Faculty Vitae

Name: Clenton Owensby

Highest Degree: Ph.D. from Kansas State University received 1969

Date of Appointment: February 1, 1964

Rank: Professor

Budgeted Time (Tenths):

Research-	.5	Teaching-	.5
Extension-		Directed Service-	

Program Area: Range Management

Significant Accomplishments 1993 to Present:

Elevated CO2 Research - We have completed long-term elevated CO2 research project (9 years) There have been 29 refereed technical journal articles and 6 book chapters published from this project . Grant funding has been $3,427,490. Rotation of Late-season Grazing following Intensive Early Stocking - Research was conducted comparing a 3-pasture system with sequential rotation of late-season grazing following intensive-early stocking (IES+LSG), season-long stocking (SLS-R) among years, IES(IES-R) with SLS-annually (SLS-C) and IES-annually (IES-C) was continued in 1999. Gain/ha for the system was 9% above IES and 32% above SLS. Pastures stocked IES+LSG showed no reduction in biomass production the following year. Herbage left in mid-July and early October is determined using a radiometer with 6 fixed wavelengths (CropScan ,Olson et al 1998). Tower-Based Measurements of Surface-Layer Fluxes. Surface-layer fluxes of CO2, H2O, and energy have been monitored with tower-based instrumentation in IES and Ungrazed pastures. Each site is equipped to provide measurements of three subsets of data: CO2 and H2O fluxes by conditional sampling (CS); the surface energy balance (including H2O Flux) by Bowen ratio and other methods, and ancillary environmental parameters. We have also measured soil CO2 flux for two years from grazed and ungrazed tallgrass prairie. We have obtained $268,765 in grant funds for the next two years to fund this research. Spatial Grazing Patterns of Steers under Different Grazing Schemes - Spatial patterns of cattle grazing were observed over two consecutive years under two grazing systems, intensive-early stocking (IES), and season-long stocking (SLS). Grazing intensity did not differ among treatments but were significantly different between years. Frequency of tiller defoliation was also measured on 100 tillers per pasture in 4 IES and 4 SLS treatments. Effects of Grazing System and Use of a Pasture

Growth-Stimulant Implant on Grazing and Finishing Performance of Steers - We completed a 2-year study to evaluate the effects of grazing system (intensive-early stocking or IES vs season-long grazing or SLG) with or without a pasture-phase implant on grazing and subsequent finishing performance. Economic analyses showed greater net returns for steers receiving a pasture-phase implant, particularly IES steers. Development of the Rannells Flint Hills Prairie - The Hilas Bay and Emma Browning Rannells Flint Hills Prairie Preserve is located immediately south of Manhattan adjacent to K-177 on the east side of the highway (2744.7 acres). Since gaining control of the area in 1991, we have developed a research area with 16, ~80-acre pastures and 7 160-acre units for research. We have built 3 livestock working facilities, a headquarters building, a horse bar, 11 ponds, and have built over 25 miles of fence. Rotation of Late-season Rest with Spring-Calving Cows - We have completed a 6-yr. research project using this system. Indications are that a late-season rest can be accomplished 1 of 3 years without reductions in calf weaning weights.

Goals for the Next Five Years:

Continued research on grazing systems, particularly Late-season Grazing following IES.
Continued development of Rannells Flint Hills Prairie Research Area.
Continued development of trace gas flux measurement technology and Characterization of C and H2O fluxes on grazed and ungrazed tallgrass prairie.

Publications:

Referee Journal Articles and Chapters	Since 1993	40	Total	101
Numbered Extension Publications	Since 1993	5	Total	51
Proceedings Papers	Since 1993	2	Total	19

Most Significant Publications Since 1993:

Owensby, Clenton E., Jay M. Ham, Alan K. Knapp, and Lisa M. Auen. 1999. Biomass production and species composition change in a tallgrass prairie ecosystem after long-term exposure to elevated atmospheric CO2. Global Change Biology 5:497-506.

Owensby, C.E., P.I. Coyne, and L.M. Auen. 1993. Nitrogen and phosphorus dynamics of a tallgrass prairie ecosystem exposed to elevated carbon dioxide. Plant Cell Environ. 16:843-850.

Owensby, C.E., R.C. Cochran, R.T. Brandt, E.S. Vanzant, L.M. Auen, and E.M. Clary. 1995. Increasing levels of grain supplementation for intensive-early stocked steers. J. Range Manage.48:246-250.

Owensby, C.E., R.M. Cochran, and L.M. Auen. 1996. Effects of Elevated Carbon Dioxide on Forage Quality for Ruminants. In Carbon Dioxide, Populations, and Communities. Koerner, C., and F. Bazzaz, eds. Physiologic Ecology Series. Academic Press pp. 363-371.

Brock, Brent L. and Clenton E. Owensby.1999. Predictive models for grazing distribution: a GIS approach. J. Range Manage. 53:39-46.

Coyne, P.I., J.L. Trlica, and C.E. Owensby. 1995. Carbon and Nitrogen Metabolism in Range Plants. In Wildland Plants: Physiological Ecology and Developmental Morphology. J.K. Meduna and R.E. Sosebee eds. Society for Range Management. Denver. pp. 59-167.

Graduate Student Involvement:

Students Graduated Since 1993	M.S.	1	Ph.D.	1
Current Students	M.S.	--	Ph.D.	1
Current Member of Advisory Committee	M.S.	4	Ph.D.	2

Grant Activity:

Most Common Sources of Extramural Support (ex. NSF, Sorghum Commission, NRI, Industry, Variety Performance):

US Department of Energy

NASA

NIGEC US-DOE

EPSCOR US DOE

Proposals Submitted Since January 1, 1997: Number 7 $ 1,320,652

Funded Number 6 $ 640,395

Current dollars (grant or contract) available to support your work $158,880

Most Significant Funded Projects Since 1993:

US Department of Energy - Landscape-Level Trace Gas Fluxes on Grazed and Ungrazed Tallgrass Prairie - $166,361

NIGEC - DOE - Landscape-Level Trace Gas Fluxes on Grazed and Ungrazed Tallgrass Prairie - $102,404

US Department of Energy - Processes Affecting Carbon Fluxes of Grassland Ecosystems Under Elevated Atmospheric CO2 - $884,814

US Department of Energy - CMEAL: CO2 MODELS/EXPERIMENTS ACTIVITY FOR IMPROVED LINKS

US Department of Energy - Sequestration of Carbon Dioxide into Soil Organic Carbon Pools Under Elevated Carbon Dioxide Environment - $159,835

Teaching:

Courses Taught:

Course Number	Title	Most Recent Enrollment
AGRON501	Range Management (Video)	104 (18)
AGRON560	Field ID of Range and Pasture Plants	9
AGRON762	Range Grasses	4

Number of Undergraduate Research Assistants: N/A

Number of Undergraduate Advisees: 6

Service Activities: N/A