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Invited Review: Issues affecting research and extension programs on cow-calf and stocker cattle production in the Southeast region of the United States[1]

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ABSTRACT

Approximately 44% of the beef cow herd in the United States resides in the 13 southeastern states. The objectives of our study were to identify and quantify the issues that affect research and extension educational programs concerned primarily with cow-calf production and secondarily with stocker cattle. A 29-question survey was sent to research and extension faculty associated with pasture-based beef production programs with land-grant universities in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. Our objectives were to access information about faculty appointments, location of facilities, objectives and area of programs, resources allocated to programs, funding availability, and sources of funding. The majority of research scientists that responded were located off campus, which was also the primary location of pastures, beef infrastructure, and research facilities. Cow-calf and pasture projects were the predominant (60 to 80%) beef cattle programs for all scientists. Primary objectives of cow-calf or stocker calf research and extension scientists' programs pertained to forage evaluation and grazing management, and nutrition. Reproduction in cow-calf and animal health in stocker programs ranked third in importance of scientists' programs. Internal and extramural funding sources and availability were the primary constraints for development of research and extension programs in cow-calf production. Research and extension programs identified as needed for stakeholders included components of forage management and nutrition. Faculty indicated that the most likely, fundable programs should include environment, ecosystem services, greenhouse gas emissions, carbon sequestration, and molecular genetics for research, and economics and reproduction for extension scientists. A balance between the needs of the stakeholder and the perceptive needs by funding agency programs will be required to maintain the plant–animal discipline in the southeastern United States.

Key words: cow-calf, stocker, pasture, production, research, extension

INTRODUCTION

Cow-calf production is an important enterprise in the southern region of the United States. Of the 31.2 million beef cows that had calved as of January 1, 2017, 43.6% or 13.6 million beef cows were located in the 13 southeastern states (USDA-NASS, 2017). During the past several decades, the number of research and extension programs pertaining to cow-calf production has gradually declined because of reductions in state funding for production agriculture. In land-grant universities there has also been a trend to promote and encourage the seeking of extramural funding. These administratively redirected priorities for funding have reduced full-time equivalent (**FTE**) numbers and created shifts in cow-calf research and extension programs. In addition, the increases in infrastructure and input costs have effected the reduction in resources previously dedicated to beef cattle programs. Intrinsically associated with beef production are factors such as forage production, management, and utilization. The term "plant–animal interface" has been used by scientists to describe the relationship between forage characteristics and aspects of the grazing ruminant (Forbes and Rouquette, 2007). Forage–animal interface scientists are those who have served the research and extension components of cow-calf and stocker programs.

The research, extension, and education issues and needs for forage × beef cattle research, extension, and education were listed and prioritized in the mid-1970s by the USDA and state agricultural experiment station Taskforce

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Groups (USDA-SAES, 1975, 1977). The Grazing Lands Forums (Grazing Lands Forum, 1986, 1987, 1990, 1991), American Forage and Grasslands Council (AFGC, 1991), and the USDA Soil Conservation Service (USDA-SCS, 1992) developed lists of needs and issues for private lands. By the mid-1990s, other workgroups were charged with linking food–animal integrated research (FASFAS, 1995) and innovative systems for utilization of forages, grassland, and rangeland resources (Rouquette et al., 1995). In 2009 Rouquette et al. (2009) presented results of surveys conducted in 1994, 2004, and 2008 from scientists in land-grant universities and USDA-ARS. Scientists ranked future research and extension needs for pasture-beef and the potential availability of funding sources. Previous efforts to evaluate cause–effect information on issues that influenced cow-calf production led to the 2016 Southern Association of Agricultural Scientists and American Society of Animal Science Symposium "Cow-Calf Production in the Southeastern United States: Potential for Impact and Economic Sustainability." In response to assessing the effect and issues related to research and extension programs, our objectives were to solicit input from scientists with land-grant universities and USDA-ARS who worked with beef cattle in the Southeast. We developed a survey to identify current opportunities and obstacles that affect research and extension programs on cow-calf production in the Southeast region of the United States.

SURVEY STRUCTURE

The survey contained 29 questions and was sent to research and extension faculty on and off campus in animal science departments and soil and crop science departments who were working with pastures and beef cattle. An assessment of the home pages of these state departments resulted in the survey being originally emailed to 111 faculty with research and extension appointments in the following states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. After assessing the faculty in the original list of nonresponders, 35 scientists were removed from the survey accounting because of retirement, relocation, and nondiscipline affiliation. The remaining nonresponders were sent a second mailing of the survey, and 20 to 25 of the last responders were contacted individually a third time. Of the new total of 76 scientists who were deemed to be active in cow-calf or stocker production, 45 scientists returned the survey. Thus, the survey results represent a 59% return rate from the 13 states. In our opinion, the survey results represent more than 85% of those scientists who were fully engaged in pasture–cow-calf or stocker production. We wanted to collect and summarize information about the plant–animal interface scientists and their appointment type, primary location of their program, location of facilities (on or off campus), objectives and area of their programs, and information about the resources (cattle and pastures) allocated to their programs. Faculty disciplines included genetics, nutrition, agronomy, and reproduction. Scientists were asked about the availability of resources (land, animals, and personnel); objectives for the programs; degree of adoption of different practices or technologies; funding support (state, federal, commodity-industry, and so on); limitations for program development; future objectives; and others. Questions were posed about funding sources for research and extension programs, whereas their opinion on constraints and needs were to be prioritized in their response. Assessments of the number of faculty, their research and extension priorities and needs (funding, administration support, infrastructure, and so on) in the area of beef cattle and forages, and the opportunities for future research and education activities were proposed to serve as a basic point of discussions for enhancement and longevity of programs. These potential discussions among faculty, administration, commodity groups, and legislators need to provide solutions to funding limitations in research and extension programs in the Southeast region.

Table 1. Basic information about research (R), extension (E), and teaching (T) scientists' conduction of cow-calf programs

Item	100% R	>50% R	<50% R	100% E
Respondents (no.)	10	14	13	8
Years of service				
Average	25	11	11	18
Maximum:minimum	45:7	30:1	25:1	32:5
% Basic:applied	30:70	34:66	24:76	14:86
No. of states	4	6	7	4

	Appointment					
	R	R:E	R:T	R:E	R:T	E
Split appointment (avg)	100	65:35	60:40	30:70	30:70	100
Faculty (no.)	10	8	6	11	2	8

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