

## **Dairy Farming, Animal Welfare, and Islamic Deep Ecology: A Study of Two Dairy Farms in Yogyakarta through Seyyed Hossein Nasr's Thought**

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### **Abstrak**

Penelitian ini bertujuan menganalisis praktik pengelolaan sapi perah modern pada Supri Farm dan Pranajaya Farm di Yogyakarta serta mengkaji implikasi etisnya terhadap relasi manusia dengan hewan dalam perspektif pemikiran Seyyed Hossein Nasr. Penelitian menggunakan pendekatan kualitatif interpretatif melalui observasi lapangan selama satu bulan dan wawancara mendalam semi-terstruktur terhadap dua pemilik peternakan yang dipilih secara purposif berdasarkan orientasi produksi komersial, penerapan sistem peternakan modern, serta keterkaitannya dengan aktivitas ekonomi masyarakat sekitar. Data dianalisis secara interpretatif dengan mengidentifikasi praktik pengelolaan sapi perah dan membacanya melalui kritik Nasr terhadap kecenderungan instrumentalisasi alam dalam modernitas. Hasil penelitian menunjukkan bahwa kedua peternakan menerapkan pemisahan anak sapi dari induknya, pemerahan menggunakan mesin dua kali sehari, sistem kandang terbatas, serta inseminasi buatan sebagai bagian dari manajemen reproduksi. Praktik tersebut memperlihatkan dominasi orientasi efisiensi dan produktivitas yang, dalam perspektif Nasr, berpotensi menempatkan hewan sebagai instrumen ekonomi semata. Namun, penelitian ini tidak mengukur dampak langsung terhadap kondisi psikologis sapi maupun aspek ekologis. Oleh karena itu, temuan bersifat kontekstual dan terbatas pada dua lokasi penelitian. Kontribusi penelitian terletak pada analisis konseptual praktik peternakan modern melalui perspektif etika lingkungan Islam Seyyed Hossein Nasr.

**Kata Kunci:** Etika Lingkungan Islam; Seyyed Hossein Nasr; peternakan sapi perah; ekologis.

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### **Abstract**

*This study aims to analyze modern dairy farming management practices at Supri Farm and Pranajaya Farm in Yogyakarta and examine their ethical implications for human–animal relations from the perspective of Seyyed Hossein Nasr’s thought. This research employs an interpretive qualitative approach through one-month field observations and semi-structured in-depth interviews with two farm owners purposively selected based on their commercial production orientation, adoption of modern dairy farming systems, and involvement in surrounding community economic activities. The data were analyzed interpretively by identifying dairy farming practices and examining them through Nasr’s critique of the instrumentalization of nature in modernity. The findings reveal that both farms implement calf separation, machine milking twice daily, confined housing systems, and artificial insemination as part of reproductive management. These practices demonstrate a dominant orientation toward efficiency and productivity, which, from Nasr’s perspective, may indicate a tendency to position animals as economic instruments. However, this study does not directly measure the psychological conditions of cows or ecological impacts. Therefore, the findings remain contextual and limited to the two investigated farms. This study contributes a conceptual analysis of modern dairy farming practices through the framework of Seyyed Hossein Nasr’s Islamic environmental ethics.*

**Keywords:** *Islamic environmental ethics; Seyyed Hossein Nasr; dairy farming; ecological impacts.*

## **INTRODUCTION**

Studies show that cow's milk contains key proteins such as casein, which is an important part of the nutritional value of milk (Kim and Lee, 2021, 2). The consumption of cow's milk is very important for children, as it is considered one of the most important factors in the formation of the structure and development of the skeleton, as well as the maintenance of the intestinal microbiota (intestinal flora) that helps the digestive process. In addition, cow's milk also increases calcium absorption (Hoekstra, A. Y. 2012; Kourkouta Lambrini et al. 2020, 11). Cow's milk provides more than 60% of the daily protein needs of children aged 1-3 years per 8 ounces or about 240 ml. It contains about 42% of children's daily calcium needs per 8 ounces, which is essential for the growth and density of bones and teeth. Cow milk (especially the full cream or 2%) provides essential fats needed for children's brain growth and nerve development (Collard and McCormick 2021, 3).

This is why the cow's milk industry is constantly increasing in different countries. New Zealand is the eighth largest milk producer in the world and exports about 95% of its milk production. The dairy industry is the largest export sector of goods in the country (Fernandez-Perez et al. 2022, 1). This is why the cow's milk industry is constantly increasing in different countries. In Ukraine, in the same period, the production volume

of companies engaged in dairy processing, such as the production of butter, cheese, and other dairy products, increased by about 66.5% in 2020 compared to 2016. This shows that the dairy industry is able to grow due to technological improvements and the development of production capacity (Stoliarchuk et al. 2026). In general, the dairy industry business has experienced rapid development, especially in major dairy-producing countries such as the United States, Canada, the Netherlands, Germany, and several other countries (Dallago et al. 2021, 6). In Indonesia, smallholders produce the majority of milk, and they play an important role in food security and household income. (Fadillah et al. 2023, 2). One of them is in the Special Region of Yogyakarta, at the Superior Farm Dairy Farm. The results of preliminary observations in this study show that the productivity of cow's milk from 2015 to 2025 has increased. Twelve lactating cows can produce 150 ml per day.

However, behind the promise of the cow's milk industry in various countries, not many people look at the psychological condition of dairy cows (female cows). Breastfeeding from the mother's breast from birth to weaning is a mandatory requirement for all mammals to survive. This is also true of the human species to this day (Hyttén, 1991; Brines and Billeaud 2021, 1). After childbirth, a mother's instinct is very strong to protect and care for her baby. This instinct, which has evolved over millions of years through evolution, involves several profound physical and psychological aspects. One of the main aspects is the need to provide breast milk to the baby, which not only meets the nutritional needs of the baby but also strengthens the emotional bond between mother and child (Brines and Billeaud 2021, 2). Unfortunately, what happens to dairy cows, after the baby cow is born, it is immediately separated from its mother. A study of dairy farming in several European countries such as Germany, the Netherlands, and other countries shows that public attitudes towards the practice of cow-calf separation and other common practices carried out immediately after birth are unnatural and stressful in animals (Loberg et al. 2008; Placzek, Christoph-Schulz, and Barth 2021, 45). In the cow's milk industry, the mother cow is often separated from her calf immediately after birth to maximize the production of milk that can be milked from the mother. This is done to improve the efficiency of milk production, as the mother's milk production is often directed to commercial needs rather than to breastfeed her offspring. This separation can result in calves not getting natural colostrum, which is very important for their immunity (Kolo et al. 2023, 2). And soon the cow will be prepared to be mated with a bull for milk productivity, and so on.

Studies in Ukraine show that in this modern era the process of milking cows using machines, including the latest technology in milking equipment. There are two types of

advanced milk juicing machines, namely the 'Parallel' and 'Carousel' type machines (Lutsenko et al. 2021, 3-5). This process is certainly very disturbing to the psychological condition of the female cow. First, the mother cow who has just given birth must be separated from her baby immediately. Second, the mother cow, after giving birth, is immediately prepared to be mated with a bull for commercial purposes. This makes female cows stressed due to continuous human exploitation. Studies show that preslaughter stress can affect the quality of meat produced, can affect the animal's muscle metabolism and change the pH of meat after slaughter. This impacts the properties of meat, such as tenderness, color, and the ability of meat to hold water. Stress increases the secretion of stress hormones such as cortisol and catecholamines, which accelerate the decrease in glycogen in muscles. This leads to an abnormal postmortem drop in pH, which can lead to defects in the meat, such as PSE (Pale, Soft, Exudative) or DFD (Dark, Firm, Dry), that is not ideal for consumers (Claudia Terlouw et al. 2021, 2-4).

In Islam, hurting animals is considered forbidden in an Islamic moral and ethical perspective (Özdemir 2022, 7-9). Islam emphasizes that every living being, including animals, was created by Allah with the right to live with respect. In addition, Islam also prohibits actions that can cause suffering to animals, such as poor care or rough treatment of animals (Muhammad Ismail Tabish et al. 2022, 6). Through the Qur'an surah 'Abasa verse 24, Allah commands humans to pay more attention to what is eaten on this earth. According to the psychological theory of Hans Selye, stress in animals and humans results in a decrease in the body's capacity to produce hormones, causing fatigue, physiological disorders, and, ultimately, organ damage (Selye 1936, 1937; Szabo 2023). So consuming food and drinks from animals with poor growth and development processes is assumed to be not good. Nasr argues that modern humans have lost touch with their spiritual side. Because of this, people no longer feel a deep respect or awe for nature. In his view, nature isn't just something lifeless or useful for money – it's a holy creation with deep spiritual meaning. Nasr talks about how God, humans, and nature are deeply connected, using ideas from Sufism like *tajalli*, which means God shows himself through nature, and *insān kāmīl*, which is the perfect human who reflects God's qualities. According to him, nature is full of God's signs, so we should treat it with care and protect it. When modern farming ignores kindness, balance, and the value of all living things, it shows that humans are becoming morally distant from God's world. Nasr's idea of deep ecology suggests a better way to live, where farming and production work with nature, taking care of people's needs, the rights of animals, and the balance of the universe, all based on spiritual values and moral laws from God (Fahmi et al., 2023).

It is at this conceptual level that Seyyed Hossein Nasr's ecological thought offers a distinctive analytical perspective. Nasr's critique of modernity locates ecological disruption within a broader process of the desacralization of nature, through which nature is increasingly detached from its metaphysical significance and approached primarily as an object available for human control, calculation, and exploitation (Imran, 2023). The concept of deep ecology was introduced by the Norwegian philosopher Arne Næss in the early 1970s and was more systematically articulated in his 1973 article, "The Shallow and the Deep, Long-Range Ecology Movement: A Summary." Næss distinguished between shallow ecology, which primarily addresses environmental problems in relation to human interests, and deep ecology, which recognizes that all living beings and the natural world possess intrinsic value independent of their usefulness to humans (Naess, 2019). In this article, the term deep ecology is not intended to suggest that the concept was directly formulated by Seyyed Hossein Nasr. Nasr's ecological thought is more appropriately understood within the framework of Islamic environmental ethics, the sacredness of nature, *tawhīd*, *tajallī*, and the human responsibility as *khalīfatullāh*. Therefore, this study positions Nasr's ecological thought as its primary theoretical framework while placing it in critical dialogue with deep ecology.

This study addresses this gap through an interpretive examination of dairy farming practices at Supri Farm and Pranajaya Farm in Yogyakarta. Rather than attempting to demonstrate that modern dairy technologies are inherently detrimental to animals, the study investigates how four interconnected practices—artificial insemination, cow-calf separation, machine milking, and confined housing—organize the bodies, reproduction, maternal relations, and movement of dairy cows within a productivity-oriented farming system. These practices are first approached descriptively on the basis of field observations and interviews with farm owners and are subsequently interpreted through Nasr's critique of the instrumentalization and desacralization of nature. In this sense, the study is positioned at the intersection of animal welfare studies and Islamic environmental ethics. It does not seek to replace scientific assessments of animal welfare with theological judgment, nor does it claim to directly measure psychological or ecological impacts. Instead, it asks what becomes visible when empirically observed dairy practices are examined through an ethical framework that considers animals not merely as productive biological units but as part of a morally and metaphysically meaningful natural order.

Based on this study, the researcher will create two research questions: first, how do dairy farming practices at Supri Farm and Pranajaya Farm reveal the tension between

productivity-oriented animal management and animal welfare?. Second, how does Seyyed Hossein Nasr's ecological thought reframe this tension as a problem of desacralization and ethical stewardship? By bringing empirical observations of dairy management into dialogue with Nasr's ecological thought, this study offers a limited conceptual contribution to discussions of Islamic environmental ethics and animal welfare. Its contribution lies not in proposing a comprehensive model of sustainable dairy farming, but in demonstrating how an Islamic ecological perspective can broaden ethical analysis of technologically mediated human–animal relations within contemporary dairy production.

## LITERATURE REVIEW

Several studies talk about how modern dairy farming works, and most of them focus on making farms more productive by using new technologies. One part of this is artificial insemination, which is a common way to help cows get pregnant. However, this process is seen as something that can cause stress for the cows, both physically and emotionally (Heinsius et al., 2024). This illustrates an important tension within modern dairy farming: technological interventions may increase managerial efficiency while simultaneously raising questions about how far animal bodies can be controlled in the pursuit of production goals. The ethical issue, therefore, is not simply the existence of reproductive technology, but the manner in which it is implemented and the extent to which animal welfare is considered alongside productivity.

Another study looks at how breastfeeding has played a big role in human history, both biologically and culturally. It shows that breastfeeding has helped humans survive for millions of years. The study explains important things like the close bond between mother and baby, the difficulty of stopping breastfeeding, how some people can't digest milk as adults, and how breastfeeding might help prevent certain health problems. The article says that breastfeeding is really important for keeping the species going and making sure babies survive. Even though there are safe formula options available, breastfeeding offers a special mix of physical, emotional, and cultural benefits for both the mother and baby (Brines & Billeaud, 2021). Although this study concerns humans rather than dairy cattle and therefore cannot be used as direct evidence of bovine welfare, it provides a broader conceptual illustration of how lactation and maternal relationships involve more than the biological production of milk. This perspective is relevant to the present discussion because it draws attention to the relational dimension of lactation, which may become less visible when milk production is interpreted primarily through economic and productive categories.

In animals, separating baby cows from their mothers early to increase milk production is a common practice. However, this can hurt the emotional health of both the cows and their calves (Placzek et al., 2021). This finding demonstrates that the organization of milk production involves a potential trade-off between productive objectives and opportunities for maintaining maternal contact. Thus, cow-calf separation should not be understood merely as a technical management procedure, but also as a practice that reorganizes a biologically and socially significant relationship between the mother and her offspring. From an animal-welfare perspective, this raises questions about whether production efficiency should remain the dominant consideration when management practices affect species-specific social behavior.

Similarly, automatic milking technologies and restricted housing systems can contribute to greater efficiency and control in dairy farming, yet their effects on animal welfare depend on how these systems shape animals' movement, behavior, and daily routines (Nielsen et al., 2023). The literature therefore reveals that productivity and animal welfare should not be treated as two completely separate concerns. Modern technologies can potentially support efficient animal management, but they may also intensify human control over reproduction, lactation, movement, and social relationships when productivity becomes the primary organizational principle. What remains insufficiently addressed in these studies is the deeper ethical question concerning the conceptual status of the animal itself: whether the dairy cow is regarded mainly as a productive biological resource or as a living creature whose value and welfare extend beyond its economic function. This unresolved question creates an important point of entry for Islamic environmental ethics, particularly Seyyed Hossein Nasr's critique of the instrumentalization and desacralization of nature

Public perceptions of dairy farming practices provide another important perspective in discussions of animal welfare. Placzek examined how people perceive common calf-management practices, including early cow-calf separation, the culling of male calves, disbudding, and tail docking. Their findings indicate that many members of the public have limited prior knowledge of these practices. However, once informed, respondents tended to evaluate them negatively because they were perceived as unnatural, stressful for animals, and potentially harmful to animal welfare (Placzek et al., 2021). This suggests that the ethical acceptability of dairy farming is shaped not only by technical standards within the industry but also by broader social expectations regarding how animals should be treated. Increased public awareness may therefore influence consumer preferences and encourage greater demand for dairy products produced under higher welfare standards. In this sense, animal welfare becomes not only a biological and

managerial concern but also a social and ethical issue that can affect the legitimacy of modern farming practices.

At the same time, technological innovation is increasingly presented as a means of reconciling productivity with improved animal care. Budiman and Alta (2022) discuss the potential of technologies such as automatic milking systems, data-based nutritional management, and animal-health monitoring to enhance productivity, animal welfare, and the sustainability of dairy farming. Their study indicates that technology should not be understood merely as a mechanism for increasing production. When appropriately implemented, technological systems can provide farmers with more accurate information about animal health, feeding requirements, and production conditions, thereby supporting earlier intervention and more responsive animal management. Nevertheless, the effectiveness of these innovations depends on factors beyond the technology itself. Knowledge transfer, institutional and policy support, access to information, and farmers' willingness and capacity to adopt new practices are equally important (Budiman & Alta, 2022). Consequently, the ethical and practical value of technology is determined not simply by what a technological system is capable of doing, but by the social and managerial context in which it is used.

A third study finds that using automatic milking systems can help farmers work less and feel better mentally, but stress can still come from problems with the technology, high production goals, and issues with the cows' health. It says that to make dairy farming work well in the long run, it's important to use technology, care for animals, and look after farmers' mental health together (King et al., 2021). This finding is important because it demonstrates that technological modernization redistributes rather than simply removes the pressures associated with dairy production. While automation can reduce manual workloads, it can simultaneously increase dependence on technological systems and reinforce expectations of continuous monitoring and high productivity.

The concept of deep ecology was introduced by the Norwegian philosopher Arne Næss in the early 1970s and was more systematically articulated in his 1973 article, "The Shallow and the Deep, Long-Range Ecology Movement: A Summary." Næss distinguished between shallow ecology, which primarily addresses environmental problems in relation to human interests, and deep ecology, which recognizes that all living beings and the natural world possess intrinsic value independent of their usefulness to humans (Naess, 2019). Accordingly, deep ecology challenges anthropocentric perspectives and emphasizes the interconnectedness of human beings with the broader ecological community. This perspective was later further developed by Næss and George Sessions through the principles of the Deep Ecology Platform.



In this article, the term deep ecology is not intended to suggest that the concept was directly formulated by Seyyed Hossein Nasr. Nasr's ecological thought is more appropriately understood within the framework of Islamic environmental ethics, the sacredness of nature, *tawhīd*, *tajallī*, and the human responsibility as *khalīfatullāh*. Although Nasr's thought shares several points of convergence with deep ecology, particularly in its critique of anthropocentrism and the instrumental view of nature, the two are grounded in different philosophical and metaphysical foundations (Imran, 2023).

Therefore, this study positions Nasr's ecological thought as its primary theoretical framework while placing it in critical dialogue with deep ecology. In the context of dairy farming, this framework is employed to examine how technological practices and productivity-oriented management shape human-animal relations, particularly with regard to the sacredness of nature, the intrinsic value of animals, *adab*, human responsibility toward creation, and the critique of reducing animals to mere instruments of production.

Studies on Seyyed Hossein Nasr's ecological thought offer a different point of departure from conventional environmental and technological approaches because they locate the ecological crisis within a broader spiritual and metaphysical crisis of modernity (Imran, 2023). For instance, examine Nasr's critique of modern environmental problems and place his thought in dialogue with the concerns commonly associated with deep ecology. Through the case of the Garbage Clinical Insurance (GCI) initiative in Malang, the study demonstrates how environmental responsibility can be interpreted not merely as technical waste management but as part of a broader ethical and spiritual relationship between human beings, nature, and God (Fahmi et al., 2023). The study argues that ecological degradation is closely related to anthropocentric attitudes that place human interests above the integrity of the natural world and to the weakening of religious and metaphysical perspectives in modern life. From Nasr's perspective, therefore, environmental problems cannot be understood solely as failures of resource management; they also reflect a deeper transformation in the way modern society perceives nature, namely from a sacred reality into an object primarily valued for its utility.

Within this framework, nature is understood as *tajallī*, or a manifestation of divine signs and qualities, which gives the natural world a significance that cannot be reduced to its economic or instrumental usefulness. Human beings, meanwhile, are understood as *khalīfatullāh*, or responsible representatives of God, whose authority over nature is inseparable from ethical accountability. This understanding substantially changes the meaning of human stewardship. Rather than legitimizing unrestricted control over nature, the concept of *khalīfah* requires humans to maintain balance, exercise restraint, and recognize moral limits in their use of other forms of creation. Fahmi et al. (2023)

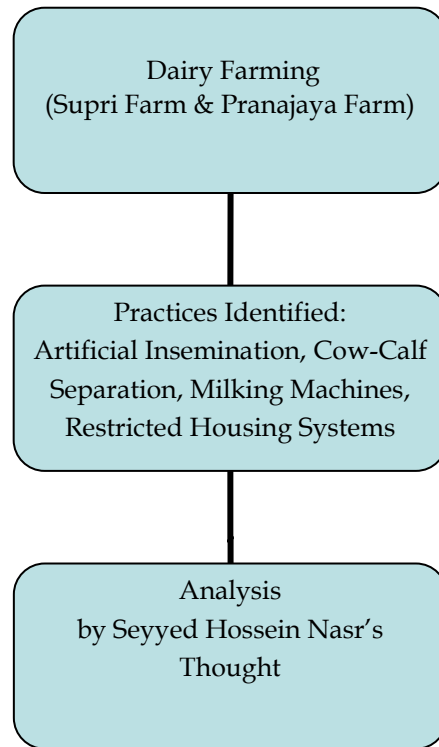
illustrate this principle through the GCI case, in which environmental awareness, Sufi-inspired values, and practical forms of sustainable development are brought together. The significance of this study lies in showing that Nasr's ecological ideas can move beyond abstract philosophical discourse and inform community-based environmental practices that seek to restore a balanced relationship among human beings, nature, and the divine.

A similar argument is developed by Anggara and Muttaqin (2025), who examine the relevance of Nasr's environmental ethics for responding to the contemporary global ecological crisis. Their study emphasizes that environmental degradation cannot be separated from the dominance of materialistic and secular approaches that tend to understand nature primarily in terms of resources, economic value, and human benefit (Anggara & Muttaqin, 2025). Rather than rejecting science, development, or technology altogether, Nasr's critique questions the worldview within which these instruments operate. The central concern is whether scientific and technological capacities remain subject to ethical and metaphysical limits or whether the ability to control nature itself becomes sufficient justification for its exploitation. In this respect, concepts such as *tajallī* and *khalīfatullāh* provide a theological basis for interpreting environmental responsibility as both practical and spiritual

Nasr's literature has been widely employed to examine environmental crises, waste management, sustainability, human-nature relationships, and critiques of modernity. However, it has not sufficiently explained how desacralization and instrumental rationality operate at the level of animal bodies within food production systems—particularly when technology regulates animal reproduction, maternal relationships, lactation, and mobility. The issue of dairy farming extends the conceptual scope of Nasr's critique of instrumentalization from "nature/environment" toward the notion of the "animal body as technologically managed nature."

## CONCEPTUAL FRAMEWORK

Figure 1. Research Conceptual Framework



## RESEARCH METHOD

This study employs an interpretive qualitative case study approach to examine modern dairy farming practices and their ethical implications for human–animal relations through Seyyed Hossein Nasr’s Islamic environmental ethics perspective. Rather than applying phenomenology, which focuses on lived experiences and consciousness, this study analyzes dairy farming practices as social and technological arrangements that shape human–animal relationships.

The research was conducted at two commercial dairy farms in Yogyakarta, Indonesia, namely Supri Farm and Pranajaya Farm. The farms were purposively selected based on their commercial orientation, adoption of modern dairy farming technologies, and involvement in local economic activities. Data were collected through one-month field observations and semi-structured in-depth interviews with the two farm owners. Observations focused on dairy management practices, including housing systems, calf management, milking procedures, reproductive management, and human–animal

interactions. Interviews explored farm management strategies, technological adoption, and perceptions of animal care.

Data were analyzed using interpretive thematic analysis through coding and identification of recurring themes, including calf separation, machine milking, artificial insemination, and confinement systems. These themes were interpreted through Nasr's critique of desacralization, instrumental rationality, and the reduction of nature into an object of human control. Data credibility was strengthened through triangulation between interviews and field observations. The findings are limited to the two studied farms and do not constitute a quantitative assessment of animal welfare or ecological sustainability.

## RESULTS

Based on the results of in-depth semi-structured observations and interviews at Pranajaya Farm Dairy Farm and Supri Farm Dairy Farm, the following findings can be explained in Table 1.

Table. 1: Informant Responses from Pranajaya Farm and Supri Farm

| Theme              | Supri Farm                                                                                                                                 | Pranajaya Farm                                                                                                                                                    |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of heifers  | 20 cows                                                                                                                                    | 11 cows                                                                                                                                                           |
| Number of bulls    | 1 cow                                                                                                                                      | 1 cow                                                                                                                                                             |
| Cow mating process | Using the insemination method (sperm provided by the government through cooperatives)                                                      | Using two methods; natural mating (bulls provided by farm owners) and artificial insemination (sperm provided by local governments)                               |
| Post-calf calves   | If females are bred for brooding, if males are sold. One male is left for the cow owner's savings                                          | If females are bred for brooding, if males are sold. One male is left for the cow owner's savings                                                                 |
| Milk for calves    | The rest of the milk that is milked from the mother is drunk using a pacifier because the position of the calf and the mother is separated | The rest of the milk that is milked from the mother is drunk using a pacifier because the position of the calf and the mother is separated                        |
| Cow welfare        | <ul style="list-style-type: none"> <li>Fed sugarcane leaves daily, and drinking mineral water, self-care by</li> </ul>                     | <ul style="list-style-type: none"> <li>Fed grass, concentrate, pellets, tofu pulp, and mineral water, self-care by cattle owners, and local government</li> </ul> |

|                              |                                                                                                                                                                   |                                                                                                                                                                   |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              | cattle owners, and the local government (under the auspices of the cooperative)                                                                                   | Cows live in cages with a leash, not in the wild                                                                                                                  |
|                              | Cows live in cages with a leash, not in the wild                                                                                                                  |                                                                                                                                                                   |
| Diseases of cattle           | Once fever due to weather conditions, treatment was immediately handled by the local government                                                                   | Once fever due to weather conditions, once mastitis when the milking process is manual, treatment is directly handled by the local government                     |
| Use of technology            | Using a milk squeezer because the milk production is increasing, squeeze is done for 5 minutes every time for each cow, squeeze is done every morning and evening | Using a milk squeezer because the milk production is increasing, squeeze is done for 5 minutes every time for each cow, squeeze is done every morning and evening |
| Milk Quality                 | The quality of milk is tested using lacto scan by the local government, the total amount of solids is always above 12%                                            | The quality of milk is tested using lacto scan by the local government, the total amount of solids is always above 12%                                            |
| Impact on humans             | Helping the economy of cattle owners and locals                                                                                                                   | Helping the economy of cattle owners and locals                                                                                                                   |
| Impact on the environment    | farm owners reported no perceived negative environmental impact                                                                                                   | farm owners reported no perceived negative environmental impact                                                                                                   |
| Milk production per day (ml) | 150 liter/day from 12 lactating cows                                                                                                                              | 120 liter / day from 9 lactating cows                                                                                                                             |
| Monthly turnover             | 1.125.000 / day (gross)                                                                                                                                           | 900.000 / day (gross)                                                                                                                                             |
| Distribution of cow's milk   | Warung (masturation for goats, cows, horses, deer), home industry (processed dairy                                                                                | Warung (masturation for goats, cows, horses, deer), home industry (processed                                                                                      |

|                                              |                                                     |
|----------------------------------------------|-----------------------------------------------------|
| derivatives such as<br>yoghurt, cheese, etc. | dairy derivatives such as yoghurt,<br>cheese, etc.) |
|----------------------------------------------|-----------------------------------------------------|

Source: data analysis, 2025

Figure 2. Dairy cow care at Supri Farm and Pranajaya Farm



Source: Documentation at Supri Farm and Pranajaya Farm, 2025

Cows are not merely production animals but sentient beings with complex biological and social characteristics. Previous studies have shown that cows possess cognitive abilities, including the capacity to learn from experience, recognize individuals, and respond to their social environment. They also demonstrate various emotional states, such as fear, comfort, and pleasure, and maintain social relationships within their groups. Therefore, dairy farming practices require consideration of animal welfare dimensions beyond productivity alone. From an ethical perspective, intensive production systems that prioritize efficiency may raise concerns regarding whether the biological and social needs of animals are adequately accommodated. (Allen & Marino, 2017).

Previous literature has identified several dairy farming practices that may become areas of ethical concern, including early separation of calves from mothers, restricted housing systems, and certain handling procedures during milking. These practices have

been discussed as potential factors that may influence animal welfare conditions, although their actual impacts depend on management systems, handling quality, and environmental conditions (Fernandez-Novo et al., 2020). Artificial insemination (AI), meanwhile, is generally considered a widely used reproductive technology in dairy farming. However, ethical considerations may arise regarding the procedures and handling practices involved, particularly when animal care principles are not adequately implemented (Cojkic & Morrell, 2023).

Based on field observations at Supri Farm and Pranajaya Farm, four management practices were identified as relevant for further ethical examination: immediate calf separation after birth, machine milking, artificial insemination, and confined housing systems. These practices are not interpreted as direct evidence of psychological distress or welfare impairment among cows; rather, they are analyzed as potential sites of ethical tension between productivity-oriented management and broader considerations of human-animal relations.

## DISCUSSION

### Seyyed Hossein Nasr's Ethichs Thought Analysis

In today's world, the environmental problem has become a big issue that affects everyone around the globe. Things like cutting down forests, polluting water, and making the air dirty are clear signs of this problem. Seyyed Hossein Nasr says that the real cause of this environmental crisis isn't just about technology or money, but it's more about a deeper problem with how humans see themselves and the world. People today don't feel a sense of awe or respect for nature anymore, and this happens because they don't have a strong belief in God (Azaria, 2014).

In Nasr's opinion, this shows how modern people are facing a spiritual problem. They no longer have respect for the world around them and only care about getting more money and things (Sadjali, 2024). According to Seyyed Hossein Nasr, humans should treat living beings with kindness and maintain environmental balance. He argues that modern environmental crises stem from secular and positivist views that separate humans from God and treat nature merely as a resource, leading to ecological damage and spiritual imbalance (Fahmi et al., 2023). In the ecology ethics perspective of Seyyed Hossein Nasr, nature reflects God's presence and has intrinsic value beyond human use. Humans are meant to be caretakers who maintain balance and respect creation; ignoring these principles in practices like farming reflects a moral decline in how people treat God's creation.

## 1. Artificial Insemination

Artificial insemination is a process where sperm is injected into a dairy cow to help her get pregnant. This method is a key part of breeding animals, especially in the dairy farming sector. (López-Gatius 2022, 1). An informant from Supri Farm, he said:

*After the mother gives birth to a cow, we immediately separate the child from the mother because it is for milk production. Then, for milk that must be given to the calf, we usually give him milk left over from the mother's milk, using a pacifier. (Supri Farm Owner, interview, 4/february/2025)*

A study in the UK involving 33 veterinarians working with dairy cows found that modern technologies aimed at increasing milk production—such as artificial insemination and repeated fertility treatments—can create ethical conflicts. Veterinarians often face tension between prioritizing animal welfare and meeting farmers' economic demands. The study also highlights **adiaphorization**, a process in which harmful practices become normalized, causing both farmers and veterinarians to become less sensitive to the welfare of cows (Clarke and Knights 2022, 6-13). This means that artificial insemination can cause stress and discomfort for cows, affecting their mental well-being and the natural process of giving birth.

According to Seyyed Hossein Nasr, the modern ecological crisis arises from secular and scientific worldviews that separate humans from God and treat nature merely as a resource. He proposes restoring a sacred view of nature—as a manifestation of God's presence—where humans act as *khalīfatullāh* (stewards) responsible for maintaining ecological balance and aligning development with spiritual and environmental values.

### 1.1. Artificial Insemination as a Symptom of the Instrumentalization of Animal Bodies

The rise in milk production, driven by repeated pregnancies, fertility treatments, and common medical practices, shows how animal bodies are used as tools to meet economic goals. Cows are seen only as means to an end. According to Seyyed Hossein Nasr, this approach comes from a secular scientific view that removes sacredness from nature and separates it from spiritual truth. Since the cow has inherent value and sacred worth, using it only as a "production machine" ignores this deeper significance.

#### 1.1.1. Ethical Code Tensions Versus Market Demands

The conflict between the idea of putting animals first and the need to be efficient shows how money matters more than morals. Nasr says good leadership should include spiritual and right values in everyday choices. He believes this is what real sustainable growth is—where making money isn't separated from caring for the environment and values.



According to Seyyed Hossein Nasr's perspective, dairy farming should prioritize animal welfare and minimize unnecessary suffering. Viewed through this ethical lens, common reproductive practices such as artificial insemination (AI) require careful consideration. Although AI is widely used, it can cause significant stress due to handling, restraint, unfamiliar environments, and human intervention (Heinsius et al., 2024). This study indicates that heifers often exhibit signs of behavioral distress during the procedure, which can be observed through altered ear postures and reduced compliance during handling. The stress they feel comes from being handled roughly, going through medical treatments, and being in new or strange places. But, an informant from Pranajaya Farm, he said:

*We use two mating methods: artificial insemination and natural mating. Artificial insemination uses government-provided superior genetics but has about a 50% success rate. If it fails, we use natural mating with our bulls, which has higher sperm volume and better success, though the genetic quality is lower. (Pranajaya Farm Owner, interview, 7/february/2025)*

This approach balances genetic productivity with animal welfare rather than focusing solely on economic gain. By combining artificial insemination with natural mating, it respects cows' well-being and reflects the ethical role of humans as stewards of nature, aligning with Seyyed Hossein Nasr's call to restore respect for nature.

## 2. Cow-Calf Separation

In modern farming, it's common to separate cows from their calves early to make milk production more efficient or to manage breeding. But from a Sufi point of view, this action breaks the natural balance (*fitrah*) that God has created. The connection between a mother cow and her calf shows God's kindness and love in the world. When people separate them just to increase milk production, they are disrupting the kind and caring system that God has designed. An informant from Supri Farm, he said:

*After the mother gives birth to a cow, we immediately separate the child from the mother because it is for milk production. Then, for milk that must be given to the calf, we usually give him milk left over from the mother's milk, using a pacifier. (Supri Farm Owner, interview, 4/february/2025)*

Stress is a complicated situation that affects how the body, mind, and social interactions work together. It not only affects mental health but can also cause different physical problems because it messes up the body's natural balance (Halbreich, 2021). All mammals, including humans, must breastfeed their babies from birth until they stop nursing. This is still true for humans today (Brines & Billeaud, 2021). After birth, mothers naturally care for and feed their babies, providing breast milk that supports both the infant's nutrition and the emotional bond between mother and child (Brines & Billeaud,

2021). In dairy farming, calves are often separated from their mothers soon after birth. Studies in European countries such as Germany and Netherlands show that this practice is widely viewed as unnatural and stressful for both cows and calves (Placzek et al., 2021). This stress can lead to changes in how cows behave.

In the view of Seyyed Hossein Nasr, the bond between a mother and her child reflects God's mercy within nature. Breaking this bond disrupts the natural order, as nature is a manifestation of God's presence (*tajalli*). Humans should therefore relate to nature through the principle of *tawhīd*, recognizing all creation as interconnected and deserving respect beyond mere human use (Fahmi et al., 2023). In the ethics of Seyyed Hossein Nasr, treating living beings merely as production tools ignores their role as signs of God. Humans, as *khalīfatullāh*, are meant to maintain balance in creation, and *adab* requires showing respect to all of God's signs in nature.

According to Seyyed Hossein Nasr, *An-Nahl* teaches that nature is a divine gift that should inspire gratitude and fairness, not exploitation. In dairy farming, practices such as separating cows from their calves should only occur when truly necessary for health reasons and must minimize suffering. Nasr's deep ecology emphasizes balancing technology, animal welfare, and spiritual responsibility so that farming remains ethically and ecologically sustainable (Fahmi et al., 2023). An informant from Supri Farm, he said:

*Cows that are stressed are usually due to environmental factors. Like extreme weather, hearing noisy sounds, and seeing people. So we as livestock owners do have to pay attention to the comfort of cows. There are many things to learn about cattle rearing.* (Supri Farm Owner, interview, 4/february/2025)

From the perspective of Seyyed Hossein Nasr, caring for cows' comfort and well-being reflects human responsibility as stewards of the earth. By recognizing animals as God's creations with dignity, farmers practice *adab* – showing respect for the signs of God in nature and maintaining a balanced relationship between humans, animals, and the environment.

### 3. Milking Machines

The heavy and overuse of milking machines is also a worry from a Sufi point of view. Although technology is meant to make things more efficient, if it's used without caring about the cows' well-being or if it hurts them, it lowers the spiritual meaning of the connection between humans and animals. An informant from Supri Farm, he said:

*Cows milked at irregular times are more prone to stress, affecting milk quality and quantity. Therefore, we maintain a strict milking schedule, ensure adequate rest, food, and mineral water, and use a gentle milking method to minimize discomfort.* (Supri Farm Owner, interview, 4/february/2025)

An informant from Pranajaya Farm, he said:

*The milking process of cows at our place uses a milking machine every morning and evening. (Pranajaya Farm Owner, interview, 7/february/2025)*

As an informant from Supri Farm, he said:

*We have been milking it using machines for ten years because of the increasing number of populations because if it is done manually, it is very tiring. (Supri Farm Owner, interview, 4/february/2025)*

Studies in Ukraine show that in today's time, farmers are using machines to milk cows, including the newest technology in milking equipment. There are two types of advanced milking machines, called 'Parallel' and 'Carousel' machines, which show how efficient each type is, both in terms of how much milk is collected and the quality of the milk produced (Fahmi et al., 2023). Farmers use these machines because they get tired if they milk cows by hand. A study looked into how farmers' mental health and the well-being of cows on dairy farms are connected when using robotic milking systems. This study collected data from farmers in Ontario, Canada who use these robotic systems. The study found that higher stress levels in farmers are linked to more cases of bovine paralysis. Also, female farmers, self-employed farmers, and those who feed and milk cows by hand tend to experience more anxiety and depression compared to those who use automated feeding and milking systems. An informant from Pranajaya Farm, he said:

*Using a milking machine is more practical, effective, and hygienic because hand milking is tiring, inconsistent, and can irritate the cows, especially when done hastily or in a bad mood. (Pranajaya Farm Owner, interview, 7/february/2025)*

Studies show that automatic milking machines can reduce physical stress on cows compared to manual milking by using appropriate speed and pressure and allowing cows to move more freely. Although cows may experience temporary stress when first adapting to the machines, proper training and good equipment maintenance can help minimize this stress (King et al., 2021). An informant from Supri Farm, he said:

*Milking machines help cows stay more relaxed and increase milk production. However, each cow should be milked for no more than five minutes, after first cleaning the cow's body – especially the udder – with clean water. Milking is done only twice a day, in the morning and evening, to avoid stressing the cows. (Supri Farm Owner, interview, 4/february/2025)*

An infomant from Pranajaya Farm, he said:

*As mentioned earlier, milking machines not only reduce farmers' fatigue but also prevent irritation to the cows because the rhythm is more consistent. This makes cows calmer and more relaxed during milking. The machines are also regularly maintained to ensure they remain clean, hygienic, and function optimally. (Pranajaya Farm Owner, interview, 7/february/2025)*

To manage a cow milking machine well, farmers need to watch cows carefully, including noticing health signs from the robotic data. This skill, called the "stock person's eye," mixes hands-on experience with digital information to better care for cows. Farmers who use the tool effectively are open to learning how to use robotic data and care about the well-being of the animals (Lundström & Lindblom, 2021). An informant from Pranajaya Farm, he said:

*Since using the machine, our cows have never had mastitis. Because we pay great attention to the maintenance of the machinery and also the welfare of our cattle. (Pranajaya Farm Owner, interview, 7/february/2025)*

Using milking machines can improve efficiency, but poor maintenance may allow bacteria to enter and cause mastitis—an udder infection that reduces milk quality and production. Mastitis, caused by bacteria such as *Streptococcus*, *Staphylococcus*, and *Escherichia coli*, can also lead to hormonal disorders, reduced fertility, and other health problems in dairy cows (Wang et al., 2021).

These findings show that technology can help with work and improve the well-being of cows, but it can also cause a loss of sacredness if used without spiritual awareness. According to Nasr, modern technology is not neutral; it shows a human-centered, secular way of thinking that often separates people from nature (Fahmi et al., 2023). If technology is used without spiritual awareness, it leads to desacralization, where animals are seen just as tools for profit. But when guided by the idea of adab, technology can help bring back a sense of sacredness, helping humans get closer to God by respecting His creations. In this case, milking machines are used in a fair way by focusing on the comfort of cows, avoiding too much pressure that causes pain, and making sure the cows are well taken care of along with keeping the equipment in good condition to prevent illness. As khalīfatullāh, humans have the duty to keep the universe in balance. The farmers' work in setting good milking times, keeping things clean, and avoiding mastitis is an example of adab in their role as caretakers, showing how using technology can be both ethical and connected to spiritual awareness.

#### 4. Restricted Housing Systems

In today's livestock industry, different methods are used to help reduce stress in dairy cows. These include using a system that focuses on animal welfare, playing soft music in the cows' areas, and using more gentle milking methods, like milking without tying the cows up so they can move more freely. Managing stress well helps keep cows healthier and happier, and it also makes them produce more milk that is better in quality. Looking at two dairy farms in Yogyakarta, it was found that none of the cows were

allowed to roam freely; they were all kept in cages and tied with ropes. This shows that their movement is still very limited, which can cause them to feel uncomfortable. The study talks about different types of housing systems used in Europe, such as rope systems, cubicles, and open systems that let cows go outside. Each system has its own benefits and drawbacks that affect how well the cows are treated. For example, rope systems that limit how much cows can move might lead to issues like paralysis, leg problems, or difficulty resting. These problems are connected to how the cages are built, how they are managed, and the overall environment the cows live in (Nielsen et al., 2023). An informant from Supri Farm, he said:

*Ideally, we would let the cows graze freely like in Vietnam or Europe, but limited land means they are mostly kept in stalls. Sometimes they are taken outside but tied with a rope. If a cow gets sick, the cooperative and POSKESWAN provide treatment such as antibiotics, vitamins, and vaccinations. (Supri Farm Owner, interview, 4/february/2025)*

An informant from Pranajaya Farm, he said:

*Our cows are rarely sick because milking machines keep them comfortable and reduce mastitis while increasing milk production. Ideally, they would graze freely, but due to limited land they are sometimes taken outside and tied to trees. In the barn, we use floor mats to prevent slipping and fans to improve air circulation. (Pranajaya Farm Owner, interview, 7/february/2025)*

Research in major dairy-producing areas like Europe, North America, South America, Australia, and New Zealand looked at how well dairy cows are treated in two main ways of raising them: grazing on pasture and being kept in confined areas. The study found that cows in pasture systems are less likely to get mastitis, which is an infection of the udder, both in obvious and hidden forms. They also have fewer foot injuries and movement problems than those in confined systems. But they are more likely to suffer from internal parasites and not get enough food. Cows that graze on pasture tend to have better reproduction, giving birth more often and having fewer problems with their pregnancies. However, how well they get pregnant can be different. Cows in confined systems are more likely to die or go missing, while those that can graze tend to live longer (Mee & Boyle, 2020).

In terms of behavior, cattle in pastures have more chances to show their natural actions, like eating grass, resting, and interacting with each other in a social way. In detention systems, especially the more crowded ones, the animals have less space to move around and express their natural behaviors. This lack of space and resources causes more stress and fighting among the cows, like competing for food or resting areas. In pastures, cows act in a more natural and group-oriented way. On the other hand, in detention

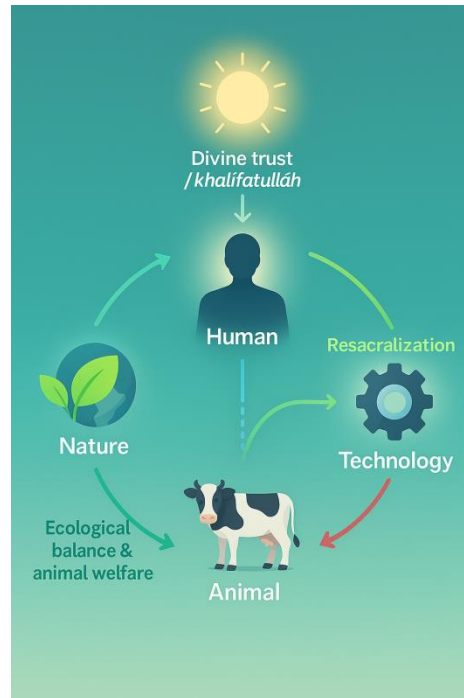
systems, their actions are more isolated and happen because of limited space and available resources (Mee & Boyle, 2020).

Studies show that cows feel better when they are outside in a field, especially at night. This suggests that being able to go outside can make them happier. Cows really like to be in pastures and this helps them feel more at home. Being in a pasture also meets their natural needs better than just eating indoors. This is connected to their overall well-being because they can be in a more comfortable and natural setting (Mee & Boyle, 2020).

Based on the interview data, farmers understand the importance of keeping cows comfortable, but tethering is still practiced due to limited land and facilities. From the perspective of Seyyed Hossein Nasr, restricted spaces that limit cows' natural behavior reflect a human-centered worldview and can cause stress, mastitis, hormonal problems, and declining physical and mental health in cows. Nasr views humans as *khalīfatullāh* (stewards of God's creation) who are responsible for maintaining the balance of nature. Efforts by farmers to reduce stress – such as improving barn conditions and using gentler milking methods – demonstrate ethical conduct (*adab*), yet broader changes are still needed. Dairy farming systems should provide more space for cows to move and express their natural behavior, for example through grazing areas or semi-open housing. By integrating modern science with spiritual values, dairy farming can operate more harmoniously with nature. Governments and the dairy industry should also develop policies that consider the physical, mental, and ecological well-being of animals to ensure sustainability that aligns with both environmental balance and spiritual principles.

## A Conceptual Diagram – Nasr's Ethics Thought

Figure 3. Conceptual Diagram of Human–Technology–Animal–Nature Relationship Based on Seyyed Hossein Nasr's Ethics Thought



Source: personal documentation

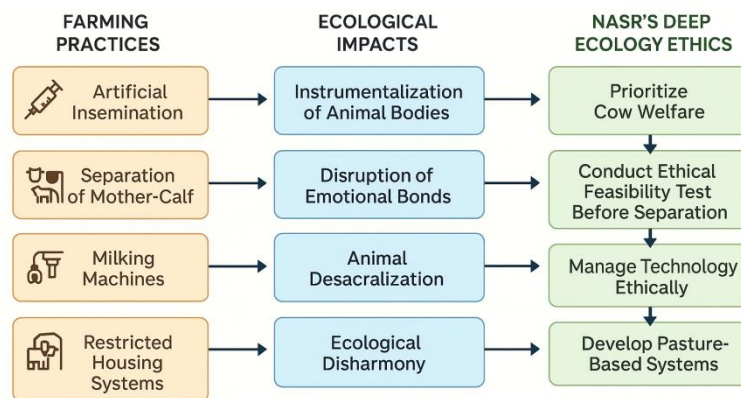
This infographic shows how humans, technology, animals, nature, and God are connected, according to Seyyed Hossein Nasr's thought. At the top, God is shown as the sun's light, which is the source of sacredness. This light brings out God's different names and qualities in everything in the world, called *tajallī*. From God, there is a special trust given to humans, who are called "*khalīfatullāh*," meaning God's representatives on Earth. This trust means humans have a spiritual and moral duty to keep the universe in balance and protect the special connections between all living things.

In the middle of the diagram, humans are shown as the main link between God, technology, animals, and nature. According to Nasr, technology is just a tool that humans use to connect with other living things, like cows, and with the environment. But if technology is used without thinking spiritually, it leads to a loss of sacredness. Animals are seen as things to use, nature is overused, and the environment gets damaged. However, if technology is guided by ethical and spiritual values, it brings back sacredness. This means animals are treated with care, their stress and pain are reduced, and the environment stays healthy.

The part about nature shows how all living things are connected. Nasr believes nature is a way God shows himself, and it has its own value that shouldn't be taken for granted. Animals, like the cow, also have the right to live and to be well, both physically and mentally. This infographic shows that the harmony between God, humans, animals, technology, and nature is possible only when humans understand their role as protectors of life's sacredness.

### Nasr's Ethics in Dairy Farming Systems

Figure 4. Nasr's Ethics in Dairy Farming Systems



## CONCLUSION

This study finds that dairy farming practices at Supri Farm and Pranajaya Farm, including artificial insemination, calf separation, machine milking, and confined housing systems, are primarily oriented toward improving production efficiency and economic sustainability. However, these practices also raise ethical considerations regarding the relationship between humans and animals, particularly in relation to the position of dairy cows within modern agricultural systems.

Drawing on Seyyed Hossein Nasr's environmental philosophy, this study argues that nature and living beings possess intrinsic value as manifestations of divine order and should not be understood solely as economic resources. Modern technologies in dairy farming, including artificial insemination and mechanized milking, therefore require ethical reflection regarding how productivity goals are balanced with considerations of animal care and respect for living beings.

The findings suggest that the combination of reproductive technologies and traditional breeding practices at the studied farms reflects an effort by farmers to balance production objectives with attention to animal management. However, this study does not claim that animal welfare outcomes have been empirically verified. Instead, these practices are interpreted as sites of ethical negotiation between technological efficiency and broader responsibilities toward animals.



Ultimately, this study suggests that future dairy farming development should not be limited to increasing productivity but should incorporate scientific innovation, ethical consideration, and a spiritual understanding of humanity's relationship with nature. Such an approach may contribute to a more balanced relationship between humans, animals, and the natural world.

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