Cattle are Upcyclers

So much about farting cows in the news as of late, when it’s actually cow belches that emit methane. Here’s an article by Sara Place, a PhD, Senior director of Sustainable Beef Production with the National Cattlemen’s Beef Association.

In the livestock feed versus human food debate, we haven’t been using the right numbers. Rather than being a drain on global resources and competing with human food supplies by eating lots of grain, livestock are often net contributors to the global protein supply. That’s the conclusion of a new study from scientists at the United Nations Food and Agriculture Organization (FAO).

Livestock, especially ruminants like beef cattle, play a key role in a sustainable food system. They allow us to produce food on marginal lands that are unsuitable for cultivated agriculture. Cattle act as “upcyclers” in our food system—they upgrade plants into high quality protein for people.

The FAO researchers developed a global database of what livestock eat and found 86 percent of the feed is human inedible. Mostly, livestock eat grasses grown on marginal lands and other forage crops, like alfalfa. Marginal lands are those that are too rocky, steep and/or arid to support cultivated agriculture, such as fruit or vegetable production. Globally, livestock also eat over 1.9 billion metric tons of leftovers from human food, fiber and biofuel production.

For example, livestock eat the residues of grain harvest (the stalks and leaves left in the field after corn harvest), the byproducts from milling grains for flour production (wheat midds), cottonseed that is a leftover of cotton production, and glycerol and distillers grains that are byproducts of soy biodiesel and corn ethanol production, respectively. If livestock didn’t consume these plant-derived leftovers and byproducts, their disposal would likely result in an environmental burden. By being a part of the global food system, livestock enhance the sustainability of other food production and industries.

Considering that most of what cattle eat is not human edible, the FAO researchers found that 1 kg of protein in meat and milk only requires 0.6 kg of protein from human food. Additionally, the protein in meat and milk is of higher nutritional quality compared to the protein in grain that cattle eat.

The FAO research represents global averages, but beef production in the U.S. competes even less with human edible food. In a recent report published by the National Academies of Sciences, Engineering and Medicine, it was estimated that on average greater than 90 percent of what grain-finished beef cattle eat in their lifetime is human inedible forages and plant-derived leftovers. Less than 10 percent of their lifetime feed consumption is grain that could potentially be eaten by people.

Further, in a report published by the Council for Agricultural Science and Technology, U.S. grain-finished beef systems were found to contribute 19 percent more human edible protein than they consumed.

It’s encouraging that more research is placing livestock where they belong—as a key component of the circular bio-economy. Linear thinking in the face of a challenge like increasing food demand and climate change won’t cut it. Understanding how we can enhance the upcycling super-power of livestock is key to a sustainable food system that nourishes the world responsibly.