Great Plains Grazing Newsletter

VOLUME 1 NUMBER 2 JANUARY 2014

IN THIS ISSUE

From the Directors

by Dave Engle & Jean Steiner

Annual Meeting Attendance is Mandatory

All co-PI's are expected to register and attend the Annual Meeting, March 10-11 hosted by the Noble Foundation. James Locke and the Noble Foundation have planned a terrific meeting for us. We thank James and the others at Noble Foundation for hosting us. Every project co-PI is responsible for attending the meeting and participating. If you believe you lack an opportunity to actively participate and to convince the project directors and EMT that you are contributing to the project (to give evidence that merits continued funding into Year 3 of the project), share this concern with Dave Engle and Jean Steiner so that they can help you resolve this issue. Year 3 funding is not a given for anyone who fails to convince the project directors and EMT that the co-PI is a productive member of the project team.

Reporting

Each of us needs to continue to track our outputs, outcomes, and impacts for reporting for Year 2, which will be timed similarly as Year 1. When you present and publish, please remember to acknowledge USDA-AFRI funding as explained in this newsletter. Acknowledging and reporting are everyone's responsibility.

Funding

A no-cost extension for Year 1 has been requested, which is likely to be approved. Your institution will receive notice from OSU when the approval is received. Year 2 application for continued funding has been approved, and we are waiting for NIFA to release the funding. Your institution will be notified when this happens. You should continue to operate your project responsibilities as though there is no interruption in funding.

External Advisory Board Meeting

The first meeting with the External Advisory Board was conducted on January 14, 2014.

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Integrated Grassland Observation Sites

Two integrated grassland observation sites are operational at the El Reno facility as the result of collaboration between the University of Oklahoma and the USDA Grazingland Research Laboratory.

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Registration for 2014 Annual Meeting Now Open

by James Locke

Please register for the AFRI Grazing CAP Meeting which will be held on Monday, March 10 to Tuesday, March 11 at The Samuel Roberts Noble Foundation Kruse Auditorium in Ardmore, OK. Registration can be accessed online at https://www.regonline.com/AFRIGrazingCAP

You will be required to create an account with login and password information. The cost to attend the meeting will be $100 which will include two lunches, dinner on the evening of March 10 and all refreshments. Cash, check, purchase order and credit card payment options are all available. If you do not pay with credit card; payment will be due at registration on Monday, March 10. Please register no later than Wednesday, March 5 to allow the Noble Foundation to make the appropriate arrangements for catering needs.

FOR MORE INFORMATION

Abico eum, ille et, conventio obruo duis ullamcorper ut, neo demoveo. Vel reprobo:

Tracy Cumbie
Phone: 580-224-6292
Email: tlcumbie@noble.org

DATE & TIME
Monday, March 10, 2014 8:00 AM - Tuesday, March 11, 2014 5:00 PM (Central Time)

LOCATION
Noble Foundation Kruse Auditorium
The Samuel Roberts Noble Foundation
2510 Sam Noble Parkway
Ardmore, Oklahoma 73401
United States

Extension Materials Review

by Dave Engle & Peter Tomlinson

The Extension team completed a review of over 400 Extension materials on adaptation and mitigation of climate change/climate variability related to beef cattle production.

Extension Project Coordinator, Amber Campbell Hibbs, created a Zotero database with all the materials reviewed can be accessed at

https://www.zotero.org/ambercampbell/items/collectionKey/JGX3DI35

Subgroup leaders identified nine readily apparent and significant gaps in Extension materials that team members could address over the course of the project, even if they could not be fully developed in the project timeframe.

1. Producer-user online tool to estimate value to soil fertility (i.e., offsets to commercial fertilizer of N and P) from waste of cattle fed supplements.
   Proposed lead: Dave Lalman

2. Online tool (regional application) of heat stress of cattle. Patterned after Oklahoma Mesonet's Cattle Comfort Advisor and Missouri's tool. Perhaps could this with the new USDA Climate Change grant on water use by cattle. Provide options for shade and other adaptation strategies.
   Proposed lead: Peter Tomlinson

3. Early warning drought decision tool. Provide probabilistic estimates of forage growth based on historical climate data and plant-available soil water.
   Proposed lead: Daren Redfearn

4. Enterprise flexibility. Improving cow-herd flexibility under to adapt to increasing variability in forage growth and extremes in weather. Justification: How to help producers not have to sell brood cows. Cattle genetics today fit $2 corn and greater than average long-term precipitation—producers need help adjusting to a new reality.
   Proposed lead: Dave Lalman

5. Soil management and soil fertility in wheat systems.
   Proposed lead: Jeff Edwards

6. Quantifying greenhouse gasses. Producers need information about footprint of current production systems.
   Proposed lead: Jason Warren

7. Water requirements of cattle by breed, class, age, production phase, etc. and by environment (especially, hotter and drier climate).
   Proposed lead: Dave Lalman

8. Life cycle analysis and BMP's for mitigation
   Proposed lead: Jason Warren

9. Weather and climate—basic information for producers to inform them of what is normal to expect and what to prepare for in a highly variable climate.
   Proposed lead: Al Sutherland

The Extension teams agenda at the annual meeting will likely focus on filling Extension education gaps and on selecting targets for enhanced education efforts.

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Research Visits

On November 7-8, Jean Steiner visited the Archbold Biological Center and MacArther Agro-Ecology Research, to discuss possible collaboration on beef-grazing systems addressing productivity, water, and greenhouse gas flux research. They have two flux tower sites on grazed native and improved pastures and are very interested in exploring collaboration.

On November 12, Sam Coleman and Jean Steiner visited the ARS Bushland Lab to join in discussions with the Tom Denmead, CSIRO and Deli Chen, University of Melbourne, on greenhouse flux measurement from grazed paddocks.

On December 12, Jean Steiner participated in a New York Academy of Sciences Conference: Frontiers in Agricultural Sustainability: Studying the Protein Supply Chain to Improve Dietary Quality and presented Impact of Protein Production on the Environment. The presentation focused on ruminant grazing systems and presented the Grazing CAP research project objectives and approaches. A follow up meeting report and publication is being planned.

Jean Steiner, Chuck Rice, and Ali Saleh participated in a meeting on January 10 with the AgMIP global modeling consortium following the AFRI Project Director's meeting. The meeting focused on ways to share data across projects and discussed needed improvements in crop and livestock models to address a broad range of climate change research.

No-Cost Extension Application Submitted

A request has been submitted to NIFA for a no-cost extension to year-one funding for the project. We expect for this to be approved and will let everyone know as soon as we receive official word.

Year 2 Funding Approved

The Grazing CAP's application for year 2 funding was approved by NIFA. Subcontracts to the institutions should be finalized soon.

External Advisory Board members, Extended Management Team members, and project staff participate in the first meeting with the board in Oklahoma City on January 14th.

External Advisory Board Meeting

by Dave Engle

The first meeting with the project Advisory Group was help on January 14th in Oklahoma City. Advisory Group members in attendance included Ross Love (OSU Extension), Renee McPherson (OU Climate Science Center), Brandon Reavis (OK NRCS), Lisa French (Cheney Lake Watershed), Mark Hodges (Plains Grains, Inc.) and Mike Grusak (USDA-ARS). Gregg Hadley (KSU Extension) was unable to attend because of illness, and David Kraft (KS NRCS) attended via the internet (Adobe Connect). We would like to thank the following EMT members for attending and making this a very productive meeting: Dave Engle, Jean Steiner, Jeffrey Basara, Barbara Brown, Andy Cole, Billy Cook, Peter Tomlinson, Xiangming Xiao.

Summary/Action Points

- Enhancing team communication should be a priority.
- Connectedness across Extension and research is essential to overall team success.
- Building climate literacy is a huge need, so that the project should consider goals and strategies to address this.
- Extension should avoid approaches with little overall impact (e.g. broadly cast education to the large group of either county agents/educators or two producers; a few field days). Instead, the project should work to target a few key innovators, first county level educators/agents and then the producers they identify.
- In budgeting the project in years 3-5 project leadership should adopt the attitude that funding is not guaranteed and productivity is required to insure funding in future years.
- Branding of products, e.g., fact sheets is not an issue. Rather, the issue is removing barriers for institutions to use available materials. Peer review remains a necessary step in the process.

Our expectations of the Advisory Group

- Evaluate our effectiveness at doing the right things and doing things right to reach our target groups
- Serve as door-openers to key groups and clientele (help us network)
- Help us identify key opinion leaders and innovators (extension workers and producers)
- Help us establish and maintain the appropriate trajectory by posing big-picture questions
- Ask us about concerns and roadblocks we face and serve as a sounding board and advisor to address these

Frequency and kind of information the Advisory Groups wants to receive from the team

- Quarterly newsletter
- Annual report including the Top 10 Accomplishments document
- Timetables (so they can track team progress)

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Consumer Programming Team Conducts Focus Group Research

by Barbara Brown

Focus groups with adult consumers were conducted to learn the level of their awareness about the relationship between the beef they eat and the impact of beef production on the environment. Groups were asked a series of open ended questions regarding the types of protein choices they make, the beef they purchase and consume and the environment. Nine sessions, involving 61 participants, were held across Oklahoma. Participants were primarily female, included both urban and rural residents, and reflected a wide range of age groups, education and income levels.

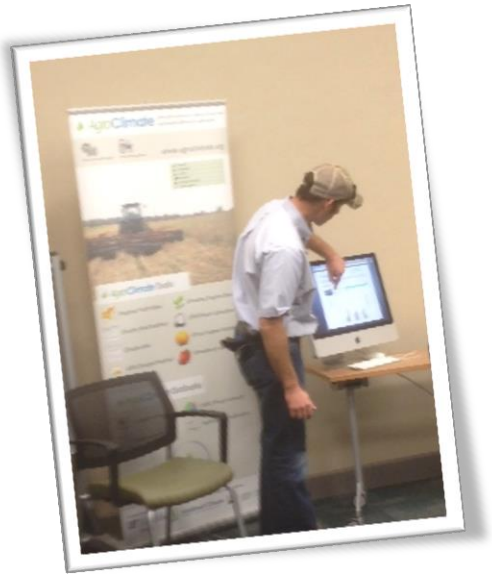
While the sessions have been transcribed the process of reviewing the data for common threads or themes has just begun. A quick overview appears to indicate that while beef is a favorite protein food for this audience the amount consumed has decreased in the past five years. Reasons for this include price of beef, health factors, quality of meat available and time available to prepare meals containing beef. This would reinforce work done by others. Participants overall responded that the impact of beef cattle production on the environment is not a factor considered when they choose to buy or eat beef. Some did indicate awareness that production may be associated with impacts on water and methane gas emissions. Participants responded "no" when asked if there would be change in the amount of beef they would buy or eat if producers were able to reduce the environmental impact of beef cattle production.

Closer review of the focus group transcripts is needed before decisions can be made on the next step in the project which is the development of adult consumer education materials.

Project Directors Attend National CAP PD Meeting

by Dave Engle

Several team members attended the USDA-AFRI-CAP Project Directors Meeting in Gainesville, Florida earlier this month including Project Director, Dave Engle,



Project Co-Director, Jean Steiner, Research Theme 1 (Site Network) leader, Chuck Rice and Extension/Outreach team leader, Peter Tomlinson. Ali Saleh, leader of Research Theme 5 (Life Cycle Analysis), joined the group on day 4, which was devoted to modelling. The first day consisted of sessions devoted to climate change themes followed by break-out groups that discussed topics of relevance for an upcoming book on climate change and agriculture in the US. The second day, a highlight for me, began with a tour of the Pine MAP (the southern pine CAP) project's field study outside Gainesville (see photo) and concluded with an afternoon session from various agriculture and climate groups from the Southeast and Florida who are working to engage ag

producers on climate variability and climate change (see photo). Day 3 continued from day 1.

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Climate Scenarios Progress and Data Needs

by Aavudai "Anandhi" Swamy

Scenarios refer to plausible future climates which have been constructed for explicit use in investigating the potential consequences of anthropogenic climate change and natural climate variability. Since climate scenarios involve future developments in complex systems, they are often inherently unpredictable, insufficiently assessed, and have high scientific uncertainties. So, it is preferable to consider a range of scenarios that reflects the uncertainties of the possible future climate change. In order to create reasonable scenarios we must identify and define key variables.

Solar Radiation

Solar radiation is an important climate variable impacting beef cattle production and is a less studied climate variable in comparison to rainfall and temperature. A variety of methods are available to estimate future solar radiation (SR) scenarios at spatial scales that are appropriate for local climate change impact assessment. However, there are no clear guidelines available in the literature to decide which methodologies are most suitable for different applications. Three methodologies to guide the estimation of future SR are (Case 1) SR is measured, (Case 2) SR is measured but sparse and (Case3) SR is not measured. In Case 1, future SR scenarios are derived using several downscaling methodologies that transfer the global climate models (GCM) simulated large scale information to a local scale (measurements). In Case 2, the SR is first estimated at the local scale for a longer time-period using sparse measured records and then future scenarios are derived using several downscaling methodologies. In Case 3: the SR was first estimated at a regional scale for a longer time-period using complete or sparse measured records of SR from which SR at local scale is estimated. Finally the future scenarios are derived using several downscaling methodologies. More information can be obtained from the published work.

Anandhi A, Srinivas VV, Kumar DN, Nanjundiah RS. 2013, Gowda P, 2014. Methodologies for Estimating Future Climate Change Scenarios of Surface Solar Radiation. Fall meeting, EOS Transactions AGU, December 9-13, San Francisco, CA, USA.

Anandhi A, Srinivas VV, Kumar DN, Nanjundiah RS, Gowda P, 2014. Climate change scenarios of surface solar radiation in data sparse regions: A case study in Malaprabha river basin, India. Climate Research. (accepted, in press)

Historical Climate Analogies

Future climate scenarios for regional scale studies have been derived in several ways. In the first modeling meeting we initially decided to create climate scenarios based on analogies from historical time periods. However no clear guidelines are available in literature to create scenarios based on analogies specific for beef cattle production systems. So as a first step, a framework has been developed. To use the framework to create scenarios requires developing a template from historical time-periods. Some of the climate stressors affecting the system have been identified and templates for creating analog scenarios are being developed. The current templates were prepared in consultation with Dr. Justin Derner (USDA-ARS) and other team members.

The next steps would be to verify the created templates and use them to create and verify historical climate analogies. This requires long term data (more than 15 years) on temperature, rainfall, forage quantity & quality, cattle weight gain etc. Currently availability of this data is being explored. If you have data of this kind and would be willing to share it to assist in template verification please contact me at anandhi@ksu.edu.

Heat Waves

Heat waves impact beef cattle production systems. So far, about 16 indices to calculate the heat waves are identified. Depending upon data availability & suitability we plan to calculate a couple of these indices for selected study regions to study changes in heat wave patterns.

Integrated Grassland Observation Sites (iGOS)

by Xiangming Xiao

Two "Integrated Grassland Observation Sites (iGOS)" at the El Reno have been in operation through close collaboration between the University of Oklahoma and the USDA Grazingland Research Laboratory. IGOS sites provide continuous measurements of $CO_2/CH_4/H_2O$/energy fluxes at a native prairie site and an improved pasture site. The data will be used to support models and field campaign in summer 2014.

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Upcoming Events and Deadlines

Field Experimental Research Group Teleconferences
Wednesday, February 12, 12-1 pm and
Wednesday, February 26, 12-1 pm
Phone number: 888-844-9904
Access Code: 6725943#

Annual Team Meeting
March 10-11, 2014 in
Samuel R Noble Foundation
2715 Sam Noble Parkway
Ardmore, OK73401

Funding Acknowledgement

Everyone should look for opportunities to acknowledge NIFA-AFRI funding for their work. Project personnel should acknowledge on papers (oral and poster papers) delivered at scientific professional meetings, field days, and the like, and on progress reports, Extension publications, newsletters and reports in newsletters and the like, and in all scientific communications. The following wording, or something similar, is sufficient.

"Funding provided by USDA to Project No. 2012-02355 through the National Institute for Food and Agriculture's Agriculture and Food Research Initiative, Regional Approaches for Adaptation to and Mitigation of Climate Variability and Change."

If only a portion (even a small portion) of the work was funded by the Grazing CAP, include language something like the following:

"Partial funding was provided by USDA Project No. 2012-02355 through the National Institute for Food and Agriculture's Agriculture and Food Research Initiative, Regional Approaches for Adaptation to and Mitigation of Climate Variability and Change."

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