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Sustainable Livestock Farming as Normative Practice

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Abstract

We argue that an understanding of livestock farming as normative practice clarifies how sustainability is to be understood in livestock farming. The sustainability of livestock farming is first approached by investigating its identity. We argue that the economic aspect qualifies and the formative aspect founds the livestock farming practice. Observing the normativity related to these aspects will be the first task for the livestock farmer. In addition, we can distinguish conditioning norms applicable to the livestock farming practice which should be observed for competent performance of the practice. Failing to do justice to this normativity might affect the practice's sustainability only in the long term—this is especially the case with conditioning norms. Motives to observe normativity have, therefore, the character of an ultimate conviction regarding the flourishing of the practice. Finally, the sustainability of the livestock farming practice crucially depends on the broader food system of which it is part.

Keywords

normative practice – sustainability – livestock farming – ethics

1 Introduction

Sustainable livestock farming is a hot issue in the Netherlands and across the planet. For one, livestock farming worldwide contributes substantially to greenhouse gas emissions and related global warming (Steinfeld et al. 2006). Research and development initiatives therefore focus on how to reduce such emissions, and a Climate-Smart Agriculture approach has been developed that seeks to sustainably increase agricultural productivity and incomes while simultaneously adapting and building resilience to climate change and reducing greenhouse gas emissions where possible (FAO 2013). Another major sustainability issue is the worldwide trade of soy from the Amazon region for use in animal feed which is associated with deforestation in the Amazon and, in some regions (such as the Netherlands), with a mineral surplus leading to eutrophication of water bodies.

There are also other, non-environmental concerns often associated with sustainability, such as concerns about antibiotic resistance—with its risk for public health—and farm profitability. For example, the *Uitvoeringsagenda Duurzame Veehouderij* (UDV), a Dutch cooperative initiative in which farmer and product organizations, the Dutch government, a bank, NGOs, and a knowledge institute participate, has formulated fifteen ambitions—including such themes as antibiotic resistance and farm profitability—starting from the idea that “the Dutch livestock farming sector is integrally sustainable when animal products and various other economic or societally desired values are not produced at the expense of humans and animals, but in such a way that it can be sustained economically and socially for a long time, without exceeding the carrying capacity of the earth” (our translation).¹

In addition, sustainability is often connected to animal welfare concerns, as is also implied in UDV’s condition that livestock farming should not be practiced at the expense of animals. The Dutch (radical) NGO *Wakker Dier* articulate the same point in stronger terms, saying that it is a contradiction in terms to call the most abused and produced animal, the broiler chicken (*plofkip*), sustainable.² According to *Wakker Dier*, *sustainable* means “living and producing

1 “De Nederlandse veehouderij is integraal duurzaam als zij dierlijke producten en allerlei andere economisch of maatschappelijk gewenste waarden produceert, op een manier die maatschappelijk én economisch langdurig vol te houden is, niet ten koste gaat van mensen en dieren, en de draagkracht van de aarde niet overstijgt” (<http://www.uitvoeringsagendaduurzameveehouderij.nl/integraal-duurzame-veehouderij/15-ambities/>, accessed July 11, 2017).

2 “Duurzaam betekent leven en produceren op een manier die goed is voor mens, milieu én dier. Ook in de toekomst! Het meest mishandelde en geproduceerde diertje, de plofkip,

in a way that is good for humans, animals, and the environment, now and in the future” (our translation). Interestingly, Wakker Dier defends this position vis-à-vis people arguing that intensively kept chickens are more sustainable because they are more efficient feed converters and, consequently, put less pressure on natural resources and produce less greenhouse gasses per unit of animal product.

There is, then, considerable confusion about what exactly is meant by *sustainability* and *sustainable livestock farming*. More specifically, there is confusion about whether different desired goals—e.g., farm profitability, reduction of greenhouse gas emissions, and public health—can be achieved by using sustainability as a (master-)criterion (Hansen 1996; Korthals 2001).

In this paper we want to provide some clarifications in this debate through focusing on livestock farming as a *normative practice*. We will do this, first, by connecting the question of sustainability with the question of identity. Second, using the *normative practice approach* (NPA) we will work out what the structural identity of the livestock farming practice consists in. We will argue that the livestock farming practice is economically qualified and formatively founded, and that other types of norms are conditioning. The time dimension will turn out to be crucial for understanding the relationship between the acting of livestock farmers and the impact of unsustainable livestock farming practice, especially in relation to conditioning norms. This time dimension also draws attention to the ultimate convictions of the livestock farmer and his/her responsibility towards the normativity inherent to the practice. Finally, we will broaden the scope by paying attention to the context of the livestock farming practice and the associated differentiated responsibilities. In the latter, the concept of *food system* will appear to be useful.

2 Understanding Sustainability

The first question which confronts us when thinking about sustainable livestock farming and sustainability in general is what we understand by these terms. The concept of sustainability is notorious for its many definitions. Rather than going into all of them at this point, we prefer to focus on an understanding of sustainability as developed by Paul B. Thompson, a leading contemporary writer on agricultural ethics and sustainability. We will start at the most practical level, namely, Thompson’s discussion of what *sustainable*

duurzaam noemen vinden wij een contradictio in terminis!” (<https://www.wakkerdier.nl/persberichten/plofkip-duurzamer-dan-eko-kip>, accessed July 11, 2017).

livestock farming means. Subsequently, we will work towards a more abstract discussion of what *sustainability* means by following what Thompson says on this point.

In a 1999 paper on sustainable livestock farming, Thompson and Nardone describe a North American extensive livestock farming practice to clarify what sustainability means in that context. They note that on an extensive livestock farm—or ranch—there are many kinds of complex ecological relationships between cattle, forage, non-forage brush, and wildlife. Together they form a “range (eco)system” where the different parts (i.e., cattle, forage, etc.) can remain in equilibrium for extended periods of time. A disequilibrium, however, can appear when a change in the reproductive capacity of one of the parts occurs. So, for instance, an increase in the stocking rate of cattle, induced by the rancher, can lead to the exhaustion of forage and to overgrazing. If no measures are taken, the range (eco)system will head for a collapse where ultimately the cattle herd will be decimated because of forage exhaustion. Thus, the continued existence of the cattle herd depends to a considerable extent on the broader range (eco)system of which it is part.

Thompson and Nardone argue that this is not only true on an ecological level, but also on a societal level. On the ranch, in order to sustain the business over time, it is necessary not only to reproduce forage resources, but also to regenerate capital and effective husbandry practices. In an economy dominated by subsistence farming, regeneration of capital might mean the regeneration of land and herd fertility, while the regeneration of husbandry practices may be equivalent to transferring husbandry skills and competencies to farmers’ sons and daughters (which also implies human fertility within the farm family). In an industrial economy, the regeneration of capital depends on stable financial and commodity markets, while the regeneration of effective husbandry practices depends largely on formal agricultural institutions for research, education, and extension. In both cases, however, the continued existence of the ranch depends on the broader societal system of which it is part.

At the ecological and the societal level, the “wholeness or integrity” of the encompassing system is considered crucial for the continued existence of the subsystems (Thompson 1997, 78). Thus, cattle stocking rates are only sustainable when the herd can be sustained by the range (eco)system; similarly, the ranch is only³ sustainable when skills and competencies are transferred to the younger generation, either within the farm family household or (partly) mediated by formal institutions. This leads Thompson and Nardone

3 This is meant as a necessary and not necessarily sufficient condition.

to conclude that *functional integrity* is key when we talk about sustainable livestock farming and about sustainability in general. Functional integrity denotes the wholeness or integrity of the system in question, where the whole orders the various subsystems through “feedback mechanisms” (Thompson and Nardone 1999) that allow whole systems “to regenerate themselves over time” (Thompson 2010, 248).

Of course, the question rises as to which level the whole system is defined at. Or, perhaps, there are multiple whole systems—if so, how do these relate to each other if not in part-whole relationships? Thompson points to “human societies and human-dominated ecosystems” as whole systems (Thompson 2010, 248); yet the question regarding how these relate to each other remains. Another relevant question concerns a cow’s internal regulation of her digestive system and metabolic system (cf. Van der Ploeg 2003, 162–166): Does this internal regulation not suggest that the cow has a certain autonomy—that is, is a whole system *herself*—besides being dependent on her environment—e.g., a farm? And is this farm, in turn, also not a whole itself where the farmer actively shapes the character and productive potential of his or her cows?

It seems to us that these are rhetorical questions when we look at empirical reality.⁴ We conclude that an environment is always relative to the system under consideration, while what the system under consideration is in one case can belong to the environment of another system in another case. Furthermore, systems can be *layered*. For instance, we understand dairy cows first of all as parts of a dairy farm. The identity of dairy cows is bound up with that of the dairy farm.⁵ The activities of the livestock farmer shape the identity of the dairy cows, most notably through breeding and selection efforts.⁶ This comes into expression, for instance, in cows with a dairy type (*melktype*) (cf. Theunissen 2012). At the same time, they remain *cows*: they have characters and display behavior (cf. Rademaker, Glas, and Jochemsen 2014)—they do not become milk-producing machines. In fact, the livestock farmer aims precisely to shape the characters and behaviors of the cows according to the farmer’s wishes (Van der Ploeg 2003, 195). Thus, whereas at one level the dairy cows regulate their own bodies and behaviors, at another level they are being regulated to some extent.

4 For a similar conclusion see Van der Ploeg (2003).

5 In a broader historical perspective, this process started with the domestication of wild cattle (of the genus *Bos*) and has resulted in various cattle types and races which are different from wild cattle.

6 In the case of, e.g., pig and poultry farming, breeding and selection activities have largely been transferred to breeding companies. See also footnote 21.

At this point we can make two important observations. First, we—and Thompson—have implicitly assumed that, at its core, sustainability means *continuity in time*. In this vein we repeatedly used the phrase *continued existence*, as in “the continued existence of the ranch depends on the broader societal system of which it is part.” Thompson’s idea of functional integrity articulates this continuity in time by noting that the *regeneration over time* of a whole system depends on the regulation of its subsystems.

Second, in the discussion of systems we have arrived at an intimate connection between sustainability and identity. The identity of a dairy cattle herd cannot be thought without the identity of the dairy farm, and vice versa. As such, the sustainability—its continuity in time—of the dairy cattle herd as *dairy cattle herd* cannot be thought without the dairy farm. The dairy farm provides the environment where the milk production function of cattle is further developed. A dairy cattle herd left on its own for some generations—for instance, in a nature reserve—will cease to be a *dairy cattle herd*.⁷ At the same time, the sustainability of the dairy farm as *dairy farm* depends on the farmer being able to maintain a stock of *dairy cattle*.⁸

Together, these points lead us to the conclusion that sustainable entities are entities that maintain their identity, their continuity in time (cf. Hansen 1996). This conclusion links the discussion on sustainability in the empirical sciences with various old philosophical questions—for instance, what is it that enables this continuity in the flux of time? What is the identity of specific entities? In the next section we will concentrate on one question, to wit, the question as to what the identity of livestock farming consists in and how it relates to sustainability.

3 Livestock Farming as Normative Practice

To our mind, the normative practice approach (NPA) as developed in the Dooyeweerdian tradition (Jochemsen and Glas 1997; Hoogland and Jochemsen 2000; Jochemsen 2006) is very helpful in the attempt to answer the question of

7 The addition “for some generations” is important here. Even though the actual milk potential will not be realized in a “natural” setting (because there is no farmer to milk the cattle), in their physical and genetic make-up the cattle will initially still be of a dairy type. This will only change after several generations.

8 Again, this is meant as a necessary and not necessarily sufficient condition.

what the identity of livestock farming consists in.⁹ Within the NPA, a normative practice is understood as a social structure that embodies a coherent form of socially established cooperative human activity aiming at the realization of a certain good—the end, or *telos*, of that practice (cf. Jochemsen 2012). This good can also be described as the qualifying function of the practice. In addition, in practices goods are pursued in accordance with *standards of excellence*, or norms, which define good or competent performance for the practitioners and enable the realization of the central good (*telos*) of the practice.

Within the NPA, the identity of the practice is the starting point for normative reflection. In this regard, a distinction is made between types of norms that qualify a practice, types of norms that are foundational, and types of norms that are conditioning (Hoogland and Jochemsen 2000). In a structural analysis of the livestock farming practice, these three types of norms refer to the practice's *structural side*. Based on this is the distinction between what is *internal* and what is *external* to a practice (Chaplin 2007, 130–133), where *external* refers to its environment or context and, thus, concerns the practice's *contextual side*. Finally, the development of the livestock farming practice is affected by what practitioners think and choose, and what motivates them in their thoughts and choices. This refers to the *regulative side* of the livestock farming practice.

3.1 Structural Side

3.1.1 Foundational Aspect

When we speak of a practice and its context, we implicitly introduce a distinction between what is internal and what is external to the practice. To determine what is internal and what is external, we need to consider the *identity* of the practice. We can approach this identity with the notions of the practice's foundational and qualifying functions—i.e., in terms of what founds and characterizes the practice, respectively (Hoogland and Jochemsen 2000, 465). In what follows, we will apply these notions specifically to the livestock farming practice.

It should be noted that livestock farmers use different types of resources, such as animal feed and water, and that they shape both the animals (through breeding, for example) and their environment (e.g., through climate control systems) to produce food and fiber for human consumption. The (increased) human control over the environment of the livestock is important, for this is precisely what distinguishes livestock farming from herding. The formation of

9 Coming from a pragmatist tradition, Thompson also has an extensive understanding of farming (and eating) as a practice. For a comparison between his pragmatist approach and the reformational philosophical approach to practices, see Massink (2013).

both the animals and their environment refers to the “technical activities” of the practice (Hoogland and Jochemsen 2000). Therefore, we conclude that the *formative* aspect is foundational for livestock farming. The normative principle associated with the formative aspect is “meaning-oriented shaping” (Verkerk et al. 2007, 46–47).¹⁰

Livestock farmers—i.e., the practitioners—will have to give shape to the normative principle of meaning-oriented formation if there is to be a livestock farming practice at all. As Nigel Dower puts it, “methods of cultivation and harvesting [e.g., feeding and milking techniques, respectively] and types of resources like animal feed, seeds or fertilizer/chemical inputs used” are “crucial to the *sustaining* (or non-sustaining if they are in fact not appropriate) of that practice”¹¹ (Dower 2008, 158; emphasis added). If any of those resources come in short supply, this will affect the livestock farming practice to some extent. Only when other suppliers of those resources can be found and/or by changing current production practices will the farmer be able to continue the livestock farming practice as a whole. That is, to sustain the livestock production practice, the formative function needs to be secured through finding alternative resources or changing current production practices. Thus, the delicate balance

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- 10 This is an amendment to Dooyeweerd’s (1969, 195) “formation according to a free project.” Dooyeweerd described this formation as follows: “Mastery or control ... elevates itself above what is given and actualized after a fixed pattern apart from human planning. It pre-supposes a given material whose possibilities are disclosed in a way exceeding the patterns given and realized by nature, and actualized after a free project of form-giving with endless possibilities of variation” (Dooyeweerd 1969, 197–198). Yet, Dooyeweerd seemed to ignore that the given material often is not free from human planning, but, rather, has a particular embodied history. For instance, different cattle breeds have resulted from an age-long process of domestication and selection. Importantly, the type of breed the farmer has access to structurally restricts his possibilities for innovation (Van der Ploeg 2003). One cannot breed meat-type cattle overnight from milk-type cattle. The normative principle of *meaning-oriented shaping* has the connotation of building further on and disclosing the given material, rather than the connotation of free control. The identity of the given material is of importance here as it restricts *and* enables innovation in the livestock farming practice. In addition, it should be pointed out here that Dooyeweerd did not use the terms *formative aspect* and *normative principle*; instead, he used *cultural aspect* and *meaning-kernel*, respectively. We follow Geertsema (1970) in the usage of *formative aspect*, and Hoogland and Jochemsen (2000) in the usage of *normative principle*.
- 11 Actually, Thompson also distinguishes—next to sustainability as “functional integrity”—sustainability as “resource sufficiency.” Central here is that “a practice is sustainable when the resources needed to carry on the practice are foreseeably available” (Thompson and Nardone 1999, 112; cf. Thompson 2010, 219). In our terminology, this resource sufficiency concerns the foundational, formative aspect of the livestock farming practice.

between resources used and methods employed must be considered under the norm of meaning-oriented shaping.

3.1.2 Qualifying Aspect

Livestock farming is typically undertaken for the purpose of producing food and fiber for human consumption.¹² This consumption of the produced food can take place inside the farm household, such as in present-day subsistence farming in sub-Saharan African (SSA) societies where animal (and crop) products are typically only sold on the local market when the farm household's need for food is fulfilled.¹³ Consumption can also take place outside the farm household where it is produced, such as in highly differentiated Western societies where farmers, just like other people, go to the (super)market to obtain most of their food. In either case, the farmer–consumer relationship is central. Either the consumers can be located in the farm household, or the farmer is (primarily) producing for the market—also called *commercial farming*. In the latter case, the consumer becomes customer, which often entails a further differentiation of the farmer–consumer relationship into an array of farmer–middlemen relationships—for example, relationships with egg traders, slaughterhouses, and milk cooperatives.¹⁴ Such middlemen take care of the distribution of animal products or process them into different products.

Thus, both production and exchange are important facets of livestock farming.¹⁵ Livestock farming is not just about breeding and keeping animals—it is also about making animal products for (human) consumption.¹⁶ Therefore,

12 *Consumption* must be taken in a broad sense here—also including the use of fibers such as wool, for instance. In the following we will concentrate on food rather than fiber, since fiber production in livestock farming is economically a minor activity compared to food production.

13 Of course, conflict situations may exist where, for instance, food is sold in order to pay urgent hospital bills, even though the household is in short supply of food. Deciding which course to take is a matter of practical wisdom.

14 On the input side, think of the relationship between farmers and input suppliers, such as credit suppliers (e.g., banks) and feed suppliers.

15 Regarding the situation of subsistence farmers, one could say that there is exchange, but in a very restricted form—namely, within their own household. In addition, it is questionable whether *pure* subsistence farmers (or, rather, farm households), operating completely independently of markets, have ever existed.

16 A parallel can be seen in the example of fishery given by MacIntyre, on whose work on practices the NPA builds. As Moore (2002, 23) writes: “It is clear from what MacIntyre says, that it is not just the catching of fish with which he is concerned ..., but it is the whole

we conclude that the *economic* aspect is qualifying for the livestock farming practice.¹⁷

Dooyeweerd characterized the normative principle of the economic aspect as the “frugal mode of administering scarce goods” (Dooyeweerd 1969, 66), and others have associated this with *efficiency* (e.g., Massink 2013, 174–179). However, Goudzwaard and Kee have pointed at the limitations of conceiving of this normative principle as frugality or efficiency (Goudzwaard 1979, 2008; Kee 1996).¹⁸ Most importantly, efficiency as normative principle has no substantial content and leaves open the question of what the specifically economic destination of economic acts consists in (cf. Schipper 1998).¹⁹ Following Goudzwaard, we take the normative principle of the economic aspect to be *fruitful disposition* (Goudzwaard 1979, 212; 2008, 27–29). Even though this normative principle as characterization of the economic aspect comes with its own theoretical challenges²⁰ (Kee 1996), it does justice to the reality of livestock farmers who anticipate changes in their economic environment not only by increasing the efficiency of resource use (Dooyeweerd’s “frugal administration”), but also through the accelerated redemption of loans, diversification of products (e.g., moving from mainly milk to milk and meat production), or enlargement of the livestock farm (Van der Ploeg 2003, 221). In the end, it is about the positive balance of benefits—i.e., a valuable farm product or service for

range of activities that make up the practice of fishing including the purchase and maintenance of boats and equipment, the preparation of the fish for sale, and the actual sale itself.”

- 17 It must be noted that within the livestock farming practice as a whole a further differentiation can take place. For instance, the Dutch milking company Duurzaam Agrarisch has adopted the concept of *sharemilking* where the company owns several dairy farms run by farmers who receive a salary and a share of the profits. Here, a subpractice focusing on the business side (the company) materializes next to a subpractice focusing on the production side (the farmers).
- 18 Kee (1996) noted that both production and exchange are crucial to understand economic phenomena, but that thus far (in 1996) economic theory had not provided a single explanatory theory that meaningfully combined both. He also criticized Goudzwaard for reducing economic phenomena to the production pole. Kee himself sought the solution in the idea of capital, yet did not elaborate on that. As economically interested but non-specialist writers, we are not sure whether progress has been achieved on this point, but it seems to us that at least in reformational philosophical circles, the discussion still lingers on.
- 19 To see this point, try to make sense of “being efficient” as the purpose of businesses.
- 20 Maybe we should even stop looking for one normative principle and, rather, consider a cluster of normative principles that share a family resemblance.

society—over costs. No livestock farming practice is sustainable without living up to this economic norm.

Recently, Roel Jongeneel (2016) elaborated on economic normativity, arguing that the financial budget constraint (FBC) is one of its key sources. The FBC stipulates that income and expenses have at least to balance if the entity (for instance, a laying hen farm) is to survive. This being an abstract economic norm, the *right* balance depends on the context. For instance, a deficit on the current account, due to investment in a new barn for 50.000 laying hens, would be allowable if the egg market is such that the farmer can earn this investment back within several years. Thus, *time* is an important determinant of the sustainability of a concrete livestock farming practice. The consequences of not adhering to economic—and, for that matter, also formative—normativity may only be felt in the long term. This means that in the pursuance of a concrete sustainable livestock farming practice, the *trust* that adhering to formative and economic normativity will ultimately yield a flourishing livestock farming practice plays an important role (Schuurman 1987). This element of the farmer's ultimate conviction becomes even more important when *conditioning* norms are involved, such as aesthetic and ethical norms.

3.1.3 Conditioning Aspects

We will now consider the question of what conditioning aspects can be distinguished in livestock farming—that is, which broader factors or norms enable livestock farming (fig. 1). Regarding *analytical norms* we can think of the formulation of a breeding plan²¹ and a business plan, and the role of production data in contemporary livestock farming. *Social norms* are visible in the need to mitigate odor emissions because of the farmer's neighbors.

Aesthetic norms in livestock farming relate to animals and meadows that are aesthetically pleasing. As Theunissen (2012) notes with respect to dairy

21 In fact, this only applies to ruminant farming. Pig and poultry (or: intensive) farmers no longer breed their own stock but either buy stock from, or keep stock owned by, big companies holding the parent lines. Those lines consist of two or three separate, pure (genetically homozygous) lines that are crossed to create the crossbreds. This is beneficial because of hybrid vigor—the phenomenon that the offspring's performance (in terms of growth rate, feed conversion ratio, health, etc.) is better than the separate parent lines. From a breeding perspective, crossbreds are of little use: when crossbreds are mated, the greatest proportion of the offspring will be inferior to the crossbred parents as well as to the grandparental lines. Thus, breeding has become a separate practice from the farmers' practice. In the case of ruminants, this development did not take place because they reproduce too slowly and are too costly to maintain merely for breeding purposes (Theunissen 2012).

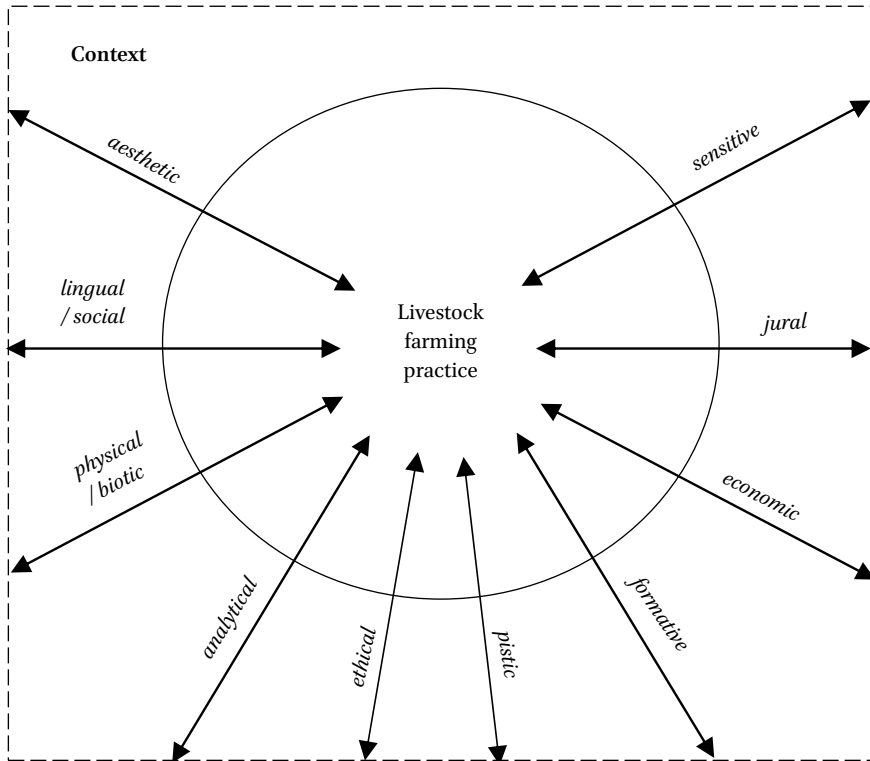


FIGURE 1 Different modal aspects can be discerned within the (structure of the) livestock farming practice and in the practice's relationships with its environment/context

farming, this aspect is increasingly suffering from the practice's "Holsteinization," where productive potential has become the sole norm in the breeding of dairy cattle.²² Also, the monocultures of grasses in meadows, typically lacking a diversity of herbs, have not contributed to the aesthetic quality of meadows, although changes in a positive direction are taking place here.

Jural norms within the livestock farming practice can be understood in relation to the just treatment of employees and fair trade with customers as well as with suppliers of feed, equipment, etc.²³ This just and fair dealing is

22 The present-day Holstein (or, Holstein-Friesian) is a dairy cow breed known for its high milk potential.

23 Of course, many norms (regarding manure management, animal welfare, etc.) that we typically consider as jural are legislative measures taken by the government. But our point is precisely that jural norms are not restricted to the government as a specifically

characterized by giving each party its due based on the economic transaction. For instance, employees deserve a fair wage for their labor.²⁴ An interesting question is whether the rise of the animal rights movement points to a failing responsibility of livestock farmers to treat their *animals* justly: it could be argued that animals are economic “co-workers” and that they deserve “fair working conditions.” This discussion has only just started.²⁵

Regarding *ethical norms* we can think of the conditions under which animals are kept—i.e., to what extent those conditions are conducive to animal welfare. They relate to appropriate housing (physical structures), feeding and watering regime (enabling the animal’s biotic functioning), and the farmer’s way of dealing with the animals (implying a sensitive relationship; cf. Jochemsen 2013). With respect to the latter, empirical research shows that positive farmer attitudes towards animals—for instance, farmers who do not hit their animals and talk to them—are correlated with positive animal welfare scores and productivity (Waiblinger, Menke, and Coleman 2002; Boivin et al. 2003; Hemsworth 2003; Andreasen et al. 2014).²⁶ This indicates that the sensitive relationship between farmer and animals cannot be ignored: animals are no automata (cf. Rademaker, Glas, and Jochemsen 2014). The disclosure of this sensitive relationship requires that the farmer has a careful attitude towards the animal, and does not reduce the animal to a mere production factor. This careful attitude should take concrete shape by allowing animals to perform positive species-specific behaviors—e.g., dust bathing for chickens (cf. Špinka 2006; Špinka and Wemelsfelder 2011). It is very important to emphasize this, given the present-day tendency, especially in intensive livestock farming, to focus almost exclusively on efficiency of production (Rollin and Thompson 2012). As a matter of fact, crops and soil as biotic communities also require this careful attitude, in the case of pasture-bound livestock farming. Here we can

jural practice—rather, they condition the livestock farming practice *from within*. The difference is that in the case of livestock farming practice the jural aspect is *conditioning*, while in the case of government practice this aspect is *qualifying*. Thus, the two practices have different normative structures.

- 24 This presupposes that livestock farmers earn enough money to be able to pay their employees a fair wage. The fair trade movement (especially in global value chains) has therefore focused on guaranteeing farmers a *fair price* for their products and a *living wage* for producers and/or employees (Le Mare 2008).
- 25 From a Christian perspective, Johan Graafland has called attention to the biblical notion of “just working conditions for animals” (Graafland 2015, 112–115; our translation), which could perhaps also be related to contemporary livestock farming, especially for livestock not primarily kept for their meat, such as laying hens and dairy animals.
- 26 However, the presence of a correlation is no proof of a causal relationship.

think of making use of symbioses between organisms, mixed cultivation, and biological control of plagues (Jochemsen 2012).

Other aspects of ethical norms are the concern for working conditions of the farmer and possible employees on the farm, and food safety for consumers. As Yee, Yeung, and Morris (2005) note, consumers are in a dependent and vulnerable position vis-à-vis producers when buying food, since they cannot judge the conditions under which the food has been produced, nor judge whether its consumption is safe. They argue that this calls for benevolence on the producers' side: they should care for and act in the interest of consumer welfare.

As we have seen with the formative and economic aspect, the farmer's *ultimate* convictions regarding what norms will *ultimately* yield a flourishing livestock farming practice are crucial from a sustainability perspective, precisely because sustainability concerns continuity *in time*. This is even more the case with the conditioning norms. Thus, we saw that aesthetic norms have been undervalued for decades in Dutch dairy farming. Yet, this practice has been able to sustain itself, in the sense that it still exists. Thompson gives another example when he discusses the mistreatment of laying hens on egg farms—e.g., a small living space, no opportunity for dust bathing, and trimmed beaks—where the egg farms manage to sustain their practice, because the laying hen stock is continually resupplied from hatcheries (Thompson 2010, 269–270). While Thompson reckons the mistreatment of the laying hens as an ethical problem, he concludes that there is no problem of sustainability: the wholes (the egg farms) can restock the parts (the laying hens) as long as the egg farms meet their costs and have the connections needed to obtain the necessary resources. As such, the egg farms are able to sustain themselves. This leads Thompson to conclude that animal welfare concerns—and ethical concerns in general—do not necessarily represent sustainability problems.

Thompson does, however, notice that we often say to someone whose conduct we find deplorable: “You may get away with it this time, but eventually you’ll be sorry!” (Thompson 2010, 240). Here, again, *ultimacy* appears: it is only *in time* that the other person will come to regret his/her behavior. While Thompson notes that “this might point to a deeper sense in which the practice or conduct will lead to its own undoing,” he further ignores this possibility by saying that “more frequently it is just a general form of moral or prudential rebuke”²⁷ (Thompson 2010, 240). In section 3.3, however, we will argue that this

27 Admittedly, later on Thompson (2010, 275) does attempt to elaborate on this “deeper sense” via a modified Hegelian argument, saying that “deep social conflicts are not sustainable because the sense of hope implicit in any conceptualization of sustainability as a moral ideal implies a realization of community consciousness.”

“deeper sense” points to a deeper unity which always plays a role in human acting, including livestock farming, and that this is typical for *worldviews*.

3.2 Contextual Side

Sustainability also involves, as we saw earlier, the broader systems of which a particular entity is part. With respect to the Western livestock farming practice, we can point to the livestock farmer buying animal feed, which refers to the feed manufacturing practice, which in turn refers to the (feed) crop production practice. While all these practices have to some extent an internal autonomy, they are also intimately connected: together they contribute to food production. The term *food system* is commonly used to denote this interconnected amalgam of practices. Thus, Goodman describes food systems as “represent[ing] all processes involved in feeding a population, and includ[ing] the input required and output generated at each step” (cited in Capone et al. 2014, 14) Activities within the food system include production, processing and packaging, distribution and retailing, and consumption of food, but also “the diverse set of institutions, technologies and practices that govern the way food is marketed, processed, transported, accessed and consumed” (Capone et al. 2014, 14). So, the livestock farming practice appears here as a *subsystem* at the first level: the production of edible animal products.

Yet it must be noticed that practices such as crop farming, feed manufacturing, and livestock farming have not always been housed in separate institutions in Western countries, and also that they are not housed separately in particular niches (e.g., organic farming) and in other parts of the world (e.g., the majority of farmers in SSA).²⁸ After World War II, many farms in the Netherlands were still mixed farming systems where crop production was combined with livestock farming, both subpractices including various breeds. In this sense, in SSA, the current situation is similar to the situation of the majority of farmers in the Netherlands after World War II, except that the agricultural production primarily serves the own household, whereas in the Netherlands a shift was made longer ago from (primarily) subsistence farming to commercial farming.

Looking at this shift from a sustainability perspective, we notice that the relevant systems change. In the case of subsistence farming, the crop and livestock farming practices form an integrated whole with the household (fig. 2). Animals like oxen deliver traction power to work the fields, while chickens

28 Dairy farming in the Netherlands deviates from this trend since it is still pasture-bound for various reasons. Thus, the Dutch livestock farmer also grows the grass and maize to feed the dairy cows.

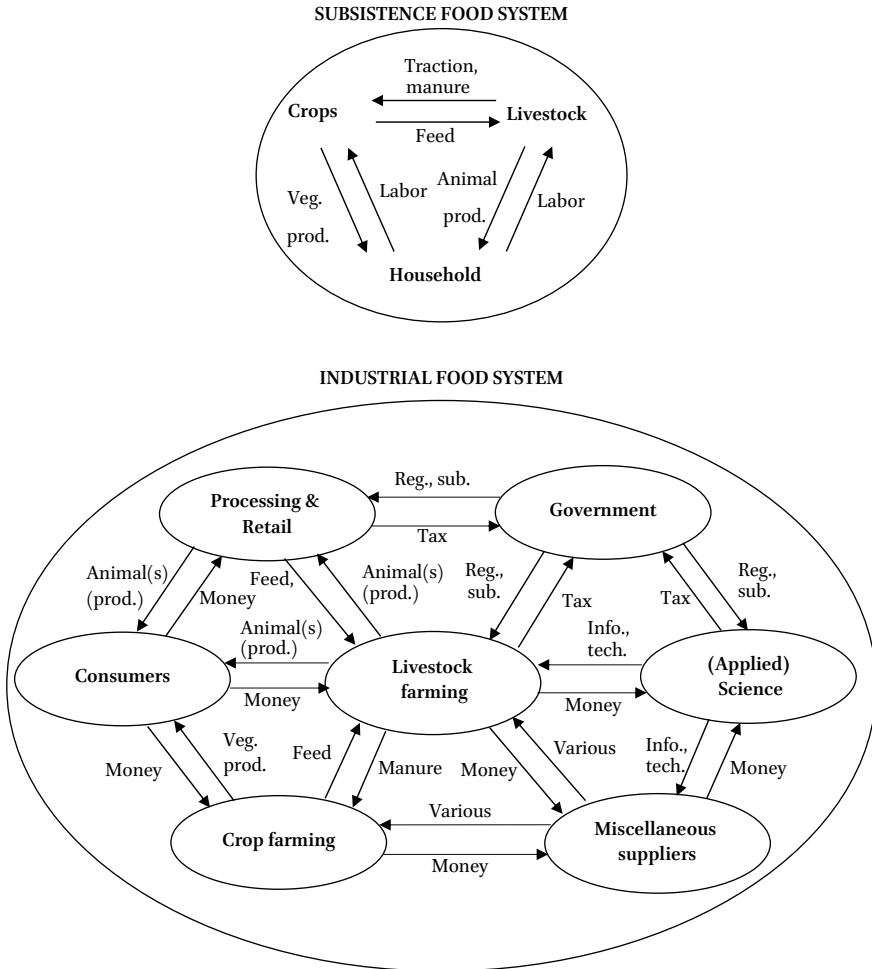


FIGURE 2 Two rough representations of the economic constellations in which livestock farming can take place, and their implications for sustainability. A subsistence livestock farm is, in an economic sense, more or less self-sufficient at farm level. However, in the case of commercial livestock farming, the sustainability of the livestock farm can never be assessed independently of the other actors in the food system. The system boundaries thus lie at a higher congregation level which is much harder to define and assess. Important to notice is that both subsistence and commercial livestock farming remain located in a broader societal and ecological context. Abbreviations: Reg. = Regulations, Sub. = Subsidies, Veg. = Vegetable, Prod. = Products, Tech. = Technologies, Info. = Information

produce eggs for the household. Manure from the livestock yields fertilizer for the fields, while the crops from the fields deliver food for the household and—in the form of by-products—feed for the livestock. In turn, crop and livestock farming depend on labor from household members. Obviously, while

this subsistence food system, too, is dependent on its context—e.g., sunlight for photosynthesis, tools to work the land, and marriage partners to sustain the household—it is much less so than commercial livestock farming. The commercial livestock farm is part of a complex system—the (industrial) food system (fig. 2)—which in its totality should be sustainable—i.e., functionally integer—for the livestock farming practice to be sustainable. As Thompson (1997, 84–85) writes:

If feed is produced off the farm, the system must, at a minimum, include both the crop farm and the livestock production facility, as well as the transport and financial institutions that link them. If fuels and technology are needed to move grain to animals, they too must be included in the system of relevance. Then we must ask, What is happening to animal waste? If nutrients in waste are not being recycled eventually, then the entire nature of the system changes from a renewable resource or ecological system to a non-renewable resource system that can only be made sustainable by continuous improvement in waste reduction and storage. If so, then the scientific research needed to make these improvements must also be included in the system design, and it becomes necessary to ask whether the capacity to produce such improvements is itself sustainable.

Thus, while the subsistence farmer (and his/her household) needs to take care of crop and livestock farming, in the industrial food system the respective tasks become differentiated: the crop farmer focuses on (feed)crop production, the agricultural contractor on working the fields, the feed manufacturer on feed formulation, the livestock farmer on animal production, the transporter on transportation of the various goods, etc. This differentiation has brought enormous benefits in terms of productivity and economic efficiency, and has “freed” human labor from the agricultural sector, thus enabling the development of other productive and non-productive activities and the further differentiation of society.

But there are also tremendous negative effects of agricultural differentiation. For instance, a large share of soybean meal—formerly considered a by-product of the soy oil industry, its monetary value now surpasses that of the soy oil—used in Dutch farm animal diets originates from South America. The massive exportation of these soybeans—and, thus, of mineral nutrients—leads in South America to a *lack* of nutrients, which leads to an import of artificial fertilizers (produced from, among other things, mined, non-renewable potassium and phosphate rock structures) so as to maintain soil fertility.

On the other hand, in the Netherlands we have an *oversupply* of manure—that is, an oversupply of mineral nutrients—which causes acidification and eutrophication problems.

Due to the differentiation of food production, several effects of the acting of the individual livestock farmer no longer directly impinge on his or her own practice. Whereas the subsistence farmer will suffer from poor crop performance if he or she fails to fertilize the land with the manure from the animals and, as a consequence, will probably fail to subsequently feed both the household and the livestock, this is not the case with the Dutch egg farmer who buys animal feed—including soybean meal originating from South America—from a regional feed manufacturer and sells manure to a local crop farmer. Local problems in South America with maintaining soil fertility are not (directly) felt by the Dutch egg farmer. Hence, maintaining functional integrity of the system requires certification and regulation at higher organization levels and at other places in the supply chain than the livestock farming practice. Thus, for instance, the European Feed Manufacturers' Federation (FEFAC) has established the FEFAC Soy Sourcing Guidelines in order to prevent illegal deforestation and ensure good working conditions and good agricultural practices.

In the context of the livestock farming practice we can distinguish between different *kinds* and different *levels* (Glas 2016). As stated above, the livestock farming practice is part of a bigger food system that has the provision of food as its function. This concerns not only the economic context of the livestock farming practice, but also the jural context insofar as it concerns laws and regulations set by governments (fig. 1). In addition, we encountered the physical and biotic context when we discussed the unsustainability of mining of nutrients and lack of maintenance of soil fertility, respectively.

Yet, there are also different *levels* in the context of the livestock farming practice. The FEFAC's Soy Sourcing Guidelines are an example of a certification scheme that aims to self-regulate the global flow of soy for animal feed. Certification schemes in the food system are increasingly located at this level because of globalization. That is, the sustainability of the world at large is increasingly felt. Issues such as the significant contribution of livestock farming to deforestation—due to feedcrop expansion—and climate change (Steinfeld et al. 2006) are most logically addressed at this level. In contrast, acidification and eutrophication are typically issues with a more local character.

We cannot understand the sustainability of the livestock farming practice without also looking at this context with its different kinds and levels. Next to the farmers' responsibility vis-à-vis the normativity we spelled out in section 3.1, partnership and dialogue are also needed between different kinds of actors in the food system, both at similar and at different levels,

to enable a development of the food system that does not compromise its sustainability.²⁹

3.3 *Regulative Side*

The regulative side refers to the interpretation of the norms of the practice against a broader horizon concerning the meaning of the practice for human life and society. This also gives the practice a dynamic character: it can be developed in different directions, due to differences in the worldviews and ethoi of practitioners. Our earlier mentioning of ultimate convictions referred to this regulative side of practices.

Sander Griffioen (2012) notes that an important feature of worldviews is their “integrality of vision.”³⁰ They are horizons or metaviews against which a given plurality is ordered. This also comes with a time dimension: “Integrative visions always reach beyond the horizon of the here-and-now in anticipation of things to come” (Griffioen 2012, 38). Thus, they come with the promise of a future end. This is the second feature of worldviews—the cause or *Sache* pursued (Griffioen 2012). What is more, this *Sache* asks for personal commitment in the midst of alternatives. It is a matter of *ultimate* concern.

The ultimate convictions come to the fore in the core values and ethos of a practice. In the interplay of different ethoi, practices develop in a certain

29 Some argue for a complete relocalization of different types of agricultural production (and distribution and consumption of food) so as to reconnect soil (physical), plant (biotic), and animal (psychic) interactions (e.g., Altieri and Toledo 2011; Altieri 2012). Another reason for the relocalization of food production and consumption is to restore the decreased social interaction between livestock farmers and consumers, i.e., to restore relations of trust (pointing to pistic norms). The issue of *risk* could also be added here: should we count on a global food system that is intimately tied to global *volatile* financial markets, potentially leading to food crises (cf. McMichael 2009a, 2009b)? Prima facie, relocalization seems to do more justice to the broader normativity of reality than a full-fledged globally organized food system, but a thorough discussion of this point is beyond the scope of this paper.

30 Thompson (2010) also discusses a conception of sustainability which he describes as a social movement understanding of sustainability. According to him, the only criterion on this view for something to be considered a sustainability issue is whether the social movement considers it to be so. One of the reasons why Thompson thinks this conception of sustainability is problematic is that *sustainable* livestock farming becomes equivocal to *good* livestock farming. It seems that there is a rough resemblance between this social movement understanding of sustainability and what we call the regulative side of practices. Central to both—among other things—are its prescientific character and integrality of vision. Clearly, we hold a more positive view of this prescientific and integral understanding of sustainability than Thompson.

direction in time, disclosing or closing the different modal aspects. What ethoi can we distinguish in present-day Dutch livestock farming practice?³¹

De Rooij, De Lauwere, and Van der Ploeg (2010) have investigated the ethical position of Dutch dairy farmers and pig breeders, with particular reference to animal welfare. They distinguish between three ethoi: an entrepreneurial ethos, a farmers' ethos, and an idealists' ethos.³² The first is characterized by seeing animals as means of production, privileging commercial values, seeing animal welfare as relevant only from a commercial perspective, understanding animal welfare primarily as healthy biological functioning (although unnecessary suffering, pain, and distress is to be reduced), and placing responsibility for animal welfare with consumers ("If consumers want more animal welfare-friendly production, they need to pay more"). The farmers' ethos is characterized by conceiving of animals in relation to the farmer, seeking for a balance between commercial values and animal welfare on the farm, and more emphasis on freedom from pain and stress for the animals. Finally, the idealists' ethos sees animals as carriers of intrinsic values and needs, privileges animal welfare considerations over commercial values, places the responsibility for animal welfare problems with other (conventional) farmers, and emphasizes respect for the integrity of the animal and the opportunity for animals to display natural behavior.

Seen from the perspective of the structural side of livestock farming,³³ the farmers' ethos seems to do more justice to the structure of the practice than the entrepreneurial ethos and idealist's ethos. In the entrepreneurial ethos, economic normativity completely overrides other concerns. Especially notable in this regard is that the responsibility for animal welfare is placed almost entirely with consumers. Of course, farmers will need to get a fair price for their products, but that does not diminish their own ethical responsibility in their relation to their animals. Also, as Stafleu and De Greef (2004) have argued, leaving it up to the consumer to define responsible farming will result in a loss of identity of the livestock farmer *as livestock farmer*—i.e., as a way of life.

The emphasis in the idealists' ethos on natural or species-specific behavior of animals can provide for a deepened understanding of the sensitive functioning of animals (Rademaker, Glas, and Jochemsen 2014). As such, the idealists'

31 Interestingly, there is as yet no professional code for Dutch livestock farmers. This has been attributed to the fact that convictions and values differ significantly among livestock farmers (De Lauwere and De Rooij 2010).

32 Actually, the authors speak about discourses, not ethoi. However, we consider the latter term to be more appropriate because articulations of lived attitudes and visions are concerned—not merely text.

33 And, it should be noted, a Christian articulation of this structure.

ethos gives due regard to the ethical aspect in relation to the animals. However, it is also true that livestock farming is not the same as keeping pets. In the end, livestock farming is about bringing forth animal products for consumers, while doing justice to the conditioning aspects, including the ethical aspect.

In the farmers' ethos, the tension in actual practice between doing justice to commercial values and to animal welfare is felt the most. This can be positively evaluated, because it shows that farmers feel the integral normativity involved in the practice—a normativity that should be realized simultaneously under the lead of the qualifying, economic aspect (cf. Jochemsen and Glas 1997; Hoogland and Jochemsen 2000; Jochemsen 2006). However, as we observed earlier, aspects such as the aesthetic aspect do not seem to be on the radar of those who exhibit a farmers' ethos, given the Holsteinization and increasing grass monocultures in dairy farming.³⁴

4 Conclusion

In contrast to many approaches to sustainability, we have tried to show the value of understanding sustainable livestock farming first from the perspective of livestock farming *as a normative practice*. That is, instead of formulating—as policy makers, scientists, citizens, or farmers—the desirable goals livestock farming should contribute to, we suggested an analysis of the structural identity of livestock farming. The identity of the livestock farming practice, as argued above, is determined by the formative (foundational) and economic (qualifying) aspects. Sustainable livestock farming—understood as livestock farming that is able to continue in time—is farming that takes into account the normativity holding for the livestock farming practice.

By making use of Dooyeweerd's non-reductionistic theory of modal aspects, we have spelled out the different types of normativity that hold for the livestock farming practice. As such, we have provided an integral assessment framework for this practice (cf. Hoogland and Jochemsen 2000). Failing to do justice to this normativity might only *in time* lead to acute sustainability problems for the livestock farming practice, especially when the conditioning norms are involved. Therefore, adhering to this normativity is fundamentally based upon an ultimate conviction that the flourishing of the livestock farming practice in the long run requires that justice is done to its integral normativity. Note, however, that this integral normativity is *internal* to the livestock farming

34 For the livestock farming practice as a whole, a particular ethos may be dominant at a certain time, leaving other ethoi to occupy the "niches."

practice, and not merely *external*. The livestock farmer encounters it, in one way or another, in everyday practice. At the same time, when certain aspects of normativity are systematically neglected in livestock farming, it may ultimately lead to governments and social movements addressing these problems with the means available to them.

Finally, the sustainability of present-day livestock farming practice cannot be thought without taking into account the context of the practice. In commercial livestock farming, the practice's context has become far more important than in subsistence farming. Thus, the sustainability of the livestock farming practice cannot be understood apart from what is currently called the (global) food system. But the big question for the future is at which level—local, regional, national, or global—this food system is best organized to guarantee its future, including livestock farming, and the future of the human population at large.³⁵

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