Animal Health and Welfare are Vital to Beef Sustainability

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While beef sustainability is often equated to environmental impact, it also encompasses economic viability and societal acceptance. The dramatic increase in global population has resulted in the intensification (increased output of beef per unit of resource input) of agriculture to meet growing food demand. Intensification in the beef industry has received scrutiny because some believe increased productivity comes at the expense of animal health and welfare. In reality, ensuring that cattle are cared for with the highest standards of health and welfare is critical to not only to individual beef producers, but to environmental, social and economic sustainability of the entire beef industry.

Just as people experience stress, cattle can experience stressful events throughout their lives. If stressful events cause cattle to have decreased growth rates, feed conversion efficiency, reproductive rates or lead to an increased susceptibility to illness or death, then all three components of beef sustainability (environmental, social and economic) can be negatively impacted. The interrelationship between animal welfare and sustainability is particularly well illustrated by the nexus between environmental quality and animal welfare. For example, cattle can be selected for genetic traits allowing them to have improved disease resistance and be more adaptable to challenges in their environment (i.e., drought or heat). In turn, those traits could improve the lifetime efficiency of cattle to convert feed into body weight gain, as cattle that are ill or have difficulty coping with challenging environmental conditions tend to have lower feed conversion efficiencies. Improving lifetime feed efficiency lowers environmental impact and the natural resources required per unit of beef produced, and lowers the cost of production for beef producers. Likewise, improving the comfort of cattle, reducing stressful events and enhancing the ability for cattle to cope with the conditions in which they live can result in positive improvements in physiological and behavioral responses important to cattle welfare and sustainable cattle management. As the preceding example demonstrates, the health and welfare of cattle is inextricably linked to beef sustainability beyond just social acceptance and responsibility to the animals.

Another example of the impact of cattle health and welfare on beef sustainability is transportation. The cow-calf phase of beef production is widely distributed across the U.S. and

Figure 1. The nexus between environmental impact per unit of beef produced and cattle welfare. Items listed in the nexus are issues that can be “win-wins” (e.g., if heat stress that cattle experience can be mitigated, their productivity and comfort improves, thereby decreasing environmental impacts per unit of beef). Adapted from Place and Mitloehner, 2014³
eliminating all stressful events from beef production is unrealistic in the same way that humans cannot live their lives completely stress-free. However, management techniques and genetic selection can be used to reduce cattle stress, resulting in simultaneous improvements of animal health and welfare. Animal health and welfare go hand-in-hand, with reducing environmental impact and maintaining economic viability.

**Summary**

Animal health and welfare are vital to beef sustainability. Healthy and comfortable animals have higher production efficiencies and less impact on the environment. Beef producers positively impact all three components of sustainability (environmental, social and economic) through their commitment to animal health and welfare.

**Literature Cited**