



# OAP Cotton "Big Project" Technology Transfer



**Objective:** Communication, outreach and technology transfer

**Subobjective:** Internal communications among the project team

**Subobjective:** External communications, outreach and technology transfer

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**Subobjective:** Internal communications among the project team

- Mostly by phone calls and e-mails:  
Project updates (field activities; progress/results/questions; preparation for presentations, etc.)
- Zoom or Teams calls and in-person meetings  
Project planning and other conversations when we need to engage more of the team.

# OAP Cotton "Big Project" Technology Transfer



**Subobjective:** External communications, outreach and technology transfer

- Leverage existing Extension technology transfer networks, media and venues ... to communicate production management and other research-based recommendations to external audiences.
- Professional development opportunities for county agents, crop consultants, irrigation professionals, and other technical advisors and decision makers...

## **Presentations**

- Porter, Dana. 2021. "More with Less: What Agriculture Can Do to Save Water." Presented at Texas Alliance of Groundwater Districts Annual Groundwater Summit, San Antonio, Texas. Sept. 2, 2021.
- Porter, Dana 2021. "Emerging Trends in Water Research" for the Community Water CPA Summit. Texas A&M AgriLife Extension. Aug 25, 2021.
- Porter, Dana. 2021. "Late Season Irrigation Management for Corn and Cotton." Castro County Field Day, Dimmitt, Texas. August 9, 2021.
- Porter, Dana. 2021. "Water Issues in Agriculture: A Texas High Plains Perspective". Guest lecture: SCSC class: Social and Ethical Aspects of International Cropping Systems/Ethical Aspects of International Agricultural Systems. Professor: Sakiko Okumoto, Ph.D., Associate Professor, Dept. Soil and Crop Sciences. Texas A&M University. July 9, 2021.
- Porter, Dana. 2021." Irrigation Technology and Management." Briscoe County Crops Meeting, Silverton, Texas. April 13, 2021.
- Porter, Dana. 2021. "Aquifer Update and Irrigation Management Strategies." Hale/Swisher Crops Conference. Plainview, Texas. April 5, 2021.
- Porter, Dana. 2021. "Irrigation and Salinity Management for High Plains Cotton Production." Invited presentation at the virtual WinStar Cotton Essentials Webinar Series (Level II). February 16 and February 17, 2021.

## **Presentations**

- Aguilar, J.P. 2022. "Western Kansas Water Resource Status." As part of R3NRT Southwest Experience Day Trip. Garden City, KS. July 25, 2022. (15 attendees).
- Porter, Dana. 2022. "Water, Energy, and Agriculture: A Texas High Plains Perspective." Invited luncheon Keynote for the Lubbock District Rotary Club Convention. Lubbock, Texas. April 22, 2022.
- Porter, Dana. 2022. "Groundwater / Aquifer Issues & Southern Ogallala Aquifer Region." Invited presentation: joint meeting of The United Nations Educational, Scientific and Cultural Organization (UNESCO) Hague Roundtable on Climate and Security and Mississippi Water Resources Conference. Starkville, MS. April 14, 2022.
- Porter, Dana. 2022. "Irrigation Management with Lagoon Water / Saline Water." Dairy Outreach Program Area meeting. Stephenville, Texas. April 12, 2022.
- Porter, Dana. 2022. "Precision Irrigation Technology". Hale/Swisher Mid-Plains Ag Expo. February 8, 2022. Plainview, Texas.
- Porter, Dana. 2022. "Irrigation Management for Cotton Production." WinStar Cotton School Seminar Series, coordinated by Randy Boman. February 22, 2022. Via Zoom.
- Porter, Dana. 2022. "More with Less: What Agriculture Can Do to Save Water." Invited presentation. 6th Biennial Texas Panhandle Water Conservation Symposium. February 16, 2022. Amarillo, Texas.
- Porter, Dana. 2022. "Irrigation Technologies & Management for Cotton Production." Invited presentation. Oklahoma Master Irrigators. February 22, 2022. Altus, Oklahoma.
- Porter, Dana. 2022. "Irrigation Technology and Management for Crop Production" Castro County Crops Meeting. February 24, 2022. Dimmitt, Texas.

## **Presentations**

Aguilar, J.P. and J. Bell 2023. "Updates on Cotton Research." Kansas Association of Independent Crop Consultants. Manhattan, KS. Jan. 9, 2023. (~75 attendees)

Aguilar, J.P., K. Koudahe, and A. Sheshukov. "Actual Evapotranspiration, Fiber Yield and Grass-Reference Crop Coefficients of Cotton Under Different Irrigation Technologies in Western Kansas." Beltwide Cotton Conference. New Orleans, LA. Jan. 11, 2023.

Porter, Dana. 2023. "Irrigation Management for Crop Production in Water-Limited Conditions." 2023 Southwest Texas Crop Kick-off. Texas A&M AgriLife Extension, Frio, Medina, Uvalde and Zavala Counties. Uvalde, Texas. January 18, 2023. (50 attendees)

Porter, Dana. 2023. "Texas State Report to W-4128 Regional Project." W4128: Microirrigation: A Sustainable Technology for Crop Intensification and Improved Crop Productivity. January 23, 2023 via Zoom.

Porter, Dana. 2023. "Irrigation Management for Cotton Production." WinStar Cotton School Seminar Series, coordinated by Randy Boman. February 15, 2023. Via Zoom.

Porter, Dana. 2023. "Irrigation Management for Crop Production in Water-Limited Conditions." Meeting with Uzbekistan AgroBank Delegation. Lubbock, Texas. March 7, 2023.

# Presentations

Bell, Jourdan. 2023. North Plains Groundwater Conservation District Cotton and Conservation Video

Series: <https://northplainsgcd.org/conservationprograms/agricultural-conservation/cotton/>

Bell, Jourdan. 2023. January 3, 2023: Auxin Herbicide Training

Bell, Jourdan. 2023. January 9, 2023: Kansas Association of Crop Consultants Annual Meeting, Manhattan, Kansas: Bell and Aguilar discussed OAP cotton project results for Texas and Kansas, respectively. Bell also discussed considerations for variety selection.

Bell, Jourdan. 2023. January 17, 2023: Castro County Ag. Conference, Dimmitt, Texas: AgriLife cotton variety trial results

Bell, Jourdan. 2023. January 24, 2023: OSU Master Irrigator

Bell, Jourdan. 2023. February 1, 2023: SW Cotton Physiology Meeting, College Station, Texas



# Presentations

Bell, Jourdan. 2023. February 7, 2023: Deaf Smith County Cotton Conference

Bell, Jourdan. 2023. March 2, 2023: NE Panhandle Cotton Conference at Perryton:  
Preplant Considerations for Cotton

Bell, Jourdan. 2023. March 7, 2023: Cotton Grower Magazine Interview

Bell, Jourdan. 2023. March 23, 2023: Plains Cotton Growers Plains Cotton  
Improvement Program Meeting, Lubbock, Texas

Bell, Jourdan. 2023. May 12, 2023: Texas Team Big Cotton Meeting, Amarillo

Bell, Jourdan. 2023. National Cotton Council- Cotton Newslines: July 21, 2023.

<https://www.cotton.org/news/av/broadcast/230721.cfm> Recorded radio  
interview.





## **Presentations**

Porter, Dana. 2023. Irrigation management for cotton production. Presentation and meeting with AgriLife Research cotton breeding team and Uzbekistan delegation. Lubbock. March 7, 2023.

Porter, Dana. 2023. WinStar Cotton School Series. Virtual. February 15, 2023.

Porter, Dana. 2022. Amarillo Farm and Ranch Show, Amarillo, Texas. November 29, 2022.

Porter, Dana. 2022. Annual Meeting of the Texas Section American Society of Agricultural and Biological Engineers. New Braunfels, Texas. October 6, 2022.

Bell, Jourdan, Thomas Marek, Craig Bednarz, Gary Marek, Bridget Guerrero, Dana Porter, Louis Baumhardt, and Jane Dever. 2024. Cotton Production in Thermally Limited Regions of the Southern Great Plains: Texas Research. Poster presentation at the 2024 Beltwide Cotton Conferences, Ft. Worth, Texas. January 3-5, 2024.

Porter, Dana, Thomas Marek and Gary Marek. Irrigation and Water Management Technical Session at the Texas Plant Protection Conference, Bryan, Texas. December 6, 2023.

## Popular Press Articles

Porter, D. O., & Marek, T. H. (2022). Applying Apps in Irrigation Scheduling. *Irrigation Today*, Summer 2022, 24–27. <https://irrigationtoday.org/features/applying-apps-in-irrigation-scheduling/>

Farmer, Kylie. Getting Ready to Plant in the High Plains of Texas. *Cotton Grower*. May 22, 2023. <https://www.cottongrower.com/cotton-production/getting-ready-to-plant-in-the-high-plains-of-texas/> Magazine article featuring Jourdan Bell interview and recommendations.

## **Radio Interviews (2021-2022, Jonathan Aguilar)**

KIUL 1240 AM– regular schedule every 4th Thursday of the month (some topics discussed: water conservation, evapotranspiration, including this cotton project).

KBUF 1020 AM– rotational schedule with other SWREC programs (some topics discussed: water conservation, moisture sensors, and cotton project).

K-State Radio – interviewed by Eric Atkinson and Samantha Bennett for Agriculture Today segments on topics like Rattlesnake Project, Crop Water Allocator, KanSched and cotton.

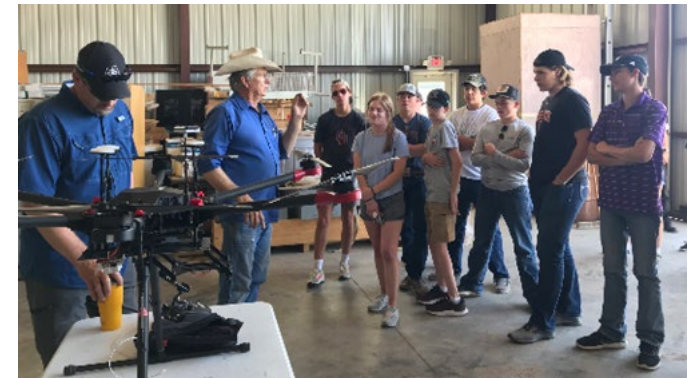
NPR All Things Considered – David Condos segment on water conservation and cotton research.

## Educational Events

Porter, Dana and Thomas Marek. 2022. Central Texas Irrigation Summit, DeLeon, Texas, December 13, 2022. One-day CEU event for agricultural producers. (Attendance: 75).

Marek, Thomas, Gary Marek, and Dana Porter. 2022. Water and Irrigation Management. Technical session and panel discussion. Texas Plant Protection Conference, Bryan, Texas. CEUs (2 hours) provided for TDA licensed pesticide applicators and ASA Certified Crop Advisors. December 7, 2022. (Attendance: 72)

Porter, Dana and Thomas Marek. 2023. Cotton Production in Thermo-Limited Regions of the High Plains. Bushland Field Day. USDA-ARS CPRL Bushland, TX. September 8, 2023.



## **“Train the Trainer” Events**

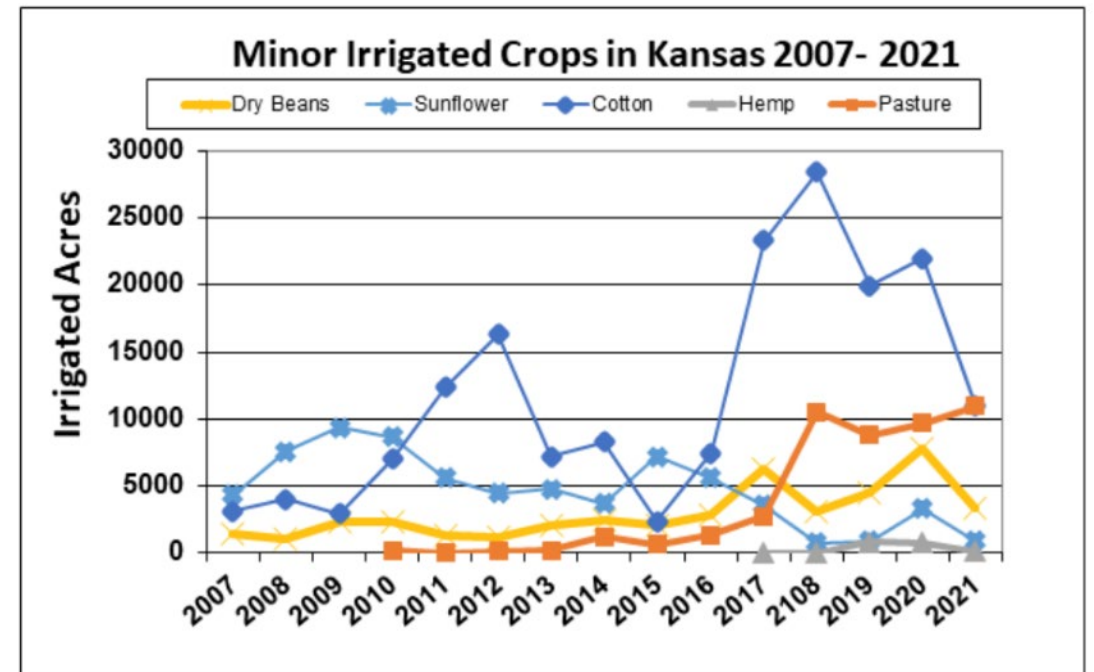
Porter, Dana. 2023. Training for Texas A&M AgriLife North Region Extension County Agricultural Agents, Agronomy Agents and IPM Agents. Lubbock, Texas. August 30, 2023.

Porter, Dana. 2023. Training for Texas A&M AgriLife North Region Extension County Agricultural Agents, Agronomy Agents and IPM Agents. Lubbock, Texas. May 9-10, 2023.



# Tech Transfer

- **Aguilar, J.**, Moghbel, F. and Fazel, F., 2023. Evaluation of Novel Deficit Irrigation Techniques in Western Kansas. *Kansas Agricultural Experiment Station Research Reports*, 9(6), p.8.  
<https://doi.org/10.4148/2378-5977.8492>  
<https://doi.org/10.4148/2378-5977.8492>
- Rogers, D., and **Aguilar, J.P.** 2023. Technical Bulletin MF2849(rev.). Kansas Irrigation Trends. Kansas State University.



**Figure 5c:** Irrigated acreage of other agricultural crops in Kansas.

# Tech Transfer

## National and Regional Presentations

- Aguilar, J.P., and J. Bell. 2023. Cotton Production in Thermally Limited Environments. 2023 Kansas Association of Independent Crop Consultants Meeting. Manhattan, KS. Jan. 10, 2023.
- Aguilar, J.P., K. Koudahe, K. Djaman, and A. Sheshukov. 2023. Actual Evapotranspiration, Fiber Yield and Grass-Reference Crop Coefficients of Cotton Under Different Irrigation Technologies in Western Kansas. 2023 Beltwide Conference. New Orleans, LA. Jan. 10-12, 2023.
- Aguilar, J.P., K. Koudahe, K. Djaman, and A. Sheshukov. 2023. Assessment of Cotton Evapotranspiration Under Different Irrigation Technologies and Rainfed Conditions in Western Kansas. 2023 ASABE International Meeting. Lincoln, NE. July 10-12, 2023.
- Aguilar, J.P. 2023. State of Irrigation Systems in Kansas: Survey Results. 2023 UCOWR. Fort Collins, CO. June 13, 2023.
- Aguilar, J.P. 2023. Irrigated Cotton Research Updates. Great Plains Cotton Conference. Pratt, KS. Feb. 28, 2023.
- Haag, L. and J. Aguilar. 2023. Irrigation Research and Extension Updates. Groundwater Management District 1. Scott City, KS. Mar. 1, 2023.
- Aguilar, J. and A. Sheshukov. 2023. SWREC Field Day Plus. Aug. 25, 2023.



# Tech Transfer

## Popular Media:

### National

1. Article contributor with DJ May on Decode 6 posted on July 13, 2023 titled How do I conserve groundwater while irrigating? <https://decode6.org/articles/conserves-groundwater-while-irrigating/>
2. David Condos of NPR published on Apr. 4, 2023 as News: With the Ogallala Aquifer drying up, Kansas ponders limits to irrigation. Re: Use of irrigation technologies and irrigated cotton research. <https://www.kcur.org/2023-04-04/with-the-ogallala-aquifer-drying-up-kansas-ponders-limits-to-irrigation>

### Regional

1. Shelby Spreier of Hays Post Aug. 18 2023. Changing climate, weather patterns heighten need for university research says KSU official <https://hayspost.com/posts/602c4742-543a-4905-8da1-647535b15e02>
2. Shelby Spreier of KSRE posted at KSAL.com on Aug. 4, 2023. Researchers Focus on Kansas Water Conservation. <https://www.ksal.com/researchers-focus-on-kansas-water-conservation/>
3. Pat Melgares of KSRE posted at Kansas Farmer / Farm Progress on Feb. 28, 2023. Researchers take a team approach to water challenges. <https://www.farmprogress.com/conservation-and-sustainability/researchers-take-a-team-approach-to-water-challenges->



## **Publications (2021-2022)**

### **Refereed Proceeding Papers**

- Fazel, F., Moghbel, F., Aguilar, J., Koudahe, K. and Ansari, H., 2022. Exploring deficit irrigation strategies' effects on cotton yield and yield components under linear move irrigation system in western Kansas. In 2022 ASABE Annual International Meeting (p. 1). American Society of Agricultural and Biological Engineers.
- Koudahe, K., Aguilar, J., Djaman, K., Kirkham, M.B., Moghbel, F., Fazel, F. and Sheshukov, A., 2022. Actual Crop Evapotranspiration and Grass-Reference Crop Coefficients of Cotton under Different Irrigated and Rainfed Conditions. In 2022 ASABE Annual International Meeting (p. 1). American Society of Agricultural and Biological Engineers.
- Sheshukov, A., Piu, U.F., Koudahe, K., Aguilar, J. and Wang, J., 2021, December. Integrating field measurements, novel modeling, and remote sensing datasets for crop coefficient and evapotranspiration calculations in thermo-limited region of the High Plains. In AGU Fall Meeting Abstracts (Vol. 2021, pp. H55N-0896).
- Sheshukov, A.Y., Koudahe, K., Piu, U.F., Aguilar, J. and Wang, J., 2022, December. Evaluating Actual Evapotranspiration Rates and Water Use of Cotton Crop Production in Western Kansas. In Fall Meeting 2022. AGU.

## **Workshops, conferences, technical sessions, field days**

Aguilar, J.P. 2023. Kansas Cotton Meeting. Pratt, KS. Feb. 28, 2023. (~70 attendees)

Aguilar, J.P. 2022. Natural Resources Leadership Summit. Kansas Association of Conservation Districts and Kansas Association of Conservation and Environmental Education. Garden City, KS. June 24-25, 2022. (8 attendees).

Koudahe, K., Aguilar, J. and Sheshukov, A., Assessing Cotton Water Requirement using OpenET and Water Balance Models in Western Kansas. SWREC Field Day. Aug. 25, 2022. (70 attendees)

Porter, Dana, David Parker and Craig Bednarz. 2022. Soil and Water Management. Professional Development Webinar for Texas A&M AgriLife Extension Service county agents, specialists, and other interested stakeholders. April 13, 2022.

Thomas Marek, Gary Marek, and Dana Porter. 2022. Technology Tour at Bushland: Texas 4-H Water Ambassadors. Bushland, Texas. June 15, 2022. (Attendance: 23)

Porter, Dana, Thomas Marek, Gary Marek, Rosario Sanchez, and Amanda Hancock. 2022. Irrigation and Water Management Technical Session/Panel Discussion, Texas Plant Protection Conference, Bryan, Texas, December 7, 2022. Technical (CEU) session coordinated and moderated by Dana Porter. 75 attendees, hybrid session.

Porter, Dana and Thomas Marek. 2022. Central Texas Irrigation Summit, DeLeon, Texas, December 13, 2022. Irrigation summit coordinated by CEA -Ag agent Mike Berry. 75 in attendance.

Porter, Dana. 2021. "Developments and Trends in Agricultural Water Conservation, Irrigation Technologies and Management". In special session Water & Irrigation Management, coordinated and moderated by Dana Porter. Texas Plant Protection Association Annual Meeting. Bryan, Texas, December 8, 2021.

Thomas Marek and Dana Porter. 2021. Technology Tour at Bushland: Texas 4-H Water Ambassadors. Bushland, Texas. June 29, 2021.

# Summary

**First year:** Extension meeting presentations, local radio/media, CEU Conferences

**Second year:** More outreach like year 1

PLUS: University course guest lectures, popular press articles, posters

**Third year+:** More outreach like years 1 & 2

Plus: Refereed proceedings papers and journals; Extension products

**Note: All team members participated in outreach – this is an integrated team project.**

# Gaps?

With multiple years of data, we can:

- develop more refereed journal articles
- interpret recommendations in Extension products



Photo credit: Jonathan Aguilar, Kansas State University.



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