

Petition for a Three-year Renewal of a Coordinating Committee

NUMBER: WCC-039

TITLE: Coordination of Sheep and Goat Research and Education Programs for the Western States

DURATION: October 1, 2000 to September 30, 2003

DESCRIPTION AND JUSTIFICATION:

The American sheep industry is undergoing a new awareness of its role in food and fiber production within an ecologically and economically sustainable production setting. Sheep and goats in modern management systems provide more than just the production of meat and fiber. They lend themselves as tools to improve or enhance ecological systems. Where sheep numbers have declined, many ecological problems have increased. For example, encroachment of noxious, non-native plants, although present for over one hundred years, dramatically increased with the decline of small ruminant grazing. Sheep provide the most economically and environmentally sound means of controlling many of these invaders; additionally, they may be able to be used to control small grain insect pests and add value to crop residue. Although the role of sheep in enhancing environmental conditions is an evolving frontier for scientists and producers, improving the ability of the American sheep industry to compete in a rapidly developing world market requires new and refined information and communication for enhancing the biological efficiency of meat and wool production.

Currently, the sheep infrastructure is undergoing major changes. This provides opportunities to implement innovations to complement other agricultural production systems as well as increase production to provide quality lamb in the presence of lower lamb supply caused by recent trade restriction imposed on imported lamb. To serve this changing industry our ultimate goal is adoption of improved practices and technologies by the sheep and goat industries based, in part, upon the research provided by our group. Presented in the proceedings of our past three meetings are summaries of approximately 93 peer-reviewed scientific articles, 21 invited papers and presentations, 119 proceedings and abstracts, and 86 theses, book chapters, and station reports, all of which were the basis for hundreds of extension and technology transfer activities. Past accomplishments and on-going joint research efforts include the following:

- 1) Develop and validate better methods of quantifying wool quality (Texas, Montana, and Wyoming). This includes development of ASTM measurement standards for laserscan and OFDA for measuring fiber diameter. This technology is the basis for the national wool quality improvement program. Texas, Montana, Wyoming, and California have incorporated results of this work along with basic wool handling skills into numerous ASI (American Sheep Industry Association) sponsored outreach programs.
- 2) Redefine the role of sheep in enhancing ecological systems via integrated natural (and

crop) / sheep management systems (Montana, North Dakota, Idaho, Texas, Nevada, and Oregon). Published research clearly demonstrates numerous advantages of sheep grazing. These include a) control of non-native and invader plants such as leafy spurge and juniper encroachment, b) beneficial role in riparian management, fire suppression, and weed control in tree plantations, and c) preliminary work demonstrating the ability of sheep grazing to reduce wheat stem sawfly infestations, the most costly and damaging pest to western wheat production.

Future team research is focused on developing these single benefit studies into a total management system with multiple benefactors. These findings along with a focus on systems approach to sheep grazing in ecological management have resulted in WCC-039 members and participating institutions being contracted by ASI to write a producer guide for the uses of sheep in sustainable ecological management systems.

- 3) Develop strategic supplementation practices to enhance ewe productivity and lamb survival (Texas, New Mexico, Nevada, Wyoming, Montana). The evolving theme of current and published supplementation research by the group is focused on timely and profitable uses of supplemental feeds. Past accomplishments include time-saving supplementation practices as well as strategic use of small quantities of supplemental vitamin E to enhance neonatal lamb survival, the largest production loss influencing profitability.
- 4) Evaluate benefits of introducing Australian Merino breeding into certain lines of U.S. finewool sheep to increase both quality and quantity of wool produced (Idaho, Nevada, Montana, California, Texas). Cooperative evaluation of Australian genetic sources was possible only because of the pooling of resources from several WCC-039 stations. The breeding project has resulted in a series of cooperative publications. In addition, flocks developed during this project are currently suppliers of breeding stock to the commercial industry.
- 5) Provide new information on meat quality, safety, and the genetic regulation of lean tissue accretion for the safe production of quality protein from lamb (Idaho, Utah, Colorado, Oregon, New Mexico, and Montana). Published research on defining and reducing bacterial contamination of meat along with methods of producing and quantifying quality characteristics that meet consumer demands is the foundation for securing and improving the role of lamb in providing needed protein for an ever-growing world population. Team efforts by WCC-039 members in characterizing the mode of inheritance for the Callipyge gene have placed a number of our members at the forefront of the genetics field.

OBJECTIVES:

The goal of this committee is to facilitate the exchange and integration of ideas, procedures, and successes in developing sustainable, ecologically efficient systems that use available resources to produce high quality meat and fiber products from sheep and goats.

Objective 1: Identify ecologically and economically sound land management practices using sheep and goats for

- a) managing and sustaining native plant communities,
- b) controlling invasive, non-native plant species, and
- c) improving nutrient cycling and pest management through integration of sheep into cropping systems.

Objective 2: Improve sheep and goat production efficiency and profitability in range and pasture ecosystems by

- a) developing value-based marketing systems for meat and fiber, and
- b) improving biological efficiency through better understanding of nutritional, physiological and genetic events that influence meat and wool production.

Objective 3: Identify practices that enhance fiber production efficiency and profitability in sheep and goats by

- a) breeding for increased quantity and improved quality,
- b) developing efficient methods of evaluation, and
- c) improving methods of handling and preparation.

EXPECTED OUTCOMES:

The successes cited regarding the development and adoption of rapid methods of measuring fiber diameter, the evaluation of Australian Merinos, cost effective supplementation strategies, and identification of gene regulation of lean tissue accretion exemplify the expected outcomes of this committee. We will continue to identify and investigate critical research issues that relate to sheep and goat production in the Western region with ramifications nationwide. This will be achieved by coordinating specific research projects among several stations to allow for better use of resources and a more focused effort toward project objectives. Results of coordinated, multi-location projects will be published by cooperating stations in various forms; i.e., research progress reports, extension bulletins, popular articles, symposia proceedings, and refereed journal articles. Thus, research information will be presented in usable forms for all segments of the sheep and goat industries.

Examples of specific expected outcomes include: 1) Integrated natural resource and crop management systems with sheep and goat production to reduce specific noxious plants, reduce fuel loads for fire control in sensitive areas, and add value to crop residues through pest control and nutrient cycling to enhance crop production; 2) Improved lamb survival by enhancing immune function and fetal energy status; 3) Develop value-based marketing to reward quality production; 4) Enhanced value-based marketing of wool and mohair; 5) Increased collaborative research across disciplines; 6) Continued growth, cooperation and communication among regional institutions; and 7) Effective outreach and communication through peer-reviewed publications, bulletins, and effective interactions among sheep producers, researchers and extension personnel.

The committee has identified specific contributions of each member to the targeted, multi-institutional projects. Each committee member is committed to reporting individual achievements in these subject areas and to contributing data and time to cooperative publications. Exchange of

information among participants will be in the same format as that used in past years; i.e., an annual brief summary/progress report on each contributing project from each committee member, submitted in advance, bound, and presented and discussed at the annual WCC-039 meeting.

EDUCATIONAL PLAN:

The WCC-039 objectives encompass the major research priorities formulated by the research and education task force of the American Sheep Industry Association and by WCC-039 research and extension members. The committee wishes to include industry input as much as possible. Because of the challenges being faced by the sheep and goat industry at the current time, it is important to quickly share our findings with the industry. Results will be presented in popular press articles, regional publications, extension bulletins, and regional educational seminars. The committee will continue to encourage publishing in the Sheep and Goat Research Journal, and development of new (and refinement of traditional) means of technology transfer.

Another specific goal of the committee is development of a producer program on wool quality improvement to be delivered at national and regional sheep producer meetings. The program will educate wool producers and marketing personnel about use of current and future objective measurements for appraising and marketing wool. Four WCC-039 committee members have already conducted a portion of these programs in several states. The number of programs delivered will depend in part on external funding. Programs conducted to date have proven effective and successful.

PARTICIPANTS:

- Objective 1: Montana State University, New Mexico State University, North Dakota State University, Oregon State University, University of Wyoming, USDA-ARS, U.S. Sheep Experiment Station.
- Objective 2: Angelo State University, Colorado State University, Montana State University, New Mexico State University, Oregon State University, Texas Agricultural Experiment Station - San Angelo, Texas A & M – College Station, University of California - Davis, University of Nevada, University of Wyoming, USDA-ARS, U.S. Sheep Experiment Station, Utah State University.
- Objective 3: Montana State University, Texas Agricultural Experiment Station - San Angelo, University of California - Davis, University of Nevada, University of Wyoming, USDA-ARS, U.S. Sheep Experiment Station.

In the following list of participants, the individual's field of expertise is followed by type of appointment; extension, research and/or teaching.

Participants:

Noelle Cockett, Utah State University (Animal Breeding and Genetics; Teaching and Research).

Martin R. Dally, University of California, Davis, Hopland Research and Extension Center (Management; Research).

Jerry Dodd, North Dakota State University (Grassland Ecology; Research).

Jackson M. Dzakuma, Prairie View A&M University (Animal Breeding; Research).

Gilbert Engdahl, Angelo State University (Nutrition; Teaching and Research).

Tim Faller, North Dakota State University, Hettinger Research Extension Center (Management; Research).

Hudson Glimp, University of Nevada (Nutrition and Management; Teaching and Research).

Patrick G. Hatfield, Montana State University (Nutrition; Teaching and Research).

Dale Holcombe, University of Nevada (Growth and development; Teaching and Research)

Edward Huston, Texas Agricultural Experiment Station (Nutrition; Research).

Bob M. Kattnig, University of Arizona (Nutrition; Extension).

Rodney Kott, Montana State University (Management and Wool; Extension and Research).

Steve LeValley, Colorado State University (Animal Breeding; Extension).

Christopher J. Lupton, Texas Agricultural Experiment Station (Wool and Mohair; Research).

Brian May, Angelo State University (Nutrition; Teaching and Research).

Howard Meyer, Oregon State University (Animal Breeding and Forage; Teaching and Research).

Gary Moss, University of Wyoming, (Physiology and management; Teaching and Research).

Ed O. Price, University of California, Davis (Behavior; Teaching and Research).

Shawn Ramsey, Texas A&M University (Nutrition; Teaching and Research).

Melvin Riley, University of Wyoming (Meats; Teaching and Research).

Tim Ross, New Mexico State University (Physiology and Management; Teaching and Research).

William Russel, University of Wyoming (Animal Breeding; Teaching and Research).

Kevin Sedivec, North Dakota State University (Range Nutrition; Research).

Gary D. Snowden, U.S. Sheep Experiment Station (Animal Breeding and Management; Research).

Robert H. Stobart, University of Wyoming (Wool; Teaching and Research).

Jack D. Thomas, New Mexico State University (Meats; Teaching and Research).

OPERATIONAL STRUCTURE:

1998 - 1999 Officers

Chairman: Pat Hatfield
Secretary: Dale Holcomb

Duties as outlined by Western Directors' check list.

Two officers will be elected each year at the Annual Meeting. Two slates of officers will be submitted to the membership by a Nominating Committee, appointed by the Chairman and consisting of 3 past-Chairmen. Nominations from the floor will also be accepted. In the past, the current Secretary has typically been elevated to Chairman and a new Secretary elected. Most communications from the Administrative Advisor and Chairman will be mailed directly to the membership. The Secretary will record and mail out minutes of the Annual Meeting, and will also be responsible for binding into one volume and distributing the Station Reports at the Annual Meeting.

SIGNATURES:

Administrative Advisor

Date


Chair, Western Directors' Association

8-15-00
Date

Appendix H

PRINCIPAL INVESTIGATOR CONTRIBUTION TO WCC

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Participants:

		% Research	Appointment % Extension	% Teaching
Patrick G. Hatfield	Montana State University			
Co-Investigator		70		30
Rodney W. Kott	Montana State University			
Co-Investigator		20	80	
Gil R. Endahl	Angelo State University	50		50
Brian J. May	Angelo State University	50		50
Arthur L. Goetsch	Langston University	100		
Tim Ross	New Mexico State University	40		60
Timothy C. Faller	North Dakota State University	100		
Kevin Sedivec	North Dakota State University	30	70	
Dan Nudell	North Dakota State University	100		
Howard H. Meyer	Oregon State University	60		40
W. Swawn Ramsey	Texas A & M University (College Station)	25		75
J.E. Huston	Texas A & M University (San Angelo)	100		
Christopher Lupton	Texas A & M University (San Angelo)	100		
Edward O. Price	Univ. of California at Davis	60		40
Martin R. Dally	Univ. of California at Davis	100		
Dale Holcombe	Univ. of Nevada	25		75
Hudson Glimp	Univ. of Nevada	25	75	
Robert H. Stobart	Univ. of Wyoming	60	10	30
Gary E. Moss	Univ. of Wyoming	75		25
Gary Snowden	USDA, PWA, ARS	100		
John Stellflug	USDA, PWA, ARS	100		
Noelle E. Cockett	Utah State University	75		25