The Forages and Pastures Symposium “Use of Marginal Lands and Fibrous Byproducts in Efficient Beef and Dairy Production Systems” was held at the Joint Annual Meeting of the American Dairy Science Association, the American Society of Animal Science, and the Canadian Society of Animal Science in Kansas City, MO, July 20 to 24, 2014.

The purpose of the symposium was to explore how the efficiency of beef and dairy production on marginal lands and using marginal-quality harvested feeds can be improved. In the future, grazing and forage production will be relegated to more marginal land and confinement feeding systems will be increasingly based on fibrous byproducts. Four invited presentations were planned to explore 1) strategies to improve the efficiency of production systems using grazing beef and dairy cattle, 2) application of improved grazing management to improve long-term productivity through improved soil health and associated ecosystem services, 3) advances in the use of fibrous byproducts with a focus on the use of corn crop residues, and 4) selection of new forage species for improved productivity on marginal lands.

The symposium began with a presentation by J.T. Mulliniks (University of Tennessee, Crossville) and co-authors that considered strategies to improve the efficiency of production in beef and dairy grazing systems (Mulliniks et al., 2015). The paper considered grazing management strategies as well as the importance of animal nutritional strategies and environment × genetic interactions on system productivity. The authors discussed how emphasis in grazing-based production systems is shifting from the primary focus of high product output toward enhanced system efficiency where both output and input are considered. Recent emphasis on decreasing the level of harvested and stored feed inputs, improved use of grazed forages, and reduced level of energy and protein supplementation were stressed. Research presented showed that small changes in animal management, including the reduction of feed inputs, can lead to significant improvement in lifetime productivity of beef cows. Improved grazing management through more frequent pasture rotation has been proposed as a mechanism to improve the output of pastures and rangelands, but the authors point out that many research studies refute the importance of grazing management to long-term system health, with many studies showing that achieving a conservative stocking rate may be more important than the grazing management system. Authors suggest this may be due to artificial rigidity of research designs that do not allow for reactive and adaptive management that is necessary in the management of complex dynamic systems. The authors finished the paper with a discussion of how level of “genetic merit” of animals impacts the productivity of the system. A contrast of beef cows from New Mexico and Tennessee illustrated that despite much higher genetic merit of cows in Tennessee, necessitating a high feed input system to match their nutritional needs, system productivity and efficiency for Tennessee cows did not differ considerably from cows in New Mexico. The ability to enhance production efficiency through improved forage resource management is important for improving beef and dairy production.

The second presentation, by J.R. Russell (Iowa State University, Ames), covered the use of managed...