

STATEMENT FOR THE RECORD
Subcommittee on Health, Committee on Energy & Commerce
U.S. House of Representatives
For the hearing, “Antibiotic Resistance and the Use of Antibiotics in Animal
Agriculture”

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The Grass-fed Alternative

If antibiotics were so important to raising beef, I often wonder how millions of cattle survived the cattle drives from Texas to Kansas and eventually to Chicago’s stockyards in the 1800’s. But they did survive, primarily on a diet of grass and forage as they have evolved over thousands of years.

Today, only a few ranchers in the United States raise cattle on grass, start to finish, compared with more than 90 million head that support a vast beef industry based on feeding *corn* to the animals. This change in diet occurred nearly sixty years ago and leads directly to our problems with feeding antibiotics to livestock.

Why the system changed can be traced to New Deal policies to save America’s small farms during the Great Depression. Government price supports and direct subsidies made sure that corn, cotton, sugar, soybeans and wheat continued to feed us, even if all else failed.

Over the years, those farm policies would change but the subsidies, especially for corn, would never go away.

In addition, the agricultural colleges started experimenting with hybrid strains of agricultural crops to withstand changes in climate and fight pests. The result would increase yields, especially for corn.

And a third development would help revolutionize U.S. agriculture. A new fertilizer with ammonia nitrate could enhance the nitrogen content of soil to dramatically increase yields.

These three developments came together during WWII with amazing results. Without knowing it, the U.S. had created the ability to grow more corn than anywhere else in the world—and we did.

Corn was piled beside grain elevators and railroad tracks for lack of rail cars to transport it. Farmers sought new markets for corn preferring to sell it rather than bury it.

One alternative was to feed the corn to livestock. The starch and sugar created extra intramuscular fat that was promoted as “marbling”. It made the meat juicy and tender and allowed the animals to fatten quickly.

By the early 1950’s, large feeding operations began to concentrate thousands of animals into paddocks so they could be served by one feed truck. The diet was

grain-based, primarily corn, made cheap by the overabundant production whose origins reached as far back as the 1930's. It was a far cry from the pastures of grass where cattle grazed naturally.

The new economic model turned the beef industry upside down, from grass to corn, from pasture to feedlot. America's *cattle herd* began to expand. And so did America's waistline, from fast food operations.

But what was good for America's beef business was not as good for the animals. They were spending up to six months of their lives crowded in dusty feedlots, waiting for the next feeding. They were programmed to eat more than they should by hormones either implanted in their ears as calves or fed to them in their corn based diet. Antibiotics were also used to promote growth.

Between the feedlot conditions, the corn-based diet and the sub therapeutic use of drugs, the animals contracted coccidiosis, abscessed livers, feedlot polio and respiratory diseases which required additional antibiotics to keep them healthy enough to harvest them in 14 to 16 months.

The Union of Concerned Scientists estimates that 70% of all antibiotics manufactured in the United States are used on livestock.

And therein lies what many consider the most serious problem. With every antibiotic there are always mutated bacteria to resist that antibiotic. It's nature's way. The more antibiotics we apply, the more resistant bacteria we create. The fear is that our overuse of antibiotics in these concentrated feeding operations has amounted to a giant petri dish for the creation of new bacteria (for which there are no effective cures).

Bacteria resistant to antibiotics may be one problem but the feeding of corn is another. The headlines are filled with recalls caused by the bacteria E coli 0157. Like other ruminants—bison, antelope, elephants and giraffes-- cattle developed a special system to transform the grasses of the world into a nutritious food source. They have four chambers in their stomach, each with a purpose of breaking down the tough cell walls of grasses to extract the remarkable energy within. The final chamber—the rumen—contains a special bacterium to finalize the digestion of grass.

When corn is substituted for grass, a different bacterium is required, one that is more acidic than necessary for grass. The bacteria that are formed—E coli 0157—being more acidic, can survive passage through the stomach acids of the cow. Plus, when exposed to nearly constant low levels of antibiotics, these bacteria can become resistant. These resistant bacteria then make it past the human acid barrier in our stomachs.

In all candor, there are conflicting scientific studies on these issues. More research is needed. But it's clear that there are serious problems arising from the current model of how we produce our beef.

The beef industry knows it and is experimenting with solutions: chilling the carcass, irradiating the carcass, steam rinsing the carcass, lactic acid wash of the carcass. They have produced questionable results.

There is one other alternative solution that works remarkably well and is finding advocates in a rising movement across the United States. It's the return to the grass-fed and grass-finished model of the 1800's.

Since *grass-fed* and *grass-finished* means no corn or grain is used as feed, there are no feedlots and hence, far fewer occasions to need antibiotics. My company, Tallgrass Beef, doesn't use any. No growth hormones are administered. The environment is better for it—the cattle graze the pastures and naturally fertilize it too, without producing an overabundance of waste in one concentrated location, as often occurs with feedlots.

The cattle are treated humanely.

The grass-fed movement is gaining momentum because the beef tastes richer, more like the original taste. And once the chemicals are removed, grass-fed beef, according to Clemson University researchers, contains twice the amount of a potent cancer fighting compound called conjugated linoleic acid. They found the beef is leaner and contains greater concentrations of desirable fatty acids and antioxidants. These benefits come from raising cattle without the use of any antibiotics.

Grass-fed beef will not replace the corn-fed model overnight but the potential benefits offer an intriguing alternative to the concentrated feeding operations and their need for antibiotics. Right now, it's a niche market in the scheme of things. But given a little help in the form of research and government incentives to expand the grass-fed, grass-finished program, I think it could provide valuable answers to the beef industry's problems.

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