

Meat and Morality: Alternatives to Factory Farming

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Abstract Scientists have shown that the practice of factory farming is an increasingly urgent danger to human health, the environment, and nonhuman animal welfare. For all these reasons, moral agents must consider alternatives. Vegetarian food production, humane food animal farming, and in-vitro meat production are all explored from a variety of ethical perspectives, especially utilitarian and rights-based viewpoints, all in the light of current U.S. and European initiatives in the public and private sectors. It is concluded that vegetarianism and potentially in-vitro meat production are the best-justified options.

Keywords Factory farming · Humane farming · In-vitro meat production · Rights theory · Utilitarianism · Vegetarianism

factory farming (FAK-tuh-ree FAHR-ming) noun: an industrialized system of producing meat, eggs, and milk in large-scale facilities where the animal is treated as a machine (Wordsmith 2008)

After several years of receiving “A Word for the Day” from a dictionary service, the author was interested to see the above definition pop up in the email inbox. The timing was perhaps not coincidental. In spring 2008, the Pew Commission on Industrial Farm Animal Production completed a two-year investigation of factory-farming practices in the United States. At the end of its 1,100-page report, the Commission recommended a ten-year timeline for the termination of the most intensive production techniques, including battery cages, gestation crates, and force-feeding birds to harvest their fatty livers for foie gras (Hunger Notes 2008).

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Researchers concluded that the current animal food industry is quite simply unacceptable due to its effects on humans, the environment, and animals raised for food. Their report came at a time when not only American but world-wide demand for animal products, especially meat, have risen to their highest point yet.

The numbers are staggering. Intensive confinement and mechanized production methods create an enormous volume of flesh for consumption. According to the U. S. Department of Agriculture, 10.378 billion U. S. land animals were slaughtered for food in 2007 ([World Farm Animals 2008](#)). This accounts for nearly 25% of the total estimated number of non-aquatic animals killed for food in the world ([United Poultry Concerns 2008](#)).¹ The American appetite for flesh has grown from 234 lbs. per capita in 1980 to 273 lbs. in 2007 ([Lavelle and Garber 2008](#)). Worldwide demand for meat is likewise increasing as developing nations become more able to afford it. China, for example, has been doubling its demand for meat every 10 years ([Paper says edible meat 2005](#)). Meanwhile, the human population is nearing 7 billion with no downturn in sight. The United Nations Population Division estimates that there will be 9 billion humans on the planet by 2050 ([Lederer 2009](#)). According to the FAO (Food and Agriculture Organization, United Nations), meat production will double worldwide by that same year, 2050, unless demand falters ([2006, p. 1](#)). Even at current levels, the only way to sustain meat consumption is to industrialize its production ([Bittman 2009, p. 13](#)). Yet, as the Pew Commission recognizes, factory farming is unsustainable and grossly deleterious to humans and nonhumans alike, as well as to the ecosystems that sustain us all.

Let us consider just some of the side effects of a system of meat production that has created unparalleled volume to meet unparalleled demand. The humans most directly and most badly affected are those who must work in such facilities, including slaughterhouses. The emotional effects of such employment, especially at the end stage, are considerable. According to slaughterhouse expert Temple Grandin, it is not unusual for the employees to become sadistic, literally brutalized by what they must do hourly and daily ([Pollan 2006, p. 233](#)). In terms of physical health alone, the consequences are serious for factory farm-related employees. Michael Pollan recounts being asked to don a biohazard suit before visiting a brooder house ([Pollan 2006, p. 221](#)). Communities surrounding such operations suffer from pollution and increased disease susceptibility as well ([Sayre and Laura 2009](#)).

Everyone, however, even vegetarians, are at risk from the pathogens released by stressed, immune-compromised, contaminant-filled nonhuman food animals ([Bittman 2009, p. 28](#)). Contributing to the problem are routine nontherapeutic doses of antibiotics in animal feed. Although the European Union banned the practice in 2006 ([Union of Concerned Scientists Food and agriculture report 2009](#)), it continues in the United States, accompanied by the emergence of increasingly antibiotic-resistant strains of *Campylobacter*, *MRSA*, *Salmonella*, *E. Coli*, and *Enterococcus* ([Sayre and Laura 2009](#)). In the United States alone 76 million are stricken annually by fouled food, 5,000 of them fatally ([Harris 2009](#)). Even those who avoid factory-

¹ No statistics are available for the number of aquatic animals slaughtered; however, it is thought that this number is likely equal to the land animals killed ([HSUS 2008](#)).

farmed meat are at risk from these new strains, which enter water, contaminate produce, and invade hospitals. Ironically, Johns Hopkins researchers have compared concentrated animal feeding operations (CAFOs) themselves to nightmare hospitals “where everyone is given antibiotics, patients lie in unchanged beds, hygiene is nonexistent, infections and re-infections are rife, waste is thrown out the window, and visitors enter and leave at will” (Sayre and Laura 2009, p. 78).

If this were not bad enough, consider what the Food and Drug Administration allows as protein in feed for poultry, pigs, and other non-cattle: cattle blood, brains, and spinal cords of cattle not older than 30 months, restaurant plate waste, and used poultry litter. Tissues from cows who die before slaughter or who are “downers” were also permitted until U. S. President Obama, in response to record E Coli food poisonings, declared that there would be a ban on their slaughter (Harris 2009). These rules actually represent an improvement over what the FDA previously allowed: tissues from cattle over 30 months old. Due to fears about mad cow disease, cattle feed may not contain cattle tissues, but cattle blood, restaurant waste, and poultry litter are still permitted. The FDA notes that cattle 30 months old and younger are less likely to harbor mad cow disease, but critics have replied that younger cows could still be infected—and that it is possible for the disease to be spread through what is still allowed in cattle feed (FDA 2005). The cattle industry, not surprisingly, is very happy the new rules are not more stringent (expensive). Of course, it was also expensive for U. S. meat processors to have their contaminated products recalled in record numbers; in 2007, tens of millions of pounds of beef were removed from the market by twenty recalls. The largest beef recall to date, 143 million pounds, occurred in 2008 (Martin 2008). At least one long established company, Topps Meat, has gone bankrupt (Martin 2007). Consumers sickened and killed by E Coli- and Salmonella-infested meat and vegetables contaminated by animal wastes also paid dearly. Predictably, we all pay a price when we turn herbivores into flesh and feces eaters. From a human standpoint alone, the mere knowledge of what the animals we eat themselves eat is enough to make us sick.

The effects on wild flora, fauna, and the environment in general are also predictably severe. Apart from overwhelming pollution, one must consider the impact of energy-intensive factory farming on greenhouse emissions. Astonishingly, the FAO documents that the livestock industry contributes more to these emissions—a full 20% of the total—than all of transportation (Bittman 2009, p. 1)! A typical American meat eater contributes one and one-half tons more CO₂ to the environment than a vegetarian. Mark Bittman brings this figure to life by noting that for a typical family of four to enjoy a steak dinner is equivalent to joy-riding in an SUV for 3 h after leaving all the lights on at home (Bittman 2009, p. 17).

Finally, one can only imagine the pain and stress endured by “cradle” to “grave” intensively confined nonhuman animals. Life is nasty, brutish, and (the one mercy) short. Who of us would wish to change places for a day with a factory-farmed hen, “broiler,” turkey, veal calf, foie gras duck, pig, or even a feedlot steer? Even if part of the exchange were amnesia about one’s human life and commensurately decreased intelligence for a day, the pain, boredom, and stress would probably be crippling. Were we behind John Rawls’s theoretical “veil of ignorance” (Rawls 1971), knowing that we could be incarnated as members of any species, we would

probably not take the risk of being factory-farmed animals. As Alice Walker wrote in “I am Blue,” her famous essay, “I am eating misery” (Walker 1988).

It is difficult to imagine a moral theory that would sanction the continuation of factory farming. Anthropocentrism, which posits inherent moral value in humans alone, would tell us to scale back our appetites for our own sakes. “Sentience-centrism” would agree, bidding us to consider the well being and lives of all beings capable of suffering. Biocentrism would expand the limits of moral considerability to all living beings, not a few of which are destroyed or imperiled by factory farming. Environmental holists, who assign moral considerability to ecosystems, would find nothing to approve of in factory farming either. Ecofeminist theorists likewise find factory farming highly unacceptable (see, e.g., Adams 1990; Curtin 2004). In fact, feminist theory in general, with its emphasis on relationships among beings and the emotional significance of these relationships, is antithetical to the objectification and consumption embodied in industrialized meat production. Any theory giving weight to empathy and concern will agree (see Gruen 2004); feminist theories hardly have a lock on such perspectives.

Similarly, utilitarianism, which demands that moral agents maximize overall pleasure or good for morally considerable beings, whoever or whatever they would be, looks askance at factory farming (see Singer 1990). So does moral rights theory, which holds that moral agents take into account the justified claims of morally considerable beings, including claims that can be made on behalf of such beings by others (Regan 1983, pp. 330–351; Pluhar 1995, pp. 269–274).

If moral theories agree in declaring current meat production practices to be morally unacceptable, which practices should in the long run replace them? What are moral agents to do? The answer to this question depends in part upon which beings are morally considerable.

The presumption made in this paper is that, at the very least, all sentient beings are morally considerable. Founding utilitarian Jeremy Bentham was the first to argue that the well-being of *everyone* capable of experiencing pleasure and pain must be taken into account as one determines rightness: the greatest good for the greatest number (Bentham 1789). Not all utilitarians have agreed, but those who don’t are subject to charges of either speciesism or a perfectionism that would devalue many humans as well as nonhumans.² Moral rights theorists who also reserve moral significance for humans, or to functionally rational humans, are subject to the same charges.

However, J. Baird Callicott, Mark Sagoff, and, more recently, Stephen Clark have argued that according moral considerability across the board to sentient beings is a fatally flawed approach (Callicott 1980; Sagoff 1984; Clark 2006).³ Their

² For an example of the latter sort of view see Frey (1989) and Frey and Paton (1989). Frey rejects speciesism but embraces experimentation and meat consumption. He consistently concludes that mentally disadvantaged humans could justifiably be vivisected. For his current thoughts on the justifiability of factory farming, see Frey (2004).

³ For Tom Regan’s most recent reply to the predation argument, see Regan (2001, p. 19). See also Pluhar (1995, p. 277).

argument has special application to moral rights theory. The objection is that if all sentient beings had the right to be protected from violence, moral agents would be obligated to try to protect every threatened being in the wild from every predator. Either this would violate the predators' rights to life by depriving them of sustenance or it would require us to find another way to feed and care for them without compromising their rights to wellbeing. This is an impossible task; therefore rights should not be accorded to all sentient beings.

Briefly, the predation argument merits two replies. First, it is logically impossible to have an obligation to do what one cannot do. Protecting predators and prey without violating rights is, as stated, impossible. Second, the distinction must be made between rights to assistance and rights to noninterference. Wild nonhuman animals primarily have justified claims to noninterference against moral agents. The same does not apply to domesticated nonhumans. By changing their evolutionary paths to render them beneficial to us, we have incurred obligations of assistance. This assuredly applies to all so-called "food animals."

Given the moral significance of (at least) sentient beings, and indeed the moral unjustifiability of factory farming from a variety of ethical perspectives, how should moral agents proceed?

Vegetarianism

The dangerous consequences of factory farming for the environment, human health, and animal well being could obviously be largely avoided by the shift to vegetarianism. Vegan diets are fully compatible with this aim. Dairy products could be permitted as well, so long as they do not exact suffering and death. Depending on one's vegetarian belief system, some egg consumption might also be permissible, although the way eggs come on the market now (most are factory-farmed, male chicks are killed even in "cage-free" operations) is not ethically acceptable. The environmental advantages of a low-on-the-food chain diet are too numerous to recount. As we have seen, the Pew Commission has noted many of the environmentally devastating effects of factory farming on water, soil, and air. Biocentrists and environmental holists join sentience-centrists in decrying these effects. Intensive practices are hugely wasteful drains on the planet and on the food supply itself.

Even from the anthropocentric point of view, continuing as we are is unjustifiable. The USDA documents that animals fed plant proteins edible by humans yield large net protein losses. For example, 1 lb. of beef requires 7 lbs. of corn, 1 lb. of pork requires 6.5 lbs. of corn, and only 1 lb. of chicken results from 2.8 lbs. of corn (Lavelle and Garber 2008). This is ironic indeed, considering the concomitant growth in the human population and the increasing appetite for large quantities of meat: if industrialized meat production is the only way to sate that appetite, humans are eating themselves into starvation. Vegetarianism would free vast stores of protein for current and future human generations.

The healthfulness of a well-balanced vegetarian (including vegan) regime is likewise acknowledged by mainstream nutritional research (ADA Reports 2003).⁴ Eating pesticide- and herbicide-treated produce, including produce genetically modified to be resistant to such agents, is not risk-free, but at least the toxins are not exponentially concentrated in flesh featured on the dining table. Consumers with access to organic or minimally treated produce are in the best position. These options are becoming more available as demand for them increases. According to nutrition research, compared to the traditionally meat-heavy omnivorous American diet, vegetarianism has health advantages for the prevention and amelioration of various diseases (ADA Reports 2003).

Nonhuman sentient beings by the billions yearly suffer intensive confinement with its attendant stress-caused pathogen shedding; transportation and slaughter impose additional agonies. Vegetarians take the moral high ground when they point out that this pain and death is not necessary for human health. Contemporary utilitarians like Singer (2004) and Gruzalski (2004) make the case against eating animals raised and killed for their flesh in classic Benthamite terms: the ethical goal of maximizing utility (happiness) and minimizing disutility (suffering) requires us to cease current practices. Those who hold that sentient beings have justified claims not to be harmed or killed unnecessarily; i.e., rights theorists, go further. Besides contributing mightily to disutility in the world by raising and slaughtering sentient beings for food, we violate their basic moral rights (Regan 1983, pp. 330–351; Pluhar 2004). Vegetarian feminists such as Adams (1990), Curtin (2004), and Gruen (2004) likewise enjoin humanity to stop what they see as outright barbarism. Eliminating sentient beings from our plates eliminates agony and wrongful death.

On the other hand, one must also ask about the cost to owners and employees of farms and of businesses supplied by those farms if people cease animal food production. All these people are sentient too! The reply is that losses might well be counterbalanced by the long-term satisfactions gained from the gradual redirection of their enterprises. The European Union model for eliminating factory farming mandates timed phase-outs, with incentives and assistance. (For more on EU policy, see below.) Even if there is some loss of profitability, however, some interests outweigh others. The factory-farmed animal is far worse off than the producer who loses some income by switching from animal-based agriculture is.

The moral case for vegetarianism as an alternative to consuming factory-farmed animals is very strong. Nonetheless, some object that as a matter of simple fact most human omnivores will not be persuaded to stop eating animal flesh. Many humans who have participated in meat eating all or most of their lives have a very difficult time letting go of that practice. The numbers of vegetarians in the U. S., for example, probably do not exceed more than 2–3% of the population (How many vegetarians 2006). Some estimates are as high as 7%, but these figures are suspect. One *Vegetarian Times* poll found that most of the respondents who identified themselves as vegetarian actually ate fish, poultry, or beef (Akers 2008)! Many

⁴ The one case where supplementation or fortification is required for vegans concerns vitamin B-12. Found in dairy products, eggs, and meat, B-12 does not occur naturally in plants. Fortified sources of B-12, such as cereals, are readily available.

vegetarians can tell you about friends or wait-staff who assume they eat seafood and sometimes chicken; “vegetarian” seems to be confused with “almost-vegetarian.” Even the 2.8% estimate (by a 2003 Harris Poll) is questionable, since the margin of error for a 1,000 adult sample is 3% (Akers 2008).

It may well be the case that more extensive education about the effects of factory farming on animals raised for food, on human health, and upon the environment would push the number of vegetarians significantly upward. At present, however, the vegetarian option is largely soft-pedaled on the assumption that as long as meat-eating options are available, most will prefer to exercise that option. Much effort is given to persuading human omnivores to eat less meat by moving it out of the center of the plate. Few seem to think outright vegetarianism is acceptable to most consumers, even though “In some ways it [cutting back] is harder than quitting” (Bittman 2008). On the other end of the meat-eating spectrum, we find that those who never had much often crave more. As we have seen, consumers in rising developing countries who are accustomed to eating little meat tend to demand more as they become able to afford it.

Nevertheless, if humans are able to make the full empathetic connection to nonhumans formerly regarded as food, it becomes increasingly difficult to consume them. The taboos we usually have against eating other humans expand as the moral circle we draw around significant beings expands. Provided that healthy alternative food sources are available, vegetarianism becomes a justified and strongly appealing choice for many. Mutually beneficial relationships with cows, chickens, and goats, for example, could be part of this picture, so long as they do not suffer and die for us. Humans and nonhumans alike can gain from the respectful refusal to eat meat.

Barring extensive reeducation and the full extension of empathy to “food animals,” however, many meat-eating humans will be reluctant to become vegetarians. Learning about the hazards of factory farming may lead them to the second option below.

Humane Animal Farming

Many who are not willing to become vegetarians are willing to consider the option of consuming humanely farmed animals. Smaller, more numerous family farms that practice sustainable agriculture and humanely raise the animals they market for food would impose much less of a burden on the environment. Animals raised in much less stressful conditions would shed fewer pathogens. They would not be pumped with hormones and nontherapeutic doses of antibiotics; their feed would not be contaminated with cattle parts and poultry litter. The animals would also suffer much less. Non-vegetarians as well as vegetarians are often horrified when they learn about the conditions under which factory farmed animals live and die. There was general outrage in the U. S. when clandestinely made recordings of sick downer cows being kicked and even forklifted on their way into the slaughter house were widely televised in 2008 (Martin 2008). The growing success of humanely obtained eggs, milk, beef, and chicken is due to consumer education and subsequent demand for healthier and “happier” food (Pfister 2008). As the trend continues, such farms

could eventually replace factory farms, offering many people the products they crave, albeit in lesser amounts. Bittman (2009) observes, for example, that available pasture on the earth could not sustain the 1.3 billion cattle now raised and slaughtered for food in CAFOs. Trading the currently high available volume of meat for healthier eating patterns, a less-stressed planet, and happier “food animals” is not unattractive, however.

In the European Union, the move to a more humane method of farming is a matter of public policy, not just a personal choice. The Dutch government, the only country to have a “Party for the Animals” in its legislature, has been the pioneer in this movement (Kruglinski 2008). Several U.S. states are following the E.U. example. Gestation crates, battery cages, and veal crates are targeted for discontinuation. Arizona, Colorado, Florida, and Oregon have adopted such laws (Devault 2008). On Election Day in November 2008, California joined them by passing Proposition 2. These are also key Pew Commission recommendations. Given consumer attitudes, the humane farming option is more likely to replace factory farming in the foreseeable future.

Anthropocentrists would be supportive of this option, but it does face objections from other ethical perspectives. Feminist theorists would look askance at an option which “commodifies” and kills sentient beings unnecessarily, albeit humanely. Biocentrists and environmental ethicists in general would also question the emphasis on domestic food animal production, given its displacement of wild flora and fauna. While the humane farming option would exact a much smaller toll on the environment and its denizens than factory farming, displacement would still be a factor. This objection to some extent would also apply to vegetarianism, since that option also calls for land cultivation. However, eating low on the food chain is more protein-efficient and therefore easier on the land than the alternatives. The best favor we could do for the environment is to choose to keep our numbers from further exploding and use the land as responsibly as possible.

Furthermore, the humane farming option faces objections on both utilitarian and moral rights grounds. The utilitarian argument often made in support of raising animals for food holds that the animals and their pleasures would not have existed at all if there had been no intent to raise them for food. Thus, it is claimed, net utility is added to the practice. Gruzalski counters that many more wild sentient beings would exist if so much land did not have to be devoted to supporting food animals with all their protein inefficiency (2004, p. 129). While life in the open may not be so easy, it also has its satisfactions. It is hard to see how these could be less than the pleasures of the farmed animals. Moreover, farm animals raised in the least stressful and most humane circumstances would for the most part still face grisly and frightening deaths (Gruzalski 2004, p. 128). Animals raised in this manner now are generally slaughtered in the same mechanized operations as factory-farmed animals. Farmers in affluent countries seldom have the legal option to slaughter their own animals. Those whose states do allow limited slaughter at the farm site have a difficult time ensuring painless and fearless deaths for all their animals. Pollan (2006) recounts his day at “The Glass Abattoir,” when several hundred chickens at an organic “humane” family farm were killed for paying customers. Each bird was snatched by a leg, whipped upside down, and shoved into a crate with 9 other chickens.

Chickens were then grabbed from the crate and stuffed upside down in individual “killing cones,” their heads sticking out at the bottom. After a time, when all the cones were loaded, one by one each head was turned and the throat cut with a sharp blade; sometimes the whole head was inadvertently lopped off. While such a death would involve less trauma than in the standard slaughterhouse, one could not call it suffering-free. The pain and fright slaughtered animals suffer in even the most benign conditions possible must be subtracted from the pleasures the animals had experienced before slaughter; it is unclear what the balance would be. We must also remember that all the pain and fear inflicted is unnecessary to support human health. All things considered, then, Bentham’s hedonistic calculus does not augur well for the humane farming alternative.

Neither does the moral rights perspective. The humane farming alternative to factory farming fails to respect the basic moral rights of the sentient beings raised and slaughtered for food. It would be wrong to raise succulent young humans for their flesh, however humanely they were treated; from the moral rights point of view the same applies to sentient nonhumans raised for food.

One final alternative to factory farming may avoid some of the objections to humane meat farming while satisfying the taste so many have for flesh: in-vitro meat production.

In-Vitro Meat

In April 2008, the In Vitro Meat Consortium held its first international conference in Norway (Revkin 2008). The conference reflects the significant progress that has been made in the production of laboratory-cultured meat. The technique calls for a single stem cell to mature and divide in a nutrient-rich soup, eventually resulting in billions of cells fused into a solid slab of meat. So far, a pig muscle cell has been cultured into a very thin bologna slice (Kruglinski 2008). If progress continues, a single muscle cell extracted from a living cow, for example, could in principle produce enough meat to satisfy the annual world demand for beef (Scientists aim for lab-grown meat 2005). Not all cravings are apt to be satisfied by current technology. Steaks cannot be reproduced because blood vessels would have to be coaxed somehow to grow in beef tissue. However, lab-grown chicken nuggets and minced pork or cow meat are real possibilities (Revkin 2008). In the hope of speeding the process along, People for the Ethical Treatment of Animals (PETA) has offered \$1 million to the first scientist who can produce affordable chicken nuggets that can pass a blind taste-test (Scientists offered \$1 million 2008). PETA’s deadline is summer 2012. The taste is likely less of a challenge than the price. The minimum cost with present techniques is a staggering \$1,000 per pound. U. S. and Dutch researchers hope that a price equivalent to \$1 per pound is a reachable goal (Sandhana 2006).

Were such cultured meat to become affordable and available, the advantages for humans, nonhuman livestock, and the environment might be considerable, depending on production methods. Most of the protein fed to livestock, 75–95%, is lost to metabolism or inedible structures; there would be no such negative protein

conversion in the laboratory (Sandhana 2006). The meat would simply be grown. Of course energy would be needed in the production process, but so is it needed to produce, transport, and slaughter livestock. The Dutch government is actively supporting the in-vitro-meat initiative in good part to mitigate the environmental damage caused by the livestock industry (Paper says edible meat 2005). From the human health perspective, one can see that the cultured meat consumer would not be exposed to antibiotics, hormones, downer cow tissues, or chicken-feces-fed livestock. Cultured meat would also have a big health advantage compared to organically grown livestock: the heart-threatening Omega 6 fatty acids existing in high levels in most consumed livestock could be replaced with beneficial Omega 3 fatty acids (Sandhana 2006). Finally, if many flesh-lovers turned to cultured meat, the cruelty inflicted in factory farming would be reduced, as well as the fear and pain of slaughter for factory-farmed and “humanely” farmed animals alike.

What objections would this option face from different ethical perspectives? Everyone, regardless of ethical perspective, would want to know that people from all economic backgrounds and cultures would have the opportunity to partake of this product, if that is their wish. If that is the case, anthropocentrists would find little to disagree with here, but feminists might well be concerned that the donor animals would still be regarded as commodities. That objection would be overcome if the donors are also regarded as intrinsically valuable (more on this below). Biocentrists and other environmental ethicists would demand accountability: would production methods minimally impact life and the planet as a whole? Current researchers say this will be the case; this is the major motive of the Dutch government. Stringent oversight is called for, of course.

The utilitarian objections to factory farming and to relatively humane farming would not apply to in-vitro meat production, at least in principle. There is no reason why the few animals who would be needed as one-time cell donors can not have their tiny samples removed painlessly and be free to have enjoyable lives—and natural deaths—in truly humane conditions. Food animal populations would decrease as demand for and availability of in-vitro meat increases, so one could argue that the utility that would have been generated by hypothetical food animals would be lost. However, as Gruzalski argued, this would be more than compensated for by the canceling of disutility resulting from flesh-farming and the utility generated by additional sentient beings who could fill newly available habitats. One must also consider the happiness of flesh-favoring, newly healthier consumers, aware that they are no longer indulging in guilty pleasures.

Granted, the initial reaction of many meat-eaters to the in-vitro meat initiative is repulsion. An unscientific poll conducted by this author elicited comments such as “That’s disgusting!” and “Who knows what they would put in that stuff?” They envision meat cells replicating like mold in a laboratory, injected with dubious additives by white-coated Frankensteins. Currently, production does involve a queasiness factor: cells mature in “fetal bovine serum.” Researchers are at work substituting a plant-based nutrient agent, however, well aware that this would be advantageous in marketing the product to erstwhile vegetarians as well as meat-eaters with humane concerns (Kruglinski 2008). The in-vitro meat industry, should it become potentially viable, would have to convince consumers that there are no

horrors and objectionable additives in the laboratory. If the industry can truthfully point to safe production and persuade people of this fact, and meat-lovers could see how advantageous cultured meat is to humans, cows, pigs, chickens, and the environment, it is probable that attitudes would adjust. Perhaps it is not an impossible dream to foresee a future in which meat-lovers are horrified by our past farming practices?

Rights theorists would also be hard-pressed to find objections to the in-vitro meat initiative, *provided* that the donors are treated with respect. If the animal tissue donors have lives appropriate for their species, are treated with concern, and allowed to die peacefully of old age, how are their rights being violated? It is true that they would not simply be free to roam wherever they fancy, and that at least on one occasion they would have a muscle cell painlessly extracted (perhaps as part of a veterinary health checkup). However, unlike wild animals in zoos, these members of domesticated species rely on human care. It would be cruel and thus disrespectful to release them in the environments we have made so inhospitable. We can and should provide maximum freedom along with needed care, and this is compatible with the noninvasive harvesting of a cell. On the other hand, if the animals whose cells are harvested are not treated respectfully, the moral rights view would have to oppose the in-vitro meat industry.

There is another matter troubling to those concerned about the rights of sentient beings. The cow, pig, or chicken is not capable of consenting to the cell-harvesting procedure. Do humans then have the right to take cells from her? Let us consider the human parallel. Babies and small children are not able to consent to medical procedures either. Parents or responsible guardians must consent on their behalf, with their well being uppermost in mind. The same applies if cells or blood are taken from babies (as non-invasively and painlessly as possible) to help others. Parents consent on behalf of their children with full respect for them and for their beneficiaries. No moral rights are violated here. There have even been cases of couples who conceive with the hope of helping existing children who need blood or cells from the babies or their umbilical cords. These couples state that they will love their new babies just as much as their ailing children (Seven children wait for their IVF sibling 2008). So long as the new children are not simply viewed as tissue farms, their rights are respected. The same would apply to cow, chicken, or pig cell donors. In Kantian terms, they are acknowledged as ends in themselves, not simply as means: they are intrinsically as well as instrumentally valuable (as most of us are).

Despite these considerations, many are troubled by the new initiative. The discomfort and outright revulsion that many rights theorists, feminists and, quite simply, vegetarians experience at the prospect of in-vitro meat stems, this author believes, from the association the new practice has with the raising and killing of animals for food. One is obtaining cells from animals once destined for consumption, thus continuing a habit that has resulted in the violent deaths of trillions of sentient beings. Why would one wish to support the continued and unnecessary consumption of flesh, given the history of such consumption? This is a question many vegetarians will answer in the negative. Suppose that, as Jonathan

Swift's savage satire suggested, the English had actually established the practice of "farming" succulent Irish babies:

. . . a young, healthy child well nursed is at a year old a most delicious, nourishing and healthy food, whether stewed, roasted, baked or boiled . . . when the family dines alone, the fore or hind quarter will make a reasonable dish, and seasoned with pepper or salt will be very good boiled on the fourth day, especially in winter (Swift and Jonathan 1729).

Now let us suppose that enlightenment dawns after nearly 300 years, and the horrified English populace abolishes the practice. Still, many fondly remember the unparalleled taste of Irish rump roast. Picture, then, the enterprising researchers who learn to clone cells from happy babies (whose parents, of course, consent) to culture into delicious nonsentient baby meat. Would this new product be an easy sell? For many (not all!) the gut reaction would be very negative indeed, a harkening back to abomination. This is precisely the sentiment of many current vegetarians at the prospect of in-vitro meat.

However, this is not a good argument against the practice of meat culturing. Guilt by association arguments are logically unacceptable, albeit psychologically appealing.

Vegetarians, of course, have different psychological and gastronomical reactions to the prospect of Brave New Meat. Those who either have never been attracted to steaks and the like, or who have divorced themselves thoroughly from earlier affinities, will probably not be able to stomach cultured meat. They have lost, or never had, the taste for it. On the other hand, vegetarians who became so because of health concerns or concern about the environment might find the in-vitro alternative very appealing. There is yet another group of vegetarians: those who still love the taste of meat but who have chosen to be vegetarian because of their moral concern for their fellow sentient beings. These vegetarians may or may not be able to eat cultured meat, once they are fully educated about it. Returning to our Swiftian alternative reality, some former consumers of murdered baby meat would gladly consider eating in-vitro baby chops. Consider this fully realistic thought experiment. Suppose you were a committed moral vegetarian presented with two dinner possibilities: a vegan meat substitute that tastes just like the chicken you used to eat so enthusiastically in pre-vegan days or meat cultured from a living, happy chicken. Those who would opt for the first alternative but be revolted by the second are in one group. Cloned chicken nugget enthusiasts are in another. Those who would find either alternative equally tasty form a third. In-vitro meat is a personally acceptable alternative to some vegetarians only, but there appear to be no strong rights-based objections to it if it is done in a respectful and responsible way.

Conclusion

From various ethical perspectives, including utilitarianism and moral rights theory, avoiding flesh farming through vegetarianism is morally justified. Potentially, so is the production and consumption of in-vitro meat. The continued raising and killing

of sentient beings for our dinner tables is not, although switching from factory farming to humane food animal farming would be an improvement for humans, nonhuman food animals, and the environment. As the Pew Commission report and other research reveal, we are being forced to either change our ways or face devastating consequences on multiple fronts. It is to be hoped that knowledge, compassion, and rationality will inform that change as much as possible.

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