May 27, 2009 – USDA-ARS Bushland

Welcome by Dr. Nolan Clark, USDA-ARS Lab Director

- ARS in cooperation with Texas AgriLife Research (70 years)
- Conservation and Production Research Laboratory
- Started because of 1933 dust storm/bowl – due to climatic issues
- 1950s started irrigating in Texas High Plains
- Mostly been dry over past 30 years
- Annual rainfall value is 20 inches; on west side of Panhandle 14 inches to 25 inches on east side of Panhandle
- Irrigation is key
- Irrigation program started at Bushland in 1948
  - 1948-1971 furrow irrigation
  - 1971 sprinkler
  - 1980s started evapotranspiration and lysimeters
  - late 1990s to early 2002 emphasis on drip irrigation
- Animal feeding
- Dairy production; two cheese factories
- Agriculture is a $3.76 billion industry in Texas High Plains
- Crop production:
  - Corn big production
  - Wheat and cotton
  - Half of corn in state of Texas produced in these 6 counties
- Livestock production
  - Primarily fed beef
  - Swine – 92% of state total in top 10 counties of the Panhandle of Texas
- A lot of dryland production, but takes a special type of producer to work with a dryland system

Introductions

- Inform members of research and Extension needs of state of Texas and agencies, and see how they can cooperate
- Renewed research opportunities
- Meeting next year in Kingsville area
- Opportunity to put together the right team and mix to put together a project base that could be looked at in a broader basis
- Different format this year to try to address needed irrigation issues
- Target: Identify main priority programs in Texas High Plains – irrigation, beef, wind, economics, education venues; some recent, some ongoing
- Major irrigation and water use grantors making presentations as example of possible big grants and future opportunities
- Regional presentations
• Know and understand problems and regional issues
• Need to work together and want to work together to address these issues – common cause
• Have to deliver on promises to grantors, as well as adequate resource and personnel needs
• Need to have good team member mix and a good project manager for that
• Disseminate through education the multi-outlets – have to have in electronic format – google, e-mail, etc. User-friendly, simple format; modern user tools

**Invited Regional Presentations**

*Steve Amosson – Water Planning in the Texas High Plains*

- Importance of High Plains Agriculture; State Water Planning; Ogallala
- The Impact of Agribusiness in the Texas High Plains Trade Area (fifth edition out in fall)
- Cattle fed in 26-county area; growing steadily since 1960s; at 5 million cattle marketed each year (25,000-30,000 on average)
- If Texas were to separate, we would still rank #1 in cattle fed compared to all states
- Takes more than 800,000 semi-load equivalent of cattle feed per year
- Hog industry – from virtually no hogs in the early 1990s to nearly 90% of the state hog inventory (1990-2004)
- In top 20 counties in 2000 only 500 dairy cattle; now in top 20 there are 55,000-60,000; close to 200,000 in top 25; will be 300,000 in the next 5 years
- Dairies losing $4,000 a day, but a lot of dairies are still calling to relocate to the Texas High Plains (11th or 12th as a state)
- State water planning (Region A)
  - Agriculture is the key (Irrigation is 55% of water use in state; water use is 30%, livestock is 2%)
  - Provide scientific expertise/guidance in developing agricultural water use estimates
  - Region A and O represents 70% of irrigated acreage in the state
  - Region A – irrigation is 89%, livestock 4%, municipal 4%
  - Senate Bill 1 – developed an ET-based methodology for estimating water use; major modifications to county level irrigation based on demonstration-based data; developed initial water use estimates for livestock
  - Senate Bill 2 – changed data source and method of compiling irrigated acreage; refined crop irrigation water use estimates (Leon New; AgriPartners); reallocated livestock inventories and refined water use estimates; evaluated water savings and conservation strategies
- Irrigated acres – 1 to 2 million acres
- In 2000 – refined from 2million AF to 1.7 million AF; 2010 1.4 million AF; expected to decrease to 935,000 AF in future
- Most irrigation water goes to corn (over 50% of corn in state)
- Import 2-3 bushels for every bushel produced to support livestock industry
- Water use estimates for livestock for Senate Bill 3 down to reasonable water use estimates per animal; major refinement from SB 2 to 3 – getting water use estimates right and major revision in the swine area
- Key to region A is irrigation because it’s the majority of the water use
Conservation strategies identified by ag subcommittee – cost and potential water savings
  • Irrigation scheduling, change crop variety, crop type, conservation tillage

Ogallala Aquifer Program – USDA-ARS, Kansas State, Texas AgriLife, Texas Tech, West Texas A&M – water use in the southern Ogallala Aquifer
  • Approximately 100 projects that fall under this program
  • Policy Project Objective – economic ramifications of potential water policies and/or conservation strategies
    ▪ Survey to analyze potential conservation strategies and impacts
    ▪ Surveyed 150 people; came up with 12 different policies
    ▪ Over 80% response rate and many phone calls
    ▪ Results and model results available
    ▪ Implications: Technologies will probably not slow aquifer decline rates, but improvements in biotechnology and irrigation technology reduce marginal cost of an acre-inch of water
    ▪ Need some form of water restriction
    ▪ Or use combination
    ▪ Permanent reductions preferred to temporary reductions

18 inch restriction per section and 12 inch restriction

*Nolan Clark – Wind Energy Basics*

• Most wind farms were in California through development period starting in 1980s
• In 1990s start getting increase until tremendous increase in 2008
• Texas – 7,000 megawatt capacity – wind resources in Great Plains
• Height related to wind speed; speed cubed
• Need to know the number of hours the wind blows at a certain wind speed – take power curve and calculate out expected annual energy (calculated energy production)
• Capacity factor – actual kWh produced/rated power x 8760
• Wind farms in Panhandle are running about 48% capacity factor, Sweetwater ~ 38% capacity factor; average coal plant runs about 55% capacity factor
• 10 ft wide, 50 ft long, weighs about 50 tons (Nachell)
• Blades – 45 meters
• Cost: $1,000 for hardware (turbine, tower), Installation $250,000, Other $200,000 = $1,450,000 total
• County to the west put in 87 turbines tripling the tax base for the county
• 12 issues to consider for wind farm development
  ▪ Site selection
  ▪ Land (leased usually)
  ▪ Wind resource assessment
  ▪ Environmental impact assessment
  ▪ Economic modeling
  ▪ Interconnection studies
  ▪ Permits
  ▪ Sale of energy/power
  ▪ Financing
  ▪ Turbine purchase
  ▪ Construction
• Operation & Maintenance
  • 80 turbines at White Deer
  • Critical issue: Transmission access; curtailing Sweetwater area at 20%-25%... if wind is really blowing, have to turn off some machines because there’s not enough transmission to get all of the energy out
  • 8.5 cents for energy in Panhandle; Valley ~ 15 cents; Dallas ~ 15 or so cents
  • Transmission line goal is to have in place by 2013; Transmission lines being brought from California to New Mexico, so can tap into that system and send power to west
  • Wind farm considerations
    o Land with good wind resource (class 4 or 5 with greater than 400 W/m2)
    o Contract to sell energy (include production tax credit)
    o Access to transmission lines (in general, windy land is not close to major load centers)
  • Turbine takes about an acre out of production
  • Leased land – usually leased for 20-30 years; owner receives cash payment/year or % of royalty ~$4,000/yr from 1 megawatt machine ~ $40/acre income
  • Independent users – put wind farm on my side of meter so I don’t have to pay so much for utility – home and farm use (smaller wind turbines; blades 6 ft tall), cost ~ $12,500
  • Business and schools, 50 kw turbine
  • Water pumping – use wind power for water pumping for years – looking at new systems for pumping water
  • Major issues with independent systems:
    o How to manage load
    o Storage
    o Economics
  • Investment tax credit
    o Small wind systems – 100 kW or smaller for home, farm and business use, you receive 30% tax credit of total installed cost (from 10/15/08-2016)
    o 100 kW usually costs ~ $250,000
    o Additional loans and grants available thru USDA Rural Development
    o Will see a lot more of the smaller machines for home use
  • Most machines look at 20-30 year lifetime
  • Using wind power for irrigation pumping or pivot – does NOT pay because irrigation is not pumped long enough unless you can use that for some other application – short use time kills us economically


• Pressurized systems predominant in High Plains
  o Sprinklers – center pivot and linear
  o LEPA
  o LESA
  o MESA Mid Elevation Spray Application
  o Low Pressure In-Canopy (LPIC)
  o Microirrigation – subsurface drip, microspray, surface drip
• LEPA – apply water at soil level
• Low pressure spray (LESA, MESA) – more widely used
• Very good tools, but not universally applicable
• Subsurface drip – gained a lot of ground in High Plains – highly efficient with little risk of runoff or surface evaporation – management and maintenance are key
• Estimated 250,000 acres of SDI in 2006
• Texas High Plains Evapotranspiration Network (website)
  o Hourly and daily data
  o Tables, graphs, a lot of tools available for irrigation scheduling
• Research activities
  o Ogallala Aquifer – irrigation systems and technologies, irrigation precipitation management
  o Applied, commercial scale, interdisciplinary, commodity oriented
  o Nich Kenny – works with grower cooperators on commercial farms on crop water use, energy/pumping plant efficiency, new information tools for irrigators
  o Thomas Marek – Irrigation research, variable rate irrigation, large-scale weighing lysimeters, North Plains ET Network
  o Halfway Research Farm and Helms Farm – important irrigation developments included LEPA system – Jim Bordovsky in collaboration with various other disciplines; cropping system optimization
  o Etter, Bushland, Helms/Halfway – clay soil
  o AgCARES area – sandy soil
• Extension & Technology Transfer – Ogallala Aquifer program collaborators and contributors
• Promote research and Extension programs; maximize impact; improve overall quality and build upon existing programs and collaborations
• Benefits of Technology Transfer – continue to build working relationships and collaborations
• Presentations at Extension meetings – CEU meetings, irrigation workshops, Master Gardener, professional development workshops, university classes/seminars, etc.
• Positive responses with sharing informational resources and public likes that we’re working together and who is doing what to address their concerns
• Irrigation Training Program, modules can be offered for county agent trainings; evaluation surveys
• Crop tours, publications (hard copy & Internet), DVD, radio, newspaper, tv, journals

Thomas Marek – Texas Water Management 2008 Update (C.E. Williams, GM, Panhandle Groundwater Conservation District)
• Global issues – climate changes, drought, floods, quality and quantity issues, etc.
• 23 major river basins, 9 major aquifers, 21 minor aquifers
• Senate Bill 1, 1997 – 16 regional water planning groups
• Groundwater conservation district concept best approach for representation in your area
• In 1997, there were 30 GWCDs in Texas, but after SB 1 we have 95
• Major legislative changes through SB 1- SB 3
• SB 2 (2001) – gave GW districts new powers, addressed exports, created many new districts and Groundwater Management Areas Designated by TWDB
• Water exports big issue in this area – T. Boone Pickens
• T. Boone’s efforts to put pipeline down to transfer water to Dallas – about 150 miles too far; energy costs too much, but put in wind turbines to collect tax credits from to use that to transfer the water via pipeline to Dallas
• House Bill 1760 in 2005 required GWDs coordinate with GMAs and adjoining groundwater districts and establish desired future conditions of aquifers, needed for all 16 GMA areas in the state (13 of 16 have held meetings, more than 100 individual meetings)
• 50% in 50 years rule – benchmark set in 1998
• SB 3 (2007) – environmental flow needs, reservoir designations, raised caps on Edwards Aquifer, increased funding for TWDB & TCEQ

Example Regional & Statewide Project Presentations
Danielle Supercinski – Precision Irrigators Network

Guy Fipps – ITC update, border work, irrigation district program
• Guy Fipps is Director of the ITC
• http://itc.tamu.edu
• Short course programs since 2005 – irrigation district workshops, online training in center pivot irrigation
• 581 acres in San Antonio for Texas A&M campus, along with 400 acres for ITC
• Forming ITC advisory council, primary vehicle used to interface with university admins
• Dallas Center wants same types of urban programs implemented in their area
• Smart controller evaluation – bench testing
• Drip irrigation of turf for landscape applications
• ITC drought simulator/rainout shelter, constructed 3 years ago, roof on tracks used for 60-day drought recovery study (1st ITC facility)
• Texas ET Network – improvements in interactive calculators
  o Crop irrigation – crop coefficients
  o Can set-up profiles and have automatic e-mails sent to you
  o Improving interface of calculators and e-mail notifications
• Historic Weather Averages (ETo data)
• Irrigation District Engineering and Assistance Program (IDEA)
  o Work with irrigation districts along the border – improvements
  o Implement telemetry and SCADA projects and effectiveness for improved canal management
  o A lot of publications on water savings through improvements
  o Very active program
  o Done a lot of mapping – irrigation district distribution network
    • Using aerial photograph looking at urbanization over 10 year period
  o Urbanization causing fragmentation of irrigation districts
• Gabrielle – interactive GIS at _______
- Use a lot of water for agricultural production and meeting the feed requirements of a lot of the confined animal feeding operations in the area; get a lot of return $2+ billion; crop production accounts for $1 billion
- Irrigation is responsible for 90% of yields
- Region A crop category water use – corn uses the most, wheat second
- Need to know limited water production functions on corn
- Groundwater availability model (GAM) part of “big picture”
- Main players: AgriLife Research and Extension, ARS, NRCS, Groundwater Conservation Districts, commodity groups, TWDB, TCEQ, county Extension agents, others: UT-recharge, area producers, seed companies, crop consultants, state reps
- Xu – 75% ET corn making same yields as 100% ET using classical methods as well as hybrid = 25% water savings
- Team oriented, team “mandated,” team required by grantors, multi-project, multi-discipline, multi-state – no one person can get it all done, has to be a team approach
- All projects have same center, working thru same processes/activities: lysimeters, ET efforts, Kc’s, NPET, TXHPET into irrigation scheduling, water management strategies
- 7 regional water plan water conservation strategies studied
- Alternative crop – cotton – if managed properly, can use 40-60 percent of the amount of water as used on corn
- 2.3 million acre-feet, but after methodology in 2000 had number down to 1.74 million acre-feet, but through data metered in High Plains 1. 47 million acre-feet pumped
- Corn seasonal water balance with irrigation scheduling – checkbook method – you pick manageable allowable depletion in soil profile, get available plant-soil water from NRCS map, set threshold irrigation level and when you hit one, it irrigates
- Thomas has hatch project focused on irrigation scheduling methods and dissemination venues, development of advanced irrigation systems, regional water planning and irrigation water use demands
- Built a lot of lysimeters, but have to be conducted right; if used with water use measurements and root density techniques – get best available data and total ET picture
- Large research lysimeters
- Irrigation basis: expert lysimeter experience – Uvalde has 7, Bushland has 4, Etter has 6 and Colorado has 2
- Much more ET research work still needs to be done with lysimeters
- Colorado has new reference lysimeter
- Irrigation water well designs (with Nich Kenny)/energy management
- All current research projects fit into that “big picture”
- ET Network – support 24 state and federal hatch projects
- Work regarding yield mapping (70,000 acres) – look at year after year cropping patterns
- Don’t need to reinvent the wheel
- Future – asked to do more with less again
- Crop coefficients will change due to new bio-genetic alterations
- 2x yields on 1/3 less water by 2020
Aung Hla – TWDB Potential RFA’s – Agricultural Water Conservation Program

- Bring people together to work on targeted programs and project to provide impetus to take us another step forward
- TWDB – 300 people total, 4 in ag water conservation
  - Leadership, planning, financial assistance, information, education
- Generate numbers and create maps
- Need to work on estimated irrigation water use – are in the process of improving irrigation water use estimates for the whole state – challenge
- Planning – estimate statewide irrigation water use
- Financial and technical assistance – loans ($42 million), grants ($2.4 million)
- Outreach and education – Water Conservation Advisory Council, Universities, Districts
- Irrigation acreage in the US (million acres): Texas 5.8, California, 8.5, Nebraska 7.5
- Historical irrigated acres in Texas – since 1990s, acreage has remained somewhat constant; not decreased as predicted – slight increase in last couple years
- Grant Project Categories:
  - Water use measurement
  - Innovative technology
  - Conservation education
  - Special projects/studies
- Current projects:
  - Assessment of ET Networks – Thomas Marek, Dana Porter, Nich Kenny – see where they are in terms of performance, visit with them and administrators to see about needs of future upgrades and/or more, new ET Networks needed
  - Meters & Pivot Directional Controls – Panhandle Conservation District, in early stages, waiting to purchase more meters
  - Gates & Soil Moisture Sensors – Telemetry – Harlingen Irrigation District looking at designing low-cost gates and soil moisture sensors that can be remotely controlled (6 months into it)
- New Projects (currently contracting)
  - Estimate Irrigated Lands by Remote Sensing – Srinivasan Raghavan, will be two phases: I) develop methodologies, analytic algorithms, ground truthing, pick a few counties in Panhandle, Rio Grande and rice-growing countryside to provide general diversity of Texas (first 2 years), work directly with USDA-FSA and GIS data, verify what can be seen from remote sensing; II) Implement it throughout the state
  - Gates and Meters for LCRA – in process of requiring meters or providing gates for irrigation district, no way of knowing who has been getting how much water
  - Education Enhancement of ET Network – Thomas Marek, Dana Porter and Nich Kenny, Terry Howell
  - Economic Impacts of Reduction of Water Use – special project that Bill Mullican wanted to look at economic impacts of irrigation water use reduce – Panhandle Groundwater Conservation District who wanted to partner with Texas Tech and Steve Ellison; see if the 50/50 has impacts and whether there are other interventions to take
- Progression from old projects to new projects: more specific for planning process
- See outreach with kids in the future, possibly
• Would like to partner with Texas A&M and other universities on future projects
• Smaller group so need partners to work with
• Looking at more innovative, not just complimenting what we’ve done
• Want to use the best water science, best people at universities and districts to carry forward a little bit of TWDB’s own planning mission
• Loan program – open to districts for political subdivisions only; mostly funded to buy equipment – meters, telemetry equipment, calibration systems, pumping plants, complete drip irrigation systems, a few pivots, etc. As long as the districts want the money and are able to repay it, then it’s up to them to specify what they need it for

Cleon Namken – NRCS Potential RFA’s – Environmental Quality Incentives Program (EQIP)
• Do a lot of pivot conversions – high spray to low spray and do tubing drops
• Microirrigation is cost-shared a lot
• 90% to 95% of what is cost-shared is in the 9 counties around Lubbock, 200 designs a year, approximately 55 acres each, 4.5 gallons per minute per acre
• EQIP offers financial and technical assistance to agriculture and forestry producers to promote agricultural production, forest management and environmental quality
• National goals: Comply with state, local and regulatory requirements
• State priorities: State Technical Advisory Committee, approved by State Conservationist
• Local priorities: analyze EQIP implementation rules identifying local resource concerns
• Local work groups provide advice to NRCS
• Local people determine what they want to cost-share within their county and a ranking tool is used to rank those as the highest priority
• Screening process is used – run application through screen based on participants willingness to develop a conservation plan, and based on priority
• 2009 – Resource Management Systems (RMS) Plans (highest priority); then Progressive Plan (medium priority); then Basic Plan (low priority)
• Fund allocation:
  o 70% – to counties
  o 25% – statewide resource concerns
  o 5% – Divided among:
    ▪ Limited resource farmer or rancher
    ▪ Beginning farmer or rancher
    ▪ Socially disadvantaged farmer or rancher
• 2009 Resource concern examples – air quality, water quality, water quantity, fish and wildlife, soil condition…
• National EQIP funding
  o 2008 $1.2 million
  o 2009 $1.337 million
  o 2010 $1.45 million
  o 2011 $1.588 million
• Agricultural Water Enhancement Program (AWEP) – replaces Ground and Surface Water Conservation Program – offers financial and technical help to assist farmers and ranchers install or implement conservation practices for agricultural conservation and/or water quality enhancement activities
- Promotes ground and surface water conservation
- Promotes improved water quality
- Projects may be considered in areas experience drought – capture surface water runoff on agricultural land for new irrigation project; maintain ponds
- Project application made for Ogallala Counties by TWDB

**AWEP Funding**
- 2008 $0
- 2009 $73 million
- 2010 $73 million
- 2011 $74 million
- 2012 $60 million

**EQIP** – Maximum per person is $300,000 over a six-year period
- Adjusted gross income has to be less than $1 million
- Payment schedules – implement a practice, pay for implementation; increasing irrigation

**Partner Program Funding**
- AWEP ($58.4 million for 2009)
- Conservation Innovation Grants (CIG)
- Cooperative Conservation Partnership Initiative (CCPI)
- CIP and CCPI funded with 6% of EQIP and WHIP funds and 6% of CSP acres

**AWEP**
- Part of EQIP
- Cost-share practices cooperator carries out
- Certain regions given priority (Ogallala)
- Promote ground and surface water conservation
- Improve water quality
- Mitigates drought
- Application period for 2009 is closed
- Entities may submit a proposal on behalf of group or entity
- Must include 5 specific criteria:
  - Partnership capacity
  - Lands to be treated
  - Producer information
  - Letter of review from NRCS State Conservationist

**CIG Conservation Innovation Grants**
- Stimulate the development and adoption of innovation conservation approaches and technologies while leveraging Federal investment in environmental enhancement and protection, in conjunction with agricultural production
- Lead to transfer of conservation technologies
- Does NOT fund research projects
- Target on-the-ground conservation and pilot projects
- Projects do NOT exceed 3 years
- A step past the research part
- NRCS did not participate in 2009
- Application period for 2009 closed
- Funding for national CIG is $20 million
• CCPI
  o Address conservation priorities
  o Demonstrate innovative conservation methods
  o Has to meet eligibility roles
  o Funding in 2009 is $52 million

**May 29, 2009**

*Shad Nelson – Overview of ADI Water Conservation Projects in the Lower Rio Grande Valley*

- Agricultural Water Conservation Demonstration Initiative
- Harlingen Irrigation District, Cameron County No. 1
- All irrigation districts allocate water and different price; water comes from Rio Grande
- Flow Meter Calibration Facility by Harlingen Irrigation District – Axiom Blair Engineering
- Demonstrate and calibrate agricultural water measuring devices; available to irrigation districts and education institutions
- Can bring meters in for closed pipe system and calibrate them
- Demonstration flume – allocate water to grower
- Hope to broaden ability to allocate water to growers and in time, conserve water
- On-farm water conservation issues – citrus area for Shad; sugarcane, cotton – and evaluate effectiveness of irrigation methodologies
- LRGV irrigation traditionally set up for flood irrigation; not many growers trying to change to more efficient irrigation methods; very few growers use drip systems (cost issue)
- Looking at differences in furrow, flood, narrow border, surge, drip, etc.
- 12 hours for Shad to go to each of his site to monitor
- Objectives of citrus: assess and improve farmer’s irrigation management in order to maximize net return and conserve water
  - Save water and promote water conservation practices to more growers in the Valley
  - Uniformity of irrigation system
  - Soil moisture sensing materials (Watermark, ECHO or capacitance probes)
  - Collect yield and other agricultural information
- Water savings results – drip saves 584,082 gallons per acre; microjet saves 347,249; border flood saves 260,671
- Border flood good option for grower because no initial investment, just add berms to their flooded fields; microjet is more costly to get started
- Bark chip compost under citrus tree canopy – conserved water under the soil
- Root growth exploded under the canopy with the compost, changing dynamics of soil physical properties as well – root density analysis
- Soil water content was lower for trees that were not composted as compared to those that were; as compost application increases, soil bulk density decreases, soil porosity increases and root density increases
• Compost over time won’t impact citrus yields in the LRGV. Organic producers interested and it is a way to conserve water under the citrus tree.
• Collaboration between several scientists: Juan Enciso, Xavier Peries, Bob Wiedendfeld, etc.
• Another 2 years data collection and another final report in 2011-2012
• Had a long-term outlook of 10 years, but trying to speed up and get it out in 5 years
• Yard waste compost, manually applied
• Water cost as delivered by irrigation districts in the LRGV: ~$26 an acre-foot to as low as $7 at some times, therefore, no incentives
• High Plains $80 to $180 an acre-foot

Rick Kellison – An Integrated Approach to Water Conservation, Texas Alliance for Water Conservation
• Counterpart to Tom McLemore (Rio Grande Valley)
• Funded by SB 1053, Texas Water Development Board, 8 year duration (to be completed in 2012)
• Cooperative – Farm Assistance, Texas Tech, Texas A&M, Texas AgriLife Extension, Research, USDA-NRCS, Producers
• 19 producers currently involved, at 27 different sites; 20 miles north and south from Plainview to Lockney; 4,300 total acres
• Objective: Try to reduce total amount of water pumping from Ogallala Aquifer and maintain/enhance profitability to growers, identify systems, crops or fields that meet the first to objectives and share this information with other growers
• Crops: Cotton, corn, sorghum, cattle, hay, wheat
• Monitor what producers are already doing and answer any questions they have with the best information possible
• Steady decline in cotton acres because corn acres have gone up
• Irrigation methods: Center pivot (majority), some flood, drip and dryland
• Infiltration rate of .5 to .8 inches per hour
• Have tipping rain gauge to monitor rainfall and how fast it comes down
• Agronomic Summary:
  o Increase in yield of cotton
  o Corn for grain, drop in 2006 then back up in 2007
  o Corn silage – not much fluctuation
  o Average precipitation over last 7 years, a fraction over 18 inches
• Producers keep very accurate records: All inputs are provided
• Economic summary: gross in crease in revenues; producers are getting back net return per acre inch of irrigation
• Future direction: Irrigation Scheduling; Fertility Management; Irrigation Well Efficiency
  o Net-irrigate irrigation system www.netirrigate.com

Xavier Peries – Reporting on his and Juan Enciso’s work
• ADI, Arroyo Colorado Agricultural Non-point source Assessment BMPs, RGBI
• ADI – soil moisture sensors on sugarcane
• On citrus, soil moisture monitoring improved yields 10 to 50% for the past 3 seasons
Potential water savings of 36,000 acre-feet/year when border flood is converted to microjet, or 20,500 acre-feet with drip (for 30,000 acres valley-wide)

- Evaluated irrigation uniformity and irrigation
- Irrigation uniformity and irrigation depth on sprinkler systems
  - MESA pivots
  - Comparison with flood irrigation
  - Pumping costs estimated at $2.3 per acre-inches of water applied

- Arroyo Colorado, funded by TSSWCB, 2-year project
  - Assessment of water quality and volumes from irrigation, runoff, drain tiles, and groundwater
  - Evaluation of impact of BMPs to reduce pollution at the farm level within the watershed to create a simulation model
  - Surface runoff ending in drain ditches; can runoff be reused?

- RGBI
  - Workshops – landscape irrigation auditing; flow measuring; irrigation scheduling

Round Table Discussions & Wrap-up
Thomas Marek
- Two years ago met in College Station to discuss group and future, developed objective
- Develop proposals and/or address multi-regional or statewide issues to address these
- Effort last year in Uvalde, but not much came out of it
- This year tried something different in High Plains
- Provide direction for this group – at a crossroad: Format, duration, timing is critical
- Not many people showed up for this; is this a sign of where we are going?
- Changed format this year – give a flavor of what is going on in this region
- Are there expertise in other parts of the state we could focus on to send things to TWDB and NRCS, etc.
- Maybe we need to identify what the needs are, get people into that need and talk to funding agencies telling them what we think the needs are, and hopefully they will put forth RFAs that will fit these issues
- What works in one region may be different than the other; have to have uniform degree of participation and take something out of it
- Programmatic or project based?

Open Comments/Discussion
- Idea of when granting agencies get their ideas together and RFP’s developed
  - TWDB usually does around February, about 30 days to get proposals in
  - NRCS all windows were closed by now, so assume typically they are released earlier in the year
- Shad said need a strategic plan (from Sweeten) to set forth our goals, etc.
- Timing needs to be addressed and try to work around RFA’s that are coming out
  - Typically come out end of January and close by end of March
  - If you want to target collaborative grants – get together before that happens
- Marek – 9 to 10 months ahead of RFAs
  - Have fleshed out plan ahead of RFAs – scope – look for RFA to fit it
• Shad – Challenges of getting people to the meeting is a cost issue because there is no funding for CIRE
• Marek – more concerned about the value you get out of the meeting, or propose, or what it leads to
• Howell – determine what are future goals are going to be
• Shad – if we develop a strategic plan, are there funding mechanisms you can put in the plan and then pass on the funding agency and see if they could fund travel
• Jeff Johnson – strength of group is meeting people, broadening contacts, broadens research opportunities
  o This is a new organization, encourage everyone to hang on because this is the core of the folks who will continue on and think more folks will gain interest as time goes on and as more value comes out of it
• Marek – talk to some of these grantors and ask if we can pick $X to help us, and bring them to the table with us
• ***Put together CIRE handout/brochure to publicize it more***
• Put together a small grant to help us get to the meeting – Cropping Systems for example
• Some supervisors indicate where they can and cannot go for young researchers
• Need feedback
• Bill Harris can hopefully continue to lead on this effort
• Longer format this year, but wanted to show what we’re doing
• Leskovar – good meeting, informal, learn things, learn a lot about this area, tour was excellent, personally have some ideas, definitely worth it; College Station – stuff to do; Uvalde, no tour besides around center
  o Kingsville/McAllen – Shad will have to plan what is valuable… a day and a half or two days?
  o Change ideas and try to develop some projects and work together on things we haven’t in the past – focus of the meeting
• Porter – Think tour in the Valley would be useful
• Shad – thoughts were to have a tour, length unsure of
• Steve Amosson – put tour either on back end or front end so that it can be optional
• Shad – personal objectives with ADI – that tour tied in with inviting growers from the region as well as people from this group
• Marek – spend a lot of money getting here, what’s the value for the amount of time you’re here; “off-time” sometimes has more merit and value discussions than during the actual meeting
• Election:
  o Can have individual solicitation for where/what this meeting goes/does
  o College Station – Wintergarden – High Plains
  o Can table it and open it up by e-mail
  o We’ve looked at this (b/c it’s multi-agency and multi-disciplinary) and need to keep focus on irrigation, but we haven’t brought in urban areas – do we want to bring those in? Houston, Dallas (Allan Jones), Austin, San Antonio?
• Haven’t thought of urban before
• Xavier – thinks its important because of the amount of water that’s used for landscaping
Porter – is there something in the model that we can offer them or they could offer us? Would it be worthwhile for people to come?
  o Yes. Group both Marek and Terry are dealing with on steering committee for western regional – comparing all the smart controllers, representation and outcome; data might be of value for both
Shad – has Frank Gilstrap ever attended? No. But he works with Allan Jones.
Marek – feel with such a small group – table this and conduct by e-mail
Shad – vote in someone with a vested interest in coming to the meeting, and if that person wants to call Gilstrap or Jones and set up a meeting based on urban irrigation
Marek – Want to stay away from administrators being chairs, keep project participants in office; do we want to bring it back to the High Plains? What would be different?
Everything we have done has been based on AgriLife… Move to Texas Tech and other disciplines
Jeff – By definition you have the A&M System and Tech in ag, but who else? Keep USDA and Tech involved, but A&M/AgriLife is a core
Shad – Prefer voting while we’re here; Shad nominated Jeff
Jeff agrees to serve as vice-chair and then chair for the Spring 2011 meeting
Shad – want to know the persons face, commitment, involvement – seen all of this today
Marek – Dana, Terry, Nich, Danielle – all teamwork, working together
Jeff – do we want to keep ag or move into urban? (Up to Jeff).
Porter – some more urban areas are more centralized and easier to get to
Shad – wouldn’t be opposed to visit Texas Tech and see what is going on there
Porter – There is a very active water conservation group in Lubbock

ADJOURN