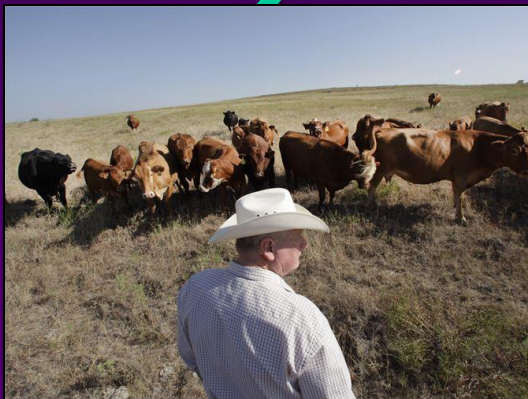


# Resilience and Vulnerability of Beef Cattle Production in the Southern Great Plains Under Changing Climate, Land Use and Markets



**Program Area A3101: Regional Approaches for Adaptation to and Mitigation of Climate Variability and Change**

## Team:

- Dan Devlin, Project Director, Extension Coordinator
  - Kansas State University
- Jean Steiner, Co-Project Director, Research Coordinator
  - USDA-ARS Grazinglands Research Laboratory
- Xiangming Xiao, Footprint Analysis, Citizen Science
  - University of Oklahoma
- Ali Saleh, Life Cycle Analysis, Decision Support
  - Tarleton State University
- Charles Rice, Footprint Analysis, International Link
  - Kansas State University



<http://www.greatplainsgrazing.org/>

# Long-Term Goals:

1. better understand **vulnerability and enhance resilience** of beef-grazing systems through diversified forages, improved management, strategic drought planning, and improved decision support systems for evaluation of alternative options
2. safeguard and **strengthen production and ecosystem services** while mitigating GHG emissions.



Central Great Plains  
(Rolling Wheat and Range) Land Resource Area

The map shows the Central Great Plains region, including parts of Wyoming, Nebraska, Kansas, Oklahoma, Texas, New Mexico, and Missouri. A yellow callout box points to the central area, which is shaded in light yellow. A scale bar at the bottom right indicates 0, 125, and 250 kilometers. A north arrow is also present.



MLRA 78C Central Rolling Red Plains

The map shows the Central Great Plains region. An orange callout box points to a specific area in central Oklahoma, which is shaded in orange. This area is labeled '78C' on the map.



MLRA 80A Central Rolling Red Prairies of central Oklahoma

The map shows the Central Great Plains region. An orange callout box points to a specific area in central Oklahoma, which is shaded in orange. This area is labeled '80A' on the map.

# Research and Extension

## Research Themes

- Develop and implement a functional network of monitoring sites to measure and monitor storage and flux of water, C, and N in cattle production systems utilizing combinations of winter wheat, pasture, and rangeland forages.
- Develop standardized methodologies for estimating C, N, and H<sub>2</sub>O footprints of beef cattle farms and for evaluating feedback linkage between changes in the agricultural product or production system with human behavior and decision making.
- Establish baselines for C fluxes and energy, N, and H<sub>2</sub>O use and storage
- Develop a suite of existing or novel approaches and management practices that leads to a net decrease in the footprints or increased C sequestration in mixed beef-forage farms.
- Conduct comprehensive life cycle analyses (LCAs).

## Extension Plan

- Beef cattle producer targeted programming activities
- Consumer targeted programming activities

# K-State Libraries

## Vision:

- Open access database of the literature about agricultural greenhouse gases in croplands



#### About the GRA Croplands Database

This database of literature about greenhouse gases and croplands supports the GRA Croplands Group's mission of reducing greenhouse gas intensity and improving overall production efficiency of cropland systems. When completed the database will include literature from all 30+ GRA countries. This web site is a partnership between the GRA and Kansas State University and is being developed by Kansas State University Libraries.

#### Search & Browse

Use the search box on top to search for keywords. The available information in the database can be browsed by using the navigation options on top.

#### Our Partners:

**KANSAS STATE**  
UNIVERSITY



#### Questions

Questions about information contained in this Database should be directed to K-State Libraries, (785)532-3014, library@ksu.edu

#### Contact us

# Croplands Literature Database

- We are nearing 6,000 items in the database
- Searchable and browsable by country, climate, and cropping system
  - Facets available to refine the search results
- <http://www.lib.k-state.edu/gracroplands/>

- To gather the items I have set up notifications for key word searches and relevant journals in the following databases:
  - Web of Science Core Collection
  - Scopus
  - CAB Abstracts
  - Biological Abstracts



- One problem is that some disreputable open access journals are indexed in some of the databases
- looking up publications from journals/publishers in Beall's list
  - Jeffrey Beall is a librarian at UC-Denver and keeps a list of predatory journals and publishers. It is available on his web site: <http://scholarlyoa.com/>

- One thing that I started doing this year is following people on ResearchGate and uploading things they add to their profile when they are relevant.
- If I could get a list of names of people I should be following, that would be great or they could follow me and I will follow them back. Here is my profile  
[https://www.researchgate.net/profile/Livia\\_Olsen](https://www.researchgate.net/profile/Livia_Olsen)

- After I add items to the database, they need to be processed.
- The entries need to be checked for accuracy;
  - have links to free full-text added when it is available; and
  - have information about country, climate, and cropping system added.

- Argentina [54]
- Australia [311]
- Brazil [419]
- Canada [353]
- Chile [11]
- China [438]
- Colombia [15]
- Costa Rica [10]
- Denmark [39]
- Finland [32]
- France [72]
- Germany [91]
- Ghana [6]
- India [305]
- Indonesia [19]
- Ireland [14]
- Italy [66] Japan [33]
- Malaysia [6]
- Mexico [48]
- Netherlands [23]
- New Zealand [42]
- Norway [17]
- Pakistan [51]
- Peru [9]
- Philippines [14]
- Republic of Korea [13]
- Russia [39]
- South Africa [52]
- Spain [117]
- Sweden [29]
- Switzerland [24]
- Thailand [12]
- UK [104]
- USA [1525]
- Uruguay [12]
- Vietnam [6]

- If there are things that people would like to see added or if they find mistakes, they are welcome to contact me. Also, if there are other databases they think would be useful to search for items to add, I'm happy to receive suggestions
- Livia Olsen <livia@ksu.edu>

Resubmit Search

Country

Climate

Cropping System

Keywords

1959 1977 2011

1 2 3 4 5 6 7 8 9 ... 76 77

### 1. Estimating Nitrogen Budgets for Soil-Crop Systems

**Authors:**

McSwiney, Claire P.  
Bohm, Sven  
Grace, Peter R.  
Robertson, G. Philip  
Meisinger, J. J.  
Randall, G. W.

**Publisher:** Soil Science Society of America  
**Summary/Abstract:**

### 2. Managing Nitrogen for Groundwater Quality and Farm Profitability

**Authors:**

Follett, R. F.  
McConkey, Brian G.  
Follett, Ronald F.  
Keeney, D. R.  
Cruse, R. M.

**Publisher:** Soil Science Society of America  
**Summary/Abstract:**

### 3. Cover crops for clean water

**Authors:**

Hanson, James C.  
Lichtenberg, Erik  
Hargrove, W. L.

**Publisher:** Soil and Water Conservation Society  
**Summary/Abstract:**

### 4. Temporal variability of soil carbon dioxide flux: Effect of sampling frequency on cumulative carbon loss estimation

**Authors:**

Paragon Soil and Environmental Consulting  
Parkin, Timothy B.  
Kaspar, Thomas C.