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Behind the Curtain: A Look into Food Production in the United States

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Behind the Curtain

A Look into Food Production in the United States

By

Placido Edward Martinez

A thesis submitted in partial fulfillment
of the requirements of the University Honors Program
University of South Florida St. Petersburg

April 21st, 2015

Thesis Director: Janet Keeler
Food Columnist, Tampa Bay Times
Professor, Journalism and Media Studies Department

University Honors Program
University of South Florida St. Petersburg

CERTIFICATE OF APPROVAL

Honors Thesis

This is to certify that the Honors Thesis of

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Curiosity Killed the Cat

Strictly academically or resume speaking, I am not qualified to write this. People discount me and college students like me all over the world because of these things, but I have something much more important to the writing process than formal education and hours spent in a classroom. I'm curious and I care. I'm not an environmental science major and I'm not aspiring to become a farmer. Through everything I've seen I know that changes need to be made, and however unlikely I am to be writing this, makes it all the better.

My friends and family look at me with shock and disbelief whenever I tell them of the self-discovery that lead me to be a vegetarian, aspiring vegan. This past year has changed me a lot and many friends and family can't decide whether or not it's for the better, but I know it is. According to my mom I've always been a "health-nut" as she would say, but never to where I would shy away from food, especially the focal point of any American meal; Meat. Except for these past few months where I am becoming increasingly picky about everything I consume. I love food and everything that food has the power to give us from culture, to nutrition, to the sheer joy of creating something out of nothing, but we have to look beyond just the food.

I cooked a lot when I was young, I still do, but not nearly as much or as extravagantly simply because I see things differently now. I took pride in being able to make something that you could be so indifferent to into something so playful, so inspired, so loving. I never made the same meal twice. I was too curious and I felt it would make that meal insignificant. I had a true passion for cooking, I still do, but it has changed in a similar way to how I have changed.

Fast forward to my senior year of high school, after the football season was over. My gallbladder failed. It just stopped working, and overwhelming pain followed shortly after every meal. The Gallbladder's main function is to pump stomach acid into your digestive tract at the beginning of the digestive process. This massive surge of bile helps break down large amounts of food before it even gets to your stomach. In other words, not having one can make you very conscious about what and how much you eat, and for someone raised a protein guy and a carnivore, it made things a little difficult.

Without a gallbladder, my entire outlook on eating and nutrition changed, as it still does with every piece of information I find, and as I hope yours does as you read this book. Right after my gallbladder was removed, I realized something about the American diet as it is today, we eat a lot. And not just a lot during one meal. We eat a lot in every portion, in every meal, three times a day. Without a gallbladder I found it hard to continue that style of eating but weightlifting season was right around the corner, I wasn't strong enough and I needed everything in my diet to help me get stronger in, so I decided to just break up the meals throughout the day. Without the three massive meals, I figured my body could handle the same amount of food. The only issue is while the amounts may have changed, the content stayed the same.

A funny thing about pain, when it proceeds a physiological need such as eating, you tend to look toward solutions, and that is exactly what I did when after changing how much I ate still affected me as bad as it did. I thought maybe getting healthier and losing weight might help. Weightlifting season was over and for the first time in my post-pubescent life I was able to do with my body as I so choose. No more having to run

sprints all the time while simultaneously attempting to gain weight. Even better, I was headed to college, so for the first time I had control over my habits of consumption.

When growing up, you don't have a ton of input over your own consumption habits, when and how you eat, your parents do. As you get older you might get to decide when you eat dinner or if you go out with friends, but the majority of your consumption habits are determined based on whoever is buying the groceries and cooking the meals for your household. Growing up we weren't the too well off and a lot of the time our grocery buying consisted of the cheapest food we could get. Anyone who has had to buy food on a tight budget knows, that is not always a good thing in terms of nutrition. While I attempted to gain weight and get as much protein as possible in these years, it didn't work out too well, but when I left for college that changed.

Going into college everyone warns you about the Freshmen-Fifteen, the infamous gaining of weight after your first semester at college, as if it is inevitable. I was determined to be the exception to the rule. I finally had the cards stacked in my favor, I felt that I finally had what I needed to control my own destiny as far as nutrition and the choices I make about food and that I could create the level of health that I wanted. In that first semester I went home having redefined what was meant by the freshmen-fifteen. Instead of gaining fifteen pounds, I had lost twenty.

I've tried several different diets in my search of nutrition and attempting to lose weight. I've tried just general health food, to eating whatever you want and just working as hard as you can in the gym, to the Paleolithic diet (Also known as the caveman diet, no grains or legumes, just meat, nuts fruits and vegetables) to cutting out

red meat, no dairy, no meat or a vegan diet (for the record, everyone is different but losing weight is a combination of strict diet and exercise, no way around it). With all of this toying with my diet, and trying to find one that works, nothing helped me quite so much as viewing another countries take on diet and food production.

Japanese food production is systematically different than that in the United States, the main difference being that in Japan they actually have rules and regulations that matter about food production, most notably in the beginning states. In the United States you see these niche markets of people who truly care about labels such as non-GMO or gluten free, or organic so on and so forth. In Japan there is no niche market like that. They don't even have labels that identify that stuff. Because all food in Japan falls under the majority of these categories. Everything is non-GMO. Everything is organic. Everything is free-range. And you can see it in their population. The average Japanese adult is much healthier than the average American. During my time there in 2013, I never saw an obese Japanese person. Not one. Try doing that in America. In my mind these two things had to be correlated.

This resurgence of health in my own life has opened up my eyes to the world of food production, and the many aspects that are shocking. This is my look on how we can learn from the past and change that, change food production and our everyday choices, and how our current decisions of what we eat are creating the health of America we see today. I am not a scientist. I don't study agriculture or biology. I don't have a background in any of this. I have a genuine interest in it. This is a culmination of research, observations and experiences. This is not a plea to change the world, to make

everyone a vegan or to abandon the overall culture in the name of food, but instead my own personal guideline of what I've seen.

Part One – Agriculture

In modern agriculture, there are three main ways of growing crops. There is Conventional Agriculture, Genetically Modified Crops, which tends to be more science than agriculture, and Organic Agriculture. Unless someone has done the research behind what they are buying, they are unaware of how their product was grown or produced and to them, food is food. The truth is that the way that our food is cultivated has a tremendous effect on our nutrition, taste of the produce themselves and the environment as a whole. The problems with identifying the different types of agriculture lay in the policies behind what identifies them as so. At times it may seem that these labels, where the labels are official, may be arbitrary, but even in the muddy waters of identifying agriculture there is a way that consumers can make better choices.

Conventional Agriculture

- **The simplest way to farm; Allows for the use of synthetic chemicals such as fertilizers, pesticides, and herbicides;**

The majority of the produce sold in stores is conventionally grown. The use of fertilizers, pesticides and herbicides allows for a much larger crop yield due to reducing the amount of competition for the land, killing off most or all potential threats and providing the exact nutrients needed for whatever crop was being grown such as nitrogen for beans. By liberally spraying their fields with pesticides and herbicides, the conventional farmer takes eliminates bugs that could eat their crops and any nearby weeds that are growing too close to their precious produce. Some of these chemicals are dangerous ones, but conventional wisdom says we can just wash off all those nasty chemicals and have delicious, nutritious, conventionally grown produce in abundance. The truth is that all of these chemicals are dangerous in some way shape or form. As much as people believe them to be safe, they just aren't. They can have lasting effects on our health and using them in the amount that we do has serious effects on the environment similar to that of using fossil fuels, only in different ways.

Fertilizers, pesticides and herbicides seem like they are no big deal at first glance. Chemicals have been used for decades and people eat them all the time without falling over ill, so nobody bats an eye. The problem is that these chemicals we ingest do not cause short term illnesses you can see in a couple days. Repeated exposure to these chemicals and years of consuming them unknowingly is what causes problems, and the problems are more severe because of it. In this swipe, like, tap culture that demands immediate satisfaction we don't see or care about the long term effects, but if these chemicals caused a stomach virus the news would be all over it.

The Environmental Protection Agency (EPA) has discovered many pesticides to be carcinogens (i.e. they cause cancer, many different kinds). There has been a

substantial link between conventional farmers that regularly sprayed their fields with these chemicals and diseases such as brain cancer, Parkinson's, Leukemia, Lymphoma and many others. Now most of us are not farmers that live around chemicals all day, but the average person does consume the same crops that same farmer was spraying on and no amount of washing can get rid of all of the pesticides. They seep into our produce, slowly poisoning you over time. The actual amount of carcinogens is minimal according to many health officials and it would still be better for you to eat the fruit or vegetable than to not.¹ That being said the overall cancer rate in the United States has been holding steady over the past 40 years, ranging between 410 and 500 new incidences of cancer people per 100,000 people.² This is despite continuous medical advances that would seemingly lower cancer rates. Part of the answer of these strong figures lays in the produce we eat on a daily basis.

Pesticides are commonly found in almost all conventionally grown crops, most notably on fruit and vegetables. With almost everyone in the United States eating pesticide-exposed produce, it's a wonder that problems have not affected us sooner. Recent studies have shown that the increased ingestion of these pesticides is having an effect on future generations. While in our lifetime we can be at risk for cancer and later life diseases, future offspring can be at greater risk for ADHD and diminished IQ due to the effects it can have on their nervous and brain system development during pregnancy.³ While one or two cases can be argued as not being too harmful, we need to look at the societal problems at stake. We have a country whose produce is

¹ "The Problem with Pesticides." The Problem with Pesticides. Toxics Action Center, 2012. Web. 1 Apr. 2015.

² "Cancer Facts and Statistics." Cancer Facts and Statistics. American Cancer Society. Web. 2015. .

³ "The Problem with Pesticides." The Problem with Pesticides. Toxics Action Center, 2012. Web. 1 Apr. 2015.

dominated by conventional agriculture. If that conventional agriculture has the ability to diminish future generations rather than lift them up, why would we continue to rely on it?

While the physical effects of conventional agriculture are disputed by many, the effects on the environment are not so easy to set aside. As seen in “The Third Plate” by Dan Barber, a renowned chef, organisms and agriculture have a beautiful way of overcoming obstacles, as seen with the organic wheat grown on Barber’s farm that continues to advance in taste and nutrition.⁴ Instead of allowing nature to run its course and the evolutionary trend to continue to give us better produce, we found a more efficient short-term solution. With the growing population, conventional agriculture gave us abundant food resources to allow everyone to have the option to lead a healthier lifestyle. The problem is that in order to achieve this, farmers had to pump the soil full of foreign substances (i.e. herbicides, pesticides and fertilizers). The short-term effects were exactly what was needed. The long-term effects were unforeseen. Because of nature’s amazing ability to overcome obstacles, nature has invariably overcome the herbicides and pesticides that were so helpful to us before. Weeds and insects are becoming immune to the very things that we used to use to kill and prevent them, which is both damaging our crops and forces us to use more of these chemicals; the use of which has doubled between 1931 and 1997.⁵ This heightened dependence is creating a vicious cycle. American farmers start using pesticides, and the weeds and bugs and diseases overcame them, so we start using more to overcompensate. This does the job for a little while until the pests overcome them again and we have to up the dosage a

⁴ Barber, Dan, and Inc OverDrive. *The Third Plate*. S.I.: Penguin Group US, 2014. Print.

⁵ Singer, Peter, and Jim Mason. *The Ethics of What We Eat*. Melbourne, Victoria: Text Pub., 2006. 204. Print.

third time. While we continuously increase the chemical use in our food, it seeps in further causing more damage to the population as a whole.

As all of this is going on, our bodies and the crops themselves are not the only things being affected; these chemicals do not stay in the soil where they are originally introduced. These pesticides, herbicides and fertilizers run off into the environment and do even more damage.⁶ This is called runoff. As in, these chemicals “runoff” into other soil, forests, water reservoirs, lakes, rivers and oceans. Instead of just polluting our food and wrecking our bodies, we are pumping this excess nitrogen, hydrogen, arsenic and other “crop-boosters” into environmental areas that are too delicate to adequately handle excess anything. By doing this, we pollute the water supply, surrounding wildlife, and oceanic life. This kills countless creatures and organisms that we can no longer consume because the increased chemicals make them even more dangerous to eat than the original produce that was grown using those pesticides. And all of this was to make agriculture more efficient.

⁶ Kellogg, Robert L, Richard Nehring, Arthur Grube, Don W. Goss, and Steve Plotkin. "Natural Resources Conservation Service." Environmental Indicators of Pesticide Leaching and Runoff from Farm Fields. 1 Feb. 2000. Web. 2015.

Genetically Modified Organisms

- **Crops whose DNA and genetic makeup have been altered at the simplest genetic level in order to serve a specific purpose.**

Genetically modified organisms were developed to enhance and benefit conventionally grown agriculture. Their purpose was to feed as many people as the Earth could hold. Back in 1973, when DNA in plants was first modified, scientists knew the potential problems that chemical use in crops posed. Their idea was to create crops that were more resistant to the threats that could destroy entire fields. These altered crops were supposed to survive drought or monsoon, heat or freeze. They were designed to live and thrive and be healthier despite heightened amounts of herbicide, pesticides and fertilizer. Genetically modified crops were going to be better versions of conventional crops using the same techniques. They were going to be healthier for consumers and last longer before spoilage. These crops would bring baskets of produce into every home while giving struggling farmers more produce to sell, in turn, helping them feed their families. Genetically modified organisms would solve the problems and shortcomings of conventional agriculture. Science was going to feed us.

Compared to the slower advances in agriculture before it, the GMO movement came like a gunshot. 1973 was the first year that Harvard graduate students in the biology program began to modify the DNA in plants. Seven years later the first patent for genetically modified organisms was issued and in 1982 the Food and Drug Administration (FDA) determined that GMO's were safe enough to use in pharmaceutical drugs.⁷ In only nine years, modifying organisms at a molecular level went from a pipedream to safe.

⁷ "GMO Timeline: A History of Genetically Modified Foods - GMO Inside." GMO Inside. Green America, 10 Mar. 2013. Web. 12 Apr. 2015. .

The first approved genetically modified organism for sale and use was Humulin, an insulin crossed with E. Coli that was developed to use less insulin for better accuracy, better results and a safer dosage. Twelve years later the first genetically modified food hit the shelves of grocery stores everywhere, a tomato. Flavr Savr was developed with a prolonged shelf life, allowing them to survive longer distances and commute from the farm to the store for days.⁸ This allowed the tomato to be enjoyed in stores farther away from the farm, with less waste.

After the initial Flavr Savr tomato, the potential for more crops to be modified and made profitable was realized. Since then there is an abundance of modified foods in our aisles, most of which the majority of consumers know nothing about. Efforts to have genetically modified products labeled have failed, and thus they sit in the isles next to any other product or produce. Now you can hardly find an ear of corn that hasn't been molecularly altered. Soybeans have gone the GMO route. Potatoes are no longer what they were 20 or 30 years ago. In turn this seemingly scientific breakthrough has turned these into affordable staple foods. Corn is a go-to vegetable in cans, on the ear, or in many products such as corn flakes and corn syrup to sweeten our everyday food and drink. Potatoes are in almost every meal if they are fried, mashed, hashed or baked. Soybeans are a go to protein source for a vegetarian and vegan population that is growing. Soybeans can be found as soymilk (which is gaining popularity with all consumers concerned with their health), tofu, and sofritas. These three foods are staple foods all across the nation and they are increasingly being genetically modified in a big way.

⁸ "GMO Timeline: A History of Genetically Modified Foods - GMO Inside." GMO Inside. Green America, 10 Mar. 2013. Web. 12 Apr. 2015. .

Genetically modified organisms first started appearing in stores roughly 20 years ago, and now they are making up the backbone of what many of us eat. On the surface, GMO's are aligned as the new age way to make food, the perfect way to sustain our population. The problem is the uncertainty that surrounds many of these products, and the actual way they are being produced as a result.

Two years before genetically modified crops reached a stunning 100 million acres in the United States, across the Atlantic things were not going as well for these scientific foods. In 1997 the European Union saw the threat and dangers that genetically modifying organisms could potentially cause, and as a result passed a law requiring GMO foods to have a label stating them as such.⁹ This mass labeling is a testament to the uncertainty that is poised from altering our food at such a molecular level. How will our bodies react to digesting an unnatural product, even if the product is barely modified? After decades of conventional farming we are only now starting to see the widespread effects. There is no way to know how genetically modified organisms can affect us or the generations after us without letting the time tell, and yet with all of this uncertainty our society bases the backbone of the majority of our food on these altered foods simply because of its decreased cost. What we do know are the dangers of conventional agriculture, and we can compare the two.

The purpose of genetically modifying these crops is to make them easier to cultivate by withstanding pests and weather fluctuations. The easiest way farmers know how to cultivate and grow crops is by using chemicals with conventional agriculture as

⁹ "GMO Timeline: A History of Genetically Modified Foods - GMO Inside." GMO Inside. Green America, 10 Mar. 2013. Web. 12 Apr. 2015. .

we discussed earlier. The problem is nature is catching up to our chemical use and reducing their effectiveness, killing off the food we are hoping to consume before they are even ripe enough to pick.¹⁰ Because these chemicals are seen as the easiest and most profitable way to cultivate, instead of reinventing the wheel these scientists aim to modify these plants to make chemical use more effective. In essence the main focus of altering the plants is to make them survive under heavier and heavier chemical use. Increasing the amount of chemicals we can use in plants instead of eliminating them is like building a faster horse instead of switching to the much more effective automobile. In our case if we do not change the way we cultivate then we are doomed to poison our society faster, only increasing the amounts of disease, cancer, and birth defects in the process.

With conventional agriculture, farmers could use a normal amount of chemicals before the chemicals started to alter the crops; with genetically modified crops we are able to dump on as many chemicals as we want until we get the desired effect, with much of these chemicals seeping into the plants themselves. Even if genetically modifying these crops can give them better nutrition, it does not outweigh the long term effects of the chemicals consumed, and the diseases that will invariably follow over the course of our lifetime.

Apart from the enhanced dangers to the land and long term effects on our bodies from chemical use, genetically modified organisms have much more horrifying problems. Preliminary trials of many of these crops show the horrors of genetically

¹⁰ Kellogg, Robert L, Richard Nehring, Arthur Grube, Don W. Goss, and Steve Plotkin. "Natural Resources Conservation Service." Environmental Indicators of Pesticide Leaching and Runoff from Farm Fields. 1 Feb. 2000. Web. 2015.

modified food, but after years of testing they've gotten rid of many short term effects to make the FDA allow them on the market. Some of these early genetically modified crops include potatoes that destroyed the digestive and immune systems of rats. Genetically modified corn originally caused kidney failure in the animals that consumed it. Hamsters that ate genetically modified soy became infertile and had significantly shorter life spans.¹¹ All of these trials were done over a short time span and had significant effects on the bodies and life spans of these creatures. None of these creatures consumed the genetically modified products over the course of generations to see the possible effects it had on future offspring. If the increased ingestion of chemicals can cause cancer and disease while these creatures are suffering from total organ failure after eating such products, why would you risk the possible effects of eating Frankenfood?¹²

¹¹ "Institute for Responsible Technology." - 65 Health Risks of GM Foods. Institute for Responsible Technology, 2014. Web. 2015. .

¹² "Information to Ensure a Safe, Healthy, Sustainable Food Supply." Scientist: GM Food Safety Testing Is "woefully Inadequate". The Organic & Non-GMO Report, 2009. Web. 2015.

What is Monsanto?

- a publicly traded American multinational agrochemical and agricultural biotechnology – Last reported net worth of \$54 Billion (2014)¹³

¹³ Langer, Eli. "New Highest-net-worth Selfie: The \$1 Trillion Shot." CNBC. 29 Apr. 2014. Web. 1 Apr. 2015.

Monsanto is a name that is thrown around a lot among people who are anti-GMO but it seems that most people are not aware of what Monsanto actually is. Monsanto is accused of many wrongdoings such as intentionally poisoning food to regulate population growth. Some think that Monsanto is embodiment of evil that controls the big corporate machine that American food has become by being a blanket company that controls Coca-Cola, Nestle and PepsiCo among many others. The conspiracy theories become crazier and crazier the more people who begin discussing Monsanto, but that's what happens when you become as large of a company as Monsanto is without being in the public eye.

Today's Monsanto is a seed company.¹⁴ It does not own all of the fortune-500 food companies, but it is the beginning force behind many products that we consume. Monsanto manufactures seeds for a large portion of farmers all across the United States. Their main business model is to promote scientific development to make seeds perform better under worse conditions. Because of this, the majority of Monsanto's products are GMO as it produces about 90% of America's Genetically Modified Seeds. Monsanto's genetically modified plants produce more abundant crops at a cheaper price, bringing in many companies support in the process. It is now behind in some way, shape or form approximately 70% of all processed foods that Americans consume.¹⁵

Even with Monsanto's thriving business and recent dominance behind the processed food industry, the seed and crop industry was not its initial claim to fame. Monsanto's history is partly to blame for all of the conspiracy theories and horror stories

¹⁴ "Latest Headlines ." A Sustainable Agriculture Company. Web. 2015.

¹⁵ Sacerich, Robert. "What Percentage of US Foods Are Grown With Monsanto Products?" The Rationality Unleashed Project. 12 Aug. 2014. Web. 1 Apr. 2015.

surrounding them today. In the early 1920's Monsanto was founded as a chemical manufacturer. The first products that they started to sell were Sulfuric Acid and Polychlorinated Biphenyls, also known as PCBs, now a banned carcinogen. In the 1940's Monsanto was approached to be a part of a controversial government project that was seen as a necessity. It's chemical background made Monsanto the driving force behind the development of the first atomic bomb with the Manhattan Project. Several years later it's chemical expertise once again came in handy as they worked with the United States government to create Agent Orange, a herbicidal chemical used to destroy the majority of foliage and crops during the Vietnam war. As a result of the widespread use of the herbicide, approximately 3 million Vietnamese citizens suffered illnesses and various injuries to infected areas.¹⁶

The development of Agent Orange began Monsanto's big step into agriculture. In 1983 it became the first company to modify a still living plant cell. Monsanto's development of the hyper potent Agent Orange allowed them to create a scaled down version that became the original Round-Up herbicide. As most businesses do, Monsanto looked for ways to make their products complement each other and so they began to modify crops to be more resistant to Round-Up herbicide. This allows them to use either more Round-Up or a more potent version in order to kill the surrounding plant life without harming the crop in order to produce more sellable produce. This sounds like a great plan in order to use more chemicals on our crops and to a certain extent boost crop yield, but in reality this is merely a band aid for the problem. It still does not solve the problems that conventional agriculture brings us, instead boosting those ill-

¹⁶ "Timeline: Monsanto's Chemical Romance." Earthjustice. 10 Feb. 2015. Web. 2015. .

fated side effects. The more chemicals we use on our crops, the more chemicals we ingest and the faster the carcinogens take over our body.

The worst part of it for farmers and the public becomes the best part for Monsanto. The crops it develops are more resistant to herbicides than the current threats, but nature's ability to overcome will quickly catch up. This forces more chemical use and the need for more heavily modified crops made to stand up to these harsh conditions. This vicious cycle means that as time goes on, farmers will be more dependent on Monsanto as farmers are continually forced to buy more seeds and more herbicide. This dependence on Monsanto is great for their business model, but it is horrible for our nutrition and is killing American farmland similar to how Agent Orange did in Vietnam decades ago through polluting the crops the same way that conventional agriculture over time takes a toll on crops.

Monsanto continues to develop more and more products, usually new variations and strands of crops. One of their newest products is the NewLeaf Potato and the NewLeaf Plus. These potatoes naturally produce the Bt Pesticide in order to make it resistant to certain species of beetles while the NewLeaf Plus has the added benefit of having different strands of the Bt trait so it is more resistant to the Potato Leaf Roll Virus.¹⁷ These new strands of potato are controversial because of the health problems that can be associated with them. There is already evidence supporting the link between several diseases and physical harm with pesticides and herbicides seeping into our produce when it is sprayed regularly in the fields. Genetically modifying these

¹⁷ "Biosafety and Health." Potato Gene. Web. 2015.

crops so that they naturally produce these chemicals seems to be a good way to amplify these effects and harm the body even more.

Monsanto is a business and because of that it cares about their profit margin and the bottom line. This is not necessarily bad; it's a principle that American Society and Capitalism is largely founded on. However this chemical manufacturer has gone into a market that can have long term effects on the overall health of the United States, all in an effort to grow their profitability. On Monsanto's website they say that they strive to make a better tomorrow for the American Farmer through more profitable agriculture practices and to make food more affordable for the average person. This is a good short term goal with disastrous long term effects. Monsanto's rise as a large provider of food across America is a testament to these short term goals, but the evidence shows that we are headed in the wrong direction. If Monsanto continues this routine of modifying crops in order to increase reliance on chemicals they may grow large enough to practically monopolize agriculture, taking American health along with it. As of now if you buy products from PepsiCo, Quaker, Jiffy, General Mills, Betty Crocker, Procter and Gamble or Unilever among a plethora of others, you are supporting Monsanto and the vicious cycle they have created.¹⁸

¹⁸ "Printable List of Monsanto Owned "Food" Producers." REALfarmacycom. 29 May 2013. Web. 2015.

Organically Grown

- **Agriculture that relies on techniques such as crop rotation, green manure, compost and biological pest control. Uses only natural fertilizers and pesticides. Limited methods for reasons including sustainability, independence, health and safety.**

“Once upon a time, everything was organic” – Suja Juice Motto.

Organic farming is the safest of the three types of agriculture in terms of how natural it is grown and that it is chemical free. The purpose behind organic agriculture is to grow and cultivate crops in the most natural way possible. Organic agriculture allows nature to take its natural course. Organic produce progresses and evolves today the same way it has over thousands of years. As seen in *The Third Plate*, farmers who are dedicated to using organic methods take the time to pair crops that are mutually beneficial in order to let their natural vitamins and minerals take root and promote their growth rather than using artificial fertilizers.¹⁹

When taking a deeper look into organic farming practices, it is nothing short of amazing compared to the shortcuts taken by conventional and genetically modified crops. Organic farming plays on the natural occurrences and biological systems that plants have been doing for hundreds of years. Organic farmers determine how the crops naturally grow and under what conditions they grow best, and they try to mimic those conditions to their advantage. These natural methods make the crops easier and better for our bodies to ingest by reducing the oxidants thus helping people live a healthier life.

While it is difficult to measure nutritional content between crops given how it will differ because of soil content, sun exposure, water and countless other factors, there are studies that show that organic produce has more vitamins and minerals that our bodies need than conventionally grown or genetically modified produce. Nutritionists agree that in order to be truly healthy and give your body what it needs to function properly, organic agriculture is the way to go. The healthiest diet for the majority of

¹⁹ Barber, Dan, and Inc OverDrive. *The Third Plate*. S.I.: Penguin Group US, 2014. Print.

people is a raw, vegan, organic diet of fruits, vegetables, nuts and small amounts of grain.²⁰ The ability to keep a diet similar to this in today's culture is near impossible, especially in the United States. Even though the ideal diet is difficult, by switching to a full or mostly organic diet your body begins to get more of the vitamins, minerals and other nutrients it needs. The good news is that organic food isn't just better for your body, but it also tastes better.

Organic food is healthier, that's great. What's going to resonate more in people's minds is the fact that it actually tastes better. Organic agriculture, because its more natural, has a more authentic flavor than conventional or genetically modified agriculture. Also conventional and genetically modified crops are largely trying to homogenize the species of crop in order to keep it more uniform and sell them in a more bulk and unified way. With organic agriculture being more natural, the species of whatever is being grown will naturally diversify and adapt making the species stronger, but also creating a varied range of taste. A large part of *The Third Plate* was the finding of several species of plants that were previously thought of as lost. Corn that was lost over 100 years ago, strands of wheat that produce the most flavorful bread and peaches so exotic and juicy that they are a dessert all on their own are just a couple of the examples given in the book. The most measurable example of them all is that of their carrot that scored off the charts in terms of Brix. Brix is the compound that measures the sugar content and therefore the sweetness in carrots and other produce. More Brix makes for more flavorful produce. While most carrots bought in the store

²⁰ Food Matters. Passion River, 2009. Film.

score low, sometimes as low as 0.0, the carrot that Dan Barber finds comes in at 16.9 Brix, unbelievable for a carrot.²¹

In 2009, tomato plants were sent out all across grocery stores in the Northeastern United States. Unbeknownst to everyone, a fungus called Late Blight, which attacks tomato and potato plants, was already on several of the plants. This fungus wiped out all of the tomatoes in the region for weeks. This can be seen as a major downfall of organic agriculture, as many farmers had to choose between keeping their organic status and having their crops die or spraying them with chemicals and save what they could. Of all of the thousands of tomatoes wiped out by this fungus, one tomato that had been cross bred for such resistance, survived. Many people point to genetically modified crops as the only way to create more resistant crops, meanwhile experimental growers from Cornell University were able to create a perfectly stable resistant crop. This is a goal that is sought out by many geneticists working on genetically modified crops, while these growers were able to create Mountain Magics without any doubt as to rather or not it would be safe to eat.²²

Of course nothing is perfect and so far the story of organic agriculture presented here is too good to be true. The reason conventional agriculture and genetically modified crops are so widely popular is the fact that they are a lot easier than organic agriculture. Without the use of chemicals, it is difficult to produce a large amount of crops due to the varying threats presented to agriculture. Many crops die due to poor mineral content, pests and bad weather when not taken care of properly. Because of

²¹ Barber, Dan, and Inc OverDrive. The Third Plate. S.I.: Penguin Group US, 2014. 78-99. Print.

²² Barber, Dan, and Inc OverDrive. The Third Plate. S.I.: Penguin Group US, 2014. 384-391. Print.

this tremendous amount of work and its dependence on nature, it is nearly impossible to feed a growing population. At approximately 7 Billion people, the world is used more for living space than for agriculture. With this many people, so much space is taken up by infrastructure and housing that we no longer have the real estate necessary to grow enough organic produce to feed everyone, we need a more efficient system.

Another issue with organic agriculture is that even if we did succeed in getting a system in place that could feed everyone, Americans would have to change their lifestyles. This is not to say that all Americans only eat certain foods, but for the most part we enjoy having what we want when we want it and this includes all foods and produce. In many parts of the country consumers can buy fresh pineapples, oranges, and berries, all warm weather fruits, in the fall and winter. The reason this is so is because of imports from warmer climate countries, but with the extra costs associated with imports the only way to make them affordable is by using more conventional methods of farming.

Many other countries have found ways around this. For example, Japan does an amazing job of using what is in season as much as possible. In the summer, matcha green tea is in season, and it can be found everywhere. There are more commercialized products, like Green Tea Kit-Kats, but there are also several different variations of normal favorites infused with matcha green tea to give them flavor including pastries, candies and more. In the winter it is the same song to a different tune; instead of green tea, sweet potatoes are in season. In the south, there's sweet potato pie and yams. In Japan, there's sweet potato pastries and ice cream. Over there they take what they have and they run with it.

There's an upside and a downside to everything and many other civilized nations are still jumping on the organic food movement. Japan and many European countries have made the decision to shift their agriculture towards more organic practices. These agricultural leaders have decided that it is worth the considerable effort for their society to make long term health a priority.²³ As a result of making the switch you have to give up some of your options of what you eat and I'm not sure everyone is adventurous enough with their food to allow restaurants such as writer, farmer and restaurateur Dan Barber's farm to table wonder pop up on every corner. In order to go the same route as the majority of the industrial world we as Americans would have to fundamentally change the way we think about food and it just might be worth it.

²³ *The Organic Market in Europe. Overview and Market Access Information for Producers and International Trading Companies. Fourteen Country Examples in the European Free Trade Association and the European Union, with a Special Focus on Switzerland.* FiBL and Sippo, 2011.

Part Two – Animals

As far as fundamentally changing the way food is consumed, changing the way that Americans perceive animal protein might be the biggest shift. Meat and animal protein is integral to the average American's daily diet. We think of a good hearty breakfast as two eggs, bacon or sausage, toast and a glass of milk. That's three or four servings of animal protein and the day has barely started. Americans like sandwiches packed high and steaks large, maybe even on the bone. Almost every single meal will have one or multiple servings of meat or other types of animal protein. It's an engrained part of American Culture. BBQ is as American as baseball and apple pie.

Part of why it is such a large part of our culture is because of the way we have distanced ourselves from our food. Before quickened transportation and refrigerated trucks, when farmers had to be closer to urban centers and the public was more aware of how their food was being produced. Now we have the luxury of distancing ourselves from the food and farms are miles and miles away from urban centers. The majority of the millennial generation, my generation, has never been on a farm. There just isn't a need anymore, and in this regard, ignorance is bliss. Even in our word choice for meat you can tell just how little we relate to our food. To us, cow muscle is beef. Pig is pork or bacon. Chicken is commonly referred to as poultry. We distance ourselves in these ways without even realizing it. But when taking an actual look into what goes on in the world of animal protein production, it's far from the image given to us in mass media about Betsy the smiling cow and chickens waking up farmers early in the morning. The world of mass animal protein and meat production is filled with torture, disease and horrifying images. There are outliers in smaller farms, farmers that do things the right way, but what is laid out in the next few chapters is the norm, not the exception.

One Flew Over the Chicken's Nest

Imagine being confined to a two feet by four feet metal wire box where you have nothing to do besides bite and claw at yourself between taking a half step forward and a half step back. Imagine having muscles so overgrown that the bones that were supposed to support them did not have a chance to catch up, and as a result they are fragile enough to break under the weight of the muscle they are designed to support. This is the life of a chicken raised for consumption.

Fundamentally farmers have bred two types of chickens, those raised for consumption, or boiler chickens, and layers who are raised for egg production. These two types of chicken have drastically different lives, and neither is what we imagine when we picture a chicken.

Boiler chickens are designed to pack on as much weight as possible to give the farmer more product to sell and which makes chicken more affordable. Boiler chickens are fed plenty of corn meal that is boosted with vitamins, minerals and mixed with hormones and antibiotics, which is most likely genetically modified. They are confined to a cage the size of a sheet of paper in order to limit their exercise. If the chickens exercise, their muscles will become too tough to eat, and because tender meat is desirable factory farms limit their exercise in order to sell the chicken for a higher price.²⁴ The rapid growth discussed earlier is due to the lack of movement mixed with the increased hormones and steroids given to them in their feed. This makes their muscles grow to unnatural proportions, similar to bodybuilders who don't look quite right. They don't look right because their bodies were never designed to hold that kind of muscle mass. The

²⁴ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 24. 2006.

same is true with chickens, only their bones will shatter under the weight of the intense muscle growth. They grow so fast their bones do not have the opportunity to catch up. Their short lives are filled with pain, suffering and boredom, which comes out in bouts of anxiety and causes them to nervously peck at themselves, causing feathers to fly and infection to grow.²⁵

The cages that contain boiler chickens are stacked on top of each other, higher and higher like storage boxes in a warehouse. This is a far stretch from the images of farms and grass that most people imagine chickens to roam around on. This close proximity to one another, combined with the blood, feces and urine from each anxiety-riddled boiler chicken becomes a petri dish for growing bacteria and disease. This causes many chickens to either get sick or be covered in the filth and grime that is proliferated by the close quarters and open wounds of all the other chickens.

After these boiler chickens have reached their proper size and weight, they are taken to a slaughterhouse. In order to get the chickens to the slaughterhouse they are put into a truck, and in order to stay on time the worker must sling them around fast enough to up 105 chickens in the truck in a three and a half minute span. Because of the speed of handling, many chicken's bones will break and tear, leaving them in pain as they are strapped from their legs onto the conveyor belt. From here they are put through an electrocuted bath meant to render them unconscious. More than likely, the electrocuted water tank only paralyzed the birds, but leaving them very well able to feel their already broken bones and their approaching death. The voltage in the electric bath

²⁵ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 106-107. 2009.

is purposely kept low, about one tenth the voltage needed in order to render them unconscious, to make sure that they bleed out correctly.

After the barely functioning bath, the chickens are sent through the throat slicer, which misses many chickens because of how fast the conveyor belt moves. There are secondary workers deemed “kill men” whose job it is slit the throat of the birds missed by the automated knife. Because of the speed, even the kill men say that they miss live birds “all the time” and approximately 180 million chickens are improperly slaughtered each year according to the National Chicken Council. After they are bled out, the chickens, many still alive and able to feel pain, are sent into a scalding hot tank and then have their head and feet removed. From here they are gutted and butchered, with many of the contaminants from their original cages still on them. After being butchered the meat from these chickens is placed into a giant vat of water. The chicken is never cleaned, with this being seen as the cleaning process, but this vat of water now has all of the original contaminants from before including the blood, infection, feces and urine. This is the same water that the chicken is packaged with in order to keep it “fresh” in the plastic and Styrofoam and that chicken is soaking in it all the way until it is cooked in kitchens all across America.²⁶

There are various forms and less horrifying types of boiler chickens, but not by much. Many people feel they are making more ethical or health conscious decisions by picking chicken with labels like free range or organic. The truth behind these labels for meat is that there isn't any true weight behind them. In order to be free range the boiler

²⁶ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 26-27. 2006.

chickens must have access to an outdoor space, which oftentimes is a window that the chickens can't reach or barely use. The practice of chicken farming has been around for enough generations that now these chickens are accustomed to being in a cage their whole life. They no longer go outside because either they can't move to get there or they are so cultivated they are too afraid of the outside world. The term free range is a marketing ploy to get the American consumer to spend more money on virtually the same product while feeling better about themselves over a chicken that was tortured the same as all the others.²⁷

The difference between regular chickens and organic chickens is the feed that they consume, because this is ultimately what the customer will end up eating. Organic chickens get organic feed. No GMO corn, no hormones or steroids, just organically grown feed. This does not limit the amount of anxiety a chicken has due to its small confinement, so the amount of disease, blood, feces or urine is similar. The difference between organic and non-organic chickens is nearly negligible because of the bacteria and filth already surrounding the chicken.²⁸

Layer chickens are different. While boilers have been bred to be the best at packing on muscle in order to provide more sustenance, layers have been bred and studied to lay more eggs over the course of their lives. Through much research and study, farmers have gotten down the rhythms of the layer cycle down to a point where they have learned to manipulate chickens into producing more eggs. Farmers have the process down to a science of rebooting and shutting down the layer chickens internal

²⁷ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 61. 2009.

²⁸ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 61. 2009.

clocks, forcing them to work in the farmers favor. As one poultry farmer who wishes to be unnamed explained it:

“As soon as females mature – in the turkey industry at twenty-three to twenty-six weeks and with chickens sixteen to twenty – they’re put into barns and they lower the light; sometimes it’s total darkness twenty-four/seven. And then they put them on a very low protein diet, almost a starvation diet. That will last about two or three weeks. Then they turn the lights on sixteen hours a day, or twenty with chickens, so she thinks it’s spring, and they put her on high-protein feed. She immediately starts laying. They have it down to such a science that they can stop it, start it, and everything. See, in the wild, when spring comes, the bugs come and the grass comes and the days get longer – that’s the key to tell the birds, “Well, I better start laying. Spring is coming.” So man has tapped into that already built-in thing. And by controlling the light, the feed, and when they eat, the industry can force the birds to lay eggs year-round. So that’s what they do. Turkey hens now lay 120 eggs a year and chickens lay over 300. That’s two or even three times as many as in nature. After that first year, they are killed because they won’t lay as many eggs in the second year – the industry figured out that it’s cheaper to slaughter them and start over than it is feed and house birds that lay fewer eggs. These practices are a big part of why poultry meat is so cheap today, but the birds suffer for it.”²⁹

By controlling the life cycle and lifestyle of the chickens, farmers have been able to produce poultry meat and eggs at as cheap a cost as they do. As some of the

²⁹ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 60. 2009.

cheapest prices of any type of meat, chicken is in high demand, and these are the circumstances that allow chicken to be as affordable as they are. Both boiler and layer chickens have been drastically altered genetically in the past 50 or so years in order to have them produce more for us. The boilers that produce the most muscle and the layers that lay the most eggs are chosen to be bred further in order to make the process more efficient and profitable, which is natural for any industry. These practices are inhumane and horrific in many ways, but the ugly truth is this is the way we get affordable chicken meat.

Not Just Babe

While chicken production skyrocketed as a healthier alternative to beef in the 1950s and 1960s, pork remained a jack of all trades and a favorite among consumers in various forms. “The other white meat” was portrayed by the USDA as another healthy option alongside chicken and still healthier than red meat. Pork chops and tenderloins, among other cuts of pig are seen as this “other white meat”. On the other end of the spectrum there is as the most loved meat in America...Bacon. And Americans have a habit of putting bacon on everything. The bacon obsession is real from traditional favorites like bacon and eggs and BLTs to products as far out there as bacon ice cream. With this “you can never go wrong with bacon” mentality, we seem to forget that at some point all of this bacon was a part of an animal.

The majority of bacon or other pig products come from factory farms which own approximately 95% of the market share in the pig product industry. Of that 95%, Smithfield is by far the largest producer, selling about 26% of all pork or pig products.³⁰ And because Smithfield is so large, it does what all large factory farm operations do, putting an emphasis on efficiency, and every little bit of efficiency counts. Because of this, certain things become common practices. Practices such cold concrete surfaces that the pigs live on, castration without anesthesia and hundreds of full grown pigs in a pen with barely any room to move.

Pigs are intelligent. People tend to think of them as being dirty, filthy, animals that wouldn't know the difference between the pasture and the barn, but this is a misconception. Comparing them to man's best friend, canines, when asked about pigs

³⁰ "Smithfield Foods." - SourceWatch. January 1, 2015. Accessed April 1, 2015. http://www.sourcewatch.org/index.php/Smithfield_Foods.

Professor Stanley Curtis from the Department of Animal Sciences at the University of Illinois has stated that the duties of a sheepdog would be a “pushover” for pigs.

Professor Curtis even went so far as to create a joystick controlled video game that pigs can control with their snout.³¹ When playing the game it was discovered that pigs are able to solve problems, think creatively (in a sense), learn tricks and adapt to patterns and situations. There are numerous instances stated by farmers that pigs will learn how to escape their pens in order to be with other pigs. When compared to dogs, pigs outmatch them on every intellectual level, including trainability. But our society does not deem it socially acceptable to have Chihuahua for dinner. Meanwhile bacon on the plate for every meal is enjoyed and celebrated.

At the same time we enjoy this bacon on our plates, the next wave of pigs are being raised in more efficient ways than ever before. Pigs are typically curious creatures that love to roam and play, much like dogs. Because of their intelligence and curiosity they will spend up to 75% of their waking hours wandering and exploring.³² Or at least they would. Because of this ever present need for efficiency pigs natural curiosity has been replaced by boredom and their exploring is replaced by anxiously nipping and biting one another. But that’s what happens when you pile a bunch of active animals in a pen with nothing to do.

These animals need to grow up to have full market value, and two things in particular have adverse effects on the selling power of the pig’s flesh, testosterone, and

³¹ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 45. 2006.

³² Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 95-96. 2006.

stress. If the pigs have too much testosterone, their meat becomes slimy and grey, with a distinct gamy taste dubbed “Boar Taint”. When someone goes to the store the gray color is seen as bad meat because it no longer fits in the “other white meat” mantle.³³ Thus the meat is unsellable if the pig has too much testosterone. In order to solve this problem, factory farms castrate piglets, almost always without anesthetic. Without testicles, the pigs are less active and they have less testosterone, meaning that their flesh is more tender and it retains the creamy white color that is desired in pork. Even though it is more desired, the market doesn’t make up for the added costs of castration. It is seen as a necessity so the procedure is performed in the cheapest way possible, no matter how painful it might be to the piglet. This keeps the efficiency needed in check, keeps costs down and profits high.

With stress being the next largest influential force behind the quality of pork, factory farms sought to reduce the amount of stress that pigs experience. Apparently to factory farms, a comfortable life with room to roam and hay to play with is not economical or efficient enough option, but clipping their tails at infancy is. This way the pigs’ boredom will no longer cause them to bite or nip at each other’s tails, given that they no longer have tails to bite.³⁴ Because they have nowhere to go and nothing to scavenge, pigs result to these actions as a means of keeping themselves busy, but it was discovered that the pain from the tail biting was causing too much stress and affected the quality of meat. Sleeping bunched together on a hard, concrete floor might be stressful, but not stressful enough to actually pay to change it. To further the

³³ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 50-51. 2006.

³⁴ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 50-51. 2006.

previous comparison, if anyone were to castrate or cut off a dog's tail without anesthetic or leave them bored in similar conditions to that of pigs, animal cruelty laws would take effect and they would either be fined extensively or jailed. Meanwhile pigs are tasty, so this happens to them in record numbers, all in the name of efficiency.

All of that occurs during a pig's adolescence, up until the point it is market weight, but what about the moment leading up to their death? This cannot be accurately portrayed for the majority of the pig or pork producers on our shelves because factory farms largely deny access to any auditors or reports anywhere near the kill floor for "sanitary concerns".³⁵ The closest reports come from much smaller, family owned farms. These are the farms that make up the 5% not dominated by factory farms and Smithfield.

Typically the pigs are brought into the slaughter room one at a time. This is because having to subdue two or more pigs would end up a nightmare for the person performing the first portion of the slaughter, known as the "knocker". The knocker brings the pig in, places an electric shock into the pig's skull and rendering him unconscious... hopefully. Approximately one out of every ten pigs does not lose consciousness after the first shock and they must be shocked again. Every once in a while a pig who is still fully conscious will slip through the cracks and suffer through the rest of the slaughtering process without any workers knowing. After they are shocked they are sent to get their hair seared off and then they are hung upside down by their hind legs. From here, their

³⁵ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 152-160. 2009.

throats are slit and they are left to bleed out before being scalded in boiling water and dismembered.³⁶

For a small farm, this is a (comparatively) humane way to slaughter an animal, but this cannot be realistically seen as typical for the other 95%. Even taking as much care as small farms do, 10% of their pigs have to be hit twice or more with the shocker and still some slip through the cracks. Now extrapolate that to the size of a factory farm that produces 60% of the pig products in America compared to the sliver of a percent covered by family farms. Because of their size, factory farms have to keep up with certain quotas and in order to keep up they can't afford to be as careful as the family farms. This means that most of the time they aren't able to sear the hair off completely, and at a higher rate than the family farms they aren't able to make sure the pigs are properly unconscious. Suddenly a seemingly humane process has turned innocent, intelligent animals being scalded alive and conscious before being processed into seemingly everyone in the United States favorite food....bacon.

As all of this bacon continues to be processed and consumed it must be replaced by raising more pigs at a higher efficiency. Because of this intense need for pork there are now certain processes that are common on most factory farms for sows, and these farms have the operations down to a science. This science is known as Gestation Crates.

The life of a sow is one more or less similar to a boiler chicken, only with less room to move. With gestation crates, sows are kept in metal cages that keep them in

³⁶ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 152-160. 2009.

place. These cages are just barely large enough to hold them and give them no room to even turn around, an even more constrained life than that of a regular pig to be slaughtered. When seeing the sows lined up in the rows of cages, the stench from the sores, infection and excrement is unbearable. Upon closer inspection the majority of sows have giant sores on their backs.³⁷

This controlled environment is what factory farms want and thrive on. It allows them to maximize efficiency and profitability while limiting unknown factors. With the sows barely able to move it gives them less of a chance to roll on her young and suffocating them, even though this hardly ever happens in the wild. The confinement makes it a much easier and cheaper process to artificially inseminate the sows, attempting to ensure that she produces the most plentiful litter possible. The more plentiful litter brings larger pigs and greater profits to the likes of Smithfield, who have chosen the profits and efficiency over the humane treatment of these animals. This is the only way they know how to produce plentiful litters, and so they will continue to do this in order to gain more profit. Smithfield's bank account grows while the sow is stuck in a space the size of a coach airline seat, struggling with infection and boredom, biting the bars as a means to cope with the anxiety of being unable to move.³⁸

The abuse of sows in gestation crates has come to light in recent years. The outrage behind this practice has caused the entire European Union and seven U.S. States to place a ban on the practice. Even some of the smaller factory farms have noticed the inhumanity in gestation crates and have begun doing something about it.

³⁷ *Undercover at Smithfield Foods*. Humane Society of America, 2012. Film.

³⁸ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 46-51. 2006.

Recent reports have Cargill Farms 50% gestation crate free and Maxwell farms are completely abandoning the practice. The biggest of them all however has not had such an outcome. In 2007, Smithfield publicly stated that in ten years they would remove the use of all gestation crates from their farms. Three years later in 2010 they came out saying that their own conservative goals were still too aggressive and that they were unable to make the ten year mark. Eventually not being able to eliminate them by 2017 became giving up on the goal altogether, as the use of gestation crates is still common practice in Smithfield farms.³⁹ Even with bans in place, a large majority of factory farms continue to use gestation crates to produce more piglets, choosing profits over ethics in the process.

³⁹ *Undercover at Smithfield Foods*. Humane Society of America, 2012. Film.

Life of Betsy

The large scale production of beef is possibly the most ethical and humane segment of the meat industry when compared to the way chickens and pigs are treated. This isn't to say that their lives are perfect, but simply better than what the other animals go through. Calves start their lives separated from their mothers at an incredibly young age, oftentimes crying because of the premature separation.⁴⁰ These cries can be loud enough and last long enough that their throats become irritated and swollen. After the separation they are taken to a pasture where they typically undergo several procedures, all of which painful, but to the farmer they are seen as essential for better market value and in order to protect the investment of the beef. Calves will be castrated without anesthetic, for the same reason as piglets; cows with testicles produce more testosterone and are not as tasty as a result. Common methods include removing their testicles with a scalpel or crushing the spermatic cords with a clasp.⁴¹ Seeing as how the genitals on any creature are the most sensitive part of the body, the lack of the anesthetic on such a large animal must cause the calf excruciating pain. But without the castration the cattle's meat will become gray and it will lose value as a result.

Dehorning and branding the cattle are the two other most common procedures on any farm. Both methods use heat as the main source and both are done without anesthetic in order to cut costs. To dehorn the calves, at three or four weeks old the ranchers and cauterize the horns as they are budding. By doing this early in their lives, it is a less painful procedure but it still hurts. Some of the benefits of dehorning them is it prevents problems for the handler later on in the cow's life as the horns can get in the

⁴⁰ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 57-58. 2006.

⁴¹ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 58-59. 2006.

way of day-to-day activities and even in some cases feeding. Branding on the other hand is much more a ritual-based procedure than it is for actual value. The only purpose branding has is to allow ranchers to claim their property when the animals are mixed at the slaughterhouse with other rancher's animals. However there are many more alternatives. While ranchers can use retina scanners or just have the slaughterhouse pick the cattle up for them (which many do anyway) modern ranchers would rather prod cattle with a 950-degree metal pole. Brands have been in the ranchers' families for generations, it is a sense of pride and accomplishment every year, which is seemingly the only reason why ranchers still put the cattle through the pain. Some ranchers have even gone so far as to say that their sons don't normally come home for major holidays like Thanksgiving or Christmas, but they always come home for branding. It has become tradition to these families and traditions can be hard to give up.⁴² But this particular tradition is now unnecessarily painful and archaic.

These procedures and pain are only the beginning for cattle. After grazing the pasture, at approximately six months old, the cattle are taken to a feedlot to fatten them up and get them to market-weight faster. It's at these feedlots where the cattle get little shade, frequently dying of exhaustion. When they are inside they tend to be crowded together and covered in a gray 'mud' which when smelled (from a distance) reveals that the cows are about knee deep in their own waste. Typically cows would sit in the shade in the grass for the majority of the daytime hours. Instead they are stuck either in a

⁴² Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 223. 2009.

concrete shed or in 90-degree summer heats, neither being very good for such large animals.⁴³

In addition to taking them away from their natural domain, ranchers pump these cows with synthetic hormones and an unnatural diet. On the pasture, the cows eat grass. Cows digestive systems are designed to handle such a fibrous diet as grass. Instead of this grass diet cows enjoy on the pasture, on feedlots they are given mainly corn feed, as it is much cheaper to obtain than grass.⁴⁴ This switch in the diet is the equivalent of someone trying to live off of a pure sugar diet. They could, but the results would be disastrous fairly quickly. Instead of letting the cattle die and the rancher losing all of their profits, they blend in a steady stream of antibiotics into the corn meal. The overuse of these antibiotics has been a controversy in the past few years. It was found that the prolonged use of them eventually causes bacteria to evolve and become resistant to the antibiotics, forcing diseases that we have no way of combatting. Ranchers normally don't care about these side effects because the price of corn meal and antibiotics is cheaper than the foliage that the cows would normally be eating. In their eyes, it's all about the bottom dollar.

As soon as the cattle are taken off the truck and onto the feedlot, they are given an implant for a synthetic hormone.⁴⁵ This synthetic hormone is comparable to muscle-building steroids that athletes often take and is illegal for human use in the United States. The use of the hormone for cattle is illegal in Europe and Canada, but like so

⁴³ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 64. 2006.

⁴⁴ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 63. 2006.

⁴⁵ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 61. 2006.

many other food production policies is still legal and is common practice in the United States. This hormone promotes muscle growth and in turn promotes an increase of the sellable product for the rancher, so while it is illegal for direct use as long as it helps make money the ranchers and policy makers ignore the potential side effects.

Earlier ranchers would see cattle grow to market weight, approximately 1250 pounds, between four and five years. Without hormones, selective breeding has sped this type of growth can take up to two years today. With hormones, calves grow to market weight in a mere 14 months.⁴⁶ This kind of quick growth forces ranchers to use the hormones and steroids, without it they fall quickly behind. Once one rancher starts using these practices to increase their turnover, their prices drop and they gain the ability to sell more beef. By almost reducing the time from obtaining the calf to market weight in half, the liability for the ranchers are reduced, creating better profitability. This can create havoc for any type of market, regardless if the item sold is an animal product or not. If ranchers stay hormone-free their product can become “unreliable” simply because they are no longer producing as much as their competitor and their market share goes down the drain. While many ranchers wish they could get rid of the supplements, competition and market pressure has made them a necessity.

Similar market pressure can be said about the dairy industry. Pro-dairy advertising is pervasive in the United States with many advertisements stating milk’s ability to keep you strong and grow healthy bones. The American Academy of Pediatrics recommends that children under the age of 12 should drink at least two cups of milk per

⁴⁶ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 60-64. 2006.

day.⁴⁷ Milk is touted as a way to fight osteoporosis and arthritis by keeping bones healthy. But do we ever think about what is needed for this milk? Advertising in the past few years has us believing that “Happy California Cows give better milk” But how happy are these cows?

Do happier cows produce better milk? Probably. Studies have shown that happier animals and animals with lower stress levels produce better tasting meat and by-products including milk. Are the dairy cows actually happy? Probably not. In order for any mammal to produce milk, the animal must be either in the later stages of pregnancy, or has just given birth. With cows pressured to keep up with the demand of millions of kids being told to drink 16 ounces of milk a day, this results in more frequent artificial insemination and dairy cows that are almost constantly impregnated. This constant pregnancy produces calves that are almost completely unwanted and originally had no place in the grand scheme of the factory farm.⁴⁸ Lucky enough for the dairy farmers they have found a market for unwanted newborn calves, and thus we have veil, which is the meat taken from these calves. The dairy industry found that if they were producing more calves that they had no use for, they might as well make money off of them and began marketing veil as a special kind of meat. Veil became a specialty and had sold for a higher price than regular meat. When the truth about veil came out the veil industry came under fire for inhumane practices for killing infant cows, the industry

⁴⁷ "Dietary Recommendations for Children and Adolescents: A Guide for Practitioners." Dietary Recommendations for Children and Adolescents: A Guide for Practitioners. Accessed April 1, 2015. <http://pediatrics.aappublications.org/content/117/2/544/T3.full>.

⁴⁸ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 57-58. 2006.

was unfazed. This is because veil isn't a product all by itself, but a by-product of the dairy industry.⁴⁹

Even with the dairy cows being nearly always pregnant, dairy farmers found themselves unable to keep up with such high demand. Instead of letting the price of milk rise through supply and demand, farmers found new ways to increase each individual cows production by using hormones and machinery. As anyone can guess, neither of them are great for the cow and it certainly isn't what we picture when we think of a dairy farm but it does wonders for production. The main hormone given to dairy cows is Recumbent Bovine Growth Hormone (rBGH). At this time there is no concrete evidence that supports adverse effects of rBGH in humans.⁵⁰ In the cows being injected however common side effects of the genetically enhanced hormone include decreased immune systems, lower hemoglobin levels, higher chances of swelling, infected udders, and of course, higher milk production. This is almost as bad as the second most widely used hormone, Bovine Somatotrophin, or BST.⁵¹ One in six cows administered with this highly used drug will develop mastitis, a very painful udder infection. Both rBGH and BST are banned in Europe and Canada, with the United States lagging behind.

In addition to the hormones, the cows are hooked up to machinery to make milking easier for the farmers. The days of milking cows by hand are long gone as the

⁴⁹ Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 58-59. 2006.

⁵⁰ "Recombinant Bovine Growth Hormone." Recombinant Bovine Growth Hormone. Accessed April 1, 2015. <http://www.cancer.org/cancer/cancercauses/othercarcinogens/athome/recombinant-bovine-growth-hormone>.

⁵¹ Bauman, Dale E. "Facts about Recombinant Bovine Somatotropin (rbST)." http://ansci.cals.cornell.edu/sites/ansci.cals.cornell.edu/files/shared/documents/Recombinant_Bovine_Somatotropin.pdf.

labor costs would be far too high and it would take too long. Instead these machines pump the milk out of the cow for the farmer. This constant pumping however can cause udder damage, almost constant swelling and a lot of pain for the cow.

As a result of rBGH, BST and machinery, individual dairy cows produce times as much milk now as they did 30 years ago, an unnatural feat that their bodies cannot keep up with. While their natural life span of a cow is 20 years, dairy cows in the 21st century are killed between the ages of four and seven.⁵² It is around this time that the stress of producing that much milk catches up with them and their bodies can no longer keep up with demand. At this point it's cheaper for the dairy farmer to switch that cow out with a younger one than it is to keep the older one any longer. After they are switched out they have the same fate as any other cow, the slaughterhouse.

On the way to the slaughterhouse, the cattle are transported by either truck or train car, confined for up to 48 hours without food or water. During this trip several cows will get sick or die from dehydration, rendering their bodies useless for consumption. The actual slaughterhouse, which is similar to pigs in that they restrict access from anyone not working there, begins with the knocking box. The cow's head is placed in a circle shaped box that makes the animal immobile and thus easier for the stun operator to handle such a large animal. From there the stun operator presses the gun between the cow's eyes and a steel bolt shoots into the animal's skull. A bolt of electricity should render the cow unconscious, however many factors go into the potency of the bolt. If the stun operators themselves don't take the time to aim it correctly or if the pressure isn't

⁵² Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, Pa.: Rodale ;, 57-59. 2006.

built up enough the cow will still remain aware and in a lot of pain. It is especially tricky because the effectiveness of the actual knocker itself is turned down because the slaughterhouse doesn't want the cattle to be "too dead" fearing that if their heart is no longer still beating a little bit that the blood will not leave the cow fast enough. Because of the trickiness of the knocker itself and the effectiveness being turned down, many cattle will wake up or be fully aware during several points in the rest of the slaughtering process.⁵³

To make this point clear, tens or hundreds of cows will wake up, remain conscious, and at times try to fight for their lives during the rest of the process only because if they make sure the instrument they use to render them unconscious isn't properly calibrated. The only reason it isn't calibrated correctly is because if it was then it wouldn't be "efficient enough" and the slaughterhouse would have to wait longer to slaughter more cows.

From the knocker, they are sent to be hung from their hind legs, they have their arteries in their neck cut to bleed them out which can take several minutes. At times during the bleeding process many cows can be seen blinking and straining their neck as if trying to regain consciousness. After bleeding out they are skinned and dismembered, all while hanging from their hind legs. There have been reports that sometimes, not infrequently, the cow will regain consciousness while being skinned or dismembered and begin kicking trying to get free. If this happens the skinner, the one performing

⁵³ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 226-235. 2009.

these tasks, will have to “shove a knife into the back of their head to cut the spinal cord”.⁵⁴

It’s no wonder slaughterhouses won’t allow even the most avid meat eaters to watch this process. Even most of the USDA inspectors do not want to be exposed to the horrors of the kill floor. As a result of the stress from being a “shocker,” “skinner,” or “sticker,” the turnover for most positions on the kill floor is high. Many employees don’t even last a full year.⁵⁵

⁵⁴ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 233. 2009.

⁵⁵ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 254. 2009.

Cause and Effect

Even while ignoring the horrendous and inhumane treatment of animals on factory farms, the other adverse effects of factory farming are undeniable. When overpopulating the number of animals into one location and having them grow quickly to a desirable and more profitable market weight, there are going to be negative side effects. In this case, it isn't just the normal side effects of agriculture such as depleting the land of certain minerals, or chemical runoff. These are living beings. Animals need food (mainly corn feed and antibiotics) and animals produce waste. Lots and lots of waste.

Let's start with the food. The recommended daily calorie intake is between 1,200 and 2,000 calories a day. Many meals will go beyond the 1,200 calorie mark by themselves and people will eat three of them a day. Animals also require plenty of daily calories, and this extra step in the food pyramid can be costly. Depending on the animal being fed, it takes between six and 26 calories to produce one calorie of animal protein⁵⁶. The majority of crops grown in the United States, conventional or otherwise, go towards supporting the animals on factory farms.

The calorie count for a six-ounce sirloin steak is roughly 255 calories.⁵⁷ Taking the conservative number of 6:1 calorie conversion rate, that one sirloin took 1,530 calories, or one person's suggested daily intake, for that one portion of meat. For a nation that has disparities in our classes and a hunger problem, the crops being used to feed these factory farms could be used to feed people. Animal agriculture as a whole

⁵⁶ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 211. 2009.

⁵⁷ "Calories in Outback Steakhouse Outback Special Sirloin (6 Oz), without Sides | Nutrition, Carbohydrate and Calorie Counter." Calories in Outback Steakhouse Outback Special Sirloin (6 Oz), without Sides | Nutrition, Carbohydrate and Calorie Counter. Accessed April 13, 2015. http://www.calorieking.com/foods/calories-in-other-menu-items-outback-special-sirloin-6-oz-without-sides_f-ZmlkPTE3NzQ0NA.html.

uses 756 million tons of grain and corn and 220.5 million tons of soy globally every year.⁵⁸ Imagine the differences that could be made if we transfer those crops from grain, corn or soy for animals and put them on the market for normal people to purchase. Instead of using 1,530 calories to get one portion of a meal, we could use 1,530 calories for three or four meals.

The digestive system being what it is, waste is always going to be produced. 976.5 million tons of animal feed has to go somewhere, and not all of it is being produced into animal protein. The problem is that while human overpopulation is becoming a problem, the world was never meant to support this amount of animals either, and especially not their waste. The average pig farm produces 7.2 million pounds of manure, broiler chicken facilities produce 6.6 million pounds, and cattle feedlots produce 344 million pounds. Factory farms in the United States produce 130 times as much waste as the humans.⁵⁹ All in all, it's more excrement than can be used as fertilizer and many factory farms do not take the required steps to dispose of it soundly, not that it would help much if they did. But it would still reduce the 35,000 miles of rivers polluted, 13 million fish killed or the hundreds of "lagoons" created to pump the waste into.⁶⁰

Certain companies, like Smithfield for example, take calculated financial risks with no regard for the external strain they put on the environment. In 1995, Smithfield spilled more than 20 million gallons of waste into New River in North Carolina.⁶¹ This

⁵⁸ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 211. 2009.

⁵⁹ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 174. 2009.

⁶⁰ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 177. 2009.

⁶¹ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 178. 2009.

incident was approximately twice as large as the Exxon Valdez oil spill in Alaska and devastated the river. Two years later in 1997, Smithfield racked up 7,000 violations of the Clean Water Act, eventually being fined \$12.6 million.⁶² For a company whose income was \$12 billion in 2007, \$12.6 million was not a major deficit for Smithfield. Companies like Smithfield don't mind taking on those penalties if it means that they can continue to bring in billions of dollars from the factory farms causing the violations. Never mind the ecological disaster, the polluting of our already scarce water source and the diseases caused by the farms so long as they can continue to profit.

Between the infection, blood and waste produced from the confined animals, factory farms have become a breeding ground for diseases. Communities that live near pig and broiler chicken farms in North Carolina and Oklahoma complain about frequent earaches, nosebleeds, diarrhea and burning lungs. Asthma rates in children are significantly higher in areas surrounding factory farms. Living around factory farms has been documented as being hazardous to your health because of the stress put on the environment in these areas.

On an even greater scale, factory farms have been found to be the leading cause of zoonotic diseases, or those passed from animals to humans. Pathogens such as H1N1, H5N1, and SARs, diseases that have caused pandemic-like fear, have been traced back to pig farms and broiler chicken coops.⁶³ Experts from the Food and Agriculture Organization of the United Nations, the World Health Organization, and the World Organization for Animal Health reported that “the rapid selection and amplification

⁶² Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 174-179. 2009.

⁶³ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 142-143. 2009.

of pathogens that arise from a virulent ancestor (frequently by subtle mutation), thus there is increasing risk for disease entrance and/or dissemination” meaning that in these factory farms the conditions the animals are put under (stress, filth, tight living quarters, etc.) are causing current diseases to mutate.⁶⁴ The report continues to say that “ the cost of increased efficiency” is causing an increased risk for pandemic-type diseases. It’s no wonder why these diseases have nicknames like “Swine-Flu” and “Bird-Flu”. Our reliance on cheap, factory farmed meat is making us ill, not only from the consumption of it but from the diseases evolving as a result. Diseases such as H1N1, H5N1, and SARs have all been relatively contained. But what happens when a new strain mutates that isn’t so easy to control or detect?

⁶⁴ Foer, Jonathan Safran. *Eating Animals*. New York: Little, Brown and Company, 142-143. 2009.

Money Talks

Major companies have taken over food production in the United States. Now that industry has grown to the level it is today, the times of the family operated small local farms are all but dead. It is no longer feasible for small farms to feed large-scale populations. This has caused many family farms to incorporate with the industry giants we see today, and as a result they have to take measures to produce enough volume to keep doing business with the corporations. This causes them to take measures such as, planting GMO crops and factory farming their livestock. Approximately 80% of the food produced in the United States is the work of mega-companies such as Smithfield and Tyson. Arguably it is the only way to possibly feed such a growing population. Because of medical technology and better living conditions for the average person, life expectancy is at an all-time high of 74. Without factory farms there is no current method that could feed America's 318.9-million citizens. Imagine trying to feed massive urban areas such as New York City, Boston, Chicago, or Los Angeles with local farmers. It would be a nightmare.

These factory farms have made food more affordable and abundant than ever before. Over the past 50 years, annual consumption of meat per person has risen 23 pounds.⁶⁵ This might not seem like a lot, but with the current population that's an extra 7.3 billion pounds of meat that needs to be produced. Because these factory farms are businesses like any other, they follow the path that will produce the most money, reduce their own costs and ultimately put more money in their pockets. The factory farms and conventional farmers understand that food is a necessity; in a market where consumers

⁶⁵ "Per Capita Consumption of Poultry and Livestock, 1965 to Estimated 2015, in Pounds - The National Chicken Council." The National Chicken Council. April 7, 2015. Accessed April 1, 2015. <http://www.nationalchickencouncil.org/about-the-industry/statistics/per-capita-consumption-of-poultry-and-livestock-1965-to-estimated-2012-in-pounds/>.

are forced to buy their product the most affordable will win. So food manufacturers took measures to lower costs, increase efficiency and produce more that will reduce the price. They knew that some of their measures may be unfavorable, so they hid many of the common practices from the public and avoided a PR nightmare that would reduce their overall revenue. If some horrendous practice became public knowledge, traditionally some company figurehead would publically say sorry and that they would immediately change their ways and then go back to work like nothing happened. Eventually the media firestorms die out, the public forgets, and their sales will return to normal. This scenario has happened twice with Smithfield food, once when it's factory farm waste contaminated New River in North Carolina and also when the company came under fire for using gestation crates. Both times they publically announced changes. Both times their practices didn't change. But these problems are not just Smithfield. It's the factory farm system as a whole.

The public has a tendency to be outraged when it learns of agricultural disasters and inhumane treatment of animals but they lose interest before anything gets changed. We as consumers enable these businesses to go on damaging the ecosystem and abusing and manipulating animals. They ultimately do it for our benefit, because we are the ones funding this way of production. The factory farms are merely following market demand. Population grew, they increased production in order to feed the population and in order to do so they cut corners and traded healthy products for healthy profits. But they only did so as response to the market demand. But slowly the market is demanding a change.

Meat production is still at an all-time high. But so is organic agriculture. Ever since reports of organic being healthier came out, the market for organic products has skyrocketed. Organic farmers reported \$3.12 billion in sales in 2012, which is not even close to some other areas of food production, but it is nearly double the \$1.7 billion reported 5 years earlier. In 2013, organic products was reported as a \$35 billion industry as a whole.⁶⁶ To keep up with demand many organic farmers are pairing with the major corporations, but in order to keep the organic label they are continuing the way they cultivate. Consumers demanded more organic products, and big business is responding by continuing the practices that have made those products popular.

Each individual purchase drives what will be produced the next day. Companies respond to money and profitability, and so far that money has been driven by the cheapest product regardless of how it was produced. What if ethically produced products and items that helped instead of hurt the system brought in more money? These factory farms and big business would have to follow the money and adjust accordingly. One common misconception is “I’m just one person, my choices have little effect on the grand scheme of how things are done”. But exactly the opposite is true. By making ethical purchase decisions consumers support the organic farmer or the ethically raised meat by validating those products. By buying the cheapest product without regard to how it is raised, consumers fund the harmful practices and outcomes of factory farms.

⁶⁶ "USDA ERS - Organic Agriculture: Organic Market Overview." USDA ERS - Organic Agriculture: Organic Market Overview. April 7, 2014. Accessed April 1, 2015. <http://www.ers.usda.gov/topics/natural-resources-environment/organic-agriculture/organic-market-overview.aspx>.

Big business pays millions in marketing and advertising hoping that the public takes what it presents as the truth. These mega-companies want everyone to believe in the happy cows that produce better milk and that chicken is the healthier option. These efforts drive public opinion towards the options that will make them the most money, but are not necessarily the best outcome for everyone. The only way to respond is for consumers to make more informed decisions about their purchases.

Everyone has a certain set of ethics and everyone has the right to make up their minds and impact society the best way they know how. What has been happening since industries have become specialized is that many people will take what they hear at face value and believe it to be true without doing the research themselves. People are too busy to take the time to look at the underlying causes and this has caused the deterioration in the ethical side of the food production industry. This busy life many people live has taken away the power of the consumer, but as you can see with organic agriculture we can take it back by making informed decisions. By blindly spending money we run the risk of continuing to support inhumane treatment, pollution, disease, and other forms of destruction. The only way to change the system is to stay informed and spend wisely.

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