-936.

J. Puig-Bargués and F. R. Lamm. 2013. **Effect of flushing velocity and flushing duration on sediment transport in microirrigation driplines**. Trans. ASABE 56(5):1821-1828.

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Lamm, F. R. 2014. **Irrigation and nitrogen management for subsurface drip irrigated corn - 25 years of K-State's efforts.** ASABE paper no. 141914980. Available from ASABE, St. Joseph, MI. 10 pp.

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Lamm, F. R. 2015. **Cotton, Tomato, Corn, and Onion Production with Subsurface Drip Irrigation - A Review.** In: Proc. Emerging Technologies for Sustainable Irrigation – A Tribute to the Career of Terry Howell, Sr., November 9-11, Long Beach, CA. ASABE CR-Rom. 20 pp.

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### **EXPERIMENT STATION PUBLICATIONS**

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## **MISCELLANEOUS TECHNOLOGY TRANSFER**

Powerpoint presentation of **W-3128: Scaling Microirrigation Technologies to Address the Global Water Challenge -Kansas 2015 Report** to USDA-NIFA multistate project W-3128, November 12-13, 2015, Long Beach, CA.

General microirrigation discussions with Chinese colleagues in China, October 10-22, 2015.

Powerpoint presentation of **Advancing SDI for lower value crops - opportunities and challenges** at Northwestern A&F University, Yangling, China, October 15, 2015.

Powerpoint presentation of **Frequently and Not-So-Frequently Asked Questions about SDI** at International Academic Exchange and Training Workshop on Microirrigation, Chifeng, China, October 13, 2015.

Powerpoint presentation of **Advancing SDI for lower value crops - opportunities and challenges** at *Irrigation in Action* conference at Chinese Agricultural University, Beijing, China, October 11, 2015.

Planning and international coordination of technical exchange with Chinese Agricultural University, Beijing, China including inviting the international guests to *Irrigation in Action* conference.

Tour of station and SDI facilities and discussion for Kansas Farm Bureau Masters Group, October 6, 2015.

Discussion and tour of SDI facilities as part of an exchange with students from Quinter, Kansas High School, September 28, 2015

Powerpoint presentations, discussion of SDI, and tour of SDI facilities for 6 individuals from Pakistan as part of KSU-USAID On-Farm Management Training, August 26, 2015, Colby Kansas.

Tour of SDI facilities and nutrient managements studies for 2 staff from Netafim USA, July 14, 2015.

Powerpoint presentations, discussion of SDI, and tour of SDI facilities for 8 individuals from Pakistan as part of KSU-USAID On-Farm Management Training, May, 13, 2015, Colby Kansas.

Powerpoint presentation of **The nexus between precision data and advanced irrigation system & management technologies (Lite Version)** for approximately 30 staff from IBM Watson Research Facility, April 29, 2015 at Yorktown Heights, New York.

Powerpoint presentation of **The status of SDI in the central and southern Great Plains** at annual meeting of the Ogallala Aquifer Program, March 12, 2015 at Manhattan, Kansas.

Powerpoint presentation of **The nexus between precision data and advanced irrigation system & management technologies** (Discussion of SDI and other irrigation technologies) for staff from IBM and COA administrators, March 9, 2015 at Manhattan, Kansas.

Oral report and written summary of K-State and USDA-NIFA W-3128 multistate project activities to IA Drip-Micro Common Interest Group meeting, November 19, 2014, Phoenix, Arizona.

Oral presentation of **SDI for Crop Production in the Great Plains – The Status at the 25th Anniversary of K-State’s Research and Extension Efforts** to UC-Davis Hydrology Seminar Series, November 6, 2014.

Oral discussion of progress with MIWaterQuality software to USDA-NIFA multistate project W-3128, October 22-24, 2014, Nashville, TN.

Interview for Argentina television station, October 15, 2014

Interview for Argentina newspaper with photos, October 15, 2014

Brief video entitled **Subsurface Drip Irrigation** featured in State of the University Address, September 29, 2014.

Tour and discussion for Quinter High School FFA and Biology classes, September 29, 2014.

Tour of station and SDI facilities and discussion for Kansas Farm Bureau Masters Group, October 7, 2014.

Poster presentation of **The Ogallala and the potential for SDI** at 100<sup>th</sup> anniversary field day, Colby, Kansas, September 6, 2014.

Poster presentation of **Water and Nitrogen management for corn using SDI** at 100th anniversary field day, Colby, Kansas, September 6, 2014.

SDI tour for Tony and Helen Sawyers, visitors from Boort, Victoria, Australia, August 21, 2014.

SDI Tour and discussion of sprinkler irrigation with Haijun Yan, Chinese Agricultural University, August 14, 2014.

SDI tour for Alejandro A. Pannunzio and Roy Dardo Fontanella, visitors from Argentina, August 4-7, 2014.

SDI Tour and discussions with 4 visitors from China, July 29 – August 7, 2014.

Interview for K-Stater alumni magazine, August 25 2014.

SDI tour for Tony and Helen Sawyers, visitors from Boort, Victoria, Australia, August 21, 2014.

Discussion of subsurface drip irrigation and water management with University of Connecticut summer class touring USA, Colby, Kansas, May 22, 2014.

SDI Technology Field Day, 25th Silver Anniversary of K-State's Efforts with SDI for Field Crops, Colby, Kansas, August 6, 2014.

Poster presentation of **Application of Biological Effluent with SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Effect of Emitter Spacing on Corn Production** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Filtration for SDI Systems** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Corn Management with SDI to Save Water Resources** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Comparison of SDI and simulated LEPA sprinkler Irrigation for corn** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Minimal System Requirements for SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **The Ogallala and the potential for SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **How can I use records of pressure and flow measurements to diagnose SDI system problems?** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **SDI Pros and Cons** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Slope Considerations for SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Spacing of Driplines for Corn** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Steps to a Successful SDI System** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **SDI with Temperature-Time Threshold (TTT)** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **What is SDI?** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **KSU bed management system for SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Can we make it work and can we make it pay?** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Chemical injector considerations for SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Installation depth considerations for SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Strategies to improve crop germination when using SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Water and Nitrogen management for corn using SDI????** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Comparison of SDI and alternative irrigation systems for cotton, grain sorghum, and soybean** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Water quality considerations for SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Poster presentation of **Alfalfa Production with SDI** at SDI Technology Field Day, Colby, Kansas, August 6, 2014.

Interview for Salina Journal article "Possible water solution", August 2, 2014.

Oral presentation of **Subsurface drip irrigation for corn production: Improved water use and nutrient management** at launch meeting of "High Efficient Water Use in Agriculture" project (111 plan), Beijing China, June 1-7, 2014.

Poster presentation of **What is SDI?** at *Making the Most of Limited Water* meeting at Hoxie, Kansas, March 11, 2014.

Poster presentation of **Steps to a successful SDI system.** at *Making the Most of Limited Water* meeting at Hoxie, Kansas, March 11, 2014.

Poster presentation of **Application of biological effluent with SDI** at *Making the Most of Limited Water* meeting at Hoxie, Kansas, March 11, 2014.

Poster presentation of **What is SDI?** at Central Plains Irrigation Conference, February 25-26, 2014, Burlington Colorado.

Poster presentation of **SDI Pros and Cons** at Central Plains Irrigation Conference, February 25-26, 2014, Burlington Colorado.

Poster presentation of **Application of biological effluent with SDI** at Central Plains Irrigation Conference, February 25-26, 2014, Burlington Colorado.

Video poster presentation of **Managing the challenges of subsurface drip irrigation in the Great Plains region** at Central Plains Irrigation Conference, February 25-26, 2014, Burlington Colorado.

Distribution of SDI and the Great Plains CDs at Central Plains Irrigation Conference, February 25-26, 2014, Burlington Colorado.

Oral presentation of **Successful SDI - Addressing the essential issues** at Clearwater Supply grower meeting, Ontario, Oregon, February 5, 2014.

Oral presentation of **SDI for corn production -A brief review of 25 years of KSU research** at Clearwater Supply grower meeting, Ontario, Oregon, February 5, 2014.

Discussion of microirrigation projects and technologies at annual W-2128 meeting, Denver, Colorado, November 14-16, 2013

Oral presentation of **SDI, the basics of successful systems** to the North Carolina Irrigation Society, Raleigh, North Carolina, November 12, 2013.

Oral presentation of **Using Livestock Wastewater with Subsurface Drip Irrigation** to the North Carolina Irrigation Society, Raleigh, North Carolina, November 12, 2013.

Discussion of SDI with Rodney Ruskin, GeoFlow and Dov Avital and Shmuel Schupak from Metzterplas, November 4, 2013, Austin, Texas.

Discussion and tour of SDI facilities for Rodney Ruskin, GeoFlow and Ahmet Attaroglu, Agplastik, October 30, 2013, Colby, Kansas.

Oral presentation of **SDI for Crop Production in the Great Plains - Approaching the 25th Anniversary of K-State's Research and Extension Efforts** to the Governor's Water Conference, Manhattan, Kansas, October 25, 2013.

Tour of station and SDI facilities and discussion for Kansas Farm Bureau Masters Group, October 1, 2013.

Tour of station and SDI facilities and discussion for Iryne McDonald and agronomy class from Colby Community College, September 26, 2013.

Discussion and tour of SDI with local farmer, September 13, 2013

One hour webinar entitled **Subsurface Drip Irrigation (SDI) for Grain Crop Production – Challenges and Opportunities** for Grange Network, September 12, 2013. <http://www3.grangenetwork.com>

Discussion of SDI facilities at Tear Down the Walls meeting, Colby, Kansas, August 14, 2013.

Tour and discussion of SDI for 20 visitors from Australia arranged by Jan Windscheffel and Sam Burrell, Netafim Irrigation, August 12, 2013.

Tour and discussion of SDI for 4 visitors from Colorado State University, August 1, 2013.

TV interview on water and irrigation for Smoky Hills Public Television by Rodrigo Lopez, June 6, 2013

Tour of SDI facilities and general discussion of SDI for Sim Mathwin, Churchill Fellow from Perth, Australia, May 30, 2013.

Tour of SDI facilities and general discussion of SDI with Jennifer Maloney and Paul Beck from John Deere Water, March 28, 2013.

Discussion of SDI with staff from Ventria Biosciences, Junction City, Kansas, March 27, 2013.

Kansas Water Office conference call and discussion of SDI within the newly formed Sheridan HPA#6 LEMA., March 21, 2013.

Kansas Water Office discussion of SDI within the newly formed Sheridan HPA#6 LEMA., February, 5, 2013.

TV Interview on irrigation by Hays Public Access Channel, January 10, 2013.

Lamm, F. R. and D. M. O'Brien. 2013. Ogallala Aquifer Program written annual report, **Evaluation of post-anthesis management allowed depletion (MAD) values for subsurface drip-irrigated corn production.** 3 pp.

Lamm, F. R. 2013. Ogallala Aquifer Program written final report, **Managing early season stresses affecting subsurface drip irrigated corn.** 8 pp.

Lamm, F. R. 2013. Ogallala Aquifer Program written final report, **Deficit subsurface drip irrigated alfalfa to optimize water productivity and forage quality.** 3 pp.

Lamm, F. R. Oral powerpoint presentation of **SDI Irrigation Capacity x N Fertigation Study of Corn**, at annual W-2128 meeting, Orlando, Florida, November 1-3, 2012

Oral powerpoint presentation of **The potential for conserving water with SDI for corn production** at the Governor's Water Conference, Manhattan, Kansas, October 30-31, 2012.

Poster presentation of **Application of biological effluent with SDI** at the Governor's Water Conference, Manhattan, Kansas, October 30-31, 2012.

Poster presentation of **Post-Anthesis Irrigation Management for Corn** at the Governor's Water Conference, Manhattan, Kansas, October 30-31, 2012.

Tour of station and SDI facilities and discussion for Iryne McDonald and agronomy class from Colby Community College, October 3, 2012

Tour of SDI facilities and discussion for Monsanto TDR group, September 19, 2012.

Tour of SDI facilities and discussion for Dow group (Al Green and Cecelia Topher, August 14, 2012.

Tour of SDI facilities and discussion of SDI research for David Mack and Ami Gips, Netafim Irrigation, February 23, 2012.

Lamm, F. R. 2012. Video poster presentation of **Managing the challenges of subsurface drip irrigation in the Great Plains region** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F. R. 2012. Poster presentation of **What is SDI?** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F. R. 2012. Poster presentation of **SDI Pros and Cons** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F. R. 2012. Poster presentation of **The Ogallala and the potential for SDI** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F. R. and D. H. Rogers. 2012. Poster presentation of **Steps to a successful SDI system** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F. R. and D. H. Rogers. 2012. Poster presentation of **Minimal system requirements for SDI** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F. R. and D. H. Rogers. 2012. Poster presentation of **How can I use records of pressure and flow measurements to diagnose SDI system problems?** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F. R. and G. A. Clark. 2012. Poster presentation of **Filtration for SDI systems** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F. R. 2012. Poster presentation of **Comparison of SDI and simulated LEPA sprinkler irrigation for corn** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F. R. 2012. Oral and poster presentation of **Corn management with SDI** to save water resources at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F.R., T. P. Trooien, and A. J. Schlegel. 2012. Oral and Poster presentation of **Application of biological effluent with SDI** at Central Plains Irrigation Conference, Colby, Kansas, February, 21-22, 2012.

Lamm, F.R. 2012 Presentation to Colby Community College Agricultural Seminar class, January 31, 2012 at KSU-NWREC. Topic was agricultural research centers and SDI. 1 hour presentation.

Lamm, F. R. 2012. **Alfalfa production with subsurface drip irrigation in western Kansas** In: A Summary of Water-Related Research in Kansas. Kansas State Univ. AES and CES, Manhattan, Kansas. pp 31.

Lamm, F. R., D. M. O'Brien, D.H. Rogers, and T. J. Dumler. 2012. **Center pivot sprinkler and SDI economic comparison software**. In: A Summary of Water-Related Research in Kansas. Kansas State Univ. AES and CES, Manhattan, Kansas. pp 32.

Lamm, F. R. 2012. **Yield of two corn hybrid maturity as affected by management allowed depletion level**. In: A Summary of Water-Related Research in Kansas. Kansas State Univ. AES and CES, Manhattan, Kansas. pp 33.

Lamm, F. R. 2012. **Longevity of subsurface drip irrigation systems in Kansas**. In: A Summary of Water-Related Research in Kansas. Kansas State Univ. AES and CES, Manhattan, Kansas. pp 34.

Lamm, F. R. Oral powerpoint presentation of **Use of multiple performance parameters to evaluate SDI systems**, at annual W-2128 meeting, Las Cruces, New Mexico, November 15-18, 2011

Discussion of agricultural research and SDI technology with Farm Bureau Master's program, October 6, 2011 at KSU-NWREC, Colby Kansas.

Tour of SDI and Lateral-Move sprinkler facilities and area sunflower producer for 5 individuals from Argentina, July 25-26, 2011

Tour of SDI facilities for KSU administrative staff, Geneva Jahnke, Terri Fayle, Doug Elcock and Bob Gillen, July 19, 2011.

Oral powerpoint presentation of **Twenty-Two Years of Progress with SDI in Kansas** at Sino-US Workshop on Microirrigation, Beijing China, April 23, 2011.

Oral powerpoint presentation of **Unique Challenges with Subsurface Drip Irrigation** at Sino-US Workshop on Microirrigation, Beijing China, April 23, 2011

Oral powerpoint presentation of **Some Design and Management Thoughts for SDI Systems** to Inner Mongolia Jin Tu Di Water-Saving Engineering Equipment Company near Wengniute, Chifeng, China, April 26, 2011

Lamm, F. R., Approximately 15 hours of seminars/teaching to MS and PhD level engineering students at China Agricultural University, Beijing, China, April 16-20, 2011. Topics were microirrigation, sprinkler irrigation, water management, experimental design, creative thinking, and philosophies of technical writing in US journals.

Lamm, F. R. and D. H. Rogers. 2011. Poster presentation of **Minimal system requirements** for SDI at 2011 Central Plains Irrigation Conference, February 22-23, Burlington, Colorado.

Lamm, F. R. 2011. Poster presentation of **Corn management with SDI to save water resources** at 2011 Central Plains Irrigation Conference, February 22-23, Burlington, Colorado.

(Voluntary) Lamm, F. R. and D. H. Rogers. 2011. Poster presentation of **Steps to a successful SDI system** at 2011 Central Plains Irrigation Conference, February 22-23, Burlington, Colorado.

Lamm, F. R. and D. H. Rogers. 2011. Poster presentation of **How can I use records of pressure and flow measurements to diagnose SDI system problems?** at 2011 Central Plains Irrigation Conference, February 22-23, Burlington, Colorado.

Lamm, F. R., and D. M. O'Brien. 2011. Ogallala Aquifer Program written report, **Managing Early Season Stresses affecting Subsurface Drip Irrigated Corn**. 2 pp.

Lamm, F. R., K. Harmoney, S. Johnson and D. M. O'Brien. 2011. Ogallala Aquifer Program written report, **Deficit Subsurface Drip Irrigated Alfalfa to Optimize Water Productivity and Forage Quality**. 2 pp.

Lamm, F.R. 2010. **Twenty-One Years of SDI Research in Kansas**. Presentation at the California Irrigation Institute annual conference, February 1-2, Sacramento, California.

Lamm, F. R. Discussion of SDI research with Syngenta staff, Greensboro, North Carolina, December 2, 2010.

Lamm, F. R. Discussion of SDI technology and participation in annual W-2128 meeting, Des Moines, Iowa, November 17-19, 2010

Lamm, F. R. Discussion of SDI technology with Farm Bureau Master's program, September 30, 2010 at KSU-NWREC, Colby Kansas.

Lamm, F. R. Discussion of SDI research with Bobby Bassi, Syngenta Chemical, August 2, 2010 at KSU-NWREC, Colby Kansas.

Lamm, F. R. and D. H. Rogers. 2010. Poster presentation of **Minimal system requirements for SDI** at 2010 Central Plains Irrigation Conference, February 23-24, Kearney NE.

Lamm, F. R. 2010. Poster presentation of **Corn management with SDI to save water resources** at 2010 Central Plains Irrigation Conference, February 23-24, Kearney NE.

Lamm, F. R. and D. O. Porter. 2010. Ogallala Aquifer Program written report, **Regional Educational Efforts for Subsurface Drip Irrigation (SDI)**. 11 pp.

Lamm, F. R. 2010. **Use of Quadris, Quilt Xcel, and Moddus for Subsurface Drip Irrigated Corn in Kansas**. A progress report to Syngenta, December 2010. 10 pp.

Presentation of **Corn irrigation macromanagement at the seasonal boundaries – Initiating and terminating the irrigation season**, at the Monsanto Sustainability Conference, Denver February 11-13, 2009, Denver.

Lamm, F. R. 2009. **A look at twenty years of SDI research in Kansas**. Presented at the 26th Annual Water and the Future of Kansas Conf., Topeka, Kansas, March 26, 2009.

Rogers, D. H. and F. R. Lamm. 2009. **Keys to successful adoption of SDI: Minimizing problems and ensuring longevity**. Presented at the 26th Annual Water and the Future of Kansas Conf, Topeka, Kansas, March 26, 2009.

Lamm, F. R., D. M. O'Brien, D. H. Rogers, and T. J. Dumler. 2009. **Using the K-State center pivot sprinkler and SDI economic comparison spreadsheet – 2009**. Presented at the 26th Annual Water and the Future of Kansas Conf., Topeka, Kansas, March 26, 2009.

Lamm, F. R. and A. A. Abou Kheira. 2009. Oral presentation of SDI research to Syngenta staff, Greensboro, North Carolina, December 8, 2009.

Lamm, F. R. 2009. Discussion of SDI with IA Drip/Micro Common Interest Group, San Antonio, Texas, December 4, 2009

Lamm, F. R. 2009. Poster presentation of **SDI Pros and Cons** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R. 2009. Poster presentation of **The Ogallala and the potential for SDI**, at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **Steps to a successful SDI system** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **Minimal system requirements for SDI** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **How can I use records of pressure and flow measurements to diagnose SDI system problems?** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R. and G. A. Clark. 2009. Poster presentation of **Filtration for SDI systems** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Arbat, G., F. R. Lamm, and A. A. Abou Kheira. 2009. Poster presentation of **Effect of emitter spacing on corn production** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R., L. R. Stone, and D. M. O'Brien. 2009. Poster presentation of **Spacing of driplines for corn production** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R. 2009. Poster presentation of **Comparison of SDI and simulated LEPA sprinkler irrigation for corn** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R. 2009. Poster presentation of **Corn management with SDI to save water resources** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R., K. Harmony, S. Johnson, and M. Alam. 2009. Poster presentation of **Alfalfa production with SDI** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.

Lamm, F. R. and R. M. Aiken. 2009. Poster presentation of **SDI with Temperature-Time Threshold (TTT)** at 2009 Irrigation Association Technical Conference, San Antonio, Texas, December 2-5, 2009.



Lamm, F. R. 2009. Discussion of K-State SDI research for USDA-RRF Regional Project W-2128 at annual meeting, San Juan Puerto Rico, November 16-18, 2009.

Lamm, F. R. 2009. Poster presentation of **What is SDI?** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. 2009. Poster presentation of **SDI Pros and Cons** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. 2009. Poster presentation of **The Ogallala and the potential for SDI** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **Steps to a successful SDI system** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **Minimal system requirements for SDI** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **How can I use records of pressure and flow measurements to diagnose SDI system problems?** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. and G. A. Clark. 2009. Poster presentation of **Filtration for SDI systems** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. 2009. Poster presentation of **Slope considerations for SDI** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Arbat, G., F. R. Lamm, and A. A. Abou Kheira. 2009. Poster presentation of **Effect of emitter spacing on corn** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R., L. R. Stone, and D. M. O'Brien. 2009. Poster presentation of **Spacing of driplines for corn production** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. 2009. Poster presentation of **Comparison of SDI and simulated LEPA sprinkler irrigation for corn** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. 2009. Oral and poster presentation of **Corn management with SDI to save water resources** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Trooien, T. P., F. R. Lamm, and A. J. Schlegel. 2009. Oral and Poster presentation of **Application of biological effluent with SDI** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R., K. Harmoney, S. Johnson, and M. Alam. 2009. Poster presentation of **Alfalfa production with SDI** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. and R. M. Aiken. 2009. Poster presentation of **SDI with Temperature-Time Threshold (TTT)** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. and D. M. O'Brien. 2009. Computer and poster presentation of **Can We Make it Work and Can We Make it Pay?** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Alam, M., D. Rogers and F.R. Lamm. 2009. . Poster presentation of **In-field evaluation of subsurface drip irrigation systems in Kansas** at K-State Research and Extension Annual Conference, Manhattan, Kansas, October 20, 2009.

Lamm, F. R. 2009. Discussion of SDI and tour of facilities for 4 employees of 21st Century Equipment LLC., September 24, 2009 at Colby Kansas.

Lamm, F.R. 2009. Discussion of SDI and tour of facilities for Dean and Associate Deans of KSU College of Agriculture, October 6, 2009 at Colby Kansas.

Lamm, F.R. 2009. Discussion of SDI and tour of facilities for Farm Bureau's Master Program, October 9, 2009 at Colby Kansas.

Lamm, F.R. 2009. Discussion of SDI and tour of facilities for Julio Santiago, Jain Irrigation, October 29, 2009 at Colby Kansas.

Lamm, F. R. 2009. Provided approximately 50 CD-ROM Disks with SDI information to Texas AgriLife for Field Day concerning SDI held at Chillicothe, Texas, September 3, 2009.

Lamm, F. R. 2009. Poster presentation of **SDI Pros and Cons** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. 2009. Poster presentation of **The Ogallala and the potential for SDI** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **Steps to a successful SDI system** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **Minimal system requirements for SDI** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **How can I use records of pressure and flow measurements to diagnose SDI system problems?** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. and G. A. Clark. 2009. Poster presentation of **Filtration for SDI systems** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Arbat, G., F. R. Lamm, and A. A. Abou Kheira. 2009. Poster presentation of **Effect of emitter spacing on corn production** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R., L. R. Stone, and D. M. O'Brien. 2009. Poster presentation of **Spacing of driplines for corn production** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. 2009. Poster presentation of **Slope considerations for SDI** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. 2009. Poster presentation of **Comparison of SDI and simulated LEPA sprinkler irrigation for corn** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. 2009. Poster presentation of **Corn management with SDI to save water resources** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R., K. Harmony, S. Johnson, and M. Alam. 2009. Poster presentation of **Alfalfa production with SDI** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Trooien, T. P., F. R. Lamm and A. J. Schlegel. 2009. Poster presentation of **Application of biological effluent with SDI** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. and R. M. Aiken. 2009. Poster presentation of **SDI with Temperature-Time Threshold (TTT)** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. and D. M. O'Brien. 2009. Computer and poster presentation of **Can We Make it Work and Can We Make it Pay?** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Alam, M., D. Rogers and F. R. Lamm. 2009. Poster presentation of **In-Field Evaluation of Subsurface Drip Irrigation Systems in Kansas** at SDI Technology Field Day, Halfway Texas, August 25, 2009.

Lamm, F. R. 2009. Poster presentation of **What is SDI?** at SDI Technology Field Day, Colby Kansas, August 4, 2009.

Lamm, F. R. 2009. Poster presentation of **SDI Pros and Cons** at SDI Technology Field Day, Colby Kansas, August 4, 2009.

Lamm, F. R. 2009. Poster presentation of **The Ogallala and the potential for SDI**, at SDI Technology Field Day, Colby Kansas, August 4, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **Steps to a successful SDI system** at SDI Technology Field Day, Colby Kansas, August 4, 2009.

Lamm, F. R. and D. H. Rogers. 2009. Poster presentation of **Minimal system requirements for SDI** at SDI Technology Field Day, Colby Kansas, August 4, 2009.

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Trooien, T. P., F. R. Lamm and A. J. Schlegel. 2009. Oral and Poster presentation of **Application of biological effluent with SDI** at SDI Technology Field Day, Colby Kansas, August 4, 2009.

Lamm, F. R., K. Harmony, S. Johnson, and M. Alam. 2009. Poster presentation of **Alfalfa production with SDI** at SDI Technology Field Day, Colby Kansas, August 4, 2009.

Lamm, F. R. and R. M. Aiken. 2009. Poster presentation of **SDI with Temperature-Time Threshold (TTT)** at SDI Technology Field Day, Colby Kansas, August 4, 2009.

Lamm, F. R. and D. M. O'Brien. 2009. Computer and poster presentation of **Can We Make it Work and Can We Make it Pay?** at SDI Technology Field Day, Colby Kansas, August 4, 2009.

Alam, M., D. Rogers and F. R. Lamm. 2009. Poster presentation of **In-Field Evaluation of Subsurface Drip Irrigation Systems in Kansas** at SDI Technology Field Day, Colby Kansas, August 4, 2009.

Lamm, F. R. 2009. Discussion of SDI and tour of facilities for Charles Johnson, National Editor for Farm Journal, May 27, 2009.

Lamm, F.R. 2009. Discussion of SDI and tour of KSU-NWREC SDI facilities at Colby, Kansas with Lance Goldsmith and Matt Newsom, Eurodrip USA, Inc., April 23.

Lamm, F.R. 2009. LCD-TV JPEG presentation of **Historical Photos from KSU Northwest Research-Extension Center Subsurface Drip Irrigation Installations from 1989 and 1990** at the 26th Annual Water and the Future of Kansas conference, Topeka, Kansas, March 26, 2009.

Lamm, F.R. 2009. LCD-TV JPEG presentation of **Sensitivity of center pivot sprinkler and SDI economic comparisons** at the 26th Annual Water and the Future of Kansas conference, Topeka, Kansas, March 26, 2009.

Lamm, F.R. 2009. Poster presentation of **SDI in the Great Plains** at the 26th Annual Water and the Future of Kansas conference, Topeka, Kansas, March 26, 2009.

Lamm, F.R. 2009. LCD-TV JPEG presentation of **Historical Photos from KSU Northwest Research-Extension Center Subsurface Drip Irrigation Installations from 1989 and 1990** at Annual Ogallala Aquifer Program Meeting, March 10-12, 2009, Garden City, Kansas.

Lamm, F.R. 2009. LCD-TV JPEG presentation of **sensitivity of center pivot sprinkler and SDI economic comparisons** at Annual Ogallala Aquifer Program Meeting, March 10-12, 2009, Garden City, Kansas.

Lamm, F.R. 2009. Poster presentation of **SDI in the Great Plains** at Annual Ogallala Aquifer Program Meeting, March 10-12, 2009, Garden City, Kansas.

Lamm, F. R., 2009. Distribution of SDI and the Great Plains CD-Rom at Annual Ogallala Aquifer Program Meeting, March 10-12, 2009, Garden City, Kansas.

Lamm, F. R., 2009. SDI facilities tour and discussion at KSU-NWREC, Colby, Kansas for Nir Aloni, Plastro Irrigation, Israel, February 25-26, 2009.

Lamm, F.R. 2009. LCD-TV JPEG presentation of **Historical Photos from KSU Northwest Research-Extension Center Subsurface Drip Irrigation Installations from 1989 and 1990** at Central Plains Irrigation Conference, February 24-25, 2009, Colby, Kansas.

Lamm, F.R. 2009. Poster presentation of **SDI in the Great Plains** at Central Plains Irrigation Conference, February 24-25, 2009, Colby, Kansas.

Lamm, F.R. 2009. Poster presentation of **Livestock Wastewater use through SDI – A Pilot Project** at Central Plains Irrigation Conference, February 24-25, 2009, Colby, Kansas.

Lamm, F.R. 2009. Poster presentation of **Software for Planning Corn Production with SDI** at Central Plains Irrigation Conference, February 24-25, 2009, Colby, Kansas.

Lamm, F.R. 2009. Poster presentation of **Optimum Fertigation for Corn Using SDI** at Central Plains Irrigation Conference, February 24-25, 2009, Colby, Kansas.

Lamm, F. R., 2009. Distribution of SDI and the Great Plains CD-Rom to Central Plains Irrigation Conference, February 24-25, 2009. (Approximately 150 CDs)

Lamm, F. R., 2009. Distribution of remaining 2008 SDI and the Great Plains CD-Rom at the Monsanto Sustainability Conference, Denver, Colorado, February 11-13, 2009. (Approximately 50 CDs)

Lamm, F.R. and D. M. O'Brien. 2009. COpt\_SDI09 (MS Excel template to determine optimum planned corn area and plant population for SDI), Version 09.0, February 10, 2009.

Lamm, F. R. 2009. Discussion and review of SDI economics and other SDI topics at KSU-NWREC, Colby, Kansas with Jan Windscheffel, Netafim Irrigation, January 30, 2009.

Lamm, F.R., D. M. O'Brien, D.H. Rogers, and T.J. Dumler. 2009. Software update of **CP\_SDI09** (MS Excel template to compare center pivot sprinkler economics to SDI).

Trooien, T. P. and F. R. Lamm. 2009. **Improving environmental stewardship of CAFO effluent: Management with SDI.** Abstract and powerpoint presentation for Water and the Future of Kansas conference, Topeka, Kansas March 26, 2009. 1 pp.

Lamm, F. R. 2009. **A look at 20 years of SDI research in Kansas.** Abstract and powerpoint presentation for Water and the Future of Kansas conference, Topeka, Kansas March 26, 2009. 1 pp.

Rogers, D. H. and F. R. Lamm. 2009. **Keys to successful adoption of SDI: Minimizing problems and ensuring longevity.** Abstract and powerpoint presentation for Water and the Future of Kansas conference, Topeka, Kansas March 26, 2009. 1 pp.

Lamm, F.R., T.P. Trooien and A. J. Schlegel. 2009. **Concepts for Application and Utilization of CAFO Effluents with Subsurface Drip Irrigation.** ASA-CSSA-SSSA Annual Meeting Abstract 2009.54756, Pittsburgh, Pennsylvania. November 1-5, 2009. 1 pp.

Lamm, F. R. and A. A. Abou Kheira 2009. **Using Quadris and Invinsa with subsurface drip irrigation for corn.** A progress report to Syngenta, December 2009. 11 pp.

Discussion of SDI research with USDA RRF Regional Project W1128, Portland, Oregon, October 22-24, 2008.

Presentation of historical aspects of KSU-NWREC and agriculture plus tour of SDI facilities to Farm Bureau Masters Tour, Colby Kansas, Oct. 8, 2008.

Tour and discussion of SDI facilities with Michael Dowgert, Netafim USA, August 20, 2008.

Tour and discussion of SDI facilities and other irrigation topics for KSU Agricultural Economics faculty, June 17, 2008.

Poster presentation of **Alfalfa production with subsurface drip irrigation (SDI)** at the KSU-NWREC spring field day, June 5, 2008.

Tour and discussion of SDI facilities and other irrigation topics for KSU Biological and Agricultural Engineering Department Chair, Gary Clark, May 13, 2008.

News release, **Pioneer, KSU research recommends irrigating through grain filling stage**, Pioneer Hi-Bred Crop Insights, April, 2008. Pioneer Hi-Bred Crop Insights, April, 2008.

News release, **Safely delaying the first irrigation of corn**, Pioneer Hi-Bred Crop Insights, April, 2008.

USDA-ARS news release, The Ogallala: Gauging, protecting the aquifer's health. April 2008. Discusses collaborative work.

Presentation of **Deficit Irrigation Management for Corn Production in Kansas: Handling Vegetative and Early Reproductive Period Water Stresses**, a study conducted specifically under subsurface drip irrigation, to Water and the Future of Kansas conference, Topeka, Kansas, March 25, 2008.

Lamm, F. R. and A. A. Abou Kheira 2008. **Improved irrigation macromanagement for corn. A. Effects of vegetative period water stress.** Final Report, Pioneer Crop Management Research Awards Program. Pioneer HiBred Inc., Des Moines, Iowa. 4 pp.

Poster presentation of **Comparing the economics of center pivot and subsurface drip irrigation systems** at Water and the Future of Kansas conference, March 2008, Topeka, Kansas.

Harmoney, K., F. Lamm, and S. Johnson. 2008. **Alfalfa yield and quality above subsurface drip irrigation lines.** Soc. Range Manage. and Amer. Forage and Grassland Council. Abstracts. #1667.

Presentation of Ogallala Aquifer Program progress report, **Can Subsurface Drip Irrigation (SDI) be a Competitive Irrigation System in the Great Plains Region for Commodity Crops**, F.R. Lamm, Amarillo, Texas, March 11-13, 2008.

Ogallala Aquifer Program written report, **Comparison of LEPA and SDI for corn, sunflower, soybean and sunflower**, F.R. Lamm, Amarillo, Texas, March 11-13, 2008.

Ogallala Aquifer Program written report, **Strategies for improved crop germination with SDI in Kansas and Texas**, F.R. Lamm, Amarillo, Texas, March 11-13, 2008.

Ogallala Aquifer Program written report, **Evaluating TTT Technology for Irrigation of Corn in the Central Great Plains**, F.R. Lamm, Amarillo, Texas, March 11-13, 2008.

Distribution of SDI and the Great Plains CD-Rom, February 2008.

Poster presentation of **SDI in the Great Plains** at Central Plains Irrigation Conference, February 19-20, 2008, Greeley, Colorado.

Poster presentation of **Livestock Wastewater use through SDI – A Pilot Project** at Central Plains Irrigation Conference, February 19-20, 2008, Greeley, Colorado.

Poster presentation of **Economics of SDI for Corn** at Central Plains Irrigation Conference, February 19-20, 2008, Greeley, Colorado.

Poster presentation of **Software for Planning Corn Production with SDI** at Central Plains Irrigation Conference, February 19-20, 2008, Greeley, Colorado.

Presentation of **Progress with SDI research at Kansas State University** to Victory Electrical Coop annual irrigation meeting, Dodge City, Kansas, February 8, 2008.

Poster presentation of **SDI in the Great Plains** to Victory Electrical Coop annual irrigation meeting, Dodge City, Kansas, February 8, 2008

Poster presentation of **Livestock Wastewater use through SDI – A Pilot Project** to Victory Electrical Coop annual irrigation meeting, Dodge City, Kansas, February 8, 2008

Poster presentation of **Economics of SDI for Corn** to Victory Electrical Coop annual irrigation meeting, Dodge City, Kansas, February 8, 2008

Presentation of **Using the K-State center pivot sprinkler and SDI economic comparison spreadsheet – 2008**, to Farmland Coop Employees, Sterling Colorado, February 7, 2008.

Presentation of **Progress with SDI research at Kansas State University** to Farmland Coop Employees, Sterling Colorado, February 7, 2008.

Presentation of **Subsurface drip irrigation (SDI) in Kansas** to key universities in India, Delhi, India, January 5, 2008.

Presentation of **Subsurface drip irrigation (SDI) in Kansas**, A. N.G. Ranga Agricultural University, Hyderabad, India, January 2, 2008.

Discussion of SDI research with USDA RRF Regional Project W1128, Honolulu, Hawaii, October 9-11, 2007.

SDI facilities tour and discussion for class from Sacred Heart Grade School, Colby, Kansas, October, 2007.

Presentation of historical aspects of KSU-NWREC and agriculture plus tour of SDI facilities to Farm Bureau Masters Tour, Colby Kansas, Oct. 4, 2007.

Poster presentation of **Minimum System Requirements with SDI** at KSU NWREC Field Day, Colby, Kansas, August 29, 2007.

SDI facilities tour and discussion for one producer, two USDA-ARS Scientists and three KSU staff, August 29, 2007

Hosted G. Li, China Agricultural University, Beijing, China, July 12, 2007 for discussions and facility tours concerning SDI.

SDI facilities tour and irrigation discussion for Ag In the Classroom group, July 12, 2007

Ogallala Aquifer Program written report, **Effect of dripline depth on corn, sunflower and soybean**, F.R. Lamm, Lubbock, Texas, March 12-14, 2007.

Ogallala Aquifer Program written report, **Effects of pre- and post anthesis stress and N placement on corn**, F.R. Lamm, Lubbock, Texas, March 12-14, 2007.

Ogallala Aquifer Program written report, **Evaluating TTT technology for irrigation of corn in the Central Great Plains**, F.R. Lamm and R. M. Aiken, Lubbock, Texas, March 12-14, 2007.

Ogallala Aquifer Program written report, **Installation effects on SDI flowrates and uniformity**, F.R. Lamm and G.A. Clark, Lubbock, Texas, March 12-14, 2007.

Ogallala Aquifer Program written report, **Comparison of LEPA and SDI for corn, sunflower and soybean**, F.R. Lamm, Lubbock, Texas, March 12-14, 2007.

Ogallala Aquifer Program written report, **Software to compare SDI and CP sprinkler economics**, F.R. Lamm and L. Almas, Lubbock, Texas, March 12-14, 2007.

Lamm, F. R. 2007. **Improved Irrigation Macromanagement for Corn.** Progress report, Pioneer Crop Management Research Awards Program. Pioneer HiBred Inc., Des Moines, Iowa. 5 pp.

Ogallala Aquifer Program written report, **Strategies for improved crop germination with SDI in Kansas and Texas**, F.R. Lamm, Lubbock, Texas, March 12-14, 2007.

Poster presentation of **SDI in the Great Plains** at Central Plains Irrigation Conference, February 27-28, 2007, Kearney, Nebraska.

Poster presentation of **Livestock Wastewater use through SDI – A Pilot Project** at Central Plains Irrigation Conference, February 27-28, 2007, Kearney, Nebraska.

Poster presentation of **Optimum Fertigation for Corn Using SDI** at Central Plains Irrigation Conference, February 27-28, 2007, Kearney, Nebraska.

Poster presentation of **Economics of SDI for Corn** at Central Plains Irrigation Conference, February 27-28, 2007, Kearney, Nebraska.

Poster presentation of **Software for Planning Corn Production with SDI** at Central Plains Irrigation Conference, February 27-28, 2007, Kearney, Nebraska.

Distribution of SDI and the Great Plains CD-Rom, February 2007.

Discussion of SDI and other water related topics with Tom Elliot, Boston Massachusetts at Colby, Kansas, November 17, 2006.

Presentation of historical aspects of KSU-NWREC and agriculture plus tour of SDI facilities to Farm Bureau Masters Tour, Colby Kansas, Oct. 6, 2006.

Discussion with J. Bordovsky, TAMU at Plainview Texas of SDI and other water-related projects, September 6, 2006.

Discussion with T.Howell, P.Colaizzi, and S. Evett, USDA-ARS, Bushland Texas of SDI and other water-related projects, September 6, 2006.

Discussion with Nicholas Farms staff, Big Bow, Kansas about SDI progress and problems, September, 4, 2006.

Presentation of **There ain't no such thing as a free supper** and general discussion of SDI and other irrigation technologies to Leadership Kansas Class of 2006, Hays, Kansas, August 25, 2006.

Tour of SDI facilities for KSU administrators, Forrest Chumley, Doug Elcock and Bob Gillen, August 23, 2006.

Demonstration to U. S. Congressional Aides of COpt\_SDI.xls, an MS Excel template to determine optimum planned corn area and plant population for SDI, at Manhattan, Kansas, August 17, 2006.

Discussion with Mike Bartolo, CSU, Rocky Ford, Colorado of microirrigation projects in the Ark Valley, August 9, 2006.

Tour of SDI facilities and discussion of SDI projects at NWREC, Colby Kansas with Naftali Lazarovitch, from the Ben-Gurion University of the Negev, Israel, August 7-9, 2006.

Presented SDI facilities and information as a portion of a NWREC tour for Kansas Black Farmers Assoc. and USDA-NRCS staff, Colby, Kansas, July 26, 2006.

Presentation of **Current irrigation technologies and their role in efficient use of water** at the Water and Future of Kansas conference, Topeka, Kansas, March 16, 2006.

Ogallala Aquifer Program written report, **Effect of dripline depth on corn, sunflower and soybean**, F.R. Lamm, Amarillo, Texas, March 7-9, 2006.

Ogallala Aquifer Program written report, **Effects of pre- and post anthesis stress and N placement on corn**, F.R. Lamm, Amarillo, Texas, March 7-9, 2006.

Ogallala Aquifer Program written report, **Installation effects on SDI flowrates and uniformity**, F.R. Lamm and G.A. Clark, Amarillo, Texas, March 7-9, 2006.

Ogallala Aquifer Program written report, **Comparison of LEPA and SDI for corn, sunflower and soybean**, F.R. Lamm, Amarillo, Texas, March 7-9, 2006.

Ogallala Aquifer Program written report, **Software to compare SDI and CP sprinkler economics**, F.R. Lamm and L. Almas, Amarillo, Texas, March 7-9, 2006.

Ogallala Aquifer Program written report, **Strategies for improved crop germination with SDI in Kansas and Texas**, F.R. Lamm, Amarillo, Texas, March 7-9, 2006.

Discussion of SDI and other water-related topics with Kansas agency and farm-related groups, Manhattan, Kansas, March 17, 2006.

CD of SDI website distributed to participants of Central Plains Irrigation Conference, February 21-22, 2006, Colby, Kansas.

Poster presentation of **SDI in the Great Plains** at Central Plains Irrigation Conference, February 21-22, 2006, Colby, Kansas.

Poster presentation of **Livestock Wastewater use through SDI – A Pilot Project** at Central Plains Irrigation Conference, February 21-22, 2006, Colby, Kansas.

Poster presentation of **Optimum Fertigation for Corn Using SDI** at Central Plains Irrigation Conference, February 21-22, 2006, Colby, Kansas.

Participant and discussant in the Western Irrigation SDI Management and Maintenance meeting, Garden City, Kansas, February 14, 2006.

Poster presentation of **SDI in the Great Plains** at the Western Irrigation SDI Management and Maintenance meeting, Garden City, Kansas, February 14, 2006.

Poster presentation of **Livestock wastewater use through SDI – A Pilot project** at the Western Irrigation SDI Management and Maintenance meeting, Garden City, Kansas, February 14, 2006.

Poster presentation of **Optimum fertigation for corn using SDI** at the Western Irrigation SDI Management and Maintenance meeting, Garden City, Kansas, February 14, 2006.

Discussion of SDI and other water related topics with KSU COA and COE administrators, Manhattan, Kansas, February 10, 2006.

Presentation of **Progress with SDI research at Kansas State University** at annual KARA meeting, January, 18, 2006, Salina, Kansas.

Discussion and tour of SDI at KSU-NWREC, Colby, Kansas with Li Guangyong, China Agricultural University, November 11, 2005

Presentation of SDI research results to USDA-RRF W1128 regional project concerning microirrigation, Phoenix, Arizona, November 2-4, 2005.

Discussion of SDI and irrigation efficiency with USDA-NRCS Kansas staff at Manhattan, Kansas, October 13, 2005.

Discussion and tour of SDI and other topics with regional Farm Bureau group at Colby, Kansas, October 6, 2005

Discussion and tour of SDI with representative of Netafim Irrigation at Colby Kansas, September 2005

Discussion of SDI and other irrigation topics with area representatives of Pioneer Hi-Bred International, August 22, 2005.

Discussion of SDI and Water Conservation research with US Congressional Aides, Hays Kansas, August 17, 2005.

Tour and discussion of SDI and other irrigation topics with scientist Graham Harris from Victoria, Australia, August 10-11, 2005.

Tour and discussion of SDI with farmer Garry Morrison from Victoria, Australia, August 7, 2005.

Discussion of SDI and other irrigation topics for Kuska family reunion, July 30, 2005.

Hosted Visiting Scientist, Gerard Arbat, University of Girona, Spain from June 29 to October 1, 2005.

Tour and discussion of SDI research with Tom Doerge, Pioneer Hi-Bred International, July 5, 2005.

Field Tour of SDI research installation at KSU-NWREC, June 22, 2005 for UAP representatives. Approximately 25 in attendance.

Poster presentation of **Minimum System Requirements with SDI** at KSU Sedgewick County SDI Field Day, Wichita, Kansas, June 1, 2005.

Poster presentation of **Improved irrigation water management with SDI** at KSU Sedgewick County SDI Field Day, Wichita, Kansas, June 1, 2005.

Poster presentation of **What is SDI?** at KSU Sedgewick County SDI Field Day, Wichita, Kansas, June 1, 2005.

Poster presentation of **SDI, Pros and Cons** at KSU Sedgewick County SDI Field Day, Wichita, Kansas, June 1, 2005.

Poster presentation of **Nutrient Management with SDI** at KSU Sedgewick County SDI Field Day, Wichita, Kansas, June 1, 2005.

Oral presentation of Ogallala Aquifer Programs that included SDI, Garden City, Kansas, March 8-10, 2005.

Ogallala Aquifer Program written report, **Effects of pre- and post-anthesis stress and N placement on corn**, February, 2005.

Ogallala Aquifer Program written report, **Effect of dripline depth on corn and sunflower**, February 2005.

Ogallala Aquifer Program written report, **Installation effects on SDI flowrates and uniformity**, February, 2005.

Ogallala Aquifer Program written report, **Comparison of LEPA and SDI**, Feb. 2005.

Ogallala Aquifer Program written report, **SDI and CP sprinkler economics**, February, 2005.

Olson, B. L. S., D. Rogers and F. Lamm. 2005. **Precision mobile drip irrigation versus drop nozzle irrigation**. In: Report of Progress, KSU Agronomic Field Research, 2005. pp 10-11.

Presentation of **Design and management considerations for SDI** at SDI meeting, Sublette, Kansas, March 3, 2005.

Presentation of **SDI research for corn production in Kansas, 16 years of progress** at SDI meeting, Sublette, Kansas, March 3, 2005.

Presentation of **Center pivot sprinkler and SDI economic comparisons** at SDI meeting, Sublette, Kansas, March 3, 2005.

Poster presentation of **SDI in the Great Plains** at SDI meeting at Sublette, Kansas, March 3, 2005.

Poster presentation of **Using livestock wastewater with SDI** at SDI meeting at Sublette, Kansas, March 3, 2005.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at SDI meeting at Sublette, Kansas, March 3, 2005.

Presentation of **SDI research for corn production in Kansas, 16 years of progress** at NICCA annual meeting, Kearney, Nebraska, Feb. 21, 2005.

**Economic comparison of SDI and center pivot sprinklers** at Arkansas Valley Farm and Ranch Symposium, January 6, 2005.

Oral presentation of **SDI research results** in Kansas at University of Missouri Crop Management School, Columbia, Missouri, Dec. 16-17, 2004.

Poster presentation of **SDI in the Great Plains** at University of Missouri Crop Management School, Columbia, Missouri, December 16-17, 2004.

Poster presentation of **Using livestock wastewater with SDI** at University of Missouri Crop Management School, Columbia, Missouri, December 16-17, 2004.

Presentation of SDI research results to USDA-RRF W1128 regional project concerning microirrigation, Tampa, FL, November 17-19, 2004.

R. M. Aiken and F. R. Lamm. 2004. **Monitoring corn canopy temperature and soil water depletion under limited irrigation**. ASA-SSSA-CSA international meeting abstract.

Oral presentation of **“Steps to a successful SDI system”** at KSU Scandia Experimental Field, August 24, 2004.

Oral presentation of **“Minimum system requirements with SDI”** at KSU Scandia Experimental Field, August 24, 2004.

Poster presentation of **“Can we make SDI pay”?** at KSU Scandia Experimental Field, August 24, 2004.

Poster presentation of **“What is SDI”?** at KSU Scandia Experimental Field, August 24, 2004.

Poster presentation of **“Improved irrigation water management with SDI”** at KSU Scandia Experimental Field, August 24, 2004.

Discussion of SDI with Governor’s Subcabinet on Water, Manhattan, Kansas, August 23, 2004.

Discussion of SDI research with US Congressional Aides, August 12, 2004.

SDI Technology Field Day, at NWREC with 139 participants, Aug. 10, 2004.

Oral and Poster presentation of **Comparison of SDI and simulated LEPA sprinkler irrigation for corn** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **What is SDI?** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Improved irrigation water management with SDI** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Minimum system requirements with SDI** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Steps to a successful SDI system** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Can we make it pay?** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Can we make it work?** at SDI Technology Field Day, at NWREC, August 10, 2004.



Poster presentation of **Determination of the appropriate dripline flushing velocity** at SDI Technology Field Day, at NWREC, Aug. 10, 2004.

Poster presentation of **Nutrient management with SDI** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Livestock wastewater utilization with SDI** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **The Ogallala and the potential for SDI** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **SDI, Pros and Cons** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Optimal plant populations for corn using SDI** with limited well capacities at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Spacing of driplines for corn production** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Using SDI and LEPA sprinkler irrigation to apply swine wastewater -- A progress report** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **K-State's permanent bed system** for SDI at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Slope considerations for SDI** at SDI Technology Field Day, at NWREC, August 10, 2004.

Poster presentation of **Filtration for SDI systems** at SDI Technology Field Day, at NWREC, August 10, 2004.

SDI tour and discussion for Kansas Farm Appraisers Assn. at NWREC, July 15, 2004.

Discussion and tour of SDI research with Tom Doerge, July 6, 2004.

Hosted Dr. Jaume Puig, University of Girona (Spain) from May 16-September 3, 2004 to conduct SDI research on dripline flushing velocity.

Discussion with 6 Pioneer HiBred Inc. personnel about SDI and other irrigation technologies, March 19, 2004.

Participant and Resource Person in Western Irrigation Operation and Maintenance Workshop, Feb 24, 2004, Garden City, Kansas.

CD of SDI website distributed to participants of Western Irrigation Operation and Maintenance Workshop, Feb 24, 2004, Garden City, Kansas.

Poster presentation of **SDI in the Great Plains** at Western Irrigation Operation and Maintenance Workshop, Feb 24, 2004, Garden City, Kansas.

Poster presentation of **Using livestock wastewater with SDI** at Western Irrigation Operation and Maintenance Workshop, Feb 24, 2004, Garden City, Kansas.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at Western Irrigation Operation and Maintenance Workshop, Feb 24, 2004, Garden City, Kansas.

Presentation of **SDI in the Great Plains region with a few glances elsewhere** at Ogallala Symposium, Wray, Colorado, Feb. 23, 2004.

CD of SDI website distributed to participants of Ogallala Symposium, Wray, Colorado, Feb. 23, 2004.

Poster presentation of **SDI in the Great Plains** at Ogallala Symposium, Wray, Colorado, Feb. 23, 2004.

Poster presentation of **Using livestock wastewater with SDI** at Ogallala Symposium, Wray, Colorado, Feb. 23, 2004.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at Ogallala Symposium, Wray, Colorado, Feb. 23, 2004.

CD of SDI website distributed to participants Central Plains Irrigation Conference, Kearney, Nebraska, Feb. 17-18, 2004.

Poster presentation of **SDI in the Great Plains** at Central Plains Irrigation Conference, Kearney, Nebraska, Feb. 17-18, 2004.

Poster presentation of **Using livestock wastewater with SDI** at Central Plains Irrigation Conference, Kearney, Nebraska, Feb. 17-18, 2004.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at Central Plains Irrigation Conference, Kearney, Nebraska, Feb. 17-18, 2004.

Presentation of **SDI in the Great Plains region with a few glances elsewhere** at Powell Agricultural and Irrigation Technologies meeting, Powell, Wyoming, Feb. 6, 2004.

Presentation of **Design and management considerations for SDI** at Powell Agricultural and Irrigation Technologies meeting, Powell, Wyoming, Feb. 6, 2004.

Presentation of **Filtration and maintenance considerations for SDI** at Powell Agricultural and Irrigation Technologies meeting, Powell, Wyoming, Feb. 6, 2004.

Presentation of **Center pivot sprinkler and SDI economic comparisons** at Powell Agricultural and Irrigation Technologies meeting, Powell, Wyoming, Feb. 6, 2004.

CD of SDI website distributed to participants of Powell Agricultural and Irrigation Technologies meeting, Powell, Wyoming, Feb. 6, 2004.

Poster presentation of **SDI in the Great Plains** at Powell Agricultural and Irrigation Technologies meeting, Powell, Wyoming, Feb. 6, 2004.

Poster presentation of **Using livestock wastewater with SDI** at Powell Agricultural and Irrigation Technologies meeting, Powell, WY, Feb. 6, 2004.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at Powell Agricultural and Irrigation Technologies meeting, Powell, Wyoming, Feb. 6, 2004.

Presentation of second year's research results for SDI Frequency study to Corn Commission, January 22, 2004. Presentation by Rob Aiken.

Presentation of **SDI in the Great Plains region with a few glances elsewhere** at Victory Electric Irrigation meeting, Dodge City, Kansas, January 22, 2004.

Poster presentation of **SDI in the Great Plains** at Victory Electric Irrigation meeting, Dodge City, Kansas, January 22, 2004.

Poster presentation of **Using livestock wastewater with SDI** at Victory Electric Irrigation meeting, Dodge City, Kansas, January 22, 2004.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at Victory Electric Irrigation meeting, Dodge City, KS, Jan. 22, 2004.

Presentation of **Design and management considerations for SDI** at SDI meeting, Dodge City, Kansas, December 10, 2003.

Presentation of **SDI Research for Corn Production in Kansas, 14 Years of Progress** at SDI meeting, Dodge City, Kansas, December 10, 2003.

Presentation of **Using beef lagoon wastewater with SDI** at SDI meeting, Dodge City, Kansas, December 10, 2003.

Presentation of **Center pivot sprinkler and SDI economic comparisons** at SDI meeting, Dodge City, Kansas, December 10, 2003.

Poster presentation of **SDI in the Great Plains** at SDI meeting, Dodge City, Kansas, December 10, 2003.

Poster presentation of **Using livestock wastewater with SDI** at SDI meeting, Dodge City, Kansas, December 10, 2003.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at SDI meeting, Dodge City, Kansas, December 10, 2003.

Presentation of **Design and management considerations for SDI** at SDI meeting, Abilene, Kansas, December 9, 2003.

Presentation of **SDI Research for corn production in Kansas, 14 years of progress** at SDI meeting, Abilene, Kansas, December 9, 2003.

Presentation of **Using beef lagoon wastewater with SDI** at SDI meeting, Abilene, Kansas, December 9, 2003.

Presentation of **Center pivot sprinkler and SDI economic comparisons** at SDI meeting, Abilene, Kansas, December 9, 2003.

Poster presentation of **SDI in the Great Plains** at SDI meeting, Abilene, Kansas, December 9, 2003.

Poster presentation of **Using livestock wastewater with SDI** at SDI meeting, Abilene, Kansas, December 9, 2003.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at SDI meeting, Abilene, Kansas, December 9, 2003.

Presentation and discussion of SDI results to USDA-RRF W-128 Microirrigation Committee, Davis, California, October 22-24, 2003.

Newspaper article in Salina Journal, Oct. 5, 2003 entitled, Drip, Drip, Drip.

Presentation of **SDI in the Great Plains region with a few glances elsewhere** at the KSU-SWREC Field Day, Garden City, KS, Aug. 28, 2003.

Presentation to US Congressional Aides Tour of **Improved irrigation water management with SDI**, Manhattan, Kansas, August 6, 2003.

Presentation of **SDI in the Great Plains** at the SDI and Sweet Corn Production Tour, Ulysses Kansas, July 9, 2003.

Presentation of **A look at SDI in the Great Plains region with a few glances elsewhere**, Tri-State Economic Development meeting, May 15, 2003.

Presentation of **Nitrogen fertilization for corn production using SDI at Water and the Future of Kansas Conference**, Manhattan, KS, Ma. 11, 2003.

Participant and resource person for Western Irrigation SDI Operation and Maintenance meeting, Feb. 20, 2003.

CD of SDI website distributed to participants of Western Irrigation SDI Operation and Maintenance meeting, Feb. 20, 2003.

Poster presentation of **SDI in the Great Plains** at Western Irrigation Operation and Maintenance Workshop, Feb 20, 2003, Garden City, KS.

Poster presentation of **Using livestock wastewater with SDI** at Western Irrigation Operation and Maintenance Workshop, Feb 20, 2003, Garden City, Kansas.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at Western Irrigation Operation and Maintenance Workshop, Feb 20, 2003, Garden City, Kansas.

Coordinator of SDI producer panel for Central Plains Irrigation Conference, Colby, KS, Feb 4-5, 2003.

Poster presentation of **SDI in the Great Plains** at Central Plains Irrigation Conference, Colby, KS, Feb 4-5, 2003.

Poster presentation of **Using livestock wastewater with SDI** at Central Plains Irrigation Conference, Colby, KS, Feb 4-5, 2003.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at Central Plains Irrigation Conference, Colby, KS, Feb 4-5, 2003.

Research application summary (Economically optimal corn plant population at various capacities using SDI) and Excel spreadsheet (Copt\_SD1.xls) for Pioneer HiBred Intl., January, 24, 2003.

Presentation of first year's research results for SDI Frequency study to Corn Commission, January 10, 2003.

Poster presentation of **SDI in the Great Plains** at Victory Electric Irrigation meeting, Dodge City, KS, 1-6-03.

Poster presentation of **Using livestock wastewater with SDI** at Victory Electric Irrigation meeting, Dodge City, KS, 1-6-03.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at Victory Electric Irrigation meeting, Dodge City, KS, 1-6-03.

Presentation of **SDI for corn production in Kansas** at SDI meeting in Belleville, Kansas, December 18, 2002.

Presentation of **Design and management considerations for SDI** at SDI meeting in Belleville, Kansas, December 18, 2002.

Poster presentation of **SDI and the Great Plains** at SDI meeting in Belleville, Kansas, December 18, 2002.

Poster presentation of **Livestock wastewater use with SDI: A pilot project** at SDI meeting in Belleville, Kansas, December 18, 2002.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at SDI meeting in Belleville, Kansas, December 18, 2002.

Computer presentation of **Economic comparison of SDI & center pivot sprinklers for corn: Sensitivity to key factors** at SDI meeting in Belleville, Kansas, December 18, 2002.

Presentation of **SDI for corn production in Kansas** at SDI meeting in Wichita, Kansas, December 17, 2002.

Presentation of **Design and management considerations for SDI** at SDI meeting in Wichita, Kansas, December 17, 2002.

Poster presentation of **SDI and the Great Plains** at SDI meeting in Wichita, Kansas, December 17, 2002.

Poster presentation of **Livestock wastewater use with SDI: A pilot project** at SDI meeting in Wichita, Kansas, December 17, 2002.

Poster presentation of **Nitrogen fertilization for corn production using SDI** at SDI meeting in Wichita, Kansas, December 17, 2002.

Computer presentation of **Economic comparison of SDI & center pivot sprinklers for corn: Sensitivity to key factors** at SDI meeting in Wichita, Kansas, December 17, 2002.

Presentation of **SDI for corn production in Kansas** to Groundwater Conservation for S.W. Kansas, Dodge City, KS, Nov. 20, 2002.

Discussion of SDI with Valmont Industries, Kearney, NE, Nov, 6, 2002.

Lamm, F.R. 2002. **SDI for corn production in Kansas**. USDA-RRF W-128 Microirrigation Committee, New Orleans, LA, October 24, 2002.

Discussion of SDI with Colorado crop consultant at NWREC SDI site, October 17, 2002.

Tour and discussion of SDI facilities for NRCS, two Univ of Nebraska personnel and 3 Nebraska producers, September 9, 2002.

Tour and discussion of SDI facilities for a Nebraska producer, August 21, 2002.

Tour and discussion of SDI facilities for four Colorado producers, August 13, 2002.

Tour and discussion of SDI facilities for two Univ. of Nebraska faculty, July 24, 2002.

Tour and discussion of SDI facilities for Dr. Tom Thompson, Univ. of Arizona and a Kansas producer, July 16, 2002.

Discussion of using beef lagoon wastewater through SDI systems for Mid-America State Depts. of Agriculture for Kansas Secretary of Agriculture Jamie Clover Adams near Sublette, Kansas, July 14, 2002.

Tour and discussion of SDI facilities for Kansas Water Authority (approximately 30 in attendance), July 10, 2002.

Tour and discussion of SDI facilities for NRCS and four producers from Colorado, July 10, 2002.

Discussion and tour of SDI research facility with engineering consultant from NE, March 23, 2002.

Poster presentation of **SDI in the Great Plains** at SDI meeting for producers, Courtland, KS, 3-21-02.

Poster presentation of **Using livestock wastewater with SDI** at SDI meeting for producers, Courtland, KS, 3-21-02.

Presentation of **SDI Research for corn production for SDI** at SDI meeting for producers, Courtland, KS, 3-21-02.

Presentation of **Economic comparison of SDI & center pivot sprinklers for corn: Sensitivity to key factors** at SDI meeting for producers, Courtland, KS, 3-21-02.

Poster presentation of **SDI in the Great Plains** at SDI in-service for UNL and NRCS personnel, Hastings, NE, 3-20-02.

Poster presentation of **Using livestock wastewater with SDI** at SDI in-service for UNL and NRCS personnel, Hastings, NE, 3-20-02.

Presentation of **Design and management considerations for SDI** at SDI in-service for UNL and NRCS personnel, Hastings, NE, 3-20-02.

Presentation of **SDI Research for corn production for SDI** at SDI in-service for UNL and NRCS personnel, Hastings, NE, 3-20-02.

Presentation of **Economic comparison of SDI & center pivot sprinklers for corn: Sensitivity to key factors** at SDI in-service for UNL and NRCS personnel, Hastings, NE, 3-20-2002.

Development and posting to SDI website of Excel template to compare economics of SDI and center pivot sprinklers, 3-19-02.

Presentation of **Minimum requirements for SDI systems** at County agent update at KSU-SWREC, March 7, 2002.

Presentation of **Economic comparison of SDI & center pivot sprinklers for corn: Sensitivity to key factors** at county agent update at KSU-SWREC, March 7, 2002.

Presentation of **Design and management considerations for SDI** at SDI meeting in Hugoton, Kansas, Feb 20, 2002.

Presentation of **Irrigation capacity and plant population effects on corn production** at SDI meeting in Hugoton, Kansas, Feb 20, 2002.

Poster presentation of **SDI and the Great Plains** at SDI meeting in Hugoton, Kansas, Feb 20, 2002.

Poster presentation of **Livestock wastewater use with SDI: A pilot project** at SDI meeting in Hugoton, Kansas, Feb 20, 2002.

Computer presentation of **Economic comparison of SDI & center pivot sprinklers for corn: Sensitivity to key factors** at SDI meeting in Hugoton, Kansas, Feb 20, 2002.

Presentation of **Design and management considerations for SDI** at SDI meeting in Garden City, Kansas, Feb 19, 2002.

Presentation of **Irrigation capacity and plant population effects on corn production** at SDI meeting in Garden City, Kansas, Feb 19, 2002.

Poster presentation of **SDI and the Great Plains** at SDI meeting in Garden City, Kansas, Feb 19, 2002.

Poster presentation of **Livestock wastewater use with SDI: A pilot project** at SDI meeting in Garden City, Kansas, Feb 19, 2002.

Computer presentation of **Economic comparison of SDI & center pivot sprinklers for corn: Sensitivity to key factors** at SDI meeting in Garden City, Kansas, Feb 19, 2002.

Presentation of **Design and management considerations for SDI** at SDI meeting in Colby, Kansas, Feb 18, 2002.

Presentation of **Irrigation capacity and plant population effects on corn production** at SDI meeting in Colby, Kansas, Feb 18, 2002.

Poster presentation of **SDI and the Great Plains** at SDI meeting in Colby, Kansas, Feb 18, 2002.

Computer presentation of **Economic comparison of SDI & center pivot sprinklers for corn: Sensitivity to key factors** at SDI meeting in Colby, Kansas, Feb 18, 2002.

Poster presentation of **Livestock wastewater use with SDI: A pilot project** at Plains at SDI meeting in Colby, Kansas, Feb 18, 2002.

Presentation of **Design and management considerations for SDI** at SDI meeting in North Platte NE, Feb 12, 2002.

Presentation of **Irrigation capacity and plant population effects on corn production** at SDI meeting in North Platte, NE, Feb 12, 2002.

Presentation of **Economic comparison of center pivot sprinklers and SDI for corn production** at SDI meeting in North Platte, NE, Feb 12, 2002.

Poster presentation of **SDI and the Great Plains** at SDI meeting in North Platte, NE, Feb 12, 2002.

Presentation of **Economic comparison of center pivot sprinklers and SDI for corn production** at SW Kansas Irrigators, Association meeting, Feb 1, 2002.

Presentation of **Irrigation capacity and plant population effects on corn production using SDI** at Western Kansas Irrigation Workshop, Goodland, KS, January 10, 2002.

Presentation of **Design and management considerations for SDI** at the Michiana Irrigation Association Annual Meeting, Shipshewana, IN, Dec.10, 2001.

Presentation of **Potential issues for Michiana seed corn producers considering SDI** at the Michiana Irrigation Association Annual Meeting, Shipshewana, IN, Dec.10, 2001.

Aiken, R. M., F. R. Lamm, J. P. Ham, and T. P. Trooien. 2001. **Deploying sap flow heat gauges in replicated field plots of corn.** Agronomy Abstracts A03-aiken140811-P.

Lamm, F.R. 2001. **SDI for corn production in Kansas.** USDA-RRF W-128 Microirrigation Committee, San Antonio, Texas, Nov.6-8, 2001.

Discussion of progress of livestock wastewater utilization with SDI with K-State administrators, Sept. 28, 2001.

Tour of SDI facilities for group of approximately 20 Farm Bureau members from Kansas, Sept. 27, 2001.

Tour of SDI facilities for group of 20 producers from Australia, August 28, 2001.

Presentation to Kansas Congressional Aides about USDA Special Grant Water conservation--Increased efficiency in usage, August 14, 2001.

Tour of SDI facilities for scientists with "Tear down the Walls" symposium, August 13, 2001. Approximately 6 in attendance.

Tour of SDI facilities for KSU 4-H Wheat Show meeting, August 8, 2001. Approximately 35 in attendance.

SDI technology Field Day, August 7, 2001. Approximately 200 in attendance.

Poster presentation of **SDI Research and Extension efforts at K-State -- 12 years and counting**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **What is subsurface drip irrigation (SDI)?**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **Comparison of SDI and simulated LEPA sprinkler irrigation for corn**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **Filtration for SDI systems**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **Livestock wastewater utilization with SDI**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **The Ogallala and the potential for SDI**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **K-State's permanent bed system for SDI**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **SDI, pros and cons**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **Slope considerations for SDI**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **Spacing of driplines for corn production**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **Using SDI and LEPA sprinkler irrigation to apply swine wastewater -- A Progress Report**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **Minimal system requirements for SDI**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **Optimal plant populations for corn using SDI with limited well capacities**, SDI Technology Field Day, August 7, 2001.

Poster presentation of **Water use of corn**, SDI Technology Field Day, August 7, 2001.

Newspaper article in Salina Journal, August 5, 2001.

Mini-tour of SDI facilities for Ogallala Management Taskforce, July 26, 2001. 4 in attendance.

Tour of SDI facilities and discussion of research with Tom Doerge, Pioneer Hi-bred Int., July 25, 2001.

Mini-tour of SDI facilities for Ogallala Technical Taskforce, July 9, 2001. Approximately 20 in attendance.

Interviewed by Carl Kistler, reporter from Furrow magazine about SDI and wastewater, June 18, 2001.

Field tour of SDI facilities for KU Whirlwind Wheat State Tour, May 24, 2001.

Radio interview about SDI by Bruce Gaarder, Clear Channel Ag Network, Oklahoma City, OK, Feb. 23, 2001.

Participant in *"Drip Management and Maintenance Meeting"* sponsored by Western Irrigation, Garden City, KS, Feb. 21, 2001.

Participant in *"SDI in the Humid Regions"* publication planning workshop, Florence, SC, Feb 13-15, 2001.

News release by K-State Research and Extension (Pat Melgares) concerning use of livestock wastewater with SDI carried in numerous newspapers. Feb. 2001.

Oral presentation of design and management considerations for SDI at SDI workshop, Alma, NE, Jan. 31, 2001.

Lamm, F.R., A.J. Schlegel, and G.A. Clark. 2001. Poster presentation of *Optimum nitrogen fertigation of corn with SDI*. SDI workshop, Alma, NE, Jan. 31, 2001.

Lamm, F.R. and T.P. Trooien. 2001. Poster presentation of *SDI in the Great Plains*. SDI workshop, Alma, NE, Jan. 31, 2001.

Lamm, F.R., Trooien, T.P., L.R. Stone, M. Alam, D.H. Rogers, G.A. Clark, and A.J. Schlegel. 2001. **Using livestock wastewater with SDI -- A status report after three seasons**. A presentation to the FACT conference, Liberal, KS, Jan. 9, 2001.

Lamm, F.R. 2000. Presentation of **Design and management considerations for SDI systems** at Crop Modeling Workshop, Univ. of Nebraska, Lincoln, NE, Dec. 4-7, 2000.

Poster presentation of **SDI in the Great Plains** at Crop Modeling Workshop, Univ. of Nebraska, Lincoln, NE, Dec. 4-7, 2000.

Poster presentation of **Economics of SDI for corn production** at Crop Modeling Workshop, Univ. of Nebraska, Lincoln, NE, Dec. 4-7, 2000.

Poster presentation of **Utilizing livestock wastewater with SDI** at Crop Modeling Workshop, Univ. of Nebraska, Lincoln, NE, Dec. 4-7, 2000.

Poster presentation of **Nitrogen fertilization for corn production** using SDI at Crop Modeling Workshop, Univ. of Nebraska, Lincoln, NE, Dec. 4-7, 2000.

Extensive 1.5 hour consultation with 3 UNL faculty in Agronomy Dept. about utilization of SDI for research, Dec 6, 2000.

Newsletter article **Using livestock wastewater with SDI**, CPIA Waterline, 4(1)2-3. Nov. 2000.

Poster presentation of **SDI in the Great Plains** at Division of Water Resource training, Rossville, KS, Oct. 11, 2000. Presentation by D. Rogers.

Poster presentation of **Economics of SDI for corn production** at the Division of Water Resource training, Rossville, KS, Oct. 11, 2000. Presentation by D. Rogers.

K-State county agent update on SDI for corn production, Colby, KS, Oct. 4, 2000.

Tour of NWREC SDI facilities and discussion of SDI with group from Netafim and Cascade Earth Sciences (4), Sep. 26, 2000.

Tour of NWREC SDI facilities and discussion of SDI with group from Kansas Farm bureau (13), Sep. 26, 2000.

Lamm, F.R. 2000. **SDI for corn production in Kansas**. USDA-RRF W-128 Microirrigation Committee, Maui, Hawaii, Sep. 19-22, 2000.

Tour of NWREC SDI facilities and discussion of SDI with 4 faculty from University of Nebraska, Sep. 14, 2000.

Poster presentation of **SDI in the Great Plains** at the KSU-Agronomy Field Day, Manhattan, KS, Sep. 7, 2000. Presentation by D. Rogers.

Poster presentation of **Economics of SDI for corn production** at the KSU-Agronomy Field Day, Manhattan, KS, Sep. 7, 2000. Presentation by D. Rogers.

Tour of NWREC SDI facilities and discussion of SDI with UNL tour group of 35 people, Aug. 26, 2000.

Field day presentation of **Using livestock wastewater with SDI**, KSU-SWREC, Garden City, KS, Aug. 24, 2000.

Poster presentation of **SDI in the Great Plains** at the KSU-SWREC Field Day, Garden City, KS, Aug. 24, 2000.

Poster presentation of **Economics of SDI for corn production** at the KSU-SWREC Field Day, Garden City, KS, Aug. 24, 2000.

Poster presentation of **Nitrogen fertigation of corn with SDI** at the KSU-SWREC Field Day, Garden City, KS, Aug. 24, 2000.

Poster presentation of **SDI in the Great Plains** at the KSU-NWREC Field Day, Colby, KS, Aug. 23, 2000.

Poster presentation of **Economics of SDI for corn production** at the KSU-NWREC Field Day, Colby, KS, Aug. 23, 2000.

Poster presentation of **Nitrogen fertigation of corn with SDI** at the KSU-NWREC Field Day, Colby, KS, Aug. 23, 2000.

Legislative briefing on USDA Special Project, **Water conservation - Increased efficiency in usage**, Manhattan, KS, Aug. 22, 2000.

Poster presentation of **SDI in the Great Plains** at the KSU-Kansas River Valley Field Day, Topeka, KS, Aug. 9, 2000. Presentation by D. Rogers.

Poster presentation of **Economics of SDI for corn production** at the KSU-Kansas River Valley Field Day, Topeka, KS, Aug. 9, 2000. Presentation by D. Rogers.

Tour of NWREC SDI facilities and discussion of SDI with UNL tour group led by Mark Golembolski, July 26, 2000.

Tour of NWREC SDI facilities and discussion of SDI with Ken Phillips, Yardney Filtration, May. 19, 2000.

Extensive phone call consultation with Dean Yonts, UNL-Scottsbluff on SDI design operation and management, May 4, 2000.

Tour and discussion of SDI facilities with Jim Phene, Netafim Irrigation, April 12, 2000.

Tour of NWREC SDI facilities and discussion of SDI with 2 faculty from Colorado State University, Apr. 3, 2000.

Tour of NWREC SDI facilities for Gerard Kluitenberg, Mar. 21, 2000.

Developed MIBook website to manage and coordinate revision of book Microirrigation for crop production, design operation and management, 2000.

Lamm, F.R. and T.P. Trooien. 2000. **SDI for corn production and waste management**. Presentation to Conservation District, Ellsworth, KS, Mar. 16, 2000.

Lamm, F.R. and T.P. Trooien. 2000. **SDI for corn production and waste management**. Presentation to Conservation District, Grainfield, KS, Mar. 14, 2000.

Trooien, T.P., F.R. Lamm, L.R. Stone, M. Alam, D.H. Rogers, G.A. Clark, and A.J. Schlegel. 2000. Poster presentation of **Using lagoon wastewater with subsurface drip irrigation** presented at the 17th annual Water and the Future of Kansas Conf., Manhattan, KS, March 1, 2000.

Lamm, F.R. and T.P. Trooien. 2000. Poster presentation of **SDI in the Great Plains**. Central Plains Irrigation Short Course, Garden City, KS, Feb. 9-10, 2000.

O'Brien, D.M. and F.R. Lamm. 2000. Poster presentation of **Economics of SDI for corn**. Central Plains Irrigation Short Course, Garden City, KS, Feb. 9-10, 2000.

Lamm, F.R. and T.P. Trooien. 2000. Poster presentation of **Using livestock wastewater with SDI**. Central Plains Irrigation Short Course, Garden City, KS, Feb. 9-10, 2000.

Lamm, F.R., A.J. Schlegel, and G A. Clark. 2000. Poster presentation of **Optimum nitrogen fertigation of corn with SDI**. Central Plains Irrigation Short Course, Garden City, KS, Feb. 9-10, 2000.

Lamm, F.R. 2000. **Design and management considerations for subsurface drip irrigation systems** at county meeting, Sublette, KS, Jan. 26, 2000.

Lamm, F.R. 2000. **SDI research for corn production** at county meeting, Sublette, KS, Jan. 26, 2000.

Poster presentation of **Economics of SDI for corn production** at county meeting, Sublette, KS, Jan. 26, 2000.

Poster presentation of **Nitrogen fertigation of corn with SDI** at county meeting, Sublette, KS, Jan. 26, 2000.

Poster presentation of **SDI in the Great Plains** at county meeting, Sublette, KS, Jan. 26, 2000.

Lamm, F.R. 2000. Executive summary to Congressmen, Jerry Moran and Jim Ryan of USDA Special Grant **Water conservation -- Increased efficiency in usage**. Jan. 24, 2000, Manhattan, KS.

Lamm, F.R. 2000. **Design and management considerations for subsurface drip irrigation systems** at county meeting, Pratt, KS, Jan. 20, 2000.

Lamm, F.R. 2000. **SDI research for corn production** at county meeting, Pratt, KS, Jan. 20, 2000.

Poster presentation of **Economics of SDI for corn production** at county meeting, Pratt, KS, Jan. 20, 2000.

Poster presentation of **Nitrogen fertigation of corn with SDI** at county meeting, Pratt, KS, Jan. 20, 2000.

Poster presentation of **SDI in the Great Plains** at county meeting, Pratt, KS, Jan. 20, 2000.

Lamm, F.R. 2000. **SDI research for corn production** at county meeting, Colby, KS, Jan. 19, 2000.

Lamm, F.R. 2000. **Design and management considerations for subsurface drip irrigation systems** at county meeting, Colby, KS, Jan. 19, 2000.

Poster presentation of **Economics of SDI for corn production** at county meeting, Colby, KS, Jan. 19, 2000.

Poster presentation of **Nitrogen fertigation of corn with SDI** at county meeting, Colby, KS, Jan. 19, 2000.

Poster presentation of **SDI in the Great Plains** at county meeting, Colby, KS, Jan. 19, 2000.

Tour of NWREC SDI facilities for Toro-Ag representatives (2), Dec. 1, 1999.

Lamm, F.R. 1999. Presentation of **SDI in the Great Plains and its potential impact**. Colby Kiwanis group, Colby, KS, Nov. 4, 1999.

Lamm, F.R. and T.P. Trooien. 1999. Presentation of **SDI research for corn production**. NRCS Irrigation Information Day, Long Island, KS, Nov. 3, 1999.

Lamm, F.R. and T.P. Trooien. 1999. Poster presentation of **SDI in the Great Plains**, NRCS Irrigation Information Day, Long Island, KS, Nov. 3, 1999.

O'Brien, D.M. and F.R. Lamm. 1999. Poster presentation of **Economics of SDI for corn**. NRCS Irrigation Information Day, Long Island, KS, Nov. 3, 1999.

Lamm, F.R. 1999. **SDI for corn production in Kansas**. USDA-RRF W-128 Microirrigation Committee, Boise, ID, Oct. 28-30, 1999.

KS Legislative Aides Tour, 40 in attendance, Midwest Feeders, Ingalls, KS, Oct. 27, 1999.

Newspaper in Hastings, NE (Barb Batie). Topic: SDI, Oct. 1999.

KRVN Radio, Lexington, NE (Mike LaForce). Topic: SDI. Sept. 9, 1999.

Associated Press (Cheryl Wittenhauer). Topic: SDI. Sept. 1999.

Lamm, F.R. 1999. Tour and Discussion of **SDI and livestock wastewater research**. Midwest Feeders, Ingalls, KS, Aug. 26, 1999.

Lamm, F.R. 1999. Participant and made comments at SDI Field Day for Garden City Company, Holcomb, KS, Aug. 26, 1999.



US Congress Legislative Aides Tour, 20 in attendance, Midwest Feeders, Ingalls, KS, Aug. 17, 1999.

SDI & Wastewater Field Day, 15 people, Midwest Feeders, Aug. 26, 1999.

SDI Technology Field Day, NWREC, 140 in attendance, Aug. 12, 1999.

Lamm, F.R. 1999. Discussion of **KSU research with corn production**, SDI Technology Field Day, Colby, KS, Aug. 12, 1999.

Lamm, F.R. and T.P. Trooien. 1999. Poster presentation of **SDI in the Great Plains**, SDI Technology Field Day, Colby, KS, Aug. 12, 1999.

O'Brien, D.M. and F.R. Lamm. 1999. Poster presentation of **Economics of SDI for corn**, SDI Technology Field Day, Colby, KS, Aug. 12, 1999.

Oklahoma radio station network. Topic: SDI. Aug. 1999.

K-Farm Radio, Salina, KS (Jerry McClann). Topic: SDI. July 1999.

K-State News Services (Pat Melgares). Topic: SDI. July 1999.

Lamm, F.R. 1999. **SDI for corn production in Kansas**. Israeli Volcani Institute, Bet Dagan, Israel, March 22, 1999.

Lamm, F.R. 1999. Poster presentation of **SDI in the Great Plains**. Great Plains Symposium, Oklahoma City, OK, March 10-12, 1999.

Presentation of **Testing subsurface drip Irrigation laterals with lagoon wastewater** at the 16th annual Water and the Future of Kansas Conf., Manhattan, KS, March 2, 1999. Presentation by Todd Trooien.

Lamm, F.R. and T.P. Trooien. 1999. Poster presentation of **SDI in the Great Plains** presented at the 16th annual Water and the Future of Kansas Conference, Manhattan, KS, March 2, 1999.

Lamm, F.R. and T.P. Trooien. 1999. Poster presentation of **SDI in the Great Plains**, Central Plains Irrigation Short Course, Sterling, CO, Feb. 9-10, 1999.

O'Brien, D.M. and F.R. Lamm. 1999. Poster presentation of **Economics of SDI for corn**, Central Plains Irrigation Short Course, Sterling, CO, Feb. 9-10, 1999.

Lamm, F.R. 1999. **Design and management considerations for subsurface drip irrigation systems** at county meeting, Hugoton, KS, Jan. 29, 1999.

Lamm, F.R. 1999. **Design and management considerations for subsurface drip irrigation systems** at county meeting, Scott City, KS, Jan. 28, 1999.

Lamm, F.R. 1999. **SDI research for corn production** at county meeting, Hugoton, KS, Jan. 29, 1999.

Lamm, F.R. 1999. **SDI research for corn production** at county meeting, Scott City, KS, Jan. 28, 1999.

Lamm, F.R. 1999. Impromptu presentation of **SDI for corn production**, Gigot Customer Appreciation Day, Garden City, KS, Jan. 12, 1999.

Lamm, F.R. and T.P. Trooien. 1999. Poster presentation of **SDI and livestock wastewater**, Gigot Customer Appreciation Day, Garden City, KS, Jan. 12, 1999.

O'Brien, D.M. and F.R. Lamm. 1999. Poster presentation of **Economics of SDI for corn**, Gigot Customer Appreciation Day, Garden City, KS, Jan. 12, 1999.

Presentation of **Research results with corn and SDI** at Irrigation County Agent Update, Garden City, KS, Nov. 10, 1998.

Presentation of **Design and management considerations for subsurface drip irrigation systems** at Irrigation County Agent Update, Garden City, KS, Nov. 10, 1998.

Presentation of preliminary results of **Livestock wastewater utilization with SDI: A pilot project**, at International Irrigation Association Conference, San Diego, CA, Nov. 1-3, 1998. Presentation by Todd Trooien.

Presentation of **Research with SDI and corn** at the USDA RRF W-128 regional project meeting, San Diego, CA, Oct. 29-31, 1998.

Presentation of **Research with SDI and corn** to legislative aides, Manhattan, KS, Aug. 1998.

Radio interview by Eric Atchison, KKSU, August 1998.

Videotaped by Joe Camorino, KSU for KAES-CES Annual Conference, Oct. 1998.

Poster presentation of **Livestock wastewater utilization with SDI: A pilot project**, at K-State Research and Extension Annual Conf., Oct. 1998.

Briefing for Kansas NRCS staff on SDI, Manhattan, KS, Sept. 22, 1998.

Discussion of SDI and field tour of NWREC SDI research site for Nelson Irrigation, Sept. 21, 1998.

Coordinated and planned field day for presentation of **Livestock wastewater utilization with SDI: A pilot project**, at Ingalls, KS, Aug. 27, 1998.

Prepared poster for presentation of **Livestock wastewater utilization with SDI: A pilot project**, at SWREC field day, Garden City, KS, Aug. 27, 1998.

Invited speaker for written presentation of **Livestock wastewater utilization with SDI: A pilot project**, at the Kansas Pork Producers Council Environmental Field Day, Redding, KS, Aug. 19, 1998.

Invited speaker for written presentation of **SDI and the Great Plains**, at the 60th annual Bushland Field Day, USDA-ARS, Bushland, TX, Aug. 12, 1998.

Tour of NWREC SDI research site, Colby, KS and SDI wastewater site, Ingalls, KS for Netafim Irrigation, June 1998.

Tour of NWREC SDI research site for Nelson Irrigation, May 1998.

Tour of SDI wastewater site, Ingalls, KS for Nelson Irrigation, May 1998.

Presentation of **Livestock wastewater utilization with SDI: A pilot project**, for the K-State President's Tour at Ingalls, KS, June 30, 1998.

Two radio interviews by Brandon Jaap, KFRM 550 AM on SDI, March 31, 1998.

Presentation of **Corn production using SDI** at NW Kansas Groundwater Management Seminar, Colby, KS, March 26, 1998.

Presentation of **SDI and the declining Ogallala** at the 15th annual Water and the Future of Kansas Conference, Manhattan, KS, March 3, 1998. Proceedings Pages, 12-15.

Poster entitled **Economics of SDI for corn** presented at the 15th annual Water and the Future of Kansas Conference, Manhattan, KS, Mar. 3, 1998.

Presentation of **Corn production using SDI** at KSU Dept. of Agronomy Seminar, Manhattan, KS, Feb. 25, 1998.

Poster entitled **Economics of SDI for corn** presented at the Central Plains Irrigation Short Course, North Platte, NE, Feb. 17-18, 1998.

Poster entitled **N fertigation and SDI: A BMP** presented at the Central Plains Irrigation Short Course, North Platte, NE, Feb. 17-18, 1998.

Initiation of K-State website entitled **SDI and the Great Plains** at <http://www.oznet.ksu.edu/sdi> on Feb. 9, 1998.

Presentation of **Design and management considerations for SDI systems** at county meeting, Rush Center, KS, Jan. 29, 1998.

Presentation of **Design and management considerations for subsurface drip irrigation systems** at county meeting, Garden City, KS, Jan. 30, 1998.

Presentation of **Corn production using SDI** at the Kansas Fertilizer and Agricultural Chemical Conference, Salina, KS, Jan. 15, 1998.

Presentation of **Optimum fertigation of corn using SDI** at the Kansas Fertilizer and Agricultural Chemical Conference, Salina, KS, Jan. 15, 1998.

Poster entitled **Economics of SDI for corn** presented at the Gigot Irrigation Customer Appreciation Day, Garden City, KS, Jan. 7, 1998.

Poster entitled **N fertigation and SDI: A BMP** presented at the Gigot Irrigation Customer Appreciation Day, Garden City, KS, Jan. 7, 1998.

Poster entitled **N fertigation and SDI: A BMP** presented at the 1997 KAES-CES Annual Conference, Nov. 3-7, 1997.

Poster entitled **Economics of SDI for corn** presented at the 1997 KAES-CES Annual Conference, Nov. 3-7, 1997.

Presentation of KSU's SDI research on corn to the Western Regional RRF Project W-128, Nov. 6-7, 1997, Fresno, CA.

Several contacts and visits from microirrigation manufacturers and distributors in Sept.-Oct. 1997, apparently in response to growing interest in SDI in southwest Kansas.

Numerous e-mail requests for SDI research information, apparently in response to participation in Trickle-L, an e-mail discussion group on microirrigation, 1997-2003.

Guided tour of subsurface drip irrigation facilities and discussion of research for Colby Middle School Advanced Science Class, Oct. 16, 1997.

Guided tour of subsurface drip irrigation facilities and discussion of research for Lindsay and Helen Ward, visitors from Australia, Oct. 6, 1997.

Guided tour of subsurface drip irrigation facilities and discussion of uses of corn for Colby kindergarten class, Oct. 2, 1997.

Guided tour of subsurface drip irrigation facilities and discussion of research for Kansas Water Office Director, Aug. 6, 1997.

Guided tour of subsurface drip irrigation facilities and discussion of research for University of Nebraska faculty and staff, Feb. 5, 1997.

Presentation of **SDI for corn production** at 4-States Irrigation Council annual meeting, Jan. 8, 1997, Ft. Collins, CO.

Presentation of **Economics of SDI for corn production** at 14th annual Water and the Future of KS. Conference, March 4-5, 1997, Manhattan, KS.

Presentation of **Design and management considerations for subsurface drip irrigation systems** at NW County Agent Update, Dec. 19, 1996, Hoxie, KS.

Presentation of **Design and management considerations for subsurface drip irrigation systems** at SDI meeting, Dec. 12, 1996, Hugoton, KS.

Presentation of **KSU's SDI research on corn** to the Western Regional RRF Project W-128, Nov. 1-2, 1996, San Antonio, TX.

Presentation of **Subsurface drip irrigation for corn** to the Innovations in Agriculture, Sustainable Agriculture in the 21<sup>st</sup> Century Tour, Sept. 18, 1996, Colby, KS.

Coordination and presentations at the Irrigation Technology Field Day, Aug. 20, 1996, Colby, KS.

Coordination of the SDI Technology Session following the 13th Annual Water and the Future of Kansas Conference, March 6, 1996, Colby, KS.

Presentation of **Design and management considerations for subsurface drip irrigation systems** at SDI Technology Session following the 13th Annual Water and the Future of KS. Conference, March 6, 1996, Colby, KS.

Presentation of **Subsurface drip irrigation research for corn** at SDI Technology Session following the 13th Annual Water and the Future of Kansas Conference, March 6, 1996, Colby, KS.

Presentation of **KSU's permanent bed system for corn production using SDI** at SDI Technology Session following the 13th Annual Water and the Future of Kansas Conference, March 6, 1996, Colby, KS.

Presentation of **An economic comparison of alternative irrigation systems on small and irregularly shaped fields** at Central Nebraska Irrigation Short Course, Feb. 15, 1996, Holdrege, NE.

Presentation of **Design and management considerations for subsurface drip irrigation systems** at Central Nebraska Irrigation Short Course, Feb. 15, 1996, Holdrege, NE.

Presentation of **Subsurface drip irrigation research for corn** at Central Nebraska Irrigation Short Course, Feb. 15, 1996, Holdrege, NE.

Presentation of **Subsurface drip irrigation research for corn** at Northwest Kansas Corn Growers meeting, Jan. 30, 1996, Colby, KS.

Presentation of KSU's SDI research on corn to the Western Regional RRF Project W-128, Oct. 16-17, 1995, Lansing, MI.

Presentation of **Drip irrigation in row crop farming** at the High Plains Irrigation Conference and Trade Show, Amarillo, TX, Jan. 5, 1995.

Presentation of **Optimum dripline spacing for corn** at the 12th Water and the Future of Kansas Conf., Manhattan, KS, Feb. 28-Mar. 1, 1995.

Guided tour of subsurface drip irrigation facilities and discussion of research for the Kansas Production Credit Bankers Council, June 1995.

Guided tour of subsurface drip irrigation facilities and discussion of research for a group of crop nutrition scientists, Aug. 1995.

Guided tour of subsurface drip irrigation facilities and discussion of research for the Kansas Section ASAE, Oct. 1995.

Presentation of **KSU's SDI research on corn** to the Western Regional RRF Project W-128, Oct. 25-27, 1994, Kona, HI.

Guided tour of subsurface drip irrigation facilities and discussion of research for the Kansas water agencies, Aug. 1994.

Guided tour of subsurface drip irrigation facilities and discussion of research for the Kansas Department of Environment, Aug. 1994.

Presentation of drip irrigated corn studies at the 11th Annual Water and the Future of Kansas Conference, Manhattan, KS, March 2-3, 1994.

Presentation of **KSU's SDI research on corn** to the Western Regional RRF Project W-128, Oct. 28-30, 1993, San Diego, CA.

Presentation of drip irrigation research at the 1993 KSU NWREC Fall Field Day, Aug. 25, 1993.

Guided tour of subsurface drip irrigation facilities and discussion of research for the Four States Irrigation Council, Aug. 18, 1993.

Presentation of **KSU's SDI research on corn** to the Western Regional RRF Project W-128, April 28-30, 1993, Bradenton, FL.

Presentation of **Using drip irrigation for a nontraditional crop -- evaluating the practice for irrigated corn** at the Southwest Kansas Irrigators Assn. annual meeting, Ulysses, KS, Jan. 31, 1993.

Presentation of **Drip irrigation studies at Colby** to Kansas Agriculture Rural Leadership (KARL) groups, Colby, KS, Feb. 21, 1992 (1st class) and Jan. 15, 1992 (2nd class).

Presentation of **Drip irrigation studies at Colby** to NRCS staff and farmers from Nebraska, Dec. 6, 1992.

Presentation of **Managing subsurface drip irrigation systems for corn** at the 1992 KSU SWREC Fall Field Day.

Presentation of **Drip irrigated corn studies** to the Kansas Water Office staff, Manhattan, KS, April 29, 1992.

Poster entitled **Drip irrigation for corn production--the research approach in western Kansas** at the Annual Conference of KSU CES-AES, Manhattan, KS, April 1992.

Poster entitled **Drip irrigation for corn production--the research approach in western Kansas** at the 9th Annual Water and the Future of Kansas Conference, Manhattan, KS, March 4-5, 1992.

Poster entitled **Drip irrigation for corn production--the research approach in western Kansas** at the Central Plains Irrigation Short Course, Goodland, KS, Feb. 1992.

Co-coordinator and presenter at technical session entitled **Drip irrigation for corn production** at the Central Plains Irrigation Short Course, Goodland, KS, Feb. 1992.

Presentation of SDI at the 1991 KSU NWREC Fall Field Day.

Presentation of **Drip irrigated corn studies** at the 8th Annual Water and the Future of Kansas Conference, Manhattan, KS, March 4-5, 1991.

Poster entitled **Water requirements of drip-irrigated corn** at the Central Plains Irrigation Short Course, North Platte, NE, Feb. 5-6, 1991.

Poster entitled **Preliminary highlights from a dripline spacing study** at the Central Plains Irrigation Short Course, North Platte, NE, Feb. 5-6, 1991.

Poster entitled **Design and installation of a drip irrigation system for research purposes** at the 7th Annual Water and the Future of Kansas Conference, Manhattan, KS, March 1990.

Poster entitled **Design and installation of a drip irrigation system for research purposes** at the Central Plains Irrigation Short Course, Wray, CO, Feb. 1990.

Presentation of **SDI at Colby, KS** to the 1990 Nebraska Irrigation Tour sponsored by the University of Nebraska, Aug. 6, 1990.

Poster entitled **Design and installation of a drip irrigation system for research purposes** at the KAES-Cooperative Extension Annual Conference, Manhattan, KS, Oct. 1989

Presentation of SDI research at 1989 Fall Field Day of the KSU Northwest Research-Extension Center.

Miscellaneous producer contacts and newspaper articles, 1989-2015.