

CONVERSATION

Sustainable Eating

The following texts each present a viewpoint on the issue of eating in an environmentally sustainable way.

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After you have read, studied, and synthesized these pieces, enter the Conversation by responding to one of the writing prompts on pages 501–2.

1 from *Unhappy Meals*

MICHAEL POLLAN

The following selection is comprised of a “few (flagrantly unscientific) rules of thumb” author Michael Pollan has developed for eating well. They appear at the end of an article titled “Unhappy Meals,” which first appeared in the *New York Times* magazine in 2007.

1. Eat food. Though in our current state of confusion, this is much easier said than done. So try this: Don't eat anything your great-great-grandmother wouldn't recognize as food. (Sorry, but at this point Moms are as confused as the rest of us, which is why we have to go back a couple of generations, to a time before the advent of modern food products.) There are a great many foodlike items in the supermarket your ancestors wouldn't recognize as food (Go-Gurt? Breakfast-cereal bars? Nondairy creamer?); stay away from these.

2. Avoid even those food products that come bearing health claims. They're apt to be heavily processed, and the claims are often

dubious at best. Don't forget that margarine, one of the first industrial foods to claim that it was more healthful than the traditional food it replaced, turned out to give people heart attacks. When Kellogg's can boast about its Healthy Heart Strawberry Vanilla cereal bars, health claims have become hopelessly compromised. (The American Heart Association charges food makers for their endorsement.) Don't take the silence of the yams as a sign that they have nothing valuable to say about health.

3. Especially avoid food products containing ingredients that are a) unfamiliar, b) unpronounceable c) more than five in number—or

that contain high-fructose corn syrup. None of these characteristics are necessarily harmful in and of themselves, but all of them are reliable markers for foods that have been highly processed.

4. Get out of the supermarket whenever possible. You won't find any high-fructose corn syrup at the farmer's market; you also won't find food harvested long ago and far away. What you will find are fresh whole foods picked at the peak of nutritional quality. Precisely the kind of food your great-great-grandmother would have recognized as food.

5. Pay more, eat less. The American food system has for a century devoted its energies and policies to increasing quantity and reducing price, not to improving quality. There's no escaping the fact that better food — measured by taste or nutritional quality (which often correspond) — costs more, because it has been grown or raised less intensively and with more care. Not everyone can afford to eat well in America, which is shameful, but most of us can: Americans spend, on average, less than 10 percent of their income on food, down from 24 percent in 1947, and less than the citizens of any other nation. And those of us who can afford to eat well should. Paying more for food well grown in good soils — whether certified organic or not — will contribute not only to your health (by reducing exposure to pesticides) but also to the health of others who might not themselves be able to afford that sort of food: the people who grow it and the people who live downstream, and downwind, of the farms where it is grown.

"Eat less" is the most unwelcome advice of all, but in fact the scientific case for eating a lot less than we currently do is compelling. "Calorie restriction" has repeatedly been shown to slow aging in animals, and many researchers (including Walter Willett, the Harvard epidemiologist) believe it offers the single strongest link between diet and cancer

prevention. Food abundance is a problem, but culture has helped here, too, by promoting the idea of moderation. Once one of the longest-lived people on earth, the Okinawans practiced a principle they called "Hara Hachi Bu": eat until you are 80 percent full. To make the "eat less" message a bit more palatable, consider that quality may have a bearing on quantity: I don't know about you, but the better the quality of the food I eat, the less of it I need to feel satisfied. All tomatoes are not created equal.

6. Eat mostly plants, especially leaves. Scientists may disagree on what's so good about plants — the antioxidants? Fiber? Omega-3s? — but they do agree that they're probably really good for you and certainly can't hurt. Also, by eating a plant-based diet, you'll be consuming far fewer calories, since plant foods (except seeds) are typically less "energy dense" than the other things you might eat. Vegetarians are healthier than carnivores, but near vegetarians ("flexitarians") are as healthy as vegetarians. Thomas Jefferson was on to something when he advised treating meat more as a flavoring than a food.

7. Eat more like the French. Or the Japanese. Or the Italians. Or the Greeks. Confounding factors aside, people who eat according to the rules of a traditional food culture are generally healthier than we are. Any traditional diet will do: if it weren't a healthy diet, the people who follow it wouldn't still be around. True, food cultures are embedded in societies and economies and ecologies, and some of them travel better than others: Inuit not so well as Italian. In borrowing from a food culture, pay attention to how a culture eats, as well as to what it eats. In the case of the French paradox, it may not be the dietary nutrients that keep the French healthy (lots of saturated fat and alcohol?!) so much as the dietary habits: small portions, no seconds or snacking, communal meals — and the serious pleasure

taken in eating. (Worrying about diet can't possibly be good for you.) Let culture be your guide, not science.

8. Cook. And if you can, plant a garden. To take part in the intricate and endlessly interesting processes of providing for our sustenance is the surest way to escape the culture of fast food and the values implicit in it: that food should be cheap and easy; that food is fuel and not communion. The culture of the kitchen, as embodied in those enduring traditions we call cuisines, contains more wisdom about diet and health than you are apt to find in any nutrition journal or journalism. Plus, the food you grow yourself contributes to your health long before you sit down to eat it. So you might want to think about putting down this article now and picking up a spatula or hoe.

QUESTIONS

1. Michael Pollan opens with a deceptively simple assertion: "Eat food." How could those two words serve as a summary of the entire piece?
2. Why is Pollan suspicious of "health claims" (para. 2) made about food?
3. Pick out a few packages, boxes, packages, or cans from your pantry or refrigerator and read the list of ingredients. How much of it qualifies as "food," by Pollan's standards?
4. In paragraph 5, Pollan states: "Americans spend, on average, less than 10 percent of their income on food, down from 24 percent in 1947." Are you surprised by those statistics? What does this data suggest about our economy? About American values? What is Pollan's purpose in including that information?
5. What are some of the collateral effects — both positive and negative — of the "American food system" (para. 5)?
6. How does Pollan use humor in his list? Identify two examples and explain how the humor contributes to his overall argument.
7. Pollan addresses science — sometimes directly, sometimes indirectly — in "rules of thumb" 2, 5, 6, 7, and 9. What do these rules reveal about Pollan's attitude toward science?
8. How do the "rules," particularly number 8, reveal Pollan's values? To what extent do you share those values?
9. What inferences can you make about Pollan's intended audience? Consider various characteristics such as socioeconomic status, educational attainment, and core values. To what extent does his argument take into account those who have no choice but to use a local supermarket?
10. How would you rank the "rules" in order of ease? Would your ranking change for practicality or likelihood of being followed? Explain why or why not.

9. Eat like an omnivore. Try to add new species, not just new foods, to your diet. The greater the diversity of species you eat, the more likely you are to cover all your nutritional bases. That of course is an argument from nutritionism, but there is a better one, one that takes a broader view of "health." Biodiversity in the diet means less monoculture in the fields. What does that have to do with your health? Everything. The vast monocultures that now feed us require tremendous amounts of chemical fertilizers and pesticides to keep from collapsing. Diversifying those fields will mean fewer chemicals, healthier soils, healthier plants and animals and, in turn, healthier people. It's all connected, which is another way of saying that your health isn't bordered by your body and that what's good for the soil is probably good for you, too.

2 The Locavore Myth

JAMES MCWILLIAMS

The following article challenging the locavore movement appeared in 2009 in *Forbes*, a business magazine. McWilliams is a professor of history at Texas State University.

Buy local, shrink the distance food travels, save the planet. The locavore movement has captured a lot of fans. To their credit, they are highlighting the problems with industrialized food. But a lot of them are making a big mistake. By focusing on transportation, they overlook other energy-hogging factors in food production.

Take lamb. A 2006 academic study (funded by the New Zealand government) discovered that it made more environmental sense for a Londoner to buy lamb shipped from New Zealand than to buy lamb raised in the U.K. This finding is counterintuitive—if you're only counting food miles. But New Zealand lamb is raised on pastures with a small carbon footprint, whereas most English lamb is produced under intensive factory-like conditions with a big carbon footprint. This disparity overwhelms domestic lamb's advantage in transportation energy.

New Zealand lamb is not exceptional. Take a close look at water usage, fertilizer types, processing methods and packaging techniques and you discover that factors other than shipping far outweigh the energy it takes to transport food. One analysis, by Rich Pirog of the Leopold Center for Sustainable Agriculture, showed that transportation accounts for only 11% of food's carbon footprint. A fourth of the energy required to produce food is expended in the consumer's kitchen. Still more energy is consumed per meal in a restaurant, since restaurants throw away most of their leftovers.

Locavores argue that buying local food supports an area's farmers and, in turn, strengthens the community. Fair enough. Left unacknowledged, however, is the fact that it also hurts farmers in other parts of the world. The U.K. buys most

of its green beans from Kenya. While it's true that the beans almost always arrive in airplanes—the form of transportation that consumes the most energy—it's also true that a campaign to shame English consumers with small airplane stickers affixed to flown-in produce threatens the livelihood of 1.5 million sub-Saharan farmers.

Another chink in the locavores' armor involves the way food miles are calculated. To choose a locally grown apple over an apple trucked in from across the country might seem easy. But this decision ignores economies of scale. To take an extreme example, a shipper sending a truck with 2,000 apples over 2,000 miles would consume the same amount of fuel per apple as a local farmer who takes a pickup 50 miles to sell 50 apples at his stall at the green market. The critical measure here is not food miles but apples per gallon.

The one big problem with thinking beyond food miles is that it's hard to get the information you need. Ethically concerned consumers know very little about processing practices, water availability, packaging waste and fertilizer application. This is an opportunity for watchdog groups. They should make life-cycle carbon counts available to shoppers.

Until our food system becomes more transparent, there is one thing you can do to shrink the carbon footprint of your dinner: Take the meat off your plate. No matter how you slice it, it takes more energy to bring meat, as opposed to plants, to the table. It takes 6 pounds of grain to make a pound of chicken and 10 to 16 pounds to make a pound of beef. That difference translates into big differences in inputs. It requires 2,400 liters of

water to make a burger and only 13 liters to grow a tomato. A majority of the water in the American West goes toward the production of pigs, chickens and cattle.

The average American eats 273 pounds of meat a year. Give up red meat once a week and

you'll save as much energy as if the only food miles in your diet were the distance to the nearest truck farmer.

If you want to make a statement, ride your bike to the farmer's market. If you want to reduce greenhouse gases, become a vegetarian.

QUESTIONS

1. According to James McWilliams, locavores point to what serious problems? What are some of the unexpected disadvantages of the locavore movement?
2. Do you find McWilliams's use of lamb as an example to be convincing? Why or why not?
3. In paragraph 4, McWilliams writes, "Fair enough." What is the rhetorical effect of this sentence fragment? How does it contribute to his argument?
4. McWilliams writes, "To take an extreme example, a shipper sending a truck with 2,000 apples over 2,000 miles would consume the same amount of fuel per apple as a local farmer who takes a pickup 50 miles to sell 50 apples at his stall at the green market" (para. 5). Do you find the example of the local farmer to be realistic? Is McWilliams's "extreme example" perhaps too extreme? Is it a "straw man"? How does it affect the persuasiveness of his argument? Explain your response.
5. Go back and read the title of the article. Which features of the locavore movement does McWilliams regard as "myth"? Which does he regard as real?
6. In paragraph 7, McWilliams shifts his attention to the topic of meat. Do you think this shift in focus is effective, or is it an unnecessary tangent? What is the rhetorical effect of the final sentence? Explain.

3 The Carnivore's Dilemma

NICOLETTE HAHN NIMAN

In the following selection, published in the *New York Times* in 2009, Nicolette Hahn Niman, who is a lawyer and rancher, argues the case for eating meat.

Is eating a hamburger the global warming equivalent of driving a Hummer? This week an article in the *Times* of London carried a headline that blared: "Give Up Meat to Save the Planet." Former Vice President Al Gore, who has made climate change his signature issue, has even been assailed for omnivorous eating by animal rights activists.

It's true that food production is an important contributor to climate change. And the claim that meat (especially beef) is closely linked to global warming has received some credible backing, including by the United Nations and University

of Chicago. Both institutions have issued reports that have been widely summarized as condemning meat-eating.

But that's an overly simplistic conclusion to draw from the research. To a rancher like me, who raises cattle, goats and turkeys the traditional way (on grass), the studies show only that the prevailing methods of producing meat — that is, crowding animals together in factory farms, storing their waste in giant lagoons and cutting down forests to grow crops to feed them — cause substantial greenhouse gases. It could be, in fact, that a conscientious meat eater

may have a more environmentally friendly diet than your average vegetarian.

So what is the real story of meat's connection to global warming? Answering the question requires examining the individual greenhouse gases involved: carbon dioxide, methane and nitrous oxides.

Carbon dioxide makes up the majority of agriculture-related greenhouse emissions. In American farming, most carbon dioxide emissions come from fuel burned to operate vehicles and equipment. World agricultural carbon emissions, on the other hand, result primarily from the clearing of woods for crop growing and livestock grazing. During the 1990s, tropical deforestation in Brazil, India, Indonesia, Sudan and other developing countries caused 15 percent to 35 percent of annual global fossil fuel emissions.

Much Brazilian deforestation is connected to soybean cultivation. As much as 70 percent of areas newly cleared for agriculture in Mato Grosso State in Brazil is being used to grow soybeans. Over half of Brazil's soy harvest is controlled by a handful of international agribusiness companies, which ship it all over the world for animal feed and food products, causing emissions in the process.

Meat and dairy eaters need not be part of this. Many smaller, traditional farms and ranches in the United States have scant connection to carbon dioxide emissions because they keep their animals outdoors on pasture and make little use of machinery. Moreover, those farmers generally use less soy than industrial operations do, and those who do often grow their own, so there are no emissions from long-distance transport and zero chance their farms contributed to deforestation in the developing world.

In contrast to traditional farms, industrial livestock and poultry facilities keep animals in buildings with mechanized systems for feeding, lighting, sewage flushing, ventilation, heating and cooling, all of which generate emissions. These factory farms are also soy guzzlers and acquire much of

their feed overseas. You can reduce your contribution to carbon dioxide emissions by avoiding industrially produced meat and dairy products.

Unfortunately for vegetarians who rely on it for protein, avoiding soy from deforested croplands may be more difficult: as the Organic Consumers Association notes, Brazilian soy is common (and unlabeled) in tofu and soymilk sold in American supermarkets.

Methane is agriculture's second-largest greenhouse gas. Wetland rice fields alone account for as much as 29 percent of the world's human-generated methane. In animal farming, much of the methane comes from lagoons of liquefied manure at industrial facilities, which are as nauseating as they sound.

This isn't a problem at traditional farms. "Before the 1970s, methane emissions from manure were minimal because the majority of livestock farms in the U.S. were small operations where animals deposited manure in pastures and corrals," the Environmental Protection Agency says. The E.P.A. found that with the rapid rise of factory farms, liquefied manure systems became the norm and methane emissions skyrocketed. You can reduce your methane emissions by seeking out meat from animals raised outdoors on traditional farms.

♦ ♦ ♦

Critics of meat-eating often point out that cattle are prime culprits in methane production. Fortunately, the cause of these methane emissions is understood, and their production can be reduced.

Much of the problem arises when livestock eat poor quality forages, throwing their digestive systems out of balance. Livestock nutrition experts have demonstrated that by making minor improvements in animal diets (like providing nutrient-laden salt licks) they can cut enteric methane by half. Other practices, like adding certain proteins to ruminant diets, can reduce methane production per unit of milk or meat by a factor of six, according to research at Australia's

University of New England. Enteric methane emissions can also be substantially reduced when cattle are regularly rotated onto fresh pastures, researchers at University of Louisiana have confirmed.

Finally, livestock farming plays a role in nitrous oxide emissions, which make up around 5 percent of this country's total greenhouse gases. More than three-quarters of farming's nitrous oxide emissions result from man-made fertilizers. Thus, you can reduce nitrous oxide emissions by buying meat and dairy products from animals that were not fed fertilized crops — in other words, from animals raised on grass or raised organically.

In contrast to factory farming, well-managed, non-industrialized animal farming minimizes greenhouse gases and can even benefit the environment. For example, properly timed cattle grazing can increase vegetation by as much as 45 percent, North Dakota State University researchers have found. And grazing by large herbivores (including cattle) is essential for well-functioning prairie ecosystems, research at Kansas State University has determined.

Additionally, several recent studies show that pasture and grassland areas used for livestock reduce global warming by acting as carbon sinks. Converting croplands to pasture, which reduces erosion, effectively sequesters significant amounts of carbon. One analysis published in the journal *Global Change Biology* showed a 19 percent increase in soil carbon after land changed from cropland to pasture. What's more, animal grazing reduces the need for the fertilizers and fuel used by farm machinery in crop cultivation, things that aggravate climate change.

Livestock grazing has other noteworthy environmental benefits as well. Compared to cropland, perennial pastures used for grazing can decrease soil erosion by 80 percent and markedly improve water quality, Minnesota's Land Stewardship Project research has found. Even the United Nations report acknowledges, "There is growing evidence that both cattle ranching and pastoralism can have positive impacts on biodiversity."

As the contrast between the environmental impact of traditional farming and industrial farming shows, efforts to minimize greenhouse gases need to be much more sophisticated than just making blanket condemnations of certain foods. Farming methods vary tremendously, leading to widely variable global warming contributions for every food we eat. Recent research in Sweden shows that, depending on how and where a food is produced, its carbon dioxide emissions vary by a factor of 10.

And it should also be noted that farmers bear only a portion of the blame for greenhouse gas emissions in the food system. Only about one-fifth of the food system's energy use is farm-related, according to University of Wisconsin research. And the Soil Association in Britain estimates that only half of food's total greenhouse impact has any connection to farms. The rest comes from processing, transportation, storage, retailing and food preparation. The seemingly innocent potato chip, for instance, turns out to be a dreadfully climate-hostile food. Foods that are minimally processed, in season and locally grown, like those available at farmers' markets and backyard gardens, are generally the most climate-friendly.

Rampant waste at the processing, retail and household stages compounds the problem. About half of the food produced in the United States is thrown away, according to University of Arizona research. Thus, a consumer could measurably reduce personal global warming impact simply by more judicious grocery purchasing and use.

None of us, whether we are vegan or omnivore, can entirely avoid foods that play a role in global warming. Singling out meat is misleading and unhelpful, especially since few people are likely to entirely abandon animal-based foods. Mr. Gore, for one, apparently has no intention of going vegan. The 90 percent of Americans who eat meat and dairy are likely to respond the same way.

Still, there are numerous reasonable ways to reduce our individual contributions to climate change through our food choices. Because it takes more resources to produce meat and dairy than, say, fresh locally grown carrots, it's sensible to cut back on consumption of

animal-based foods. More important, all eaters can lower their global warming contribution by following these simple rules: avoid processed foods and those from industrialized farms; reduce food waste; and buy local and in season.

QUESTIONS

1. What is the "overly simplistic conclusion" that Nicolette Hahn Niman challenges? Why is it "overly simplistic" (para. 3)?
2. How successfully does Hahn Niman use sources and statistics to help support her argument? Do you find them convincing? Why or why not?
3. According to this article, what are the chief differences between factory farms and traditional farms? How compelling is the argument for traditional farming methods?
4. How has reading this piece affected your view of sustainable eating?
5. What is your view of the three rules with which the selection concludes? Are they good rules to follow? Why or why not?

4 Let Them Eat Dog

A Modest Proposal for Tossing Fido in the Oven

JONATHAN SAFRAN FOER

The following piece, a 2009 article published in the *Wall Street Journal* by novelist Jonathan Safran Foer, explores the taboo against eating dog in American society.

Despite the fact that it's perfectly legal in 44 states, eating "man's best friend" is as taboo as a man eating his best friend. Even the most enthusiastic carnivores won't eat dogs. TV guy and sometimes cooker Gordon Ramsay can get pretty macho with lambs and piglets when doing publicity for something he's selling, but you'll never see a puppy peeking out of one of his pots. And though he once said he'd electrocute his children if they became vegetarian, one can't help but wonder what his response would be if they poached the family pooch.

Dogs are wonderful, and in many ways unique. But they are remarkably unremarkable in their intellectual and experiential capacities. Pigs are every bit as intelligent and feeling, by any sensible definition of the words. They can't

hop into the back of a Volvo, but they can fetch, run and play, be mischievous and reciprocate affection. So why don't they get to curl up by the fire? Why can't they at least be spared being tossed on the fire? Our taboo against dog eating says something about dogs and a great deal about us.

The French, who love their dogs, sometimes eat their horses.

The Spanish, who love their horses, sometimes eat their cows.

The Indians, who love their cows, sometimes eat their dogs.

While written in a much different context, George Orwell's words (from "Animal Farm") apply here: "All animals are equal, but some animals are more equal than others."

So who's right? What might be the reasons to exclude canine from the menu? The selective carnivore suggests:

Don't eat companion animals. But dogs aren't kept as companions in all of the places they are eaten. And what about our petless neighbors? Would we have any right to object if they had dog for dinner?

OK, then: Don't eat animals with significant mental capacities. If by "significant mental capacities" we mean what a dog has, then good for the dog. But such a definition would also include the pig, cow and chicken. And it would exclude severely impaired humans.

Then: It's for good reason that the eternal taboos — don't fiddle with your crap, kiss your sister, or eat your companions — are taboo. Evolutionarily speaking, those things are bad for us. But dog eating isn't a taboo in many places, and it isn't in any way bad for us. Properly cooked, dog meat poses no greater health risks than any other meat.

Dog meat has been described as "gamey" "complex," "buttery" and "floral." And there is a proud pedigree of eating it. Fourth-century tombs contain depictions of dogs being slaughtered along with other food animals. It was a fundamental enough habit to have informed language itself: the Sino-Korean character for "fair and proper" (yeon) literally translates into "as cooked dog meat is delicious." Hippocrates¹ praised dog meat as a source of strength. Dakota Indians enjoyed dog liver, and not so long ago Hawaiians ate dog brains and blood. Captain Cook² ate dog. Roald Amundsen³ famously ate his sled dogs. (Granted, he was really hungry.) And dogs are still eaten to overcome bad luck in the Philippines; as medicine in China and Korea; to enhance libido

in Nigeria and in numerous places, on every continent, because they taste good. For centuries, the Chinese have raised special breeds of dogs, like the black-tongued chow, for chow, and many European countries still have laws on the books regarding postmortem examination of dogs intended for human consumption.

♦ ♦ ♦

Of course, something having been done just about everywhere is no kind of justification for doing it now. But unlike all farmed meat, which requires the creation and maintenance of animals, dogs are practically begging to be eaten. Three to four million dogs and cats are euthanized annually. The simple disposal of these euthanized dogs is an enormous ecological and economic problem. But eating those strays, those runaways, those not-quite-cute-enough-to-keep and not-quite-well-behaved-enough-to-keep dogs would be killing a flock of birds with one stone and eating it, too.

In a sense it's what we're doing already. Rendering — the conversion of animal protein unfit for human consumption into food for livestock and pets — allows processing plants to transform useless dead dogs into productive members of the food chain. In America, millions of dogs and cats euthanized in animal shelters every year become the food for our food. So let's just eliminate this inefficient and bizarre middle step.

This need not challenge our civility. We won't make them suffer any more than necessary. While it's widely believed that adrenaline makes dog meat taste better — hence the traditional methods of slaughter: hanging, boiling alive, beating to death — we can all agree that if we're going to eat them, we should kill them quickly and painlessly, right? For example, the traditional Hawaiian means of holding the dog's nose shut — in order to conserve blood — must be regarded (socially if not legally) as a no-no. Perhaps we could include dogs under the Humane Methods of Slaughter Act. That doesn't say anything about how they're

¹ Hippocrates (c. 460–c. 370 B.C.E.), an ancient Greek physician, known as the Father of Western Medicine. —Eds.

² Captain James Cook (1728–1779), a British explorer, navigator, and captain in the Royal Navy from 1768 to 1779. —Eds.

³ Roald Amundsen (1872–1928), a Norwegian explorer who led the first expedition to reach the South Pole in 1911. —Eds.

treated during their lives, and isn't subject to any meaningful oversight or enforcement, but surely we can rely on the industry to "self-regulate," as we do with other eaten animals.

Few people sufficiently appreciate the colossal task of feeding a world of billions of omnivores who demand meat with their pota-
toes. The inefficient use of dogs — conveniently already in areas of high human population (take note, local-food advocates) — should make any good ecologist blush. One could argue that various "humane" groups are the worst hypocrites, spending enormous amounts of money and energy in a futile attempt to reduce the number of unwanted dogs while at the very same time propagating the irresponsible no-dog-for-dinner taboo. If we let dogs be dogs, and breed without interference, we would create a sustainable, local meat supply with low energy inputs that would put even the most efficient grass-based farming to shame. For the ecologically-minded it's time to admit that dog is realistic food for realistic environmentalists.

For those already convinced, here's a classic Filipino recipe I recently came across. I haven't tried it myself, but sometimes you can read a recipe and just know.

Stewed Dog, Wedding Style.

First, kill a medium-sized dog, then burn off the fur over a hot fire. Carefully remove the skin while still warm and set aside for later

(may be used in other recipes). Cut meat into 1" cubes. Marinate meat in mixture of vinegar, peppercorn, salt, and garlic for 2 hours. Fry meat in oil using a large wok over an open fire, then add onions and chopped pineapple and sauté until tender. Pour in tomato sauce and boiling water, add green pepper, bay leaf, and Tabasco. Cover and simmer over warm coals until meat is tender. Blend in purée of dog's liver and cook for additional 5–7 minutes.

There is an overabundance of rational reasons to say no to factory-farmed meat: It is the No. 1 cause of global warming, it systematically forces tens of billions of animals to suffer in ways that would be illegal if they were dogs, it is a decisive factor in the development of swine and avian flus, and so on. And yet even most people who know these things still aren't inspired to order something else on the menu. Why?

Food is not rational. Food is culture, habit, craving and identity. Responding to factory farming calls for a capacity to care that dwells beyond information. We know what we see on undercover videos of factory farms and slaughterhouses is wrong. (There are those who will defend a system that allows for occasional animal cruelty, but no one defends the cruelty, itself.) And despite it being entirely reasonable, the case for eating dogs is likely repulsive to just about every reader of this paper. The instinct comes before our reason, and is more important.

QUESTIONS

1. The taboo against eating dogs is not universal. Why is it so strong in our Western culture even when, according to Jonathan Safran Foer, it defies logic? Since, as Safran Foer states, "Three to four million dogs and cats are euthanized annually," (para. 12) why shouldn't we use them instead as food?
2. What are the three reasons the "selective carnivore" gives for why we should not eat dogs? Which do you find most compelling? Why?
3. In paragraph 15, Safran Foer states: "For the ecologically minded it's time to admit that dog

is realistic food for realistic environmentalists." How would you characterize his tone here? Is he serious, or tongue-in-cheek? Explain how you know.

4. Why does Safran Foer include the recipe near the end of his essay? What rhetorical purpose does it serve?
5. In paragraph 19 Safran Foer discusses factory-farmed meat. How does that discussion relate to eating dogs and contribute to his rhetorical purpose?

6. What is the relationship, as Safran Foer sees it, between reason and instinct? Do you agree that instinct, in this case, is more important? Why or why not?
7. What do the title and subtitle suggest about how Safran Foer intends his audience to understand

- his essay? To what extent is this essay a satire? What, exactly, does the author satirize?
8. Effective humorists and satirists usually have a very serious point. What is Safran Foer's serious point? How would you state it in one sentence?

5 A Good Food Manifesto for America

WILL ALLEN

The following blog post from Growing Power's website is a plea for sustainable agricultural practices. It was written in 2010 by Will Allen, an urban farmer and former professional basketball player.

I am a farmer. While I find that this has come to mean many other things to other people — that I have become also a trainer and teacher, and to some a sort of food philosopher — I do like nothing better than to get my hands into good rich soil and sow the seeds of hope.

So, spring always enlivens me and gives me the energy to make haste, to feel confidence, to take full advantage of another all-too-short Wisconsin summer. This spring, however, much more so than in past springs, I feel my hope and confidence mixed with a sense of greater urgency. This spring, I know that my work will be all the more important, for the simple but profound reason that more people are hungry.

For years I have argued that our food system is broken, and I have tried to teach what I believe must be done to fix it. This year, and last, we have begun seeing the unfortunate results of systemic breakdown. We have seen it in higher prices for those who can less afford to pay, in lines at local food pantries, churches, and missions, and in the anxious eyes of people who have suddenly become unemployed. We have seen it, too, in nationwide outbreaks of food-borne illness in products as unlikely as spinach and peanuts.

Severe economic recession certainly has not helped matters, but the current economy is not alone to blame. This situation has been spinning

toward this day for decades. And while many of my acquaintances tend to point the finger at the big agro-chemical conglomerates as villains, the fault really is with all of us who casually, willingly, even happily surrendered our rights to safe, wholesome, affordable, and plentiful food in exchange for over-processed and pre-packaged convenience.

Over the past century, we allowed our agriculture to become more and more industrialized, more and more reliant on unsustainable practices, and much more distant from the source to the consumer. We have allowed corn and soybeans, grown on the finest farmland in the world, to become industrial commodities rather than foodstuffs. We have encouraged a system by which most of the green vegetables we eat come from a few hundred square miles of irrigated semi-desert in California.

When fuel prices skyrocket, as they did last year, things go awry. When a bubble like ethanol builds and then bursts, things go haywire. When drought strikes that valley in California, as is happening right now, things start to topple. And when the whole economy shatters, the security of a nation's food supply teeters on the brink of failure.

To many people, this might sound a bit hysterical. There is still food in the suburban supermarket aisles, yes. The shelves are not empty,

there are no bread lines. We haven't read of any number of Americans actually starving to death.

No, and were any of those things to happen, you can rest assured that there would be swift and vigorous action. What is happening is that many vulnerable people, especially in the large cities where most of us live, in vast urban tracts where there are in fact no supermarkets, are being forced to buy cheaper and lower-quality foods, to forgo fresh fruits and vegetables, or are relying on food programs — including our children's school food programs — that by necessity are obliged to distribute any kind of food they can afford, good for you or not. And this is coming to haunt us in health care and social costs. No, we are not suddenly starving to death; we are slowly but surely malnourishing ourselves to death. And this fate is falling ever more heavily on those who were already stressed: the poor. Yet there is little action.

Many astute and well-informed people beside myself, most notably Michael Pollan, in a highly persuasive treatise last fall in the *New York Times*, have issued these same warnings and laid out the case for reform of our national food policy. I need not go on repeating what Pollan and others have already said so well, and I do not wish merely to add my voice to a chorus.

I am writing to demand action.

It is time and past time for this nation, this government, to react to the dangers inherent in its flawed farm and food policies and to reverse course from subsidizing wealth to subsidizing health.

We have to stop paying the largest farm subsidies to large growers of unsustainable and inedible crops like cotton. We have to stop paying huge subsidies to Big Corn, Big Soy, and Big Chem to use prime farmland to grow fuel, plastics, and fructose. We have to stop using federal and state agencies and institutions as taxpayer-funded research arms for the very practices that got us into this mess.

We have to start subsidizing health and well-being by rewarding sustainable practices

in agriculture and assuring a safe, adequate, and wholesome food supply to all our citizens. And we need to start this reform process now, as part of the national stimulus toward economic recovery.

In my organization, Growing Power Inc. of Milwaukee, we have always before tried to be as self-sustaining as possible and to rely on the market for our success. Typically, I would not want to lean on government support, because part of the lesson we teach is to be self-reliant.

But these are not typical times, as we are now all too well aware. 15

As soon as it became clear that Congress would pass the National Recovery Act, I and members of my staff brainstormed ideas for a meaningful stimulus package aimed at creating green jobs, shoring up the security of our urban food systems, and promoting sound food policies of national scope. The outcome needed to be both "shovel-ready" for immediate impact and sustainable for future growth.

We produced a proposal for the creation of a public-private enabling institution called the Centers for Urban Agriculture. It would incorporate a national training and outreach center, a large working urban farmstead, a research and development center, a policy institute, and a state-of-the-future urban agriculture demonstration center into which all of these elements would be combined in a functioning community food system scaled to the needs of a large city.

We proposed that this working institution — not a "think tank" but a "do tank" — be based in Milwaukee, where Growing Power has already created an operating model on just two acres. But ultimately, satellite centers would become established in urban areas across the nation. Each would be the hub of a local or regional farm-to-market community food system that would provide sustainable jobs, job training, food production, and food distribution to those most in need of nutritional support and security.

This proposal was forwarded in February to our highest officials at the city, state, and federal level, and it was greeted with considerable approval. Unfortunately, however, it soon became clear that the way Congress had structured the stimulus package, with funds earmarked for only particular sectors of the economy, chiefly infrastructure, afforded neither our Congressional representatives nor our local leaders with the discretion to direct any significant funds to this innovative plan. It simply had not occurred to anyone that immediate and lasting job creation was plausible in a field such as community-based agriculture.

I am asking Congress today to rectify that oversight, whether by modifying the current guidelines of the Recovery Act or by designating new and dedicated funds to the development of community food systems through the creation of this national Centers for Urban Agriculture.

Our proposal budgeted the initial creation of this CUA at a minimum of \$63 million over two years — a droplet compared to the billions being invested in other programs both in the stimulus plan and from year-to-year in the federal budget.

Consider that the government will fund the Centers for Disease Control at about \$8.8 billion this year, and that is above the hundreds of millions more in research grants to other biomedical institutions, public and private. This is money well spent for important work to ensure Americans the best knowledge in protecting health by fighting disease; but surely by now we ought to recognize that the best offense against many diseases is the defense provided by a healthy and adequate diet. Yet barely a pittance of CDC money goes for any kind of preventive care research.

In 2008, the Department of Homeland Security approved spending \$450 million for a new National Bio and Agro-Defense Facility at Kansas State University, in addition to the

existing Biosecurity Research Institute already there. Again, money well spent to protect our food supply from the potential of a terrorist attack. But note that these hundreds of millions are being spent to protect us from a threat that may never materialize, while we seem to trivialize the very real and material threat that is upon us right now: the threat of malnourishment and undernourishment of very significant numbers of our citizens.

Government programs under the overwhelmed and overburdened departments of Agriculture and of Health and Human Services do their best to serve their many masters, but in the end, government farm and food policies are most often at odds between the needs of the young, the old, the sick, and the poor versus the wants of the super-industry that agriculture has become.

By and large, the government's funding of nutritional health comes down to spending millions on studies to tell us what we ought to eat without in any way guaranteeing that many people will be able to find or afford the foods they recommend. For instance, food stamps ensure only that poor people can buy food; they cannot ensure that, in the food deserts that America's inner cities have become, there will be any good food to buy.

We need a national nutrition plan that is not just another entitlement, that is not a matter of shipping surplus calories to schools, senior centers, and veterans' homes. We need a plan that encourages a return to the best practices of both farming and marketing, that rewards the grower who protects the environment and his customers by nourishing his soil with compost instead of chemicals and who ships his goods the shortest distance, not the longest.

If the main purpose of government is to provide for the common security of its citizens, surely ensuring the security of their food system must be among its paramount duties. And if among our rights are life, liberty, and the

pursuit of happiness, we are denied all those rights if our cities become prisons of poverty and malnutrition.

As an African-American farmer, I am calling on the first African-American president of the United States to lead us quickly away from this deepening crisis. Demand, President Obama, that Congress and your own Administration begin without delay the process of reforming our farm and food policies. Start now by correcting the omission in your economic stimulus and recovery act that prevented significant spending on creating new and sustainable jobs for the

poor in our urban centers as well as rural farm communities.

It will be an irony, certainly, but a sweet one, if millions of African-Americans whose grandparents left the farms of the South for the factories of the North, only to see those factories close, should now find fulfillment in learning once again to live close to the soil and to the food it gives to all of us.

I would hope that we can move along a continuum to make sure that all our citizens have access to the same fresh, safe, affordable good food regardless of their cultural, social, or economic situation.

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QUESTIONS

1. Where does Will Allen lay blame for the conditions that he describes in paragraph 4?
2. What does Allen suggest are "unsustainable practices" (para. 5)?
3. Allen writes, "To many people, this might sound a bit hysterical" (para. 7). Does it to you? Why or why not?
4. What does Allen mean by "subsidizing health" (para. 11)? What current practices does he identify as unhealthy? Do you agree with him? Explain your response.
5. Allen suggests that access to "fresh, safe, affordable good food" (para. 30) is a right that all Americans should have. Do you agree? How can we work to bring such a condition about?

6

from **Waste Not**

ALIZA ELIAZAROV

The following photo essay is part of a project entitled "Waste Not," by Brooklyn-based photographer Aliza Eliazarov. The food shown in the following photographs has been salvaged from dumpsters in New York City and artfully rearranged as a still life. Still life is a centuries-old art form that typically depicts inanimate objects and is often rich in symbolism. Eliazarov began this project in 2011, and she characterizes it as a quest "to show the beauty in the food that was being wasted" in order to bring awareness to food rescue organizations and the issue of food waste.



Aliza Eliazarov

▲
All food rescued from curbside garbage in front of Caputo's Bakery and Union Market on Court Street — Cobble Hill, Brooklyn.



Aliza Eliazarov

▲
Oyster shells rescued from restaurant Maison Premiere in Brooklyn by Billion Oyster Project to be reseeded to restore oyster beds in New York Harbor.



Aliza Eliazarov

Produce and flowers rescued from curbside trash outside of Union Market at 7th Ave & 13th St. — Park Slope, Brooklyn.



Aliza Eliazarov

Composting organic matter and keeping it out of landfills reduces harmful methane gas emissions that contribute to climate change.

QUESTIONS

1. How do these photos emulate the still life genre? Why do you think Alia Eliazarov composed the subjects of her photographs the way that she did?
2. Select one particular detail from one of the photos — such as the book by Plato, the goblets, the plant that resembles a dead bird, or the composed skull with horns. What is its purpose and effect?
3. Which of the four photographs do you find the most compelling? Why? How appropriate would it be as a public service poster for a school's environmental club? Explain.
4. The first three captions in this photo essay are sentence fragments; the fourth is a complete sentence that makes an assertion. What is the rhetorical purpose of each? How do the first three support the argument made by the fourth?
5. Eliazarov's title, "Waste Not," evokes the familiar adage, "Waste not, want not." How does the visual essay connect both parts of that saying?
6. Overall, what does the visual essay suggest about sustainable eating?

7 from Could Insects Be the Wonder Food of the Future?

EMILY ANTHERS

The following piece is from a 2014 article written by journalist Emily Anthes and published on the website for *BBC Future*.

At first my meal seems familiar, like countless other dishes I've eaten at Asian restaurants. A swirl of noodles slicked with oil and studded with shredded chicken, the aroma of ginger and garlic, a few wilting chives placed on the plate as a final flourish. And then, I notice the eyes. Dark, compound orbs on a yellow speckled head, joined to a winged, segmented body. I hadn't spotted them right away, but suddenly I see them everywhere — my noodles are teeming with insects.

I can't say I wasn't warned. On this warm May afternoon, I've agreed to be a guinea pig at an experimental insect tasting in Wageningen, a university town in the central Netherlands. My hosts are Ben Reade and Josh Evans from the Nordic Food Lab, a non-profit culinary research institute. Reade and Evans lead the lab's "insect deliciousness" project, a three-year effort to turn insects — the creepy crawlies that most of us squash without a second thought — into tasty treats. . . .

The next morning, Reade and Evans join 450 of the world's foremost experts on entomophagy,

or insect eating, at a hotel down the road in Ede. They are here for Insects to Feed the World, a three-day conference to "promote the use of insects as human food and as animal feed in assuring food security."

The attendees are all familiar with the same dire facts. By the year 2050, the planet will be packed with nine billion people. In low- and middle-income countries, the demand for animal products is rising sharply as economies grow; in the next few decades, we'll need to figure out how to produce enough protein for billions more mouths. Simply ramping up our current system is not really a solution. The global livestock industry already takes an enormous toll on the environment. It's a hungry and thirsty beast, gobbling up land and water. It's a potent polluter, thanks to the animal waste and veterinary medicines that seep into soil and water. And it emits more greenhouse gases than planes, trains and automobiles combined.

The insect authorities assembling in Ede believe that entomophagy could be an elegant

solution to many of these problems. Insects are chock-full of protein and rich in essential micro-nutrients, such as iron and zinc. They don't need as much space as livestock, emit lower levels of greenhouse gases, and have a sky-high feed conversion rate: a single kilogram of feed yields 12 times more edible cricket protein than beef protein. Some species of insects are drought resistant and may require less water than cows, pigs or poultry.

Insect meal could also replace some of the expensive ingredients (e.g. soybeans and fishmeal) that are fed to farm animals, potentially lowering the cost of livestock products and freeing up feed crops for human consumption. As an added bonus, bugs can be raised on refuse, such as food scraps and animal manure, so insect farms could increase the world's supply of protein while reducing and recycling waste. . . .

Turning to insects for nourishment is not a novel idea — the Bible mentions entomophagy, as do texts from Ancient Greece and Rome. But insect eating never became common in Modern Europe. The reasons are unknown, but the spread of agriculture — and, in particular, the domestication of livestock — may have made insects, and undomesticated plants and animals in general, less important as food sources.

Nevertheless, entomophagy remains common in some parts of the world: at least two billion people worldwide eat insects, according to the FAO. Yellow jacket wasp larvae are popular in Japan, cicadas are treasured in Malawi, and weaver ants are devoured in Thailand. Termites, a food favourite in many African nations, can be fried, smoked, steamed, sun-dried or ground into a powder. The list of edible insect species is at 1,900 and growing. . . .

The conference-goers seem to find comfort in telling and re-telling the story of sushi — a strange, foreign dish that showcased raw fish

(raw fish!) and yet became not just acceptable but trendy in the West. . . .

Over my week in the Netherlands, I'd tried other delicacies: locust tabbouleh; chicken crumbed in buffalo worms; bee larvae ceviche; tempura-fried crickets; rose beetle larvae stew; soy grasshoppers; chargrilled sticky rice with wasp paste; buffalo worm, avocado and tomato salad; a cucumber, basil and locust drink; and a fermented, Asian-style dipping sauce made from grasshoppers and mealworms.

None of them had actually tasted bad. The insects themselves were quite bland. The crickets had a slightly fishy aftertaste and the buffalo worms a metallic one. The rose beetle larvae were vaguely reminiscent of smoked ham. Mostly, the insects were carriers for other, stronger flavours in a dish. . . .

Bart Muys, an ecologist at KU Leuven in Belgium, tells the conference-goers that although insects can be reared on relatively tiny plots of land, producing insect meal requires significantly more energy than fishmeal or soymeal does, largely because the bugs need to be raised in warm conditions. The environmental impact of each production system will vary. The golden rule, Muys warns, is: "Do not claim before you know." . . .

For their part, Evans and Reade reject the notion that insects will be some sort of silver bullet. Bugs, they say, will only be a real part of the solution if we are careful and thoughtful about how we integrate them into the food system. In their eyes, entomophagy is about more than merely getting a precise amount of protein on a plate — it's about making sure everyone on the planet has access to food that is affordable, healthy, diverse, environmentally sound and, yes, delicious. "Insects can be a vehicle for something," Reade says. "But it has to be recognised that it's not the insects themselves that are going to make it sustainable. It's the humans."

10

QUESTIONS

1. The stated purpose of the conference Emily Anthes attends is to “promote the use of insects as human food and as animal feed in assuring food security” (para. 3). What do the conference promoters mean by “food security”? To what extent is that term euphemistic?
2. Considering the “dire facts” that Anthes presents in paragraph 4, do you think that eating insects is worthy of consideration as at least a partial solution to sustainable eating? Why or why not?
3. What are some of the pros to entomophagy? What might be some of the cons?
4. Have you visited a country where insects are eaten by people and/or seen entomophagy in practice? What was your reaction?
5. What is the rhetorical purpose of Anthes’s reference to sushi in paragraph 9? How effective is it?
6. Why does Anthes introduce the ideas of Bart Muys? What is the significance of his “golden rule” (para. 12)?
7. How would you answer the three questions that Anthes poses in her penultimate paragraph?
8. Anthes concludes with a statement by Reade: “But it has to be recognised that it’s not the insects themselves that are going to make it sustainable. It’s the humans” (para. 13). What does Reade mean? How does Anthes’s choice to conclude with this statement contribute to her overall argument?

8 Lab-Grown Meat May Save a Lot More Than Farm Animals’ Lives

BAHAR GHOLIPOUR

The following article was written by Bahar Gholipour, a science journalist and neuroscientist. It was published on the NBC News website in 2017.

Imagine a backyard barbecue where the parents grill burgers and chicken kebabs they’ve grown from single cells using a home meat-making machine. Meanwhile, the kids are transfixed by grandparents’ tales of life in the 20th century, before google was a verb and when meat was brutally carved from animals that looked like their pets.

We’re not there, yet. But raising animals for consumption may soon become obsolete. Scientists have shown it’s possible to produce animal-free beef, chicken, turkey, and fish. The latest example is lab-grown fried chicken, revealed last month by San Francisco-based startup Memphis Meats. Tasters of the product described it simply as chicken, perhaps a little spongier.

“I was blown away,” says Emily Byrd, a spokesperson for the Good Food Institute, a

nonprofit dedicated to promoting animal-free meat. “It’s almost strange to talk about it because the only way I can describe it is that it was chicken.”

Meat is essentially muscle tissue. If it grows naturally from a just few cells into a thick chunk, why can’t the same process happen in the lab? Over the past few years, scientists have made progress in figuring out how to use self-renewing cells to grow this tissue outside the body, and some hope to scale it up for mass production soon. You can call it lab-grown, clean, or cultured meat — we have yet to settle on a term — but there’s a good chance these products will replace conventional meat because of their potential to reduce environmental cost, increase health benefits for humans, and protect the welfare of the animals.

More Meat, Safer Production

Population growth and changing trends in diet have led to a doubling of meat consumption by humans over the past half-century. By 2050, estimates suggest meat production will have to increase to 455 million tons each year, up from 259 tons today, in order to satisfy the additional demand generated by population and income growth, according to a 2012 report by the United Nations.

But producing that much meat using conventional methods might ruin the planet. Meat and dairy products account for 70 percent of global water consumption, 38 percent of land use, and 19 percent of the world's greenhouse gas emissions, according to the report. The alarming environmental impact of meat production has even led the U.N. to suggest people curb their meat consumption, with a proposed regimen including one meat-free day each week.

Some analyses suggest that growing meat in factories could lessen the environmental footprint of livestock and reduce land and water use, as well as emissions. The lab-grown meat does, however, require creative designs to minimize the electricity and heat required to run the labs.

First, and most important, however, scientists and companies will need to figure out how to make enough lab-grown meat to bring its cost down to that of meat already on grocery shelves. Even the conventional meat industry is warming to the idea. In December, Tyson Foods, the largest U.S. meat company, launched a venture-capital fund to invest in start-ups that work on innovative approaches to protein products.

Historic Changes Are Underway

Winston Churchill predicted in a 1932 essay that within 50 years we'd be growing edible animal parts to "escape the absurdity of growing a whole chicken." He was just barely off. In 2002, a NASA-funded project successfully grew fillets from goldfish cells, but it wasn't until a little later that lab-grown meat started to look viable.

It started with a hamburger grown entirely outside an animal's body by Mark Post, professor of vascular physiology at Maastricht University in the Netherlands.

To grow the burger, he and his team used stem cells extracted from cow muscle tissue in a procedure similar to a biopsy. The cells were then put in a solution of bovine serum taken from unborn calves and then received food, hormones, and other elements naturally needed to grow. Over a few weeks, the cells multiplied and formed thin strips of muscle. It took about 20,000 of these strips to make one patty.

That project cost about \$330,000. But the burger, the first of its kind, also required expert care of skilled technicians and expensive laboratory supplies. Post, who later formed the company Mosa Meat, has since announced that the price of his historic burger has fallen to \$30 per pound.

Taste testers approved of his product and said it was "very meaty" — perhaps too meaty. It turns out much of red meat's taste actually comes from its fat content, which was nonexistent in the lab-grown burger. This complicates the job of meat creators; growing two types of tissues, each with different needs, outside their natural medium is difficult.

Rapidly Growing Biotechnology

Growing meat in the lab is possible because of breakthroughs in stem cell research and tissue engineering — two fields that have attracted scientific interest because of their immense potential in medicine. Uses now range from growing human tissue for transplantation to creating organs-on-chips for testing new drugs.

"Stem cell science and tissue engineering are at a stage that you can try other applications," says Shulamit Levenberg, a tissue engineer at Technion-Israel Institute of Technology in Haifa.

In her research, Levenberg created muscle grafts that can generate blood vessels to better survive when transplanted into the body. To do

this requires a special expertise, one that also comes in handy for producing tasty lab-grown meat made of both muscle and fat, she says.

Such creative applications of tissue engineering are catching on. In 2015, the first cultured meat conference took place in the Netherlands and was attended by about 100 people, many of whom came from medical research fields only peripherally related to lab-grown meat production.

Meat of the Future

All this movement in new foods technology has triggered regulatory authorities to find ways of modernizing the rules set 25 years ago, when these new meat products were still science fiction.

In March, The National Academies of Sciences, Engineering, and Medicine in Washington, D.C. released a report on the issue. "The rapid and often unforeseen advances" in biotechnology over the past decade spurred the committee to predict all future products of biotechnology that may arise over the next five to 10 years. Animal-free meat and dairy production was one field identified as having "high growth potential."

Commercial interest in lab-grown meat may lead to other scientific breakthroughs as

it introduces new challenges for biomedical researchers. To reduce the price, for example, scientists will have to discover new ways to grow cells more efficiently, says Liz Specht, a senior scientist at Good Food Institute.

Taking an open source approach may help the field move forward, says Erin Kim of New Harvest, a research institute dedicated to funding the development of cultured meat and other cellular agriculture products. She and her colleagues are opening the field to interested researchers by helping to create "starter cell" lines they can buy to experiment on, much like researchers currently do with mice. This has led to the creation of a turkey cell line, which was used last year to grow a small turkey nugget by North Carolina State University graduate student Marie Gibbons.

It's possible that advances propelled by lab-grown meat could one day translate back into medical science.

"We are still limited in our understanding about how to grow larger pieces of tissue or functional organs," Levenberg says. "If the two parallel approaches — the medical and the food industry — work on it together, there are more chances solutions will be found."

QUESTIONS

1. In paragraph 4, Bahar Gholipour states that "there's a good chance these products will replace conventional meat because of their potential to reduce environmental cost, increase health benefits for humans, and protect the welfare of the animals." To what extent is it a "good chance" that we will change our eating habits as she says?
2. To support her argument, Gholipour refers to a United Nations report, to a NASA-funded project, and to a National Academies of Science, Engineering, and Medicine report. What is the rhetorical effect of using these sources? How does each of them contribute to her argument?
3. What is the rhetorical effect of the author's reference to Winston Churchill?
4. Gholipour believes that a major factor standing in the way of lab-grown meat is its high cost, and suggests that people will be ready when it is brought "down to that of meat already on grocery shelves" (para. 8). Do you agree? Why or why not?
5. What are some advantages to using lab-grown meat as food? What might be likely some objections? Do the pros outweigh the cons? Explain.

MAKING CONNECTIONS

1. Other than by length, how do the “rules” offered by Michael Pollan differ from those offered by Nicolette Hahn Niman? Which writer offers the most reasonable suggestions, in your view? Which set of “rules” would appeal most to James McWilliams, to Will Allen, and to Emily Anthes?
2. Compare Nicolette Hahn Niman’s perspective on factory farms with that of Bahar Gholipour. Then compare her position on the eating of meat with that of James McWilliams. How would Gholipour respond to Hahn Niman? How would Hahn Niman respond to McWilliams? Refer to their texts in your answers.
3. Which writer develops the most persuasive argument regarding factory farms, Nicolette Hahn Niman or Will Allen? Compare them with one another.
4. In “A Good Food Manifesto for America,” Will Allen writes, “For years I have argued that our food system is broken . . .” (para. 3). Which two writers in the Conversation present the most convincing arguments concerning how to “fix” the system Allen discusses? Explain with reference to their texts.
5. Of the three approaches to alternative food — by Jonathan Safran Foer, Emily Anthes, and Bahar Gholipour — which do you think has the greatest chance of adoption? Which has the least? Explain your response.
6. How might other writers in the Conversation respond to Jonathan Safran Foer’s argument?
7. Which of the arguments presented in the Conversation are supported by the visual and textual information in the photo essay by Aliza Eliazarov? Explain.
8. The selections in this conversation present arguments of fact, arguments of value, and arguments of policy. Which selection would you regard as the best example of each? Explain why.

ENTERING THE CONVERSATION

As you respond to the following prompts, support your argument with references to at least three of the sources in this Conversation on Sustainable Eating. For help using sources, see Chapter 4.

1. Imagine that there is a well-known grassroots campaign that wants Congress to legislate against lab-grown meat production. Write an editorial for your school newspaper that supports or challenges this proposed ban. Refer to three of the sources in the Conversation as you support your argument.
2. Each of the writers in this Conversation is a contemporary, living writer. Write a letter addressed to one of them in which you defend, challenge, or qualify his or her position regarding sustainable eating. Refer to three of the other sources to support your position.
3. Imagine that your school’s environmental club wants to place posters of animals in a factory farm in the hallways of the elementary, middle, and high schools in your district. Compose a speech that you would deliver to your school board in order to defend or challenge that practice. Refer to three of the sources in the Conversation to support your position.
4. In his essay, “Waste,” farmer, professor, writer, and conservationist Wendell Berry states:

But our waste problem is not the fault only of producers. It is the fault of an economy that is wasteful from top to bottom — a symbiosis of an unlimited greed at the top and a lazy, passive, and self-indulgent consumptiveness at the bottom — and all of us are involved in it. If we wish to correct this economy, we must be careful to understand and to demonstrate how much waste of human life is involved in our waste of the material goods of Creation. . . . The mess that surrounds us, then, must be understood not just as a problem in itself but as a symptom of a greater and graver problem: the centralization of our economy, the gathering of the productive property and power into fewer and fewer hands, and the consequent destruction, everywhere, of the local economies of household, neighborhood, and community.

Write an essay that defends, challenges, or qualifies Berry's position about waste in America. In your response, refer to Aliza Eliazarov's "Waste Not" and two of the other selections in this chapter in addition to your own observation and experience.

5. Imagine that the largest employer in your town is what many of these writers would call a "factory farm." In the voice of the owner of the farm, write a defense of your business, addressed to one of the writers in the Conversation. Refer to three of the other sources in your letter.
6. Your school has been selected to pilot an "alternative food" project, which will offer canine,

insect, or lab-grown meat as a staple food. The project will offer free lunch for everyone during the trial period. Write an argument for your school paper for or against the adoption of the project.

7. Following Jonathan Safran Foer's lead, write your own "modest proposal" about sustainable eating.
8. Write a letter about sustainable eating to your local school board regarding the food offered in school cafeterias. Consider the factors that the board should consider before making dietary decisions for students.