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THE LEAST HARM PRINCIPLE MAY REQUIRE THAT HUMANS CONSUME A DIET CONTAINING LARGE HERBIVORES, NOT A VEGAN DIET

ABSTRACT. Based on his theory of animal rights, Regan concludes that humans are morally obligated to consume a vegetarian or vegan diet. When it was pointed out to him that even a vegan diet results in the loss of many animals of the field, he said that while that may be true, we are still obligated to consume a vegetarian/vegan diet because in total it would cause the least harm to animals (Least Harm Principle, or LHP) as compared to current agriculture. But is that conclusion valid? Is it possible that some other agricultural production alternatives may result in least harm to animals? An examination of this question shows that the LHP may actually be better served using food production systems that include both plant-based agriculture and a forage-ruminant-based agriculture as compared to a strict plant-based (vegan) system. Perhaps we are morally obligated to consume a diet containing both plants and ruminant (particularly cattle) animal products.

KEY WORDS: animal production, animal rights, least harm, moral vegetarianism, vegan

Although the debate over moral vegetarianism has been going on for millennia (Shapiro, 2000), there has been a resurgence of interest in this issue in the last part of the 20th century. One of the foundational philosophical works on this subject is "A Case for Animal Rights" (1983). This paper will not critique Regan's (1983) theory on animal rights. Rather, for the moment, suppose he is right; animals are subjects-of-a-life with interests of their own that matter as much to them as similar interests matter to humans. Therefore, animals have the right to live their lives without interference from humans. His conclusion follows, therefore, that animal agriculture interferes in the lives of millions of animals annually, so humans are morally obligated to consume a vegan or vegetarian diet. The purpose of this paper is to examine the moral vegan conclusion of Regan's animal rights theory, rather than the rights theory itself. It is also the objective of this paper to examine alternative conclusions. In other words, might there be alternatives to the moral vegetarian conclusion drawn from animal rights theory?

THE CONCEPT OF LEAST HARM

As I was thinking about the vegan conclusion, I remembered my childhood on the farm and where our food comes from and how it is produced. Specifically, I remembered riding on farm equipment and seeing mice, gophers, and pheasants in the field that were injured or killed every time we worked the fields. Therefore, I realized that animals of the field are killed in large numbers annually to produce food for humans. Kingsolver (2001) describes these killings very effectively. "I've watched enough harvests to know that cutting a wheat field amounts to more decapitated bunnies under the combine than you would believe." "She stopped speaking when her memory lodged on an old vision from childhood: A raccoon she found just after the hay mower ran it over. She could still see the matted grey fur, the gleaming jaw bone and shock of scattered teeth. . . ." Consequently, a vegan diet doesn't necessarily mean a diet that doesn't interfere in the lives of animals. In fact, production of corn, beans, rice, etc. kills many animals, as this paper will document. So, in 1999, I sent an email to Regan, pointing this out to him. Then I asked him, "What is the morally relevant difference between the animals of the field and those of the farm that makes it acceptable to kill some of them (field mice, etc.) so that humans may eat, but not acceptable to kill others (pigs, etc.) so we may eat?" His reply (Regan, 1999, personal communication) was that we must choose the method of food production that causes the least harm to animals. (I will refer to this concept as The Least Harm Principle or LHP.) In his book, Regan (1983) calls this the "minimize harm principle" and he describes it in the following way:

Whenever we find ourselves in a situation where all the options at hand will produce some harm to those who are innocent, we must choose that option that will result in the least total sum of harm.

It seems that Regan is saying that least harm would be done to animals in the production of a plant-based diet, because then at least you wouldn't be killing both the animals of the farm and those of the field, thus supporting the conclusion that humans are morally obligated to consume a vegan diet. But is that conclusion the one that best satisfies the LHP? Are there other ways of accomplishing least harm?

I find Regan's vegan conclusion to be problematic because he seems to think that there are no other alternatives. There is an old adage to the effect, "There is more than one way to skin a cat." Do alternative food production systems exist that may cause even less harm to animals?

HOW MANY ANIMALS OF THE FIELD WOULD DIE IF A VEGAN DIET WERE ADOPTED?

Animals living in and around agricultural fields are killed during field activities and the greater the number of field activities, the greater the number of field animals that die. A partial list of animals of the field in the USA include opossum, rock dove, house sparrow, European starling, black rat, Norway rat, house mouse, Chukar, gray partridge, ring-necked pheasant, wild turkey, cottontail rabbit, gray-tailed vole, and numerous species of amphibians (Edge, 2000). In addition, Edge (2000) says, "production of most crops requires multiple field operations that may include plowing, disking, harrowing, planting, cultivating, applying herbicides and pesticides as well as harvesting." These practices have negative effects on the populations of the animals living in the fields. For example, just one operation, the "mowing of alfalfa caused a 50% decline in gray-tailed vole population" (Edge, 2000). Although these examples represent crop production systems in the USA, the concept is also valid for intensive crop production in any country. Other studies have also examined the effect of agricultural tillage practices on field animal populations (Johnson et al., 1991; Pollard and Helton, 1970; Tew et al., 1992).

Although accurate estimates of the total number of animals killed by different agronomic practices from plowing to harvesting are not available, some studies show that the numbers are quite large. Kerasote (1993) describes it as follows: "When I inquired about the lives lost on a mechanized farm, I realized what costs we pay at the supermarket. One Oregon farmer told me that half of the cottontail rabbits went into his combine when he cut a wheat field, that virtually all of the small mammals, ground birds, and reptiles were killed when he harvested his crops. Because most of these animals have been seen as expendable, or not seen at all, few scientific studies have been done measuring agriculture's effects on their populations." In a study that has been done to examine the effect of harvesting grain crops, Tew and Macdonald (1993) reported that mouse population density dropped from 25/ha preharvest to less than 5/ha postharvest. This decrease was attributed to both migration out of the field and to mortality. They estimated the mortality rate to be 52%. In another study, Nass et al. (1971) reported that the mortality rate of Polynesian rats was 77% during the harvest of sugar cane in Hawaii. These are the estimated mortality rates for only a single species, and for only a single operation (i.e., harvesting). Therefore, an estimate somewhere between 52 and 77% (say 60%) for animals of all kinds killed during the production year would be reasonable. If we multiply the population density shown in

Tew and Macdonald's (1993) paper (25/ha) times a 60% mortality rate, that equals a mortality of 15 animals/ha each year.

If that is true, how many animals would die annually in the production of a vegan diet? There are 120 million ha of cropland harvested in the USA (USDA, 1997) each year. If all of that land was used to produce crops to support a vegan diet, and if 15 animals of the field are killed per ha per year, then 15 × 120 million = 1800 million or 1.8 billion animals would be killed annually to produce a vegan diet for the USA.

WOULD A PASTURE/RUMINANT MODEL KILL FEWER ANIMALS?

Production of forages, such as pasture-based forages, would cause less harm to field animals (kill fewer) than intensive crop production systems typically used to produce food for a vegan diet. This is because pasture forage production requires fewer passages through the field with tractors and other farm equipment. The killing of animals of the field would be further reduced if herbivorous animals (ruminants like cattle) were used to harvest the forage and convert it into meat and dairy products. Would such production systems cause less harm to the field animals? Again, accurate numbers aren't available comparing the number of animals of the field that are killed with these different cropping systems, but, "The predominant feeling among wildlife ecologists is that no-till agriculture will have broadly positive effects on mammalian wildlife" populations (Wooley et al., 1984). Pasture-forage production, with herbivores harvesting the forage, would be the ultimate in "no-till" agriculture. Because of the low numbers of times that equipment would be needed to grow and harvest pasture forages it would be reasonable to estimate that the pasture-forage model may reduce animals deaths. In other words, perhaps only 7.5 animals of the field per ha would die to produce pasture forages, as compared to the intensive cropping system (15/ha) used to produce a vegan diet.

If half of the total harvested land in the US was used to produce plant products for human consumption and half was used for pasture-forage production, how many animals would die annually so that humans may eat?

60 million ha, plant production × 15 animals/ha	=	0.9 billion
60 million ha, forage production × 7.5 animals/ha	=	0.45 billion
	Total:	1.35 billion animals

According to this model then, fewer animals (1.35 billion) would die than in the vegan model (1.8 billion). As a result, if we apply the LHP as

Regan did for his vegan conclusion, it would seem that humans are morally obligated to consume a diet of vegetables and ruminant animal products.

But what of the ruminant animals that would need to die to feed people in the pasture-forage model? According to USDA numbers quoted by Francione (2000), of the 8.4 billion farm animals killed each year for food in the US, approximately 8 billion of those are poultry and only 37 million are ruminants (cows, calves) the remainder includes pigs and other species. Even if the numbers of cows and calves killed for food each year was doubled to 74 million to replace the 8 billion poultry, the total number of animals that would need to be killed under this alternative method would still be only 1.424 billion, still clearly less than in the vegan model.

OTHER ALTERNATIVES

The pasture/ruminant model would have other advantages. For one, it would provide habitat for many species of animals and insects, helping them to survive. In addition, ruminants are capable of surviving and producing on diets containing only forages, which humans cannot digest. This is beneficial in two ways. First, crops such as corn and soybeans could all be fed to humans instead of to animals. Second, pasture forage can be produced on lands that are too rough to be usable to produce crops for human consumption. Grasses are currently grown and harvested by cows in many countries on lands that are too hilly, and/or rocky, and/or dry to be usable for production of crops like corn and soybeans.

Are there other alternatives that would cause "Least Harm"? As I have discussed this analysis with others, additional alternatives have been suggested. These include the following:

1. Another alternative, suggested recently by PETA (2001), recommends that if we are going to eat meat, we should kill the largest animals possible, thereby reducing the number of animals that would need to die to feed humans (LHP). In fact, they have suggested that blue whales, the largest known living animal would be the ideal choice. This suggestion strikes me as unsustainable, because it would be impossible to find adequate numbers of adult animals to harvest without totally depleting the population.

2. A third alternative, suggested by Peter Cheeke (personal communication), would be to eliminate intensive agriculture altogether and have everyone produce their own vegan diet on small plots of land using no-till production systems to reduce killing/harm to animals of the field. I believe that this system would also be unpractical and not viable. The

human populations are too large, land is concentrated in the hands of the few rather than many, and social systems would need to revert to those of primitive cultures.

3. But if herbivores are used, wouldn't it cause least harm if we used the fewest possible, therefore, the largest herbivores? Elephants might be used, but in practical terms, I believe that the majority of people would object to eating elephants. Large draft horse breeds developed previously as working horses, may be up to twice the size of a cow. Perhaps they could be used to harvest or convert forages into meat and dairy products. Again, I don't believe many humans would support this option; otherwise there would already be more people willing to consume horsemeat.

4. Kerasote (1993) proposed that least harm would be done if humans were to hunt locally, particularly large animals like elk for their own food. But his least harm concept appears to be related as much to least harm to the environment (less fossil fuel consumption) as least harm to animals. Furthermore, this doesn't seem to be a practical idea, because there are too few animals and there would be too many hunters. As Taylor (1999) said, one "issue that arises from Kerasote's argument is whether hunting for one's food is practical on a large scale."

INTENDED VS. UNINTENDED DEATHS

Taylor (1999) says that another issue arises from Karasote's argument, and that is the matter of intentional infliction of harm versus harm that is the unintentional, but a foreseeable side effect of one's actions. The animals of the field die not intentionally, but incidentally as a consequence of producing food for humans. On the other hand, farm animals (chickens, pigs, cows, and sheep) are killed intentionally to provide food for humans. Perhaps I don't fully understand the nuances or moral significance of this difference, but it seems to me that the harm done to the animal is the same – dead is dead. Furthermore, many farmers do intentionally kill some animals of the field because their presence causes reduced yields. Taylor (1999) says about the questions of intent, "A utilitarian is likely to see no moral difference between the two, since utilitarianism holds that it is consequences that count and not intentions."

CONCLUSION

1. Vegan diets are not bloodless diets. Millions of animals of the field die every year to provide products used in vegan diets.
2. Several alternative food production models exist that may kill fewer animals than the vegan model.
3. More research is needed to obtain accurate estimations of the number of field animals killed in different crop production systems.
4. Humans may be morally obligated to consume a diet from plant based plus pasture-forage-ruminant systems.

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