

Beef's Greatest Challenge: Feeding the World



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Environmental Impact of Beef Production—Yesterday, Today and Tomorrow

Jude Capper, PhD; Washington State University

With an ever-growing population, the topic of environmental impact of production industries is an important and influential factor for consumers. There is currently a common conception that beef production is not an environmentally friendly industry. Both popular news and media sources publish stories that reiterate this conception with false numbers and facts. Unfortunately, although those within the industry can recognize the information as false, the 98% of the population that does not have knowledge of the beef industry view the stories as scientific fact and allow those facts to influence their consumer choices.

As populations continue to increase, the only way to provide sufficient nutrition to the masses is continued improvement of efficiency and productivity. The rapidly expanding population means producers will need to produce 70% more food by the year 2050. In addition to population growth, as incomes rise in developing areas, people are now able to afford and therefore demand more meat and dairy products. These new consumers along with the rest of population are susceptible to the flashy anti-beef marketing involving celebrities and sexual influences. Several of these current marketing pieces can be debunked when the ‘facts’ are looked into more closely; the unfortunate thing is that the common consumer does not take the time to investigate the marketing they are persuaded by.

Because the yield per animal in the beef industry has reached a topping-off point, the opportunity for improvement in efficiency and productivity must be identified elsewhere. This opportunity lies in improving the growth rate per animal which will cut resources, waste, and the beef industry’s carbon footprint. Research conducted in Australia shows that the majority of beef production’s environmental impact occurs on-farm, as opposed to during processing, and therefore there is a large opportunity to decrease these emissions and improve the carbon footprint of the industry (Figure 1.1). By improving the growth rate per animal, the industry has already made it possible to get the same amount of meat from four animals in 2007 as was gained from five animals in 1977. In addition, the number of days from birth to slaughter has been lowered from 606 in 1977 to 402 in 2007. It is also important to note that these improvements need to be applied to animals in all stages of beef life, and not just to finishing animals as they all affect the overall success of the industry.

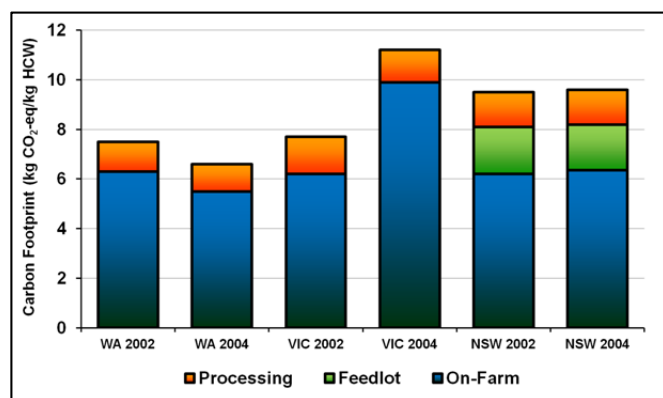


Figure 1.1

Land use has been another point of discussion for people to use against the beef industry. It is widely believed by the outside population that beef production uses an exorbitant amount of land. The opposite is actually true because of the improvements made in production and efficiency to improve sustainability. These improvements have resulted in the use of fewer resources today than were used in 1977 (Figure 1.2). Land use per pound of beef has been decreased by 1/3 in the last thirty years. In addition, beef production's carbon footprint has been lowered by an impressive 16% since 1977.

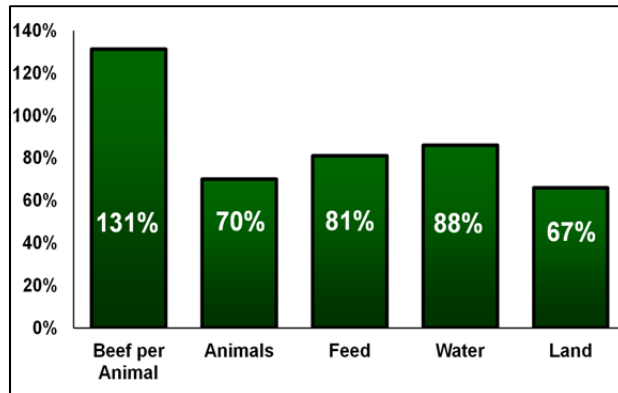


Figure 1.2

Water scarcity is predicted to be the next major environmental issue. Research is coming out comparing the amount of water used in the production of various food commodities. The research is intended to make consumers aware that they can cut their water usage by changing their diet choices. Several sources have marked beef as being wasteful when it comes to water, and these

false statistics mislead consumers and can create biased food choices. The key to broadcasting real facts about the beef industry is through positive publicity and marketing. Social sustainability remains a large challenge for the industry because of the dire need for accessible and comprehensive publicity that includes sound science rather than ideological principles.

Further Opportunities to Reduce Environmental Impact:

- ✓ Reduce time to reach target weights
 - ✓ Increase growth rate and feed efficiency
 - ✓ Use beef performance technologies
 - ✓ Optimize diet formulation
- ✓ Minimize losses within the system
 - ✓ Reduce morbidity and mortality
 - ✓ Reduce parasite infection
- ✓ Improve reproductive efficiency
 - ✓ Aim for one calf per cow per year
- ✓ Increase land carrying capacity
 - ✓ Improved pastures
 - ✓ Better forage varieties
- ✓ Reduce post-harvest resource use and emissions
 - ✓ Water, paper, plastics, Styrofoam

How Do We Define Sustainability?

Richard Gebhart, Producer; Rick Stott, AgriBeef; Jim Lanier, H.E.B.; Dennis Stiffler, Mountain States Rosen; Cristain Barcan, BASF

- How would you define sustainability?

When it comes to sustainability, it is difficult to identify an exact definition and rather is easier to consider many different definitions. As an industry, we need to operationalize sustainability and find the means to measure it. Sustainability can be divided into three pillars – economic, social and environmental. The *economic pillar* warrants further discussion because it is greatly lacking compared to the other two pillars. The *social pillar* involves meeting both consumer and business needs. It is also being accountable for providing relevant and accurate information to consumers. Finally, the *environmental pillar* includes effectively managing the resources we rely on and ensuring their most effective and economic use. Maximizing the utilization of all resources allows companies to ensure corporate viability. Environmental sustainability also is achieved through elimination of wastes. It is important to understand the cost and gain of every initiative undertaken. In short, sustainability should be a continuous and constant improvement over time.

Get involved with the needs of our consumers to remain relevant in each new decade. For instance, young people today do not always know how to cook meat, and this has led to cooking instructions being included on all product packaging. Meeting cultural preferences, value added items, and looking at an environmental side such as recycling are how we've maintained sustainability. – Jim Lanier

- What would you start with?

Sustainable development could be better defined as stewardship. Stewardship encompasses resources involved in the industry as well as animal welfare, care, and production. Focusing on environmental sustainability is an easy choice because it is the only pillar where an immediate return on investment can be seen. It is also the easiest choice on a moral level because it involves doing the right thing for the environment that sustains an operation while also improving that operation as well. Being able to have a product to reinvest in your company and be there in future years is the best definition of sustainability.

I think in all agrarian organizations sustainability is the most important pillar. Take care of the resources and you get a quality product. –Dennis Stiffler

As a cow-calf operator I know no more moral responsibility than being on a ranch and taking care of the natural resources I've been blessed with, the private property rights that I have, and the care of my cattle. There is something far beyond the business world about those responsibilities. – Richard Gebhart

- Is corporate/organizational sustainability enough?

Sustainability must be built into the culture of a business and the decisions being made on behalf of that business. Consumers are expecting business ventures to be sustainable while also being good stewards of the environment. As an industry, we must do a better job of capturing the associated costs and benefits and including all in financial paperwork. This is particularly important because it is well known that there is truth and hypothesized truth. Empirical evidence is necessary to prove truth and then make that truth available to consumers so that they are informed. We must always assess the consequences of our decisions.

There is some responsibility at the product level. Fifteen years ago when they ate beef, only 20% of consumers thought about sustainability, animal welfare, etc. Today, 50% of consumers consider these issues. Negative perceptions about the beef industry should be offset by real stories. The trend of today's viral nature of information places greater emphasis on providing information on a real-time basis. We have a tremendous opportunity to show a real story and real side of the business that will defend our industry and products. – Rick Stott

Industry and consumers do care about the sustainable side of the company. We need to take sustainability to the product level and create the marketing presence and position around its attributes for the consumer and the retail food service relationship to build trust and eliminate confusion. That is the biggest issue we face today. – Dennis Stiffler

- What makes a product “sustainable”?

The beef industry is headed in the right direction. There are few people in this industry who do not understand the need to address consumers' concerns. In making a product sustainable, it is essential to define your objectives, create strategies around those objectives, develop actions and tactics, and work through the process of documentation. Documentation is something that our industry should improve. We realize the value of communicating what we are doing and the positive aspects of our industry, but a real opportunity exists for growth and improvement as an industry. We need an effective communication strategy that will manage our stories. We are marketing the story of beef, land, etc., which is what sells our products. We are on the cusp of a great innovation in our industry, and the number of technologies is accelerating exponentially. We are aware that we have fewer resources, so the science will lead us down the path to where we need to be as an industry.

Change will only continue to happen faster and faster. In the future, we will have to put more money into research, and those results will sell themselves into changing the perceptions of consumers to a more positive view of our industry. –Richard Gebhart

We have to look at the products regardless of the system and realize they each have their own niche. The goal of the industry is to make each and every product more sustainable. Go to the fundamentals of eliminating waste, capturing and managing natural resources. – Dennis Stiffler

- What is your opinion about the NCBA More Sustainable Beef Program?

There is a great amount of uncertainty with this program, and there will likely be more questions than answers at its conclusion. Don't be disappointed though. This is a unique program that has a lot of potential relevance. The questions should be asked and the risk taken. The NCBA is capable of putting together best practices and moving the industry in the right direction. It is important that all systems independently find ways to maintain sustainability without comparison. Also, marketing products to the consumers as sustainable will not be effective; rather, successful marketing should represent our products and industry as better for the future and better for our children. We need consumers to be confident that we are striving to benefit the future.

As a member of the sustainability group, it's been a pleasure to interact with people who are innovative in the industry and forward thinking. We have improved from 10 years ago, and we will be better 10 years from now. People are talking down about us, but we have nothing to come back with. This program allows the data to have a balanced conversation/discussion. This is the discussion. –Rick Stott

The NCBA is the right organization to start moving the industry toward more sustainable beef. It's everyone's responsibility to coordinate and develop steps and platforms of collaboration to find ways to maintain sustainable beef. –Cristain Barcan

This industry has a reputation of not being short on opinions or ideas. We never take a step forward without data and science for producers to use as valuable information. It is important to remember that sustainability is not a destination, but a journey. We have to make sure we establish a pathway for continuous improvement. –Forrest Roberts

International Trade—Knowing Your Global Customers and Competition

Mark Gustafson, JBS

When trying to know the customer, it is important to first know the market. Consideration should be given to producers, consumers, where markets currently exist and where the potential is for new beef markets to be established. When it comes to world beef consumption, 95% is consumed outside the US. However, the US has the highest beef consumption per capita. The countries that hold the greatest potential for importing beef are Korea, China, Japan, Taiwan, the EU-27 and Russia.

When it comes to the macro trade environment, there are several factors that come into play. For instance, country-to-country agreements, i.e., the NAFTA agreement is one of the most successful experienced with Canada and Mexico. It is important to also look at country image, including political and marketing aspects. Countries must overlook the stereotypical images of the US that currently exist. Government requirements of customers are potentially some of the most important aspects of the trade environment. The EU hormone ban of 1988 has caused the

US to export very little beef to the European Union. This continues to be a very restricted market, and we appear to have lost the scientific fight there regarding hormones.

One of the most challenging issues can be the individual country specifications, because they are constantly changing and new ones are always on the horizon. Specifications on documentation including health certificates and labeling, age requirements, offal designation, bone-in versus boneless, and procedures can all vary greatly from country to country. Additives, hormones, antibiotics and Beta Agonists can create potential trade barriers and restrictors. Finding and developing your customer base can be greatly hindered by these specifications.

The US has the highest quality grain-fed beef in the world, which is our niche in the global market. We do not compete, however, with grass-fed or lower-quality beef. The biggest growing segments of the market are the prime and upper two-thirds programs, resulting in the most demand and need for development. Studying the requirements of the approaching market also is very important. As an example, no one in the US buys frozen beef, but frozen beef is a commonality overseas. This is just one instance of awareness of customer needs, which also should include decisions made on volume, product type, specification and packaging, and food safety requirements such as traceability.

In the US, all beef is produced under one system and one set of requirements and regulations. Other countries have their own specifications and insist on inspecting US plants to approve or disapprove the importation of a particular plant's products. Labeling requirements prohibit certain export ventures, and quarantine requirements make certain markets such as tongue non-viable because of the limitations created. When it comes to packaging, almost every country in the world wants a smaller box and a smaller package compared to what is marketed in the US. When attempting to enter the market, our industry must be cognizant of how products are marketed and sold, and the myriad of specifications can sometimes get in the way. Although our packing plants are big, complex and efficient, it can indeed be daunting when customers make the industry aware of multiple and diverse specifications.

So, what are our strengths and our weaknesses? Identified strengths include cost effectiveness, a consistent product and supply, and the USDA grading scale. Most importantly, we produce high-quality marbled beef. Additionally, we produce high volume at a competitive price. We also have a much better system than most countries when it comes to breaking apart the carcass and marketing the individual cuts. Products are delivered to customers more effectively and efficiently than elsewhere in the world, and our packaging is second to none in the industry. When it comes to weaknesses, we still do not have a traceability system, with India being the only other country also without this system. Also, there are lingering BSE concerns, this large industry is slow to meet customer demand, and hefty import duties have a major impact. The beef industry does so many good things here in the US as evidenced by the overall production

system. Marketing and merchandising efforts need to improve to educate our customers about all the regulatory agencies that interact with the beef industry. For instance, few of our customers would know that the beef industry is the second highest regulated industry after nuclear energy. A better job must be done of getting out the industry's story and the procedures that must be followed.

When it comes to competition, Australia is a formidable yet friendly opponent. Because Australia has had no disease outbreaks, the country has no market restrictions or trade barriers. There are no restrictions of any kind on age of cattle used for slaughter, marketing efforts are strong, and Beta Agonists are not used. On the other hand, the US and Australia markets differ because Australia exports 65-70% of its product, while the US remains a domestic market exporting only 10-12%. South America is also garnering attention because it is catching up on the traceability issue. However, due to its porous borders, the issue of disease spreading is a large concern. Quality is severely lacking compared to the US, but South America markets large amounts to consumers in locations such as Russia where they simply want lean meat and don't care beyond that where it comes from. Canada also has traceability systems in place; however, that country has problems getting the identification information from phase of production to the next. Canada has grain fed boxed beef by cut, so they are a competitor. But, they're also a very good trading partner; we buy a lot of Canadian cattle and sell a lot of boxed beef back to Canada.

When looking at foreign customers, we must consider the right price, cut, market, where we can compete and what we can control. We should place a stronger emphasis on export policies. There are USDA guidelines in place that mostly target the US consumer and have impacted programs dealing with international export issues. We have not been involved in several agreements because of restrictions, and there is no international body to assist in resolving disputes. We cannot turn our back on opportunities that will help us to produce more beef such as hormones, Beta Agonists, etc. A new decision must be made as to how we are going to approach the market. The bottom line is that we have the highest quality beef in the world and have developed a strong demand for that product. We now must learn from a marketing standpoint how to advance our international efforts.

Latin America and Its Role in Global Beef Production

Nelson Huerta, U.S. Meat Export Federation

The Latin American region is comprised of 20 countries that make up 14% of the Earth's land surface. Grasslands comprise 28% of the total land of the region, making it one of the major natural resources. This expansive area contributes to the area's cattle inventory of 400 million head, which represents 29% of the world's cattle population. In terms of economics, the region experienced an economic growth rate of 4% in 2011. The impact of the 2008-2009 financial crisis on Latin America resulted in well differentiated paces of growth between two groups of the

region. The Brazilian Cluster includes most of South America and is generally net commodity exporters with a high and diversified international trade exposure, particularly in Asia. The Mexican Cluster, including Central America and most of the Caribbean, is generally a commodity importer undergoing a slower recovery, mostly because of greater trade exposure to the US and other industrialized markets.

Brazil's beef production has increased by 25% over the past 10 years. However, after a decrease in production in 2011, analysts are debating how Brazil should rebuild its cowherd and thus how much production will increase in 2012 and beyond. In the case of Argentina, with exports limited by the government and competition for land, cattle herd rebuilding has been slow and domestic beef consumption has declined. Still, the top exporters of beef in the Latin American region remain Brazil, Argentina and Uruguay.

Clint Peck, Montana Beef Quality Assurance

It's a challenge to gain a market share in the protein business, because everyone in the world wants to produce protein. Because of this competition, we need to keep in mind the global trade agenda. In other words, we need to expand the knowledge and perspective of what goes on beyond our country's borders. Sanitary and phytosanitary rules have become one of the lead things in our global trade agenda. When the BSE cow was discovered in 2001, we learned at that time just how important sanitary rules truly are.

It is widely known that as people increase their incomes, they also increase the quality and demand of their proteins. This is important to what we all do and also to our futures. Consumer driven dynamics, therefore, must be kept in mind. Price and safety, for instance, are very important to our consumers. Providing the product at the right time, in the right place, at the right price, and in the right form is of the utmost importance. This is where the Law of Comparative Advantage comes into play for acknowledging the competitive edge enjoyed by America. In the US we have the luxury of a vast area of land for growing corn to feed our cattle. This corn resource defines our industry and is the advantage we have compared to other countries such as Latin American that have more grassland.

Argentina, Paraguay and Uruguay are three countries of competition in the Latin American region; however, each country has advantages and disadvantages, just like the US. Argentina has the advantage of being categorized free of aftosa with vaccination. Government interference causes a lot of problems for Argentinean beef production because of all the policies being enacted. This issue should be used as an example for the US. Paraguay has been in the shadows for a while, but it has good profitability in the industry. A problematic infrastructure holds back the country, and it is also not to Paraguay's advantage to be a land-locked country. Uruguay has the benefit of a great traceability program, but they are rapidly losing acreage to field crops like soybeans.

Finally, “quality beef” is a term being thrown around loosely. Quality can be dependent on who you ask, so it is up to countries to establish their own standards and work to effectively maintain them. In the US, quality is defined as beef that is harvested and processed under strict inspection systems to ensure safe, wholesome, correctly labeled and properly packaged beef products. If we maintain these standards, we will consistently meet and satisfy customer expectations for eating and preparation characteristics and value.

Joe Vendramini, University of Florida

Brazil has the largest commercial herd in the world, with 200 million head of cattle. Brazil also plays an important role in the world’s exports. Beef production in Brazil has the predominant use of *Bos indicus* cattle, and the vast majority of operations are on private lands.

The feedlot industry in Brazil accounts for only 10% of production, which is due in part to the average finishing age for cattle of three years. Brazil’s slaughter rate is also lower because it does not have the feedlots necessary to boost the numbers. A benefit is that the country’s production system is not segmented. Most states in Brazil maintain the whole process in their borders, so cattle do not travel far. Also, Brazil does not have quality grades but instead sells animals by live weight or carcass weight. There are distinct prices for steers, bulls, heifers, and cows depending on demand and availability.

Environmental regulations are a concern for beef producers because they are limiting the expansion of beef cattle production to new native lands, particularly in the northern states of the country. In addition, sugar cane and row crops are replacing areas formerly occupied by beef cattle. There have been 52 new sugarcane plants in the last five years alone. Because of this, former beef producers who are not making much money with cattle right now are taking their land and leasing it to sugarcane producers.

Consolidation of the beef packing plants is also causing problems. Brazil now has only three plants in the entire country, greatly limiting the options for marketing cattle. Because of this and the extended period of time it takes to finish an animal, beef producers with limited land focus on cow-calf production so they can profit from an animal much sooner.

The Brazilian economic situation is favorable compared to the rest of the world. There is increased beef consumption and, consequently, increased beef cattle prices. Brazil’s beef cattle herd will likely only continue to grow in the coming years, thanks to increased productivity.

Top Three Technologies That Will Increase Volume and Demand

Travis Choat, Elanco

It is a commonly known fact that we are going to need to double our food production in the next 50 years and that 70% of that increase is going to have to come from technology. The ways we are going to increase our productivity the greatest are through practices, products and genetics.

Companies must look at the way they manage their business in terms of improving the way we think about our customers, finances, people and products. Companies need to be profitable by producing things that people want to buy. For instance, we are currently working with a database that captures the closeouts of 250 feed yards every month, amounting to 10 million cattle every year. We use this data to help our customers make better decisions when it comes to utilizing their capital. Increases in capital can affect the way operations work and their ability to feed the world.

Implants are the most profitable innovation that a feed yard can use today. It can impact beef quality, but it can also improve their productivity and their financial position. At Elanco, a tool we utilize with our customers is managing days on feed and that target outcome. This is a practice that can impact meat and eating quality – if we push those cattle out too far, we get too many yield grade 4s and we get reduced productivity because it costs more to put on a pound of fat than it does to put on a pound of lean. We can also have problems if we market cattle too early – we reduce marbling score among other things.

The industry needs to try to focus on technology and discovering new forms while continually improving the ones we currently employ. We believe that we can produce beef today that utilizes technology and meets consumer demand. It just has to be a balance between focusing on both customers and productivity.

Rod Bowling, AFSI

I do most of my business in China, and the perspective there of the food supply is quite different than how we see it here in the US. However, China can be used as a barometer for where feed stuffs, grain consumption and meat consumption are going. When looking at farm markets in China, one can see a nice increase in quality of living for their farmers. Wage and benefits on a per head kill-fabrication cost in China is \$2.57; in the US it's \$57.00. Here in the US we will never have the capability to get to the costs that China are working with, but there are things we can do.

We need to look at trade as more of an opportunity than we have in the past. With new oil discoveries in the Dakotas, data today predicts that we could be an oil exporting nation by 2020.

If we can do that, it will be a major benefit to the energy cost of food production, and there will be no reason why we are not the leader of food production for the world.

Where our real problem lies is in water. We use 700-800 gallons per head in packing plants today in order to dress the beef and clean the plant. There are already a handful of plants in Texas saying they can no longer afford the water needed to operate. There is no reason why we don't recycle the water; it's surprising we don't have the technology to do that now. There is also no reason we allow the Mississippi and Missouri rivers to flood and ruin thousands of acres of land when there is such a need for water elsewhere. We need to take measures to protect our water infrastructure, because we haven't been good stewards of that in the last 50 years. Our industry's focus needs to lie on things we can do to protect both our resources and the environment.

Are We Maintaining Quality and Consistency?

Derek Vote, JBS

The challenge for cattle feeders is how to best optimize cattle that are going through the feedlots and deliver what the packer wants on the other end of that. What commonly gets lost in the middle of this is beef quality. Better quality beef equals a better price for that beef. Customer segmentation has expanded which has led to a steeper difference between price and quality in recent years. This segmentation allows more opportunity to provide what customers truly want.

What we need are more ways to sort carcasses based on their attributes. Over the last three to four months, we have had increased questions from retailers about the tenderness and quality of the beef they're buying. The impact of having more price and quality divisions improves consistency because the customer has a better idea of what they are purchasing. These divisions have come about largely because of the facilitation of instrument grading. As a result of questions from customers, we are now putting more emphasis on characterizing and measuring our product quality, which is something that should be widespread across our industry.

Daryl Tatum, Colorado State University

When addressing issues concerning quality and consistency in market cattle, it may be informative to first take a look back. The two issues of quality and consistency actually surfaced two decades ago when the first quality audit was conducted. The audit identified that beef was too fat, too tough and too consistent to compete effectively with pork and poultry. Looking at the most recent quality audit, some toughness and fat concerns remain, as well as some lingering issues with quality and tenderness.

Two goals were specifically identified as a result of the quality audit as being capable of improving quality and consistency. First, we need to improve the market cattle supply. Second,

as an industry we need to deliver product attributes that meet consumer needs and expectations. The implementation of instrument grading has been incredibly beneficial. At the time of the last quality audit, almost all the major packers had some form of instrumentation in place, but none of it was ever really implemented in conjunction with our grading system. One of the immediate benefits of that to the industry is that it began to reduce the variability in the application of grades, particularly regional. There had been some substantial regional differences in grade application that were stemming from human application of grades. Those have been leveled out and eliminated with the adoption of instrument grading.

I think we've also done some things to improve our grading system. The audit also identified the need to increase marbling, which has been happening since 2007. There's a lot of speculation as to what to attribute the increased percentage of choice and prime cuts. In the 2008 to 2011 time frame, the country entered a recession and people began to eat less at restaurants and more at home. At that time, the choice select spread was very low and a lot of the product that wasn't being consumed in food service found its way to retailers' cases. People liked it and they therefore began to demand more of the product in terms of value and performance.

When it comes to beef alternative merchandising, there is also room for improvement by resizing large cuts. It's difficult to control environmental and biological variability. Product quality and taste are what consistently come out on top when consumer research is conducted to see what pushes beef sales. Safety and areas related to health and nutrition are still the main areas of concern. We have a ways to go, but we can evaluate ways of better marketing, improve the product in terms of what it delivers, and reduce the variability in order to maintain quality and consistency.

Regulatory Impact on Global Ability to Meet Demand

Mike Miller, Cattle Fax

Over the past 5 years, the sharp increase in corn used for ethanol has driven feed and residual usage lower. Dried distillers grain production has grown to an equivalent of approximately 1.2-1.5 billion bushels of corn; however, as much as 20-25% of that production is exported.

Corn production in the US has long been our industry's greatest strength. The challenge it creates for our industry is that we require a record corn crop every year. Figure 2.1 shows the divisions of corn usage in the US since the year 2000. Given the volatility in corn prices and costs, it's a difficult time to decide if we should be looking to restock or expand the nation's cow herd.

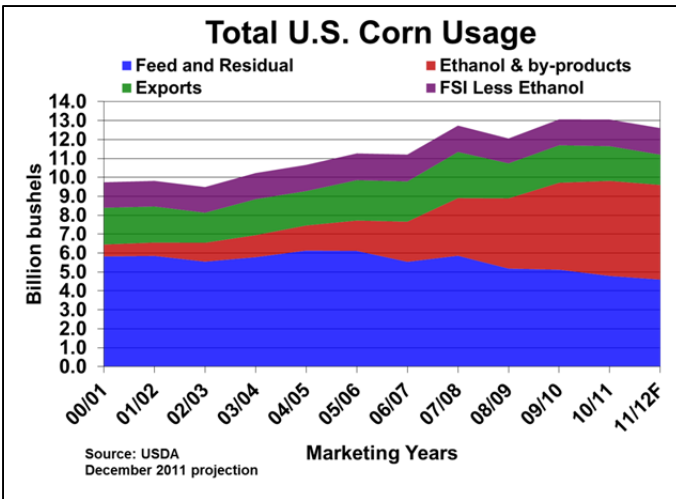


Figure 2.1

Another interesting thing to look at is the ethanol we are exporting. Extremely high fuel costs have led to the demand for our ethanol abroad. Because of this, usage both here in the US and abroad has increased tremendously.

For beef, our total global output has declined and therefore prices have increased. We need to find ways to produce more beef. Here in the US, we used to have only four markets, but now have several more while the previous

four make up two-thirds of our total exports. The good news is that we have successfully opened up these new markets, but the bad news is that we have also introduced a new issue of uncertainty and volatility of having good and forthright trade with all these new countries.

In the US, we are now exporting more than we import because we are unable to buy enough cattle, and there is a tremendous demand for beef around the world. In considering the impact, we have declining domestic totals, a net trade difference working against us, and in 2012, we'll have the smallest per capita beef supply that we've had in 50-60 years.

Given the current state of trade and the value of the dollar compared to other currencies, we are expecting to see even more product leaving our shores in the upcoming years. With this increased trading, we are exposing ourselves to the regulations of other countries by joining their markets and also submitting ourselves to potentially having to follow the ways they think the beef production system should operate. With the ethanol and corn policy issues that have driven up our prices combined with the trade issues we have, it will be important to keep in mind the difficulties that could come up for beef producers in the next five to ten years.

Ross Wilson, Texas Cattle Feeder's Association

For me, there are three main regulatory impacts affecting the industry: Grain Inspection, Packers and Stockyard Administration (GIPSA), Mandatory Country of Origin Labeling (MCOOL) and traceability. GIPSA was a subjective rule that was never implemented and which was based on industry interviews and the anticipated reactions. This rule tried to quantify the business process and supply chain alterations.

MCOOL was meant to increase consumer demand and, through that demand, a higher price for beef. With all of these studies, the assumptions held going into them can make massive

differences in the outcomes. This emphasizes the importance of having a broad-based group of individuals outside beef production as well as industry representatives come together whenever we do cost benefit analyses on any type of regulatory program to make sure our assumptions are correct.

In our industry, as in most, we are always trying to reduce operating costs, so we want to reject most regulations; however, traceability seems to be a different story. Animal disease traceability (ADT) has a proposed annual cost of only \$5.5 to 7.3 million compared to the USDA's National Animal Identification System (NAIS) estimate of \$176 million. The extreme difference in cost is due primarily to the fact that it only deals with adult cattle that move interstate and are in interstate commerce. The benefits of this program would be to retain US and international markets while also helping with prevention, or at least quicker eradication of a foreign animal disease. Mainly when it comes to regulations, we need to look at a strategy to study and weigh them all together and find out which ones are worth doing and how can we then take those worthy regulations and put them in a better light.

Preparing North America for Global Competitiveness

Paul Clayton, U.S. Meat Export Federation

When it comes to comparing the US, Canada and Mexico, we are somewhat equal across the board concerning environmental and sustainability factors, food safety, foreign animal disease, traceability, product availability, and availability of experienced and educated employees. Not only are we a trading block to the world, but also within ourselves. We all work together in a lot of these issues. The main identifier to rank us by currently is traceability.

Rod Bowling, AFSI

Canada, US, and Mexico comprise the trading block that is up against the rest of the world, particularly the EU and China. From an environmental standpoint, we need to focus on our energy dependence. Canada should set an example for us as they are an island economy from both a food production and an energy standpoint. The bread basket that we have here in the US makes us very competitive; however, we do still have the issue of water to address.

In our industry and also here today, "sustainability" is becoming another buzzword. There is nothing unsustainable about rumen production in the world. If we look at the amount of resources dedicated to beef production, only 14 % of the total nutrient input comes from grain or concentrate. The rest comes from forages. Rumen cattle are the reason that emerging countries are working to make sure they have a good cattle population to augment the poultry and pork productions; they'll get more production with a smaller hoof print.

From a food safety standpoint, we are one of the few countries that deal with pathogens. The food safety problems we have in the emerging world are residues. I think in the US, we've

become too dependent on measuring pathogens. It's impossible to find and eliminate all pathogens. We have a real issue to deal with when it comes to traceability. BSE was the sentinel standpoint for the traceability issue. We gave away our export market for eight years because we did not have this kind of standpoint. If we ever had a foot and mouth epidemic in this country, we would be in big trouble. We have no system to notify people fast enough, nor any way to ever eradicate the disease from the deer and feral hog populations. I don't think we would ever export beef again, and this should be reason enough to dedicate far more attention to the issue of traceability.

Mike Smith, Harris Ranch

The issue of animal disease and biosecurity is a threat and concern in the US. As far as traceability, we must have the ability to minimize the impact of a disease in the event of a breakout. When drawing quarantine areas, it will be imperative to have these traceback systems in place. Having effective traceback systems will also allow us to maintain access into more foreign markets. There has been discussion about Canada and the US working together to identify a traceback system; however, the US delayed action and now Canada has a system in place. While it is not perfect, Canada at least has a system. Mexico has also enacted some primary identification systems. In the US, however, we have talked, debated, and accomplished little, leaving us severely lagging in comparison to other countries in North America.

In terms of product availability, it is apparent that more foreign markets are developing at the same time that cow numbers are falling. The USDA's total US cow inventory in 1975 was 57 million head. In 2010, that number decreased to 39 million. Although we've lost one-third of our total cow inventory, we still are producing the same amount of beef – 27 billion pounds of marketable products every year. In order to maintain and improve upon these numbers, we need young, bright and aggressive people who are willing to work for our industry. There are obvious concerns for finding laborers but, as we move forward, it is going to be harder to identify individuals with the production background and work ethic necessary to be successful in the beef industry.

How/What Are We Going to Feed Our Cattle?

Tryon Wickersham, Texas A&M University

The world's population is growing and the world is becoming wealthier, so there are additional people demanding more quality meat. The increase in population is actually the result of farmers' success at producing food. Grain production has been steadily increasing, and we have become so successful at producing plants that we began diverting some of that cultivated plant energy to other uses such as fuel and industrial needs. We are even beginning to look at using gathered plant energy for fuel needs. These are all testaments to the success of the agriculture industry.

Hollis Klett, XF Enterprises

I have a broad background when it comes to international cattle production. Over the years, I have worked on projects in Kenya and Uganda where we worked on developing beef cross-breeding programs to create an economically profitable business. I traveled to Algeria where we built a 6,000 head feedlot and a 6,000 head cow-calf operation. Working with the Western Beef Corporation, I worked on jobs in Iran and the Sudan. Also, I worked for the Taiwan Sugar Corporation for a number of years as a consultant for the largest feedlot in Taiwan. After working in Japan with dairy producers and in Mexico as a feedlot consultant, I bought my own company.

I decided I wanted to establish a nutrition program throughout the world, and therefore founded companies in Australia, Canada, Brazil and New Zealand. With my experience and knowledge, I think that sustainability is an important long-term challenge to keep in mind, but we also have short-term concerns to address. This year, our major challenge was the drought. Bringing in food sources from other locations has been an extremely expensive venture. Also, because of ethanol plants, we have cut the corn level in our feed by half. Byproducts are what saved our livelihoods when it came to feeding cattle.

In regards to the world beef production, we face two issues. One is quality beef, because there is no question that the US leads in this regard. However, Australia has made significant improvement over the last 20 years and will only continue to do so. The biggest issue we face right now is water. In trying to produce enough crops, our water table is dropping. Last year's drought left us in even worse shape. Effort needs to be directed in these important areas in order to maintain our industry's success.

Joe Harris, Westway Feeds

We are producing beef today with a system that is taking up less land, water, feed and fossil fuel resources than in the past. I sometimes feel that we need to build up the self-esteem in our industry as a reminder of our efficiency. It has long been a custom in the livestock production industry to use livestock to recycle food co-products. This is not a new practice and is actually the way we have managed livestock since first starting an agrarian society.

When we talk about how to feed cattle moving forward, success depends largely on the structure of the beef industry. We have somewhere around one million cow calf producers in the US, with only four or five major packing companies that actually market the beef to trade. A system of how to feed our beef currently exists, but this system could drastically change as we move forward and attempt to meet new demands. Because of the costs of land inputs and keeping a cow on a high forage diet, it will be difficult to achieve tremendous consolidation within this sector.

Although a 100% calf crop is ideal, it's just not possible at this time. However, with proper supplementation, we can help cows breed back more efficiently in the future. The potential exists to take these soluble carbohydrate reduced co-products back to the stock operations and save money. In other words, the markets are working to remind us of Keith Hanson's comment that we have the most forgiving beast in the world. We have a beast that can utilize basically anything we put in front of it, giving us the opportunity to source the co-products from the food business. We will therefore continue to seek out new products to feed and bring those to the animal with a unique capacity for utilization.

Closing Statements

Gary Smith

I believe the three pillars of social, environmental, and economic concerns are the most valuable approaches to working on sustainability as an industry. The third pillar is particularly important because, in order to make something last, it has to be economically viable.

Communication between the industry and consumers presents our best option for success. It is vital that we tell the story of our industry, explaining how and why we do things the way we do. It will be a challenge to our young people to utilize social networking and other new forms of communication to explain and defend what we are doing right as an industry.

Reducing hunger worldwide calls for an increase of 30% in arable land and 70% in technology. We need to decide what can be done with technology also to meet the needs of our exporting markets. The issue of traceability can be solved by making it market driven. Parceling our problems is what needs to be undertaken as opposed to looking for one magic solution to sustain our entire industry, and these segmented solutions should be implemented in each of the production systems.

Finally, when it comes to marketing opportunity, there are solutions to be found. For instance, other countries have utilized women and children to deliver a more believable message since there is a perception that the communication of women is accepted quicker than from men. This creates a potential for women and particularly those with children to spread the message of trust and belief in the beef industry of today.