**Our Food Choices Can Save The World**

**Bob DiBenedetto**

*Co-Founder, President, Executive Director HealthyPlanet*

**INTRODUCTION**

Each day involves making a multitude of choices regarding many aspects of our lives, from what we eat, to how we treat those around us, to the way we spend our time, to the products we use for everything from brushing our teeth, to cleaning our dishes. Some make these choices predominantly on the basis of what we see as being most personally beneficial, desirable, or convenient at that moment. However, a growing number of people are looking to act in a way that reflects their conviction that as individuals, we are each part of a larger body of humanity. As such, we are motivated to make choices and to take actions that have a beneficial impact on ourselves and our families, as well on all life on Earth—for now, and for generations to come.

Having that conviction alone, however, does not guarantee that one’s actions will have their intended holistic effect. In order to translate our beliefs into effective action, it is necessary to become informed about the actual impacts that our actions may have on our world. Once that understanding is in place, we become empowered with the ability to make a collective difference.

Toward that end, the question I’d like to address here is, how can each of us modify our lifestyle in a way that will have the greatest positive impact on the most pressing environmental and social issues, including, but not limited to world hunger, climate change, air and water pollution, loss of biodiversity, resource depletion, and more?

The answer to that question is one that many, including some environmentalists, will not get correct. Most would respond with suggestions ranging from taking shorter showers to turning down their home thermostat by a few degrees, to eating locally, to recycling, to turning off lights when possible, to driving a bit less.

While all of these are helpful, and while I personally recommend and practice each and every one of them, there is one lifestyle change that is potentially more beneficial to our life on earth than most others—combined. And that is, eating lower on the food chain, aka, eating fewer animal products.

**THE LIVESTOCK INDUSTRY’S OVERWHELMING PRESENCE**

The words of the *UN Food and Agriculture Organization’s* extensive report, *Livestock's Long Shadow*, say it all:

“The livestock sector emerges as one of the top two or three most significant contributors to the most serious environmental problems, at every scale from local to global.”

That bold statement is easier to understand when you consider the staggering size of the livestock industry as stated in the UN FAO’s 2018 Animal Production Report:

“Livestock is the world’s largest user of land resources, with grazing land and cropland dedicated to the production of feed representing almost 80% of all agricultural land. Feed crops are grown in one-third of total cropland, while the total land area occupied by pasture is equivalent to 26% of the ice-free terrestrial surface.”

Additionally, last year the largest analysis to date revealed the huge global footprint of livestock production. The study, published in the journal *Science* by lead researcher Joseph Poore, at the University of Oxford, UK, created a huge dataset based on almost 40,000 farms in 119 countries and covering 40 food products that represent 90% of all that is eaten. It assessed the full impact of these foods, from farm to fork, on land use, climate change emissions, freshwater use, and water pollution and air pollution.

The results of this study showed that while meat and dairy production provide just 18% of our population’s calories and 37% of our protein, it uses the vast majority – 83% – of our farmland. That fact bears repeating. 83% of the world’s farmland is used to create just 18% of our calories.

Furthermore, the researchers also found that even the very lowest impact meat and dairy products still cause much more environmental harm than the least sustainable vegetable and cereal growing.

The astounding observations scientists made in this study led Poore to say: “A vegan diet is probably the single biggest way to reduce your impact on planet Earth.”

But Poore didn’t stop at stating what so many of us have known for decades. He followed his discoveries with action, saying: “I have stopped consuming animal products over the last four years of this project.”

The staggering environmental and social impacts of animal production are apparent in many facets of our ecosystem and are intricately intertwined with our society’s greatest challenges, some of which are discussed below.

**CLIMATE CHANGE/AIR POLLUTION**

While some of our elected officials continue to portray climate change as a political issue, NASA has stated that 97% or more of actively publishing climate scientists agree that climate-warming trends over the past century are extremely likely due to human activities. Furthermore, most of the leading scientific organizations worldwide have issued public statements endorsing this position.

And as each year passes, we see more and more evidence that climate change is both real and worsening in its current and predicted effects. Graphs of Earth’s temperature show a clear trend of warming that began with the industrial era in the late 1800s. As of 2018, the 18 hottest years on record have all occurred in the last 19 years.

Last year, the UN’s Intergovernmental Panel on Climate Change, came out with the dire warning that we urgently need to limit warming to 1.5 degrees Celsius, to avoid the most catastrophic impacts of climate change, including elevated risks of drought, floods, extreme heat and poverty for hundreds of millions. The report stated that urgent and unprecedented changes are needed to reach the target and that we only have 12 years to make this historic shift happen.

But we need not look to the future to see the impact of a changing climate on human life. According to the World Health Organization (WHO), “Climatic changes already are estimated to cause over 150,000 deaths annually. That estimate includes deaths as a result of extreme weather conditions, which may be occurring with increased frequency. Changes in temperature and rainfall conditions also may influence transmission patterns for many diseases, including water-related diseases, such as diarrhoea, and vector-borne infections, including malaria. Finally, climate change may affect patterns of food production, which in turn can have health impacts in terms of rates of malnutrition.”

Going forward, the situation worsens considerably. The WHO predicts that “between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress.”

The livestock industry produces more climate change gases than all the cars, trains, planes, boats and other forms of transportation -- combined. According to the UN Food and Agriculture Organization (FAO) and the Intergovernmental Panel on Climate Change, that amounts to 14.5% of all global human-induced emissions.

Livestock are responsible for the majority of human-produced nitrous oxide (53%)--a gas that is up to 300 times more powerful than CO2 in its ability to trap heat in our atmosphere, as well as a large portion (44%) of human-induced methane--a gas that is more than 25 times more powerful than carbon dioxide.

But some, including former Energy Secretary Steven Chu, now President of the American Association for the Advancement of Science, think that the climate change onus placed on livestock production by the UN is understated. Chu puts agriculture at the top of his list of climate challenges, particularly animal agriculture.

When the Nobel Prize-winning physicist surveyed the world's carbon-producing industries at a recent lecture, he started by pointing the finger directly at meat and dairy production. He stated:

"If cattle and dairy cows were a country, they would have more greenhouse gas emissions than the entire EU 28."

Chu combined the greenhouse gas emissions from meat and dairy with other agricultural practices, including fertilizer, and land-use changes, such as deforestation and soil disruption. Weighing the resulting greenhouse gases for lifetime and potency, he made the powerful statement that “agriculture and land-use generates more greenhouse gas emissions than power generation."

While we all need to heat our homes, and many are not able to stop driving their cars, all of us can choose plants over meat and dairy products, starting with our very next meal. By not consuming any animal products for one year, we can potentially reduce our carbon footprints by more than these activities: use of a low flow showerhead and reducing shower time to 5 minutes; cutting one dryer load per week; practicing fuel-efficient driving, reducing one’s home heating use; reducing vehicle miles travelled by 20%; and doing curbside recycling. In fact, by not eating meat, we’d create a more powerful impact on greenhouse gases than all of the above activities--combined.

The positive impact of reducing or removing animal products from our diet can also have a significant effect on reducing deadly emissions that accompany the release of climate change gases in sectors from agriculture to industry. Outdoor air pollution alone, according to a 2018 report from the WHO, is responsible for 4.2 million deaths each year. Estimates for deaths in the US alone range from around 100,000 to 200,000 annually.

One particularly deadly component of air pollution is PM2.5. These particles, which are less than 2.5 microns in diameter, about 1/30th the width of a human hair, are carcinogenic to humans. They are so small that when inhaled, they are able to go deep into the lungs, causing heart or pulmonary disease.

Usually, when one thinks of deadly air pollution, images of industrial smokestacks and motor vehicles come to mind. But according to a 2016 study published in May 2016’s *Geophysical Research Letters*, emissions from farms outweigh all other human sources of this fine-particulate air pollution in much of the US, Europe, China, and Russia. The main source is fumes, mainly in the form of ammonia, which enters the air as a gas from nitrogen-rich fertilizers and animal waste that combine in the air with industrial emissions. According to the UN’s FAO, 64% of human-induced ammonia emissions come from the livestock sector. The resultant solid particles formed, PM2.5, are a huge source of disease and mortality, worldwide estimated to cause millions of deaths each year.

It is clear that climate change, and the pollution that accompanies global warming emissions, represent a humanitarian crisis that has already arrived, and that is clearly associated with our world’s demand for animal products.

**WATER USE**

Livestock is a very water-intensive commodity. Producing just one pound of grain-fed beef requires upward of 1,800 gallons of water. To put that into perspective, cutting out just one pound of beef from one’s diet would save as much water as it would take to enjoy a five-minute shower, using two gallons of water per minute, every other day, for an entire year.

Raising animals for food, according to 2018 numbers from the U.S. Department of Agriculture, Economic Research Service, also uses a staggering amount of US lands. When combining pasture and rangeland, with the land used to raise livestock feed crops, we find that 41% of the entire landmass of the lower United States is being used to feed livestock. Since agriculture uses some 80-90% of all freshwater used for all purposes in the United States and knowing that livestock represents such a sizable portion of our total agricultural land use, it’s easy to see how much of a drain on our water supply results from raising grain for livestock.

This can be seen in the results of a 2012 report published by The *Pacific Institute* entitled, *California’s Water Footprint*. This assessment examined California’s water use when drought was afflicting the state. The report found that California’s total water footprint was about 20 trillion gallons of water per year-- more than double the annual average combined flows of the state’s two largest rivers, the Sacramento and San Joaquin Rivers.

While Californians were being told to moderate their home use of water in order to protect water resources, the truth was that only 4% of California’s water footprint was associated with direct household water consumption (e.g., for landscape irrigation). On the other hand, more than 90% of California’s water footprint was associated with agricultural products, with meat and dairy products alone accounting for 47% of all water use in the state. This is the result of the huge amount of water-intensive alfalfa and forage crops required to raise the animals for dairy and meat for domestic use and export.

Milk itself is a rather water-intensive commodity, requiring, according to data from the University of California Alfalfa Work Group, 683 gallons to create just one gallon of milk.

**FOOD RESOURCES/HUNGER**

Most high school students are now being taught about energy pyramids. These pyramids are a graphic representation of how much food energy is lost in a food chain when one group of organisms eats another. Looking at our food production system, we see that plants that grow from the ground, predominantly in the form of grains, create energy from nonliving sources and are called “producers.” When we, as herbivores, eat these producers directly, we are called “primary consumers,” and take advantage of their ability to create energy.

However, the problem arises when instead of eating these plants directly, we feed them to other “primary consumers,” or herbivorous animals (cows, chickens, pigs, fish, etc.), and in turn, eat those animals. We then become what is called a “secondary consumer” on the energy pyramid. Scientists have calculated that by cycling our plant foods through animals in this way, instead of eating the plants directly, an average of 90% of the energy from the food chain is “lost.”

While wasting the majority of our food by cycling our grains through cattle might be defensible in a world where all are well-fed, the reality is that to 821 million people on our planet are chronically hungry (almost as many people as the populations of the USA & the European Union, combined).

It is incomprehensible that our society not only accepts this inequality in the use of our food resources but continues to subsidize meat and dairy production. Additionally, each one of us contributes to the situation with every animal food meal that we eat. Consider that every single hour of every single day, Americans consume approximately 1 million animals, while according to *Oxfam*, every single hour of every single day, 1000 people die from hunger and hunger-related diseases.

Animals raised for food on our planet are a force to be reckoned with. They out-eat, outnumber, and outweigh all the humans on our planet. Any serious discussion about food resources and world hunger needs to address animal consumption as a core factor.

In the University of Oxford study mentioned above, the potential for our dietary choices to alleviate our world’s unjust distribution of food resources was shown to be enormous. Specifically, this study found that without meat and dairy consumption, global farmland use could be reduced by more than 75% – an area equivalent to the US, China, The European Union and Australia combined – while still feeding the world.

While that kind of reduction is not likely in the near future, consider the fact that if we were to take this on, so many of the world’s most serious issues, from climate change to world hunger to water shortages, to species extinctions and so much more, would very likely become a thing of the past.

**RAPID LOSS OF THE PLANET’S BIODIVERSITY**

Unbeknownst to most, we are in the midst of a global mass extinction event. According to the most comprehensive analysis to date, compiled by the *World Wildlife Fund* (*WWF*) and the *Zoological Society of London* (*ZSL*), global animal populations nosedived by 58% between 1970 and 2012, with losses set to reach 67% by 2020. In just fifty years, a blink of an eye in geological time, we will have wiped out close to two-thirds of wild animals on our planet.

Researchers from *WWF* and the *ZSL* compiled the report from scientific data and found that the major drivers of biodiversity loss and ecosystem change, are agriculture and overexploitation. Agriculture, as we now know, is dominated by raising food for livestock, while overexploitation includes both the direct and indirect impacts on species from fishing. The report also states that the major drivers of biodiversity decline are all driven by “runaway human consumption.”

In an earlier report, the World Health Organization concurred with those findings, stating that: "the livestock sector may well be the leading player in the reduction of biodiversity, since it is the major driver of deforestation, as well as one of the leading drivers of land degradation, pollution, climate change, overfishing, sedimentation of coastal areas and facilitation of invasions by alien species."

While we might think that a mass species extinction might only impact the Earth’s wildlife, a new UN report released in May 2019, suggests that the decimation of the natural world at the hands of human consumption is in fact, also threatening human existence. About 150 authors from 50 nations working for three years compiled the report by the *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*—a panel with 132 member nations, including the United States.

This extensive report stated that the accelerating rate of extinctions “means grave impacts on people around the world are now likely” and that the self-imposed loss of biodiversity is eroding “the foundations of our economies, livelihoods, food security, health and quality of life worldwide.”

Due to our society’s reliance on animal products for food, we are literally eating the world into a mass extinction event that is unmatched in human history. The good news is that taking on this core issue behind loss of biodiversity would concurrently address so many of the other critical issues of our times.

**RAINFORESTS**

This vibrant resource has enormous value both to humans and the natural world. Rainforests contain most of the world’s species of land vegetation. They are an important source of the world’s oxygen supply. Forests clean the air, absorb greenhouse gas emissions, and stabilize the climate—both globally and locally.

Rainforests have also been a source of many of our modern medicines, despite the fact that only a small percentage of their plants have been examined for medicinal properties. Additionally, rainforests are home to the world’s most ancient indigenous peoples, as well as to almost half of all animal and bird species on the planet.

Unfortunately, this valuable resource is being depleted at a rapid rate and once again, our animal foods habit plays a pivotal role. According to *Mongabay*’s 4/19 report *Amazon Destruction*, 65-70% of all Amazon rainforest land is being cleared for grazing animals. But that doesn’t capture the entire scope of the damage attributable to animal production since an additional 25-30% of Amazon depletion is caused by agriculture. That includes commercial agriculture, a significant part of which is the growing of soybeans, as a livestock feed crop.

**ANIMALS & SOCIAL NORMS**

This article’s main focus is the environmental and social impacts of eating animals. However, any time this topic is being discussed, it’s essential to acknowledge that there is a third party at the core of this issue: the animals.

Our society is full of contradictions and one of the greatest among them today is visible in the chasm between how we feel about animals, and how we treat the animals commonly used as food. The majority of people love the animals they live with and consider them to be part of their families. It is apparent to most, even if they’ve never considered the issue of animal rights, that our companion animals feel, that they have an interest in living and in being close to their family members and in being safe and free from harm, and that they have unique and diverse personalities. It’s plain to see that they care about their lives, and of course, they love, not just their own species, but humans as well. Animals also give us an unparalleled opportunity to love them in return. To anybody who has come to know and care for an animal, these statements are not a matter of debate, but a description of one’s day-to-day experience.

Contrast that which we experience with the fact that most who have a beloved animal in their family, think nothing of subjecting another animal, with the same emotions, interests, and abilities, to a life of enslavement and death at an early age, simply to satisfy their appetite. This contradiction is obviously the result of a prejudiced, clouded or incomplete consideration of the issue.

That cloud is in large part created by the rules or norms of the society we happen to live in. These norms that form the invisible context of our society can be more powerful forces than reason, intelligence, compassion or empathy.

Slave owners were not across-the-board cruel people without a conscience. Nor were the members of other war-mongering or human-sacrificing societies all sociopaths. Individuals simply lived in a culture where the rules said that taking part in one form of cruelty or another was acceptable and normal.

Unfortunately, our history shows that those without a voice or power will often be subject to the worst inclinations of those who are able to control them. That certainly has been and is the case with the animals we choose to eat. Since animals are unable to speak our language, it’s up to those of us who are so inclined, to do our best to consider and voice their interests.

**SOLUTIONS/LOOKING FORWARD**

So how can we reach those who deeply love animals, and yet eat them for convenience or pleasure--simply because everybody else does the same? That involves an ongoing chipping away at the power of our dated social norms in a number of ways.

First, as stated at the start of this article, we need to continue to educate the public about the actual impacts of our food choices on all aspects of our society. That is the objective of this piece.

# Second, we need to continue to communicate the fact that there is no nutritional reason to continue eating animals in America in 2019. Whether we look at the *Position of the American Dietetic Association*, or the *Position of the Academy of Nutrition and Dietetics*, we find that 100% plant-based diets are healthful and nutritionally adequate, and even provide health benefits for the prevention and treatment of certain diseases.

We have our choice of a plethora of plant foods to fulfill any and all nutritional requirements. And health organizations across the board, from the *American Institute For Cancer Research*, to the *Harvard School of Public Health*, and the *American Heart Association*, all tout the benefits of a whole food, plant-based diet to reduce our risk of diseases from heart disease to stroke, cancer, diabetes, obesity, high blood pressure and more.

Effectively communicating that we no longer need to eat animals to be healthy, enables people to understand that the environmental devastation, the waste of our global food supply, the destruction of our biodiversity, and the annual killing of trillions of animals, is all unnecessary. All optional. All a matter of choice, vs obligation.

Third, we need people to know that they are not alone in caring. The good news is that the public's awareness of this issue is beginning to accelerate rapidly. Unlike fifty or even ten years ago, a slew of public figures including environmentalists, political leaders (including a past president, vice president, and a 2020 presidential candidate), celebrities, professional athletes, and more are swearing off animal products in increasing numbers--some for environmental reasons, some for health, some for the animals and some for all of the reasons outlined above.

The advent of public figures going vegan is an extremely important development since that opens the door for the acceptance of a new social norm. While a vegan diet might sound interesting, once we hear that our sports heroes, neighbors, family members, or friends have stopped eating meat, a new possibility is created, and the prospect of letting go of the old norm that no longer reflects our values becomes much more appealing.

Role models, together with the exploding number of meat replacement products that are coming to market, and a growing awareness movement, make for an explosive combination, the effects of which are now evident in so many positive signs that plant-based eating is becoming a trend to be reckoned with.

Examples of this trend are now easy to spot. Dr. Oz declared 2017 as the *Year of The Vegan*. One of the world’s leading food and restaurant consultants, Baum & Whiteman, declared the “2018 Trend of the Year” to be: *Plant-Based Foods Go Mainstream!* Last year, Brazil declared that all the schools in four different cities would be going 100% plant-based in order to address the country’s obesity epidemic as well as environmental concerns. And all New York City schools will be adopting *Meatless Mondays* come September—joining [95 districts](http://www.whitsons.com/corporate-news/440-whitsons-culinary-group-launches-meatless-monday" \t "_blank) already doing so in the Northeast, as well as schools in Los Angeles and Sarasota, Florida.

In the last two years, China announced what, if successfully implemented, would be the biggest environmental news ever, launching their *Less Meat, Less Heat* campaign. Per capita, China currently eats less than half the amount of meat eaten in the US, and yet they consume 28% of the world’s meat, including half of its pork--and that number is rising due to their growing middle class. Their new dietary guidelines are recommending a 50% cut in China’s meat consumption by 2030. That would go a very long way toward reducing this large population’s impact on the global environment, food supply, and animals.

**CONCLUSION**

The information above describes only a portion of the massive environmental impact associated with feeding animal products to a population of almost 7.5 billion humans. The urgency to address global animal consumption going forward is increasing in the face of time-sensitive challenges such as climate change and the sobering prediction that developing countries with rising incomes will emulate the unsustainable, animal-laden diet-style of Americans -- resulting in an expected doubling of the world's farm animal population by 2050.

I’ve been engaged in health and environmental education on these issues since 1990, and as of 2005 with our nonprofit organization HealthyPlanet. We’ve run hundreds of events and radio shows that have reached an enormous number of community members in NY and beyond. While our many years of educational efforts--combined with the parallel efforts undertaken by other organizations, institutions, and individuals-- have been highly effective in jump-starting this movement, they represent just the start of the push that must continue and accelerate in the US and around the world. We have been laying the groundwork for what is now gearing up to be an inspired, youth-enhanced, worldwide movement that holds the promise of offering workable, win-win solutions to so many of our society’s most pressing challenges.

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Contact: BobD@healthyplanetUSA.org / www.healthyplanetusa.org

Phone: 631 421-5591

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