The Meat You Haven't Met, Pt. 4

Rebecca Soja

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MEAT + GREET
JOIN US February 14th at the GRAIN SILO
to the threats created by an industrialized food system. The alternative would be to change aspects of factory farming so animal genetics don’t need to be so closely monitored in the first place.

More recently, through biotechnology, genetic engineering or cloning are used to achieve even greater control of cattle DNA, perhaps with even larger detrimental impacts. Foreign DNA is inserted into the genome of the cells of genetically modified cattle via gene splicing techniques. Or, cattle are given growth hormones to accelerate development at unnatural rates. Cloned animals are also entering the food system; there are approximately 650 cloned animals in the U.S. with unique identities entered into a registry. In 2008, the USFDA reported that food derived from clones and/or their offspring is indistinguishable from conventionally reproduced animals and found no safety concerns. However, the introduction of animals derived from intense scientific intervention is a concern for many confused consumers.

Unfortunately, in the U.S., the approach applied to emerging food innovations is risk assessment or the basic assumption that some risk is acceptable even though threats to public health or the environment may be uncertain. In contrast, a precautionary approach is the notion that new technology is seen as risky until proven safe. In these situations, transparency becomes important.

When the ‘flavor-savor tomato’ was stocked on grocery shelves in 1994, there were clear explanations in labels and brochures for consumers. However, consolidation, patents, and desire for even greater control has led to reduced transparency for consumers who unknowingly purchase foods with genetically modified inputs. For example, processed foods may contain corn starch produced with genetically modified corn, but the label will neglect to mention it.

Witheld information deceives consumers and protects the interests of industrial agriculture. In the case of genetically modified or cloned beef, there needs to be a consistent labeling system for if problems do arise or shipments need to be recalled. Some brands use the fact that they don’t use G.M.O.s or growth hormones as a selling point, but consumers who aren’t aware of the benefits, or who simply don’t have access, won’t be convinced. Besides, all of these catchphrases like ‘No G.M.O.s,’ ‘Organic,’ or ‘Natural’ can be meaningless because they do not reveal the whole production process. A cow may not have been injected with hormones, but it may still be artificially inseminated; a cow may have eaten organically grown grain, but still lived in CAFO conditions. Giving true meaning to these words and creating consensus within the beef industry can eliminate confusion, but for corporations that would mean sacrificing opportunities for revenue.

People love a nice medium rare cut of meat, but even more rare is the chance of beef cattle having multiple births. Against all odds, one Red Angus Beef Cow on a ranch in Minnesota owned by Keith Sistad delivered an astounding four healthy calves! Quadruplets in beef cattle is extremely rare (compared to about 1 in 665,000 dairy cows having quadruplets). Although not unheard of, often at least one of the calves dies.

The calves were born nearly a month before expected. Sistad noticed the cow acting up and put her inside the barn for the night. He returned to find a set of twin heifers at 2:30am and then another set of twin heifers at 6:30am. The calves weighed between 36-48 pounds, about half the typical weight of a single newborn calf. All have been taken care of and are nursing, although Sistad does provide extra milk to supplement what the calves receive from their mother.

Usually ranchers prefer one healthy calf to multiples because they often require extra expense and effort albeit having more profit potential. But in the end, caring for the cows is always worth it.
Announcing the opening of a new kind of entertainment.

FARMLAND WORLD
This over-the-top hybrid experience attempts to critique the ways in which humans relate to animals and other agricultural practices.

According to the architects:

“The overlaps and mutable identities of animals and machines through technology are not just sites for crisis and detachment; they can also be the locus of unprecedented opportunity. Farmland World is a chain of agrotourist resorts sprinkled across the American Midwestern countryside. Part theme park and part working farm, guests arrive to the resort via train and stay as part of 1-day, 3-day or 5-day experience packages. Capitalizing on both recent governmental investments in high-speed rail infrastructure and the plentiful subsidies for farming, the network of resorts combine crowdsourced farm labor with eco-tainment.”

The identity of animal and machine becomes culturally blurred with the dominance of agri-businesses and our current conventional, industrialized food system. Monstrous, metal-structured, animal posers roam the landscape, executing planting, harvesting, and processing tasks to take the concept of mechanized labor and production to the extreme. The proposal is sarcastic and ridiculous, but ultimately aims to educate and re-link humans with the natural processes that sustain us in conjunction with technology.
“plan your trip today!”

THE AGRO-TOURIST RESORT

PLANTING PATTERNS

Farming patterns on farms are in straight rows primarily out of tradition and to allow for efficiency. With GPS guided tractors, any pattern is possible. With the Advanced Farming Experiment, planting patterns are arranged to provide maximum design, transforming the fields into a variety of landscapes.

THE TRANSLATION

The form of traditional farms are no longer appropriate today. The original independent crop farmer has disappeared and been replaced by advanced hybrid / human hybrid. Farmland development impacts the average city dweller with home, land, and animals. The ultimate goal is the farms previously done by farmers. Come for a stay. Anyone can be a farmer.

TRADITIONAL

POSSIBLE

Figure 6a.

UpAct

Crop Circles

Clay Skillets

IMPORT

Guests and supplies arrive on the morning, fresh from the local farmer. As the newcomers arrive, they are handed their complimentary overalls and ear bags. The overalls will protect their clothing from all the dirt, while the ear bags will protect their ears from the noise. The ear tags are their key to reserve many activities.

EXPORT

After guests experience one of the 1-day, 3-day, or 5-day stay packages, they are picked up or driven to the length of their stay. Along with the provided equipment andersed guest board the boat away from their town on the lake resort. The owners fresh food is free to market and can be ordered home to the homes and businesses of America.
Everyday is magical at Farmland World. The pastoral meets state-of-the-art resort facilities—your dream come true! As you travel by high-speed rail to our Family Farmhouse Resort, you will be greeted by our roaming Farmatures, saving and plowing the fields. Your farm adventure begins the moment you step off the train and onto your very own front porch in the Grazing Coliseum.

As you spend your days on the farm you will get to know many of our furry and feathered friends. Exploring comes first at Farmland World. From Dairytown to Beesville, Pig City to the Chicken Hut, Veggie Row to Wheat Island, the fun never stops. maize Maze is one of our favorite Harvest Festival Activities. Visit Farmature Else and her herd of 300 dairy cows, learn the names of all the hens at the Chicken Hut, pick berries at Fruit Mountain, or safari at Pasture Place. Evenings are family time. Dine at our famous family style restaurant, Sarge's, and enjoy farm inspired dishes from world-renowned chefs. Barnstorms are held every night, and a must-see in the Animal Ball. We can't wait for you to spend your vacation with us!

**Farmland World Eco-Vacation Guide**

**The Flock of Animal Farmature Rides**

- Pig Plough / Tiller
- Sheep Baaler
- Goat Forage Harvester
- Cow Combine / Irrigation
- Chicken Planter
- Horse Manure Spreader

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**Fantasy Farm Experience Packages**

**Seed Package: One-Day Farmer Experience**
Sow seeds with us! Your day escape begins with an introduction to Farmature grazing in the Grazing Coliseum. Spend your morning learning the ins and outs of good roots in our Farmature Chicken. Wander through the Chicken Hut and collect your own farm-fried eggs or chicken. Dine in the Poultry Slam—make your own omelet or have one of our fry cooks pasted you in preparing your chicken. Spend your afternoon with your flock sowing seeds in our Pig Farm or Maize Maze. Your one-day seed package will plant enough food for you to feed twenty of our feathered friends. Yuck!

**Cattle Drive: Three-Day Farmer Experience**
Every moment will captivate you on this exhilarating experience! You will be assigned a cow, goat or sheep Farmature of your choice, which you will care for as the extended your visit—Elisa the Heifer is a popular choice! Harvesting your excitement is our goal. Visit Dairytown and milk a cow; you can make cheese, ice cream or yogurt with our tour guide. Cow-a-hunga!

**Farmer Fantasy: Five-Day Farmer Experience**
Want to work it? Spend each day of your stay touring the art of its Farmature: horse, chicken, cow, goat, sheep—you can farm it all! Select several of our mini-lessons to satisfy your cravings:

- Meet Most-Carnivores Welcome!
  Fourteenth how the meat gets on your plate? Make your own traditional meals with our mini-lecture workshops: Chickens, pigs and cows, oh my!

- Beeque Extravaganzaz!
  This escape takes you into the hive. Learn how to set up your own box bee, extract honey, and care for bees. Tour our buzz garden and learn about the art of honey making! It’s too sweet!

- Wool Works!
  Even sweater? So are we. Choose from any of our flock for your own shear, dye and knit to your heart's content!
ILLUMINATING LANDSCAPES

photographic exhibition
of stunning aerial shots
Hundreds of publicly available satellite photographs of U.S. feedlots are compiled and seamlessly stitched together to create ultra-high definition images of industrialized landscapes that few ever see from the ground let alone the air.

The astounding results appear as if actual wounds, blistering, oozing, and seeping into a manufactured, regulated grid of desaturated pens. Blood red and toxic green lagoons dominate and threaten the clusters of perceptively ant-like cattle. This alarming juxtaposition exposes a contradiction. Massive waste lagoons are created by the disposal of colossal amounts of manure that economies of scale produce, which simultaneously jeopardize the industry's future success by degrading not only the surrounding landscape, but also air, water, and land resources far removed from the immediate site. The feedlot is not immune to the negative environmental consequences it creates due to negligent waste management.

Operating at the scale of industrialized cities, but tucked away out sight in the country, the feedlot may soon not be able to uphold the pastoral image of animal agriculture. The particular feedlots captured here are located in the Texas panhandle, but agriculture and feedlots are prominent throughout the Midwest, a region known for its vastness, Jeffersonian grid, and middle point of view. Ironically, these are often "fly over states" that go unnoticed. However, with increased general access to the internet and Google Earth satellite images, landscapes aren't kept secret anymore. Negative environmental impacts are exposed and eventually certain deplorable aspects of meat production won't remain hidden either.

all images credit to Mishka Henner

seeing feedlots from a different angle.
HEFTY HEIFERS

find your feed and may the scales be ever in your favor
For nearly a century, industrial animal farmers have been supplementing feed rations with additives to promote rapid growth. This began with vitamins and nutrients that would allow producers to keep animals inside year-round. Later, with increased confinement leading to mortalities and disease outbreaks, technological developments of antibiotics were added to water and feed. Today some shocking additives may include: hydrolyzed poultry feathers, by-products of slaughtered animals, ground up wild fish, interspecies waste, antibiotic drugs, growth hormones, minerals and metals, and synthetic roughage replacements. These ‘recipe tweaks’ have been working. 75 years ago it would take 4-5 years for a cow to reach slaughter weight, now it only takes only 14-18 months. Over the last 50 years, the average market weight of a cow has increased about 300 pounds from 1,004 pounds in 1960 to well over 1,300 pounds in 2010. With retail weight coming to about 40% of market/total weight, that’s an increase of over 100 pounds of meat per cow reaching grocery shelves. However, not all of these are added solely for the sake of optimized and accelerated weight gain. Other factors have played critical roles in determining what ingredients end up in cattle feeds. Ultimately, feeds are formulated to speed up growth to reach market weight and to supply essential nutrients while minimizing cost to producers.

Federal subsidies on corn and soy especially encouraged the use of grain feeds because those inputs could be purchased below the cost of production for greater beef production and profits. Without these subsidies, a 1/4 pound McDonald’s hamburger could never cost $1. Feeding animals grain can reduce operating costs by 5-15%, which translates into billions of dollars and is perhaps more important to producers than gains of efficiency or sustainability. Grain feeds also happen to help animals gain weight faster. 47% of soy and 60% of corn produced in US is consumed by livestock. There has been a massive shift from food to feed. For example, in 2008, over 200 million acres were dedicated to growing feeder corn, soybeans, and alfalfa to feed animals. In comparison, the amount of land used to grow the top 10 types of U.S. produce is only about 1 million acres. All of this land used for producing grain feeds and pasturelands increases rates of soil erosion until the land won’t be fertile enough to support either system.

Agriculture also demands a lot of water resources. 60% of the world’s fresh water goes to agriculture with 33% of that going towards growing animal feed crops. Grain-fed beef production uses a disproportionate amount of water for the amount of food it produces. For every kilogram of meat produced, 100,000 liters of water are used. In comparison, soybeans use 98% less water at 2,000 liters/kg, and potatoes only 500 liters/kg. Water use is important to food access and security because currently over half of the states in the U.S. experience moderate to severe drought. The system depends on quantities of water that will not be available in the future following these trends.

Overall, cattle use more food supply than they provide and more resources than other food system sectors. In the U.S. 157 million tons of cereals, legumes, and vegetative proteins are fed to livestock to produce just 28 million tons of animal protein in the form of meat for human consumption. The beef energy input to protein output ratio is staggering at 54:1, contributing much more than chickens or pigs to this inefficiently. If the grains fed to livestock in the U.S. were consumed directly by people, it could feed 800 million, or if exported, could boost U.S. trade balance by $80 billion per year. Tremendous amounts of resources and energy could be conserved if the grain used for livestock could be used by people. If the grains fed to livestock in the U.S. were consumed directly by people, it could feed 800 million, or if exported, could boost U.S. trade balance by $80 billion per year. Tremendous amounts of resources and energy could be conserved if the grain used for livestock could be used by people.
saved if more crops went directly towards human consumption, and if humans consumed less meat. An acre of cereal crops can produce 5 times the protein compared to an acre used for meat production. Meat consumption trends also impact society at a global level.

Many countries that are poor often have grain surpluses but they have to export them for feed production so the affluent in other countries can consume meat. Paradoxically, these farmers support a process that in no way sustains them. Simply put, raising cattle in general depletes tremendous amounts of resources, and raising cattle on grain feeds use even more. Eventually there will come a point when these resources run out.

One of the reasons why beef production is so inefficient is that cattle eat excessive amounts of foods that their digestive systems biologically can’t handle. Cattle are ruminants, with a four-compartment stomach designed to break down roughage. As a cow chews, digestive enzymes in its saliva get mixed into the food before it is swallowed. Then the food passes down the esophagus into the reticulum and rumen where it is fermented and broken down by microbes. Some of the larger food particles are regurgitated, chewed again and re-swallowed; this is “chewing the cud.” Otherwise, digested matter flows into the anus.

The entire process evolved through symbiotic relationships between the grass, cows, and bacteria. In fact, when calves are born on cow-calf operations, their rumens are not developed so they have to eat a fibrous diet of grass, milk, and water. When cattle are introduced to a high energy grain diet on feedlots, it has to be done slowly because the roles of the bacteria are so specific and need to be re-established so the cow can continue to eat without the microbes perishing. Therefore, it shouldn’t be a surprise that grain diets are unnatural, leading to numerous health problems.

A grain-fed rumen is acidic while grass-fed rumens are neutral. A common side effect is bloat, when copious amounts of gas given off by bacteria during rumination get trapped, inflating the rumen and pressing against the lungs. Another result of abnormal rumen pH is acidosis; cows go off their feed, pant and salivate, paw at their bellies, and eat dirt. Other side effects can include diarrhea, ulcers, abscessed livers, and weakened immune systems. In response, antibiotics are added to feeds to prevent sickness and casualties.

It is estimated that 70% of all antibiotics in the U.S. are given to livestock. After all, sick or deceased cattle impede the effectiveness of production. Common antibiotics used are Rumensin, which inhibits gas production in the rumen to stop bloat and Tylosin, which reduces liver infections. These antibiotics wouldn’t be necessary if cows ate what they were evolved to eat.

But the additives don’t stop there. As if cattle weren’t growing fast enough, they are injected with growth hormones like Revlar to grow at unhealthy rates. CAFOs also have gigantic tanks that pump out liquefied fats, protein supplements, liquefied vitamins, and synthetic estrogen. All of these “wet ingredients” get mixed in with the “dry ingredients” like corn, soy, alfalfa, or cereals as they pass through computer-controlled feed mills. These reserves never seem to diminish as trucks arrive with new shipments every hour.

However, this constant supply is necessary to keep the operation running. On average, a cow gains 2.5-4 pounds per day on about 6 pounds of dry-weight feed per pound of gain. Multiply that by tens of thousands of cows and it all adds up quickly.

These components of CAFO diets can impact human health just as much as animal health. Acidic rumens can lead to the colonization of pathogens like E. Coli or Salmonella that can withstand acidic environments, and human stomachs happen to be acidic. Normally acids would kill off viruses and microbes, but resistant pathogens conquer those defenses, risking human infection. Chemical additives and the pesticides and herbicides used on the monocrops of industrial corn/soy farms can also accumulate in animal fatty tissues and consequently humans that consume beef. In the end, humans are not only what they eat, but also what they eat, eats.

Even though the government plays a critical role in monitoring the food system, these toxins and pathogens can still infiltrate our food. One of the main issues is the competing interests of the USDA. They are responsible for both meat safety and increasing meat sales. The meat industry also has powerful ‘friends’ in the upper levels of the USDA, so they often win battles, such as the case of Supreme Beef vs. USDA, to hinder inspection rulemaking and food safety regulations. As a result, the meat industry is protected from liability at the expense of public health. This is particularly geared towards protecting the largest producers that dominate the highly consolidated and concentrated industry. The top 4 meat packers: Tyson, JBS, Cargill, and National Beef control over 80% of the market due to horizontal and vertical integration.

The USDA also impacts the retail market by certifying various brands. The most significant market changes occurred in 1978 with the introduction of Certified Angus Beef and Coleman Natural Beef. The USDA passes the seal of approval on whether beef is organic for example, which can be a huge selling point for some consumers. They are also in charge of the grading program established in the 1920s that rates beef as standard, prime, choice, or select based on it marbling and fat content. Distinct marbling is a global aesthetic standard; more fat means better grading of the cut. Associated higher quality indicates better taste and tenderness that consumers have come to prefer. This meat isn’t healthier; in fact it is higher in saturated fats and calories on account of being fed grains verses grass. Even if the USDA showed some concern about food safety so that products aren’t recalled, they don’t care about whether the foods make us obese or give us heart disease, diabetes, high cholesterol, or high blood pressure. The government assists in keeping beef cheap, both in economic terms and regarding value related to health, society, and ecology.

(continue to pg. 29)
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NOW HIRING
at all 10 of our feedlot locations in Texas + Kansas

“all you have to do is eat and we take care of the rest.”

QUALITY SO GOOD OUR BEEF SELLS ITSELF.

pull over and scan the QR code on our cows to learn more about us and our products

drive-by marketing
The clear alternative would be grass-fed beef. This would have many benefits. First, research has shown that grass-only diets alter fatty acid composition and improve the overall antioxidant content of beef. That means healthier beef for consumers with less bad fats, more good fats, less total calories, and more calories derived from protein than fat. The meat may be tougher since the cows actually get exercise, but people could become accustomed to that just like how they became accustomed to the taste and texture of grain-fed beef. Second, cows would be eating grass, which wouldn’t compromise their digestive systems, producing happier, healthier cows. There would be no need for antibiotics and additives that impact human health too. Third, raising cows on grass wouldn’t make as much economic sense in the short-term, but there would be less future costs related to the health of society and the environment. If people realize the offset costs, they would be willing to pay a little more per pound. However, despite the benefits posed by grass-fed beef, expanding this model to support current meat consumption would be just as unsustainable as industrial grain-fed methods.

For starters, there simply aren’t enough grasslands to sustain the 100 million head of cattle that currently reside in the U.S. 70% of the land area in the American west is used for grazing livestock, including 260 million acres of western public lands. This land is cheap because in an arid climate, it isn’t ideal for farming so it is subsidized for ranching. Even if the government supported grass-fed operations, it would take up to 250 acres of this type of land to support a single cow for one year compared to a couple of acres of pasture in the humid east. Managing cows on vast pasturelands also requires a lot of attention and work. That’s why the CAFO model can accommodate so many animals. It squeezes as many heads as possible into the smallest area. In the alternative, each cow would require more space. The other problem with using the land in this way is that it often gets overgrazed. This compacts soil, diminishes soil quality, reduces ground cover, and eliminates high quality forage. While Management-Intensive Rotational Grazing can be profitable and sustainable, it would not be effective at a large scale.

Like industrial crop agriculture, larger land allotments and scales of operation for animal agriculture would reduce biodiversity. Any livestock feed operation is often dominated by a few species and reduced gene pools, but the diversity of other species is also threatened by beef monocultures. This displaces vegetation as well as other wildlife from their natural habitats. The USDA Animal Damage Control Program established in 1931, also eradicates, suppresses, and controls wildlife considered to be detrimental to the western livestock industry. Therefore, taxpayer dollars are used to fund the killing of predator species like wolves, coyotes, or bears, all the while protecting the financial interests of ranchers who graze cattle on public lands.

Grass-fed operations would still contribute to global warming. Cattle ranching is already responsible for 80% of Amazon deforestation with the rest attributed to growing soy mostly for animal feeds. If the number of cows were to match current statistics, there would still be excessive emissions of methane, nitrous oxide, carbon dioxide, and ammonia. Plus some argue cows would gain weight slower, thus emitting more gases during a longer life span. Manure would also continue to be an issue.

Ultimately, economies of scale in beef production are not sustainable no matter what cattle are fed. The real solution may just be to eat less meat.
on the feedlot there's nothing to worry about when you're a cow
human relationships with domesticated animals are interesting because both parties depend on each other to a certain extent. The evolution of the ruminant digestive system is important because the cow is able to obtain nourishment from roughage (grass, hay) which monogastric humans can not digest or convert into necessary nutrients, proteins, or amino acids for their own sustenance. Humans obtain those key elements and energy in their diet when they consume beef and milk. In addition to food, other byproducts humans get from cows/cattle include: leather goods, fertilizers from their manure, cosmetics, drugs, hair products, gelatin, glues, and more in a modern age. In return, cows receive shelter, shade, water, ventilation, and medicines that human innovation can provide.

In a way, humans do everything for cows; they tell them where to go, what to eat, where to sleep, when to have babies...to the point where cows barely even need to think. Cows also don’t even need to do manual labor anymore with mechanization; in fact, they aren’t even asked to exercise. Their only job is to eat, which they have to do to survive anyways. At the feedlot, feed is delivered to troughs daily using a tractor/truck or mechanical feed delivery systems. Cows are taken care of and don’t have the burdens of human anxieties like making mortgage payments, putting food on the table, etc.

However, given the severity of this management, cows don’t have freedom. Cows are intelligent, social, and emotional creatures, but industrial processes subordinate them not only as lower life forms, but as machines.

On factory farms, cows are designated as numbers with no intimate connections to the owners who supposedly care about them. Cows are forced to eat feeds because there is nothing else offered. Or, if they do have the luxury of grazing in a cow-calf operation, they aren’t able to protest being whisked away from that life when they reach an acceptable weight to be finished on the feedlot. Cows are herded along by electric prods and directed to go into unnatural spaces that are unfamiliar. Cows are artificially inseminated to produce calves that will be weaned from them. The list goes on.

Once cows come to the feedlot, it’s like they’ve graduated from high school and moved on to college. Separated from their mothers, they no longer drink her milk or tag along behind; they move on to live with about 100-150 pen-mates in pens about the size of basketball courts, with thousands of neighbors living in adjacent pens. These conditions can be crowded and stressful, but the greatest efficiency is achieved when the greatest number of cows can be squeezed into the smallest spaces possible without killing them. Some go as far as comparing these conditions to concentration camps, hence the feedlot title, "Cowschwitz," paralleling the stench and animal imprisonment to what happened to so many European Jews, gypsies, gays, disabled folks and others during WWII.

While many feedlots are comprised of open-air fenced zones, many also provide some form of housing or shelter which can vary based on topography and climate. The first type are total confinement buildings which are often naturally ventilated with apertures in the walls. Beddings of hay or corn stalks on solid floors keep cattle dry. Some have slotted floors which manure drains through to a storage container below, however it’s not common because it could impact potential foot/leg injuries. In humid climates, the ground is often paved to minimize mud while in arid climates sprinklers are used for cooling and dust control.

Although because cows are pretty tough and in regions that don’t experience frigid, snowy winters, simple shelters will suffice. These types include open sheds and lots, or open lots with windbreaks/shades. These utilize strategic orientation and shading devices for cooling or protection from the elements.

Ultimately, providing these living conditions isn’t enough. Standards of waste management and air quality should be maintained in order for cows to be more comfortable and relaxed, regardless of confinement and the sheer number of animals being cared for.
too much shit to handle?
never.
On a small-scale diversified farm, manure would be a key player within an ecological feedback loop. Symbiotic relationships support the system. Cows eat meals of grass in return for helping grasses by protecting fields from tree/shrub growth and by spreading/planting grass seeds and fertilizing them with manure. The microbes and bacteria populations in cows’ rumens allow cows’ to digest roughage while being given nutrients and an ideal environment for their population growth. Cows turn roughage that humans can’t eat into proteins and amino acids for their own sustenance, but also provide humans with those key elements and energy into their diets when humans consume their meat and milk. Of course this system only functions effectively on a grass-fed diet, but nature and evolution has a way of working things out nonetheless. In this way manure can be a benign resource that turns literal waste into a valuable input that doesn’t cost a penny.

The U.S. alone is home to just under 100 million cattle and calves. Between 1-2 billion cattle inhabit the globe, whether they are used for meat, milk, or other. A gigantic population of cows translates into a lot of waste. For reference, a CAFO is identified as having 300+ animals, while a large CAFO has a head count of 1,000 or more cattle, with the largest maintaining tens of thousands head and some approaching 100,000. Due to the specialization of CAFOs that only “grow” cows/cattle, the ecological benefits of manure are worthless, leaving producers with more manure than they know what to do with. In 2006, the USDA estimated more than 335 million tons of dry matter waste (liquids removed) are produced annually on farms (of all sizes) in the U.S. alone. A more recent study estimates animal factory farms produce 500 million tons of waste per year. That’s three times more than the amount of waste produced by the entire human population. Depending on the size of the operation, a single farm or factory farm can produce a range between 2,800-1.6 million tons of manure per year. And, with world meat consumption on the rise, stock piles of manure can only be expected to multiply in size.

Various techniques have been adopted to deal with solid, liquid, or slurry (semi-solid) manure.

A common method is to create manure packs from bedding materials of straw, sand, wood shavings, recycled newspaper, and/or corn stalks. The manure packs are removed and spread onto cropland or pastureland as fertilizer. Solid manure storage generally consists of a structure with paved floors and walls on 3 sides so (preferably drier) material can be stacked and contained. Manure in liquid or slurry form is stored for at least 180 days. Pumps, transfer pipes, or channels move waste from animal housing to storage in either above ground concrete or steel tanks, or below-grade earthen or concrete tanks. Another popular method of liquid waste storage/disposal is waste lagoons that can hold up to 20 million gallons of liquefied manure. Lagoons are intended to kill viruses and bacteria through anaerobic and aerobic processes.

Manure is valuable for agriculture but not in excessive quantities and not when tainted with chemicals, antibiotics, disproportionate nutrients, etc. The division of beef food chain phases also inhibits the ability to use manure as fertilizer because producers don’t grow crops for animal feeds that could be fertilized with manure, or farms that could potentially use the resource are hundreds of miles away. This is why a large portion of the manure that has been treated in lagoons will get sprayed or buried nearby since there is nowhere else to put it. However, immense amounts of manure at any rate can lead to overflowing lagoons, or storage structures that leak at rates above legal limits. This can create a substantial mess and has a number of negative outcomes, especially as animal wastes are not given the same considerations as human waste which is well-managed and rather sanitary.

Stored manure, especially waste lagoons, become toxic social and ecological liabilities. The absence of strict government regulation enables lackadaisical waste management or disposal. Loopholes in laws, political lobbying, and weak enforcement allow factory farms to escape pollution regulations and penalties despite the incredible transformation of landscapes and communities that their negligence can cause. Consequently, the retail price of beef doesn’t include clean-up (environmental) costs or the costs of negative human health impacts.

(continue to pg. 34)
CAFOs impose a techno-industrial iconography, architecture, and infrastructure on natural landscapes. Even though identifying and quantifying the presence of certain types of contaminants in soil or water requires special scientific analysis, physical or ecological changes are visible evidence that something is threatening the environment. From an aerial perspective, feedlots are easy to pick out because of the barren, desaturated, dirt pens and lake-sized lagoons that are often juxtaposed to the greenness one would expect of rural settings. An overhaul of natural resources to fuel industry starts to signify a visible loss of scenic beauty. In this way, our surroundings can be significant indicators of toxicity or imbalance. However, city dwellers or others who live their lives removed from places like the Texas panhandle remain unaware of these landscapes and never witness them unless perhaps flying overhead in a plane from one coast to the other.

Yet, many of the most prominent consequences of poor waste management and the mere scale of CAFOs are not readily perceived or directly linked. The 60-80% of nutrients, salts, pharmaceuticals, and other compounds fed to animals that are excreted as waste and remain on site in lagoons or silos that leak, break, or overflow infiltrate soil, water supplies or groundwater, air, and even the foods we eat at a microscopic level. Manure is a source of ammonia, nutrients (nitrogen and phosphorus), pathogens, salts, trace metals, antibiotics, pesticides, and hormones. These microbes impact the health of ecosystems and humans.

A disproportionate quantity of elements like phosphorus and nitrogen (two of the most important elements for plant growth and therefore used in synthetic fertilizers) can lead to nutrient over-enrichment or eutrophication (explosion of algae that robs water of oxygen and kills aquatic life, thus reducing biodiversity). Runoff pollutes water, even the water people drink, with top offenders including: nutrients, pathogens, siltation metals, oxygen-depleting substances, and suspended solids. Livestock waste has polluted 35,000 miles of river in 22 states and groundwater in 17 states. Manure sprayed onto farmland as fertilizer adds more harmful substances to soil, air, or water at those locations, but more significantly toxins and diseases can work their way into the fresh foods we eat. Research has revealed that crops grown with the use of CAFO manure exhibit traces of harmful chemicals and pathogens within the plants themselves, unlike a coating of pesticide for example that can be washed off. As a result, not only are neighborhoods and communities within proximity of feedlots or CAFOs affected, so are countless others across the state, the country, or the world. Consuming toxins, carcinogens, antibiotics, or pathogens unknowingly can’t be good for public health.

(Also note air quality impacts discussed in Gastronomic Aromatics pg.06)

Once again, it needs to be stressed that changes must happen at a fundamental level within a complex food system. Factory farms are industrial facilities despite their objections or the deceptive pastoral images they advertise. Therefore, factory farms should be treated like industrial facilities and should be regulated as such with permits, inspections, and responsibility for monitoring, cleaning up, and disposing their waste products. The general public can also waive power in this situation. There are happy stories of communities that have already succeeded in stopping the invasion of new CAFOs in their vicinity. Greater transparency and raised awareness is a formidable step that can lead to alternative farming practices with less crowded animals and ways to handle wastes.
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- *fresh* water from the rivers of the Texas panhandle
- *enhanced* with nutrients and supplements to support a healthy body and mind
- no artificial flavors or coloring

**WATER +**

**DISPOSAL METHODS**

whether your waste is solid, liquid, or slurry, there is a disposal method that will work for you

- stack your solid waste and let it dry out in structures with three walls to contain it
- store liquid waste in massive tanks that never leak
- waste lagoons help to decompose your waste so you can continue filling them without fear of overflow and run-off into water supplies
- manure is a benign resource that fertilizes cropland or pastureland to support sustainable agriculture and cattle raising

**LIQUID | SOLID | SLURRY**

**FERTILIZER FOR CROP/PASTURE LAND**

**LIQUID TANKS**

Concrete, steel, earthen above-grade or below-grade

**LIQUID | SLURRY**

**WASTE LAGOONS**

Carbon dioxide, phosphate, ammonia, oxygen, sunlight, evaporation, gases, aerobic bacteria, anaerobic bacteria, sludge, algae

**LIQUID 3-WALLED STRUCTURES**

Waste lagoons help to decompose your waste so you can continue filling them without fear of overflow and run-off into water supplies

The BEEF magazine

35
BRINGING HOME THE BEEF

meet the muscles behind the meat packing industry
A few decades ago, meatpacking was one of the highest paid industrial jobs in the U.S.; despite dangerous, unpleasant work conditions, employees could earn a solid income. However, the meatpacking workers of today often live off of Social Security payments and struggle to make ends meet.

In a relatively short time, the meatpacking industry became centralized and concentrated, with the top 4 agribusiness firms controlling 85-90% of the market today compared to only 21% in 1970. This doesn’t help the cause for fair wages. One reason is in the 1960s, companies like Iowa Beef Packers (IBP) revolutionized the industry by opening plants in rural areas. Here they could recruit and exploit immigrant workers who are often illiterate and don’t speak English. Immigrant workers usually don’t challenge authority and are powerless-viewed as perfectly cheap and disposable laborers by profit-greed companies. Consequently, the need for skilled butchers and unions was virtually eliminated. Other companies had little choice but to adapt or go out of business, resulting in dramatic wage reductions and skyrocketing turnover rates. Though, quite frankly, how many people would be willing to do the dangerous tasks of industrial meatpacking for so little income?

It’s one matter to earn a low-income, but it’s another to earn a low-income while physically risking your life. According to Bureau of Labor Statistics, meatpacking is America’s most dangerous occupation. The plants where cattle are slaughtered are the most perilous because the animals vary in size, shape, and weight which means a lot of the work can’t be mechanized and must be done manually with razor-sharp or forceful tools. Some of the OSHA report headlines are horrifically shocking as if in the context of a horror movie:


These kinds of injuries and mortalities can happen in an instant due to simple errors and accidents. Workers feel obligated to keep pace with the relentless speed of the production line that involves heavy machinery, sharp knives, saws, or power tools, falling carcasses, slippery or unstable floors, etc. The golden rule is “The Chain Will Not Stop” because faster means cheaper means more profit. And, the production line is accelerating; in 1975, 175 cattle were slaughtered per hour compared to the current figure of 400 cattle per hour (or 7,000 calves and 130,000 cattle per day in U.S.).

Other injuries of trauma/reoccurring pain take a longer time to develop, but involve just as much suffering. Injuries like carpal tunnel syndrome or tendinitis are caused by several hours of repetitive motions performed every day as workers become part of the machinery. This can be caused by some of the more obvious tasks like hacking at carcasses or lifting loads/boxes, but also result from less suspected tasks like cutting with scissors. Poor environmental quality, particularly air, also leads to chronic diseases, especially respiratory diseases like bronchitis, asthma, or acute respiratory distress syndrome.

In 1999, more than 25% of 150,000 meatpacking workers suffered a job-related injury or illness, however data from injury reports is often falsified and workers are put back on the job as quickly as possible to minimize lost work days, so those numbers aren’t necessarily accurate. Slaughter/Packinghouse culture encourages hiding injuries and pain. For example, supervisors’ and foremen’s annual bonuses are tied to the injury rate of their workers, so they are discouraged to report injuries or seek out the plant nurse.

Tasks are simple, but there may be some blood involved.

"Jurgis has always been a loyal employee who doesn’t complain. He is fearless and has a strong, sturdy build perfect for applying power. As a result, he has taken on some of the most difficult tasks along the production line became so proficient that he served as a floater and we moved him on to more challenging tasks. Overall, Jurgis has contributed tremendously for over two decades and intends to work here at IBP for the rest of his career."

*since the time of the first interview for this recognition, Jurgis Rudkus has been fired from IBP; no comment on the reason*
the chain NEVER stops.
will you pass inspection?

conquer the hazardous realms of the meat packing industry to feed the world before everyone starves to death!

speed | blood | stun-guns | livers

slaughterhouse
Self-insured agribusinesses will do whatever possible to delay or avoid medical payments because those costs are subtracted from profits. When a worker is injured at IBP s/he has the option to sign a waiver stating s/he will not sue IBP in order to receive immediate medical care by company-approved doctors (for life). Otherwise the individual loses all medical benefits. The other option is to not sign, risk losing your job, pay your own medical bills and file a lawsuit that you may or may not win. Needless to say, most sign the waiver. But, even if a person signs, it doesn’t guarantee s/he won’t get fired; workers with disabilities lose value. Thousands of workers mistreated and discarded due to no fault of their own, having done everything ‘right’. Yet most workers have little to no value in the eyes of the corporation anyways regardless of loyalty, consistency, or quality of work. The OSHA fine for the death of a worker is $70,000—a marginal sum for companies with annual revenues measured in tens of billions, and probably an amount less than what it would cost to cover most surgeries/treatments or lawsuits.

An alternative to this unfair treatment and horrific work conditions would be to let workers select their own physicians instead of having to use biased company-selected ones. Another positive change would be to not permit meatpacking companies to insure themselves as higher premiums would force them to take safety issues seriously for once. Overall, these disturbing scenarios, here not about the treatment of animals, but of humanity itself, continue due to lack of general awareness or outrage.

“It is in our best interest to take care of our workers and ensure that they are protected and able to work every day,” says Janet M. Riley, a vice president of the American Meat Institute, the industry’s trade association. “We are very concerned about improving worker safety. It is absolutely to our benefit.”

make the MOVE while property values are LOW only $149,978
beef cattle have the privilege to traverse the globe
Just like humans, cattle have places to go and different ways of getting there. In commercial agriculture, cattle need to be moved for a number of reasons including: marketing, going from ranches to feedlots to slaughter, re-stocking, change of ownership, or relocating in times of drought for example. Typically, the animals travel by hoof, road motor vehicles, rail, and ship. Currently the multi-billion dollar live export trade is increasing, especially in Australia and New Zealand.

The most common and versatile mode of cattle transportation is by road. With the Federal-Aid Highway Act of 1956, people and goods can be distributed rather quickly and directly. Cattle and other livestock are no exception, especially when they are regarded as future commodities, packed into trucks like cargo.

Transportation vehicles should take the well-being of animals into consideration. First, it’s just common sense that only cattle who can endure the journey should be loaded (i.e. not sick, pregnant, or injured). Transportation should be scheduled for when temperatures are cooler in early morning or at night. The shortest and most direct route is also preferred. There should be sufficient ventilation, non-slip floor surfaces, proper drainage and waste management, and protection from sun or rain. Cattle should also be able to stand comfortably without being overcrowded. For full-grown cattle the ideal floor area per animal is 1-1.4m². If there is extra space, partitions should be added to keep animals from being thrown about. Additionally, cattle should not be tied up and require turning every 30 minutes or so. Finally, cattle should also be familiar with other animals on board so they aren’t strangers and apt to get rowdy. However, these measures are not always followed.

When producers and distributors are negligent, and even if they are careful, transportation is the most stressful and injurious stage in the food chain for cows. The effects are disturbing and numerous including: trauma, lacerations, broken bones, bruising, trampling, suffocation, dehydration, exhaustion, heart failure/stroke, heat stroke, bloat, weight loss, etc. Additionally, when cattle from different herds are confined together for long periods with poor ventilation and increased stress, it creates breeding grounds for infectious diseases, leading to viral outbreaks. It’s puzzling to think about how this cruelty persists despite carcass devaluation and thus, loss of profit.

Sea vessels for transportation are designed to carry 900-1600 cattle for up to as long as 5,000km. In 2012, hundreds of cattle loaded on a freighter ship en route from America to Russia were trapped in what critics referred to as a ‘torture chamber’. The animals were lying in several inches of filth from their own manure and urine. The cargo spaces were so inadequately ventilated that hundreds of cows died from the toxic levels of their own copious ammonia emissions. Hundreds more perished shortly after docking from trauma incurred on the trip. The instance led to outrage and requests to ban international live animal trade until better safeguards could be put in place.

Due to the controversy of livestock transport, some could argue that dead animals should be shipped instead. However, this would demand significant changes with the current highly centralized system in which the phases of slaughter and processing/packing take place at massive scales in few locations. A more localized approach would be economically inefficient for the big names in the industry. Transporting butchered meat would also call for more refrigeration. In contrast, live animals can move with their own power which makes loading and unloading much easier and they won’t spoil (but they just might contract infectious diseases that will make the consumer sick anyways). Others still, argue that animals should never have to travel long distances at all. This would favor a more localized approach, but again would involve changing fundamental components of an industrialized food system which would take considerable time.

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- Bulls Eye Dispatch
- Har Livestock Dispatch
- Jak Trucking, Inc
- Broken Spoke Dispatch, LLC
- Prime Time Express
- Brian @ Beefcorp
- Crossroads Cattle Company
- Mark Hohenberger
- Fuller Trucking And Feedyard LLC

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CONSUMPTION: United States

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7,125 miles
11,425 miles

37,835 miles from farm embryo to fork

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exclusive sneak peek preview
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EATING TO
BE EATEN

534
MY LIFE-LONG JOURNEY of 16 months

1 COW-CALF OPERATION

MARCH 13th

I’m No. 534. I am a baby born in a barn, stocked in a stall, and raised from just a few weeks old. My mother is No. 10,534. She fed me milk and taught me to eat grass. In the beginning, the environment was too cold, and I needed to be kept warm and fed. My mother is No. 9,534. She feeds me milk and taught me to eat like a champ. Besides, she’ll have my true weight-gaining potential now that my rumen has been developed and I can eat like a champion.

OCTOBER 13th

Freedom! Weaning is on the horizon. I am to be left on my own to feed and find my way around. I am growing fast and my weight is increasing. I am now ready to be weaned and moved to a feedlot where I will be fed grain and supplements to help me reach market weight.

NOVEMBER 13th

Lessons at Feedlot Prep

I am now ready for the next phase of my development. I have seen the feedlot where I will be eating and training. I am growing fast and my weight is increasing. I am now ready to be weaned and moved to a feedlot where I will be fed grain and supplements to help me reach market weight.

DECEMBER 25th

This last month I’ve been a weight-gaining machine. I am on my way to Kansas where I will be on a diet of alfalfa, and I will be eating like a champ. I am growing fast and my weight is increasing. I am now ready to be weaned and moved to a feedlot where I will be fed grain and supplements to help me reach market weight.

TRANSPORTATION

JANUARY 4th

Driving Down the Interstate

I am moving to Kansas. The journey is long, and the drive is slow. I am on my way to Kansas where I will be chewing and eating to be eaten. I am growing fast and my weight is increasing. I am now ready to be weaned and moved to a feedlot where I will be fed grain and supplements to help me reach market weight.

2 FEEDLOT

JANUARY 5th

I eat, I sleep, I eat... I am at the feedlot now. I am eating a diet of alfalfa, and I am growing fast. I am eating like a champ. I am growing fast and my weight is increasing. I am now ready to be weaned and moved to a feedlot where I will be fed grain and supplements to help me reach market weight.

JUNE 13th

On the Road Again

I am on my way to Kansas where I will be chewing and eating to be eaten. I am growing fast and my weight is increasing. I am now ready to be weaned and moved to a feedlot where I will be fed grain and supplements to help me reach market weight.

JUNE 13th

Slaughter & Meat Packing

I am ready to be slaughtered. I am on my way to Kansas where I will be chewing and eating to be eaten. I am growing fast and my weight is increasing. I am now ready to be weaned and moved to a feedlot where I will be fed grain and supplements to help me reach market weight.

What happens next?

IT’S PRETTY.

for more resources & information...

READ ON

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the BEEF magazine

45