Overview of upcoming research opportunities – Bill Harris

- Review of CIRE Irrigation Priority Areas list to keep the list fluid (it is not set in stone) – continually update/review it to make sure it fits our focus areas
  - Nich Kenny: Education missing from top priorities – need to make known – state delivery
  - Thomas Marek: TWDB does not fund research – title, scope, tasks => implementation and demonstration, benefits verification, evaluation; technologies have a 4 year shelf life, max; research and education must work together to continually promote adoption/implementation.
  - Zhuping Sheng: Local interests don’t always match funding agency. Be more general/broad.

- Mission and Vision:
  - 1. How to focus research/education programs
  - 2. Agencies have funds available to support priority programs

- All were asked to review the current priority list and respond to Danielle by the end of April with any changes/suggestions as part of a regular review process.
  - Following up: Bill Harris and Danielle Kalisek made some text revisions to the list and sent it out to meeting attendees for review, asking for their responses by May 6.
  - After May 6, suggestions will be incorporated and the list will be sent to the entire listserv for review. Depending on the suggestions, we may consider re-ranking to assure we are still addressing priority issues.

- 26” to 28” water on alfalfa
- 12” to 16” water for corn
- NIFA – AFRI
- Texas Water Development Board (TWDB)
- U.S. Geological Survey (USGS) – Center for Climate Change
- Climate “Variability” – NSF

Research Center at Halfway – Jim Bordovsky

- Compare drip and pivot irrigation
- Alternative crops – irrigation efficiency
- Reaction to cotton after alternative crops
- Different irrigation rates – monitoring – different levels – collect data
- Drip demonstration

High Plains Underground Water Conservation District #1 – Jim Conkwright

- Groundwater districts are facing new things – increasing and different interests in water
- Water marketers – not all bad; they have their place
- More legal pressure now – water bills
- Lubbock has to bring in water – Cremlaw
- HB 1763 – Sept. 21, 2010 – developed goal/described future conditions of aquifer
• How do we deal with these challenges? Better Science.
• New rise in emotion and reality of property rights
  o High Plains said some type of property right or interest in groundwater
  o Own right to pump it… Frasier-Duncan Bill addressed this
  o Out of Senate into House
  o Word “vested” – districts feel like it does not hamper us – most feel it opens them up for more taking
  o “Fair Chance” – everyone can drill a well subject to the district or just because you grill a well, you may not get water (dry well) and cannot sue the state; chance – you may or may not get water or you may think it’s a 500 gallon/minute well but it may only be 70 gallons/minute
  o “Public Interest” – which public? Who owns it?
  o = interpretation problems
• Rule of capture will always come up for debate
• 332 State Bill – interest vested: landowner better right to selling water increase in time; not hurt distribution
• Paper today – Crimlaw water story; politics
• Value of water will continue to increase
• Rules based on spacing regulations (between wells); property line requirement; production limit now
• One public hearing prior to adoption; High Plains district – 5; hearing phase – 2 => for initial drafted new rules
• 1,500 people showed up at those 5 public meetings; about 400 comments
• Put out draft set – look at comments, revise, add, junk, etc. Then take back out the revised version (May)
• 20 day notice required prior to hearing; High Plains is giving 30 day notice, then more than 14 days for comments; try to adopt rules in July and/or adopt something as rapidly as they can
• Implementation will be spread out – not as quickly
• Comments fall into 6-8 categories plus some random comments
  o Amount of water: 15”/acre/year proposed; probably will raise to 21” for 2 years, then 18” for 2 years and monitor
  o Installation of meters: wide embracement, alternative methods of metering – starting January 2012. Give a couple years to get set up, then 2 more for reports with no penalty.
  o Once farmers are aware, they may use less water
  o High decline: 4’ or more – toss out – everybody meter
  o Looking at per farm total acres not wet acres
• Concern with municipalities – get treated the same
• CAFO and dairies – have structures in place – various scenario
• Water banking program: not using water of the future, but if you don’t use all your water – roll over
• Oil and gas: fracking water in there; drill water not used
  o Water used to produce well is exempt; rest of water should be regulated like everyone else
• ASR? Currently being discussed, interbasin transfer
• All districts are struggling
• B.L. Harris said: Post Oak and Savannah are looking at ASR as offset, recharge with treated water obtained from other areas to maintain levels. Problem with ASR is who owns the water? Looking at continued and more desalination.
• Ownership issue is huge
• B.L. Harris said: until groundwater districts limited water, won’t have water use efficiency/conservation. If the water is there, they are going to use it.
• Why save this water? Stewardship of resource, right thing to do for future generations.
• Technology of water only gets better.
• Water will always be valuable.
• Prolonging it as much as possible.

Algae Project
• ETF funding of $4 million
• Collaboration with General Atomics
• Operational in Summer and Winter
• Paddle keeps algae moving – growth activity on surface
• During summer heat have to paddle deeper
• Develop new strains of high lipid content algae with high production potential
• Develop agronomic practices to sustain production of new algae strains
• At Lubbock – evaluate species for oil production
• Corpus power plant – capture CO2
• Bioseparations lab
• Biology research
• Integration

High Plains Hydro-Econometric Model project – Zhuping Sheng and Chenggang Wang
• This project is a product of the 2009 CIRE meeting where Zhuping first met Chenggang
• Link hydrology to economy
• Efficiency and conservation; producer’s use decisions
• Goal: Create policy assessment model/tool to evaluate impacts of water conservation policies and assess strategies for management of groundwater resources
• Results will be publically accessible
• GAM, MODFLOW2000, 270 rows, 290 columns, 4 layers. Stress period 1930-2060.
• Need to modify well configuration
• Historic data used to calibrate the model
• 21 counties being studied; 1972-2007 datastudy period
• Producer decision model used to predict all level irrigation water demand – integrate with GAMs to simulate future conditions of the aquifer
• County-level acreage shares of crop irrigation technology combinations
• Variables: crop price, fertilizer price, seed price, irrigation capital costs, lagged crop shares, pump lift, well yield
**CIRE Business**

- Four follow-up items
  - Priority list – look over and send revisions to Danielle by the end of the month. Priority of things we are doing to take upwards.
  - Initially this group was formed to all put together grants – big grants. Now, think smaller-scale – show work being done in the state in all areas. Have something to show what CIRE does.
  - Location and Chair: College Station? Elsewhere? El Paso? What will we see?
    - El Paso offers saline, wastewater reuse and purple pipe, sharing of water and associated policies with New Mexico and Mexico – policies, economics, non-achievement of delivery, delivery of poor quality water, unique system with prison to use wastewater, interaction of surface/groundwater (impact salinization)(upwelling, overirrigation)
    - Beaumont – Rice irrigation (not conserving), system irrigation
    - College Station – max researchers, policy people. Due to fluid budgets, College Station was voted to be better location for 2012.
- New chair voted in: Dana Porter
- New vice-chair voted in: Zhuping Sheng
- Secretary remains Danielle Kalisek
- 2012 meeting agreed to be in College Station to hopefully promote more attendance
- 2013 meeting tentatively will be in 2013