

Animal

U.S. Department of Agriculture <b>Accomplishments Report AD-421</b> U.S. Dept. of Agriculture, State Agricultural Experiment Stations and Other Institutions			Date (Month, Day, Year)  03/22/2012
1. Accession  0220851	Agency Identification No.  2. NIFA 3. LA.B	5. Work Unit/Project No.  LAB94021	6. Status  Annual Report
7. Title  Production, Processing, and Packaging to Improve Properties of Forage-Beef, Goat Meat, and Chicken Containing Functional Ingredients			
12. Investigator Name(s) (Last Name and Initials)  McMillin, K. W.			
20. Termination Date 09/30/2014		40. Period Covered (mo/da/year): 01/01/2011 TO 12/31/2011	
Outputs:  Comparisons in live linear traits, carcass characteristics, and meat cut yields were made among three Boer crossbreed compositions for kid wethers and does older than yearlings. This data contributes to the quantification of the influences of management production practices. The results are being collated three years from the same goat herd. Trade magazine and journal articles are being prepared to address meat goat industry and scientific audiences. Project progress was disseminated in 5 abstracts, 1 meeting proceedings, 1 book chapter, 1 journal article, and 2 producer research reports as well as an AgCenter publication.			
Outcomes/Impacts:  Boer and Spanish crossbred doe and intact male kid goats were obtained from a university goat herd for live animal, carcass, and meat trait comparisons among the eight different breed ratios. Higher ratios of Boer breed type up to 3/4 Boer increased live weights, live kid goat conformation scores, and carcass conformation scores while an opposite trend was observed with 7/8 and full blood Boer kid goats. Loin eye area was not highly related to breed composition. Comparison of 50, 75, 88, and 97% Boer kid goats from the same herd did not substantiate previous results that 50 and 75% Boer cross goats were heavier with larger barrel circumferences and chest depths, and heavier carcass weights than the 7/8 or purebred goats. There were no differences in linear measurements or most carcass measurements. The inclusion of Boer genetics into goat herds may have varying results based upon the other breed types and environmental influences The survival of Escherichia coli O157:H7 on goat meat with three low levels of sodium nitrite in vacuum packaging were enumerated, and pH was monitored to estimate the effects of low levels of sodium nitrite crystals in packaging for fresh meat. Goat biceps femoris muscles inoculated with E. coli O157:H7 (9 log CFU/g; 25 g/treatment) and sodium nitrite (0, 100, 150 and 200 ppm) in vacuum packaging at 4C to simulate the conditions of sodium nitrite crystals in packaging films showed increased pH in all goat meat samples from 5.66 on d 1 to 6.07 on d 3 but did not increase after 3 d in goat meat containing sodium nitrite. Goat meat without sodium nitrite had the highest pH at 7.10 and 7.43 on d 12 and 15, respectively. E. coli O157:H7 numbers on d 1 in goat meat with 100 ppm sodium nitrite were the highest among all treatments and storage days but were higher only than counts in control and 100 ppm sodium nitrite samples on d 15 and 200 ppm sodium nitrite samples on d 6, 12, and 15. E. coli O157:H7 numbers declined in all goat meat samples with storage time. Beef carcasses of steers finished on three different forage systems suitable for the Southeast were evaluated for quality and yield traits. The Longissimus dorsi steaks were measured for surface electrical measurements of impedance, resistance, reactance, and phase distributed generation (DG) before cooking and measuring of Warner Bratzler shear force and slice shear force. The relationships of indirect measurements of meat quality traits such as shear force with nondestructive techniques like surface electrical measurements provide an indication of the use of the indirect methods to replace more time consuming or expensive methods of analysis.			
Publications:  Jombai, T., N. Karki, N., McDonough, K., McMillin, K.W., Grimm, C.C., Finley, J.W., Enright, F. and Losso, J.N. 2011. Inhibitory activity of black seed oil or thymoquinone against biomarkers of triple negative breast cancer. Paper 096-31, annual meeting of Inst. of Food Technologists, Chicago, IL. (Abstr.).  Karki, N., McMillin, K.W., McDonough, K., Grimm, C.C., Enright, F.M. and Losso, J.N. 2011. Stem cells and telomerase activity as targets for breast and pancreatic cancer prevention. Paper 096-14, annual meeting of Inst. of Food Technologists, Chicago, IL. (Abstr.).			

McMillin, K., Webb, E.C., Donkin, E.F. and Pinkerton, F. 2011. Goat meat production systems. Chapter 2 in Goat Meat Production and Quality, O. Mahgoub, I.T. Kadim, and E. Webb (Ed.), CABI, Oxfordshire, UK, pp. 15-32.

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McMillin, K.W., Tangkham, W., Preiss, D., Cope, R. and Braden, K. 2011. Live and carcass traits and cut yields from crossbred and purebred Boer wether kid goats. Proc. Intl. Congr. Meat Sci Technol 57:P026. 4 p.

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Tangkham, W. and McMillin, K.W. 2011. Goat meat properties in overwrap packaging and high oxygen, carbon monoxide, and anoxic modified atmosphere packaging. Poster 76, 64th Reciprocal Meat Conference, Manhattan, KS, Meat Sci. 89:354-355 (abstr.).

van Schalkwyk, D.L., McMillin, K.W., Booyce, M., Witthuhn, R.C. and Hoffman, L.C. 2011. Physico-chemical, microbiological, textural and sensory attributes of matured game salami produced from springbok (*Antidorcas marsupialis*), gemsbok (*Oryx gazella*), kudu (*Tragelaphus strepsiceros*) and zebra (*Equus burchelli*) harvested in Namibia. Meat Sci. 88:36-44.

Participants:

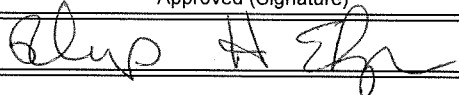
McMillin, K.W. (PI), LSU AgCenter.

Target Audiences:

Target audiences were producers, meat processors, and consumers who need information about goat meat and goat meat products, improvements in goat and forage beef production and processing practices, and marketing and production strategies for meat. Publications in trade magazines and scientific journals and presentations at scientific meetings provided meaningful information to these target audiences.

Project Modifications:

Nothing significant to report during this reporting period.

Approved (Signature)	Title	Date
		3-23-12