THE FUTURE FOR HEALTHFUL MEAT

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Abstract: Four million years ago, when meat was evolving-humanity's primary diet, our brain tripled in size. Ten thousand years ago we turned to farming, which meant more people eating more grains—but our bodies and brains shrank by 10 percent. For the future, thanks to high-yield farming and off-farm affluence, there is opportunity for all humans to eat their preferred foods without clearing more wildlife habitat—that's high-yield conservation. The lack of a global warming trend since 1998 indicates that the world is not in a CO_2-induced overheating, but has entered another of the global warmings that occur roughly every 1,500 years. Falling birth rates indicate human numbers will plateau at about 8-9 billion—but most of them will be "rich" food consumers. Total world food demand will thus nearly double by 2050, and livestock product consumption should do the same.

Key Words – meat, human evolution, farming, global warming, biofuel, population

I. INTRODUCTION

The world today is facing the greatest farming challenge of all time. Even though human numbers are beginning to plateau, 2050 will see about 35 percent more humans, along with a quadrupling of the number of people who can afford to eat high-quality diets. Pet cat and dog numbers will also rise importantly. Food demand will nearly double, and meat demand may double as well. How can this massive increase in food and meat demand be met without displacing huge tracts of wildlife habitat and its dependent species for more low-yield farming and pastures?

Some advocate that humans should give up meat. Man has never embraced such as diet shift, and that is even more unlikely in the wealthier world of tomorrow. Meantime, there is serious consumer opposition to further intensifying food production, rather than using organic and primitive production systems. Here we explore the realities of our meat preference, organic farming, man-made global warming, and biofuels. We urgently recommend 1) the end of subsidies and mandates for corn ethanol and biofuels; 2) more high-yield farming research aimed at rapidly tripling the food productivity of the land now in farming; and 3) opening direct conversation between farmers and consumers on the merits of intensified farming to protect wildlife.

II. MEAT AND HUMAN EVOLUTION

The history of human evolution has been tied to meat consumption as far back as the archeological record can be traced—at least 2.5 million years. The real turning point for evolving humanity apparently came about 4 million years ago in Africa. At that moment, some elements in human development—perhaps language, walking upright, weapons and/or tool-making—apparently combined to produce *a sudden 30-fold increase in meat consumption* [1]!

Beginning at that moment, the human brain suddenly began a three-fold increase in size. Did the larger brain require the dense, high-quality nutrition and key micronutrients available from meat, milk, fish, and eggs? Did the higher nutrient digestibility of meat—0.95 on the Net Protein Utilization scale, far higher than grain-based diets, produce the larger brain [2]?

Pouwel Slurink [3] at the University of Leipzig suggests this in his paper, "Ecological Dominance and the Final Sprint to Hominid Evolution." Slurink notes that "brain tissue is energetically expensive and to explain the threefold brain enlargement and the radical and relatively fast neuro-anatomical revolutions that enabled humans to speak and to create culture, we at least will have to invoke very specific and powerful selective forces."

Steven Stanley, [4] a John Hopkins paleobiologist, says in his controversial book, C*hildren of the Ice*

Age "Recall that brain tissue requires an enormous supply of energy. Fatty meat and bone marrow are rich sources of energy and . . . we can imagine that early Homo sapiens turned to them increasingly as its brain evolved toward larger size. The brain itself would have played an important role in the capture of the animals that supplied the meat and marrow."

A recent study of skeletal remains from 21 prehistoric human cultures around the world shows that we modern-day humans are about 10 percent smaller in stature than our hunter-gatherer ancestors—with 10 percent smaller brains. "Humans remained tall and robust until about 10,000 years ago, when many populations show reduced stature and brain size. It is a striking change," says lead author Marta Lahr, [5] co-director of a Cambridge University center for studying human evolution.

The biggest change that occurred among humans 10,000 years ago was unquestionably the shift from hunter-gathering to farming. With that shift came a smaller proportion of meat in the diets, and a higher proportion of grains instead. The grains provided enough energy, but vitamin and mineral deficiencies may have stunted the growth of both the body and the brain. The farmers also suffered more diseases, and Lahr suggests they suffered from more nutritional deficiencies such as iron deficiency anemia and/or deficiencies in zinc and b-vitamins.

Even so, humanity eagerly embraced farming. Farming consistently produced more food per acre from a given piece of territory. This meant more people, a bigger village and more warriors. More warriors provided a battle advantage, even if those warriors were slightly smaller and slightly less clever than the men of the hunting bands.

Thus humanity has, for the past 10,000 years, built itself on denser populations rather than stoking a minority of our people with more meat. The denser populations have generated a fabulous level of brainpower, knowledge, inventiveness, technology, and trade, even with the 10 percent decrease in brain size.

This is not to say that modern humans or today's vegetarians are less intelligent than yesterday's hunters. Even so, further reducing the meat proportion of our diets seems a risky strategy for humanity in the long term. The meat and livestock industries will simply have to find ways to double meat, milk, and egg production over the next 40 years!

III. THE FUTURE FOR MEAT: POPULATION GROWTH *PLUS* HIGHER INCOMES

The reality is that the world' population is set to stabilize, probably at about 8 billion people, after another 34 percent increase, and probably about 2045 [6]. The UN's Low Population Variant has been the predictor of past population changes**,** and that is likely to be most accurate again for this *final surge* in human numbers. The reason is that births per woman *in the poor countries* have dropped from 6.2 to 2.6 in my working lifetime, even as the birth rates have dropped below replacement across the whole list of affluent countries. Much of Europe now has birth rates as low as 1.2.

Affluence will instead become the biggest factor in 2050's food requirements. I estimate seven billion affluent people then, instead of today's 1.5 billion. PricewaterhouseCoopers [7] has projected that the E7 (China, India, Brazil, Russia, Indonesia, Mexico, and Turkey) will be, as a group, 75 percent larger in purchasing power by 2050 than the current G7 (U.S., Japan, Germany, UK, France, Italy and Canada). This will not be due to the G7 economies shrinking, but to the faster growth rates of GDP in the larger populations of these emerging economies.

The current "minor" crises over American mortgage subsidies and European overspending need to be corrected—and I predict the correction will be painful. However, capitalism and science are then poised to produce very large increases is global incomes, both in the West and in the emerging economies. There should be no reason that the Chinese cannot have dairy products and beef to go along with their pigs and poultry. There is no reason why India should not have the poultry

and ice cream they crave. Africa, too, should be able to have its Green Revolution, finally. This will not come overnight, but it will almost certainly come.

There will even be a pet challenge as people have greater affluence and fewer children. I predict that India and China will eventually add hundreds of millions more cats and dogs to their households—none of them vegetarian [8]

IV. WINNING THE FOOD RACE

It is wonderful to be able to say that for the first time in 120,000 years, we can realistically think about supplying adequate livestock products to a full world population. If we can keep raising our food yields per acre, we should be able to feed fully nutritional diets to even 9 billion humans without displacing the world's wildlife to grow more low-yield crops or more low-quality pasture for our animals!

Norman Borlaug's Green Revolution used cross-breeding, irrigation, industrial fertilizers and the chemistry of pesticides and veterinary medications to triple food yields per acre, quickly, on most of the world's good farmland [9]. The higher food yields saved nearly 7 million square miles of land from having to be plowed for more low-yield crops. While the Green Revolution is the greatest humanitarian achievement in history, it is at the same time *the greatest wildlife conservation achievement in history*. Seven million square miles is the land area of South America, and that wildlife habitat could be lost if farmers fail to achieve still-higher higher yields on the land they use now.

I maintain that the real challenge for the farmers and their support institutions in the next 40 years is to save the world's wildlife and wildlands—*in addition to feeding a peak population of 8–9 billion people more effectively than ever before.*

The key this enormous success will be to triple the food yields—again—from all of the world's good crop and pastureland. We will also have to attract the capital for the huge capital investments, which will be needed for the global farming intensification. To achieve this, farmers will first and foremost have to get permission from the vast nonfarm public for the high-yield research, the increased use of fertilizers and pesticides, and the confinement feeding and food processing facilities that will be needed to produce a three-fold food yield increase. Secondly, they will have to convince investors that high yield farming/conservation is a good bet for future earnings.

This will be very difficult, because at the moment, the affluent publics think they want "organic", "natural, "local" food production—the very opposite of high-yield wildlands conservation. They have been carefully taught this misconception by the intellectual elite, which was actually worried about overpopulation. Now that the world's population growth is nearly over, we can put that worry behind us. We're adequately feeding seven billion today, and the population growth will be over by 2045. But the public is still worshipping a misconception that "sustainability" is more important than humanity's right to eat. More on this later.

V. TODAY'S FOOD SHORTAGE AND BIOFUELS

Food prices have shot up in recent years, severely damaging the markets for meat, milk, and eggs. The real reason is simple. The United States, the European Union, Canada, and Indonesia decided—suddenly—to divert a major portion of their grain and oilseed crops to making auto fuel instead of food. Corn was selling at approximately $2 per bushel when the Bush administration expanded the ethanol mandate in 2007. In 2008, oil exceeded $l00 per barrel, and corn was close to $8 per bushel. Food riots broke out in at least a dozen countries, including Mexico and Egypt.

This food diversion produced lots of inflation in food prices, but little gain in energy supplies. One-third of the U.S. corn crop in 20ll went into ethanol production, but the true net energy gain from ethanol is only about 108 gallons worth of gasoline per acre [10]. This means an acre of corn can fuel about seven family cars for a week instead of feeding a family for a year. Ethanol represents a pitiful solution to the energy crisis and carries with it an increased risk of hunger for the world.

Unfortunately, ethanol is worse than even that disturbing set of figures would imply. Remember we mentioned that the Green Revolution not only saved a billion people from starving in 1970, but also saved seven million square miles of wildlife habitat from being plowed under for more low-yield crops. Recently, a Stanford University research team asked the same question and calculated that higher crop yields had saved only 6.6 million square miles—the land area of Russia [11].

The Stanford team went further, however, they calculated that the amount of soil carbon turned to nitrous oxide—a particularly damaging greenhouse gas—if the higher yields hadn't been achieved, *equaled one-third of the entire world's industrial emissions since 1850* [12]! The Stanford study tells us that ethanol, by requiring more land to be planted, will actually contribute massively to whatever portion of our warming is man-made.

If we are worried about global warming, the last thing we should do is to cause more land to be converted from forest and grassland to crops. Soil carbon losses would be too great, especially when 1) we have centuries' worth of coal and clean-burning technology, 2) deep drilling keeps finding major new oil supplies, and 3) computers and "fracking" have created a whole new shale-energy industry that makes ethanol look like a truly poor policy.

Today's high food prices have given us a peek at the world's impending food reality with current government policies—expensive food and massive losses in global wildlife habitat— unless we shift the "renewable fuels" resources back to food production. At the moment, the ethanol industry is counting on the Renewable Fuels Mandate to keep ethanol use high and rising even through the direct 45-cent-per-gallon subsidy has been allowed to expire. This is far from an optimal outcome.

VI. SHOULD WE WORRY ABOUT GLOBAL WARMING?

The global computer models claim that the planet will soon be parboiled by too much CO_2 in the atmosphere. The computers can supposedly tell just how soon and how badly the earth will overheat. However, the climate record is famously chaotic; it has never before moved in a straight line or simple curve and is not doing so today.

Global temperatures rose quickly from 1976–1998, touching off urgent public concern about overheating. Yet, during the past ten years, the thermometers stopped rising even though the CO_2 levels kept rising. Temperatures had also risen rapidly from 1915–1940, but then declined from 1940–1975 [13].

Today, because of tree ring research, we know that the 60-year cycle of the Pacific Decadal Oscillation (PDO) has dominated our short-term climate changes over the past 400 years. The Pacific warmed from 1915–1940 and warmed again from 1976–1998. Today, NASA satellites tell us that the Pacific has shifted again into its cooling cycle [13], which implies a 25–30 year cooling trend. The satellite temperature trends, in fact, show a slight cooling trend already.

Even more importantly, other researchers examining ice cores, seabed sediments, and fossil pollen found that the earth has a long, moderate 1,500-year climate cycle that has produced more than 500 global warmings and 500 global coolings in the past million years [14].

The historic record of both sides of the cycle, include the recent Little Ice Age, the Medieval Warming, the cold Dark Ages and the Roman Warming. Both the Medieval and Roman Warmings were warmer than today. These cycles typically warmed the planet by 1–2 degrees C, and then cooled us by a similar amount 750 years or so later [15].

The 1500-year cycles were extremely regular during the big Ice Ages at 1470 years plus or minus 15 years. During the warm Holocene, they have been less regular—but have still dominated the climate of the past 10,000 years [16] The first impact of a "little ice age" in today's Iraq, was a 300-year drought. Iraq has had seven of these collapses, the last one during the Little Ice Age [17]. Egypt has had six of these "little ice age" collapses since it built of the pyramids, and low Nile floods produced such severe famines that people ate their children [18]!

For some odd reason, the global warming computer models have not been programmed with any knowledge of these past warmings and coolings.

The latest information on global warming? The year 2011 was nearly a full degree colder than the year 1999 [19]. There has been no global warming trend for 15 years, and Canada has withdrawn from the Kyoto Treaty. A decade from now, the media and the alarmists will be totally embarrassed, and the rest of us should remember who they were, and how much this misadventure has cost in economic growth for the world's poor.

VII. THE FAILURE OF SUSTAINABILITY

The world's human population doubled in the warm and pleasant climate of the Medieval Warming. But human numbers were then cut in half again by the dreadful climate and epidemic disease of the Little Ice Age. This has happened more than 500 times in the past million years. Until people started building cities, their response was simply to walk as far as they could from the problem before they starved to death.

In the Little Ice Age, however, human ingenuity and science began to overcome the climate shift:

- Dutch farmers were forced by the awful climate to prevent famines by inventing crop/livestock rotations to raise yields on their existing cropland.

- In the Americas, primitive farmers selectively bred the maize plant to make it far larger and its kernels easier to process. They also added the cold-hardiness that expanded corn cultivation north from the Mexican Gulf Coast to Maine and Ontario. It became the foundation crop of civilizations for two continents, and today one of the key hopes for the food and feed future of the world.

- Other primitive farmers produced sheep with wool, instead of hair, to deal with the colder temperatures of the "little ice ages." It was probably started in what's now Iraq. Then wool sheep were spread across Eurasia by the steppe nomads who invaded everybody when their grasslands suffered the long droughts of "little ice ages."

What use is the environmental movement's claim of "sustainability forever" when the planet can only support half as many people, and half as many wild creatures during the sun's cold phases? What has "sustainability" done for the modern world beyond encouraging malaria and yellow fever by discouraging DDT and suppressing human populations, temporarily, to no purpose?

Every species on the planet has long ago proved it can deal successfully with a wide range of climate variability, from the much-warmer-than-now Holocene Warming 8,000 years ago to the ten-degree-Celsius-colder temperatures of the Ice Ages. Why have our biologists claimed the wild species could not tolerate another degree or two of global warming when they've already done it repeatedly, for centuries at a time? The world's orange groves have moved hundreds of miles north and south with the 1,500-year cycling of the of the tropical rain belts, proving the resilience of the vegetation. Nothing goes extinct, it just moves, adapts, or suffers through the cycle.

What can "sustainability?" offer us for the future except suppression of human lives and increasing constraints on humanity's ability to cope with its present reality? Will the myth of "renewable fuels" constrain our adaptation to the planet's future reality as well?

VIII. THE FUTURE OF MEAT CONSUMPTION PROJECTED

I predict that in the decades ahead, the world's food production will be stimulated by more industrial fertilizers, it will be protected by more and safer pesticides and veterinary medications, and it will be watered by increasing amounts of irrigation—and the public will be enormously grateful for the results. The catch is that we have to convince the public of these benefits –in advance.

The FAO [20] has estimated that world food production must rise by nearly 70 percent between

now and 2050, driven more by rising incomes than by population growth. They also estimate that global meat consumption will rise from 270 million tons per year to 470 million, an increase of 42 percent by mid-century.

Recently, the FAO [21] says, world poultry demand has been rising at 3.4 percent annually, and pork demand has been rising by 0.9 percent annually. Beef demand has been dropping by 0.6 percent per year because of its relatively higher price.

I expect an even higher rate of market growth for both poultry and pork than the USDA and FAO predict in the years ahead.

- In pork, I am impressed that China believes its massive pork consumption will double again as its rural incomes rise.

- I am impressed that the leader of China is saying he wants to provide milk for each school child, in a nation where milk has not been widely available until recently.

- I am impressed with the demonstrated demand growth for milk in India, and the potential for that to continue. And, with the potential sales growth for ice cream throughout the developing countries as they get electricity.

I further believe the FAO is underestimating the meat and livestock product demand increase, probably believing that higher costs for meat and livestock production will sharply limit demand growth.

I predict that the global income gains will be too large to severely constrain the developing-countries demand- growth, even in beef. The earning power of modern technology, trade and democracy are becoming more powerful by the day, and this translates directly into better diets for more people in more places.

I certainly agree than an affluent, sedentary society will need a new food consumption ethic—no more "clean plate clubs," less casual drop-in fast food and snacking, and more exercise. But it is senseless and useless to blame meat and livestock products for our obesity. It is equally senseless to blame "fast food" as if there were not an abundance of food all around all of us. We must reform our eating habits and our exercise regimens to maintain good health, and we must do it ourselves. It is the price of abundance.

The higher incomes and their related luxury market potential will stimulate production efficiencies, and attract new farming, processing and infrastructure capacity investments to meet the potential demand. Rising affluence seems likely to stimulate more future beef production as a "luxury food," even with the limited space for pasture and grazing land implied in the doubling-food-production scenario.

It is surely good to know that the question about whether antibiotic use in livestock feeds produces antibiotic resistance in humans has been resolved. Dr. Gerry Wright of McMaster University in Ontario has found antibiotic resistance genes, along with the DNA of extinct mammoths, in frozen tundra at least 300,000 years old. Remember, humans didn't invent antibiotics. We isolated them from the infinite, competitive variety of nature. Dr. Wright says, "Antibiotics are part of the natural ecology of the planet, so when we think we have developed some drug that won't be susceptible to resistance. . .we are completely kidding ourselves." [22].

There is vast productive potential in improved pastures, supplemental irrigation, high-yield feed grains and confinement feeding—when there is the investment capital to support it. There may also be important potential in gene-mapping and cloning.

IX. THE FUTURE OF BIOFUELS

I think it is far more likely that the biofuels will be crowded out of the market, instead of meat, milk and eggs. They will be pushed out by public discontent. Consumers don't like the high tax and consumer costs of renewable fuels. Nor will they willingly give up their desires for high-quality diets, not in China, not in India, nor in such key emerging countries as Bangladesh and Nigeria; and certainly not in the United States or Canada.

Even more likely is a consumer/taxpayer backlash against the computer modeling of our future climate, which has shown absolutely no predictive power. Public concern about man-made warming has already dropped roughly 20 percentage points in the past several years. The temperatures have failed to rise. Scandals have exposed uncertainty and duplicity amongst the major research centers. News stories, showing key players being more heavily invested in maintaining the rule of computer models then pursuing scientific objectivity, continue to be released to the public view.

That will essentially leave the world's agricultural resources to produce food, feed and fiber, rather than splitting off a major share of those farming resources to produce a pitiful amount of auto fuel at radically higher costs than for petroleum and natural gas. .

X. HOW TO GET HIGHER FOOD YIELDS PER ACRE?

Let me offer just a few thoughts on how we can start getting higher yields per acre:

- We can radically increase per-capita incomes of people in the tropics by using the mosquito-repelling capability of DDT to eliminate the malaria and yellow fever epidemics that impoverish the hot regions of the world. This will give them the per capita incomes to afford meat and livestock products, the big barrier to their meat consumption to date. That will help generate the investment capital to produce the demanded livestock products, in the tropics and over the rest of the world.

- Industrial fertilizers will provide the same sorts of yield gains in tropical countries as they do in temperature zones—if the farmers and consumers can afford them.

- A field in Nigeria has been found to have more than 200,000 weed seeds, due to the lack of frost and intense sunlight in the region. Herbicides would make a radical difference to yields and labor requirements.

- A biotech researcher says he's found out why crop plants produce radically lower yields in the aluminum-saturated soils of the tropics and subtropics, and suggests we can resolve that problem with "gene therapy."

- No-till farming systems continues to be a miraculous system for growing low-erosion crops on tens of millions of hectares of land around the world, and can probably be adapted for major parts of the Middle East and Africa, using appropriate herbicides and thereby doubling their soil moisture.

- Confinement feeding has produced more meat from less land just about anywhere that high-yield cropping has been achieved. Brazil, for example has 14 million hectares of western pastureland which has no cropping constraints. That land could be planted to crops, and the livestock shifted to rougher land (for the brood cows), and confinement feeding for fed animals and dairy cows.

- In the First World, the fear of overpopulation has at this moment sapped the energy and budgets of the agricultural research institutions. They have shifted their goals to low-yield "sustainability," supposedly to "protect the planet and its wildlife." Unfortunately, the real risk to the wildlife today is the 1 billion people in poor countries who cannot eat without shortening their bush fallows, incurring huge soil erosion problems, and then hunting down the wildlife with AK-47s to supplement their farming.

- International trade, which I predict will be freed from the current myth that energy is running out, will help us grow food where it can be grown most effectively, and transported efficiently to where the consumers choose to live. This will be one of the most important ways in which we

maximize the value of the world's farming resources.

XI. CO_2 AS A SURPRISE PLAYER IN FOOD PRODUCTION

Fortunately, there is also the likely impact of higher levels of carbon dioxide in the air. Carbon dioxide acts like fertilizer for plants, increasing both their nutrient and water use efficiencies. Tests show that adding 300 parts per million (ppm) of carbon dioxide to the current 400 ppm in the air will raise the productivity of the earth's herbaceous plants by 30–50 percent, and that of woody plants by 50–80 percent. Rice varieties selected for their high response to greater concentrations of aerial carbon dioxide should produce significantly more rice. Moreover, higher carbon dioxide concentration would redouble plants' water use efficiency, making them more drought tolerant [23].

All of this means less land required to feed the livestock for optimum global meat consumption. It is virtually certain that atmospheric carbon dioxide levels will continue to rise. We currently lack any cost-effective alternative fuels. Solar, wind, and "renewable fuels" are essentially worthless in maintaining the First World's lifestyles and saving the world's remaining wildlife. Nuclear is not now politically acceptable. As a result, BP has recently noted that the world's coal consumption has risen nearly 50 percent in the past decade [25].

Cheering for more carbon dioxide may seem to be anathema, but we will apparently get the added carbon dioxide whether it is politically correct or not. Other ways to raise yields probably can and will be found—if we invest in more research.

XII. CONCLUSION

For 25 years, the *Washington Post* has praised organic foods—while I warned that low-yield organic farming posed a threat to the world's wildlife. I recommended "high-yield conservation" instead. I was thus amazed when a December 4, 2011 *Post* editorial suddenly recommended more high-yield farming! The *Post* noted in "Feeding the Future" that human numbers may rise as high as 10 billion before they level off about 2050. "The smart response," said the *Post*, "is to improve how humans produce food by applying ever-more-efficient agricultural techniques more widely." The paper even prodded the environmental movement for opposing "biotechnology—another important tool for efficiency. . . which enhances the ancient practice of artificial genetic selections and could make crops more productive and more resistant to drought and bad weather." The editorial also chided the European Union, where "unfounded opposition [to biotechnology] is particularly extreme . . . blocking just the sort of breakthroughs environmentalists and world poverty advocates should encourage." [26].

The *Post's* change of heart is coming at the crucial moment. The *Post* now seems to realize that the world's current wildlife habitat could mostly be saved with one last major burst of higher-yield farming technology—and by nothing else. We'll need to double world food output in just 40 years—but for the last time! The one big high-yield farming technology we haven't fully exploited yet is biotechnology.

Let me also warn you about waiting for the *Washington Post* to change consumers' minds for you. Waiting for help is what farmers have been doing the whole time since 1970, and the strategy has failed them miserably. Consumers came to their current wrongheaded conclusions because farmers thought they were so obviously crucial that they needn't talk to the customers who no longer had personal ties to farms. The customers were left to get their farming information from Greenpeace! Do we want more lawsuits by Bobby Kennedy Jr. and more punitive regulations from the EPA?

How much better would it be to see consumer conversations as a normal and modest cost of farmers doing business? About a dozen years ago, the plastics industry was being pilloried by the environmentalists. The American Plastics Council undertook a TV campaign that completely silenced its critics. It wouldn't require expensive TV ads for farmers. A modest and intermittent campaign in consumer magazines featuring some of that brilliant full-color photography—along with the

message of saving lives and wildlife—should suffice to block farming's current critics.

I've been preaching this message for more than eight years now. Everybody agrees it's a good idea, but no one is doing it. Consequently, the consumers are still open to a new set of false claims from the scare industry while chic food magazines urge their readers to search for organic beef to prepare the recipes.

Is it time for the meat industries now to finally speak up and step up?

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