A Work Project presented as part of the requirements for the Award of a Master's degree in Management from the Nova School of Business and Economics.

ETHICAL DECISION-MAKING IN EUROPEAN AGRICULTURE: EVALUATING ITS APPLICABILITY IN THE MANAGEMENT OF AGRICULTURAL HOLDINGS

CITA BUCHENAU

Work project carried out under the supervision of:

Professor Joana Corrêa Monteiro

29.01.2025

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Abstract

This work assesses the integration of ethical decision-making into the management of European agricultural holdings, addressing dilemmas such as food security, environmental sustainability, and animal welfare. By synthesizing theoretical models and practical realities, it examines the applicability of a six-step ethical decision-making model. The study highlights constraints, including regulatory influences, economic pressures, and ethical literacy gaps, while emphasizing the vital role of farmers' insights. Recommendations focus on the institutionalization of ethics in the agricultural sector, adapting pragmatism and fostering collaboration to enhance the public discourse. This research underscores the importance of ethical reasoning as a cornerstone for sustainable agricultural practices.

Keywords

Business Ethics • Ethical Decision-Making • Agricultural Management • Sustainability • Ethics Frameworks • Applicability • European Agriculture • Ethical Literacy

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

1 Introduction

Agriculture holds a central role in human civilization by contributing to public goods, including food security and safety as well as nature and water management (Meijboom and Stafleu 2016). This public dimension of agriculture is widely acknowledged, not only by individual farmers but also by national farmer associations and policymakers across Europe (de Rooij, de Lauwere, and van der Ploeg 2010; Meijboom and Stafleu 2016). However, the critical and complex ethical dilemmas embedded in agricultural practices have gained renewed importance in light of challenges such as global food insecurity, environmental degradation, and evolving societal expectations (Dundon 2003). There is a growing divide between farmers and the broader public, rooted in the increasing distance between consumers and agricultural practices (McElwee and Annibal 2010) as well as a lack of farmer representation in the public debate (Meijboom and Stafleu 2016). Farmers often feel isolated from the public discourse, perceiving an absence of understanding and appreciation for the complexities of their work (Schoon and Te Grotenhuis 2000) and facing accusations of prioritizing profit over care for animals and the environment (Fraser 2001). This disconnect presents a significant challenge to creating a unified and collaborative approach in order to address ethical concerns in agriculture.

Agricultural ethics seeks to examine the moral dimensions of farming practices and to provide frameworks for navigating trade-offs between competing values. For instance, while food security and environmental sustainability are complementary goals in the long term, achieving both often requires balancing short-term trade-offs involving complex ethical questions (Von Braun and Brown 2003). Ethical decision-making in agriculture must therefore consider not only normative principles but also social, economic, political, legal, and biological dimensions (Burkhardt et al. 2005). The multifaceted nature of these issues underscores the importance of developing practical, context-sensitive strategies that can guide farmers, policymakers, and other stakeholders in making informed and morally sound choices.

At the heart of this work lies the recognition that ethical decisions in agriculture matter not only for the farmers themselves but for society. As Woiceshyn (2011, 311) noted, "unethical decisions harm the decision makers themselves as well as others, whereas ethical decisions have the opposite effect". This thesis critically examines the implementation of ethical decision-making in agricultural management in the context of the European Union (EU), with a particular focus on the challenges and constraints faced by farmers in navigating dilemmas. By synthesizing insights from ethical frameworks and literature, it aims to offer recommendations to incorporating ethical dimensions into agricultural management practices. Ultimately, this work seeks to contribute to a more inclusive, informed, and pragmatic discourse on ethical issues in agriculture, ensuring that farmers can act as full partners in public debates as well as in shaping the future of food and farming systems, while addressing the needs of all stakeholders.

2 Literature Review

2.1 Agricultural Ethics

Agricultural ethics is an increasingly relevant field that deals with the moral dimensions of farming practices, resource management, environmental stewardship, and the relationship between agriculture and society (Sarvestani, Shahvali, and Mohaghegh Damad 2012). The increasing relevance is in part explained by a growing human population, along with the depletion of natural resources. The ethical issues in agriculture are broad - agricultural ethics seeks to explore how moral principles can guide decisions in farming, with the goal of promoting profound ethical judgments of practices (Burkhardt et al. 2005). As a unique link between nature and culture, agriculture features value conflicts with the environment as well as with human stakeholders (Aiken 1984), creating ethical questions about the role of agriculture in sustaining life for present and future generations (Comstock 1996).

2.2 Common Dilemmas in Agriculture

2.2.1 Food Security and Safety

The most intertwined and longstanding issue in agriculture is food security (Burkhardt et al. 2005), particularly in light of global population growth and unequal access to resources (FAO 2023). The term "agrifood ethics" is occasionally used in scientific discussions, rather than "agricultural ethics" to emphasize the significance of this dimension (Thompson 2013). The Food and Agriculture Organization defines food security as a state in which “all people, at all times, have access to sufficient, safe, and nutritious food for an active and healthy life” (FAO 2006, 1). Despite advances in agricultural production and the right to food being stated in the Universal Declaration of Human Rights by the United Nations (UN 1948), in 2023 a projected 28,9% of the global population faced moderate or severe food insecurity (FAO et al. 2024). However, food insecurity is not just a matter of increasing food production; it also involves addressing issues of affordability, distribution, and access, particularly in developing countries where the high cost of food limits access for the poor (FAO et al. 2024). This raises the ethical question of whether agricultural policies and practices sufficiently address hunger and food inequality (Burkhardt et al. 2005). In terms of food safety, the usually restricted transparency and information asymmetry within the food supply chain pose a risk to consumers (Sarvestani 2024; Burkhardt et al. 2005). The dilemmas examined hereafter illustrate how food security and safety repeatedly involve ethical issues, especially regarding the trade-off between food security and economic interests on one side and the environment and animal welfare on the other.

2.2.2 Structural Dimension

The complexity of structural conditions in agriculture leads to issues in ethical terms. Regulated by institutions like the World Trade Organization (WTO), global trade in agriculture raises concerns about fairness and power imbalances (Sarvestani 2024). Wealthy countries can dominate markets through subsidies and usage of advanced technologies, which creates

challenges for farmers in developing nations to remain competitive (Gallagher 2004). A global trade approach is inevitable for most countries, creating a tension between regionalism and global food security (Korthals 2001). Additionally, while regional agricultural practices may promote sustainability, they often fail to address global food demands. Exclusively local systems may export environmental problems and avoid necessary innovations (Korthals 2001).

The ongoing shift from small, family-run farms to large, industrialized operations further poses ethical challenges in structural terms regarding sustainability and social justice (Fuller et al. 2021). Family farms traditionally promote values like self-reliance and communal responsibility, but structural change risks eroding these values (Sarvestani 2024). The ethical dilemma consists in balancing economic efficiency and food security with the need for sustainable and just farming practices that benefit rural communities (Migliorini et al. 2020).

Lastly, as implied before, the structural choices made for the farm, including land use, have ethical implications. On their land, farmers can choose between producing food, animal feed, or energy, e.g., biomass for bioenergy or photovoltaic plants for electricity. However, these choices impact food security through food availability and affected prices (Henning 2015).

2.2.3 Environmental Sustainability

One of the most prominent ethical conflicts in agriculture is the balance of productivity with environmental sustainability, i.e., balancing human needs and the wellbeing of the ecosystem (Sarvestani 2024; Noll 2018; Aiken 1984). Resource-intensive agricultural systems have contributed to environmental degradation, including deforestation, soil erosion, water depletion, and biodiversity loss (FAO 2018; Olanipekun, Olasehinde-Williams, and Alao 2019; Sarvestani 2024). While they have increased food production, they also raised concerns about the long-term viability of agricultural practices and their impact on ecosystems (Spiertz 2010). For example, chemical fertilizers and pesticides have led to significant increases in crop yields at the expense of environmental health (Cardoso and James 2012). The resultant long-term

environmental damage including contamination of water sources and harm to non-target species has led to a growing interest in organic farming and sustainable practices (Raynolds 2000). Subsequently, the responsibility towards future generations is a further ethical dimension in the evaluation of the environmental impacts of current practices (Burkhardt et al. 2005). Capitalizing on high yields through unsustainable practices entails long-term consequences for food security and the economic performance of agricultural holdings.

2.2.4 Animal Farming

The farming of animals is another source of complex ethical dilemmas, particularly in systems designed to maximize efficiency and productivity, often creating controlled environments that significantly differ from animals' natural habitats (Rossi and Garner 2014). The resultant debates reveal contrasting attitudes between farmers and the public. While many farmers emphasize productivity, meeting consumer demand, and complying with legal requirements, the public increasingly prioritizes animal welfare and questions the morality of intensive farming practices (de Rooij, de Lauwere, and van der Ploeg 2010). In addition to animal welfare, the ethical question of whether humankind should consume animal products has gained traction (Burkhardt et al. 2005), especially as plant-based diets are projected to reduce environmental impacts and diet-related diseases (Rossi and Garner 2014). However, animal products remain a crucial nutritional source, particularly in poorer regions where access to diverse plant-based options is limited and affordable animal products provide essential proteins, vitamins, and minerals (Rossi and Garner 2014; Mottet et al. 2017).

Furthermore, animal farming has functional advantages within the broader agricultural system. For instance, livestock contribute to sustainable farming practices by providing manure that substitutes industrial fertilizers, and they can be fed on lower-quality crops, making efficient use of otherwise underutilized resources (Mottet et al. 2017). At the same time, raising

livestock requires resources that could otherwise be used for direct human food production, contributing to food security concerns (Burkhardt et al. 2005).

2.2.5 Use of Technology

The use of technology in agriculture, including the particularly prominent biotechnology of genetically modified organisms (GMOs), presents another ethical dilemma where new principles and problems arise (Korthals 2001). Biotechnology has the potential to solve major global challenges, such as food insecurity and environmental degradation by increasing crop yields and nutritional values, as well as reducing the need for chemical inputs (Singh et al. 2020; Borlaug 2000; Korthals 2001). However, the long-term effects of GMOs on human health and the environment are not fully known, raising concerns about the ethical implications of circulating GMOs into the ecosystem (Singh et al. 2020; Thompson 2007; Korthals 2001), the concentrated power of controlling corporations (Thompson 2007), and possibly restricted accessibility for smaller-scale farmers (Migliorini et al. 2020). Another layer of complexity arises concerning the genetic modification or intensive breeding of animals, aimed at increasing productivity and reducing complications. For example, GM hornless cattle improve safety and reduce injuries but raise questions about the morality of altering animals for human benefit (Cardoso and James 2012) as well as to what extent mankind should be allowed to manipulate nature (Gaskell and Bauer 2001; Comstock 2000). The use of GMOs also brings up concerns about consumer rights and transparency. One might question whether consumers should have the right to choose whether to consume bioengineered foods, especially if these conflict with their religious or philosophical beliefs (Bawa and Anilakumar 2013; Burkhardt et al. 2005).

2.3 Common Ethical Frameworks in Agricultural Ethics Research

Agricultural ethics draws on several ethical frameworks to address the moral dilemmas portrayed in the previous chapter. The normative frameworks often involve utilitarianism - a

form of consequentialism - and deontological ethics (Burkhardt et al. 2005; Sandler 2013; Cardoso and James 2012), as well as, less commonly, justice ethics (Cardoso and James 2012) and virtue ethics (Sandler 2013; Burkhardt et al. 2005). These frameworks are accompanied by meta-ethical dimensions in agricultural ethics, namely pragmatism (Tuminello 2019) and its inherent pluralism (Noll 2018; Korthals 2001), offering a different perspective on how to deal with ethical challenges in agriculture. The divergence among anthropo-, bio- and eco-centric views adds another overarching dimension (Tuminello 2019); the latter can also be classified as holistic ethics (Noll 2018).

2.3.1 Consequentialist and Deontological Ethics

Utilitarianism, belonging to consequentialism and developed by Bentham, Mill and Sidgwick, advocates for actions that maximize the resulting overall happiness or benefit, even if they cause harm to a few (Rachels and Rachels 2019). In the context of agriculture, utilitarianism often justifies practices that increase food production or improve efficiency, although they come with environmental or animal welfare costs (Burkhardt et al. 2005), balancing benefit and harm for humans and animals (Burkhardt et al. 2005; Singer 2015). The principle of sacrifice for the greater good highlights an important ethical argument in the context of food security: individuals and governments may have a moral obligation to act against hunger, even if it requires sacrifice (Singer 1972). Research found that farmers lean more towards utilitarianism in terms of their general ethical orientation, especially concerning the allocation of resources for human needs (Cardoso and James 2012).

Deontological ethics, going back to Kant, subdivides itself into duty-based, rights-based, and contractualist approaches (Alexander and Moore 2021). The rights-based approach is more prominent in agricultural ethics and emphasizes the protection of the autonomy and rights of all affected parties, e.g., consumers and future generations, regardless of consequences such as lower productivity impacting food security. Rights theory is often applied in comparison

to the utilitarian approach, in topics such as food security, farm structure, animal welfare, and environmental sustainability (Burkhardt et al. 2005) and sometimes offers conflicting proposals (Rachels and Rachels 2014). Concerning farmer autonomy there is another tension in agricultural ethics. While policies aimed at environmental protection or public health may be justified from a utilitarian perspective, they can infringe on farmers' rights and autonomy, which both the deontological framework (Tuminello 2019; Meijboom and Stafleu 2016) and farmers themselves highly value (Cardoso and James 2012). Regarding agricultural policies, Cardoso and James (2012) found that farmers favor principles that are grounded on rights rather than ones based on justice or utilitarianism.

2.3.2 Justice and Virtue Ethics

The framework of justice ethics focuses on the fair distribution of benefits and burdens among all stakeholders, including, in the agricultural context, humans, animals, and the environment (Cardoso and James 2012; Baxter 2004). Justice ethics is particularly relevant in discussions about food security, international trade, and resource use. Here the unequal distribution, e.g., of environmental issues and advantages, is a concern (Schlosberg 2007). The principle of intergenerational justice (Düwell, Bos, and Van Steenbergen 2018), for instance, argues that current agricultural practices must be designed to ensure that future generations have access to the same natural resources and opportunities as present-day farmers, therefore promoting the development of sustainable agricultural practices (Malekhoseini, Mirakzadeh, and Salmanzadeh 2019). However, this objective again must be weighed against challenges of intra-generational justice (Glotzbach and Baumgärtner 2012).

The virtue ethics framework, based on the philosophy of Aristotle, focuses on the moral character of individuals rather than specific rules or outcomes (Hursthouse and Pettigrove 2023). In agricultural ethics, it emphasizes the development of virtues such as responsibility, ecological sensitivity, and stewardship in farming practices or, depending on the agricultural

goals, efficiency and innovativeness (Sandler 2013). The virtue ethics approach suggests that ethical agricultural practices stem from the moral character of the farmer, reflecting the idea that farming is more than a business, it is also a way of life that requires moral commitment and integrity (Meijboom and Stafleu 2016). For example, treating animals well is not just a matter of following duty or justice principles but an expression of compassion and care that reflects the moral values of the individual farmer (Rossi and Garner 2014).

2.3.3 Other Overarching Frameworks

Pragmatism is a framework also found in agricultural ethics, emphasizing flexibility, case-by-case decision-making and utility in real-world contexts (Legg and Hookway 2024), meaning that morality is not intrinsic, such as in virtue ethics, but contextual and adaptive. It claims to recognize that moral dilemmas, as found in agriculture, are often complex and context-dependent, so that different ethical frameworks may be appropriate in distinct situations (Tuminello 2019), especially when considering practical experiences (de Colle, Freeman, and Wicks 2024). Pragmatism advocates for a pluralistic approach that considers and weighs multiple ethical perspectives against one another, claiming to allow for nuanced and context-sensitive ethical decision-making that is responsive to the varied and often conflicting values present in agricultural systems (Korthals 2001).

Other overarching frameworks leading to distinct outcomes are anthropo-, bio- and eco-centrism. The anthropocentric view focuses solely on the intrinsic value of human needs while relegating other living organisms to instrumental value. The biocentric view on the other hand attributes intrinsic value to all individual life forms whereas the eco-centric view stresses the importance of all actors in an ecosystem (Tuminello 2019). In the context of animal farming, dominionism and animal rights emerge as additional viewpoints. Dominionists argue that humans have the right to use animals for their purposes as they lack emotions, understanding or cognizance (Regan 1986), while animal rights advocates claim that animals have moral rights

and should be treated ethically (Kumar R and Raghavan K 2022). Within an ethical individualist approach, animals are attributed capabilities that imply their right to ethical treatment as individuals (Palmer 2010).

2.4 Ethical Decision-Making in Agriculture

In general, ethical decision-making is a process aiming for a decision that is "both legal and morally acceptable to the larger community" (Jones 1991, 367). Theoretical models, e.g., the person situation model (Trevino 1986), highlight the interplay of individual characteristics, moral competence, and situational or institutional factors (James 2002). Hendrickson and James (2005) stressed the influence of group and self-identity on the moral behavior of farmers. Furthermore, ethical decision-making rarely consists of purely cognitive evaluations; emotional and intuitive factors play significant roles, sometimes on a subconscious level (Woiceshyn 2011; Haidt 2001), evidenced by dual-process theories of moral judgment (Cardoso and James 2012). Haidt (2001) even suggested that rapid intuition rather than the reasoning process is the primary driver of decision-making. In addition, ethical decisions are often specific to a given situation, complicating the choice of a single approach to ethical decision-making (Trevino 1986) and leading to the use of multiple frameworks (Cardoso and James 2012).

While there is extensive research on ethical decision-making and attitudes in businesses including decision-making models and practical approaches, the agricultural context remains relatively under-researched (Sulemana and James 2014). Some studies have explored the cognitive moral development of farmers, their ethical perspectives, and how these factors influence their choices (Cardoso and James 2012; Sulemana and James 2014; Malekhoseini, Mirakzadeh, and Salmanzadeh 2019; Farmar-Bowers and Lane 2009). Certain progress has been made in understanding farmer attitudes and decision-making on selected controversial farming practices (Cardoso and James 2012), the adoption of GMO technologies (Vänninen et al. 2009), and animal welfare topics (Gocsik et al. 2014; de Rooij, de Lauwere, and van der

Ploeg 2010). Some researchers categorize farmer typologies (de Rooij, de Lauwere, and van der Ploeg 2010; Sulemana and James 2014; Guillem et al. 2012; Burton and Wilson 2006; Darnhofer, Schneeberger, and Freyer 2005), resulting in different attitudes towards ethical issues. Research on general farmer decision-making suggests influencing factors to be socio-demographics, the farmers' psychological and household makeup, farm business structure, and the broader social context (Edwards-Jones 2006). There is evidence that agricultural managers have moral beliefs and are not solely influenced by economic aspirations, showing above-average moral notions such as pride, care, and farming ideals (Meijboom and Stafleu 2016). However, in the case of GM crops, economic and agronomic considerations are often superior to ethical ones, although concerns about the technologies remain with the farmer (Vänninen et al. 2009). James and Hendrickson (2008) found that unethical environmental practices are more probable when the farmer is perceiving economic pressure or once the practices are committed by several others. For instance, the use of GM crops is often not seen as an ethical issue as most surrounding farmers adopted the technology (Cardoso and James 2012).

Nonetheless, the existing research lacks an examination of which decision fields and choices are available to agricultural managers. Research offers little insight into how farmers can navigate the challenges in a systematic and consistent manner and is not presenting concrete, adaptable guidelines on how agricultural managers can incorporate ethical dimensions into their strategic and operational decisions (Burkhardt et al. 2005; Elms et al. 2010). In addition, little of the existing work has focused on European contexts, with limited exploration of ethical decision-making on the level of individual agricultural holdings. While some studies acknowledge the need for interdisciplinary approaches to ethical issues, they do not explain how ethical concepts can be operationalized within the unique regulatory, cultural, technical, and socio-economic constraints of European agriculture (Vänninen et al. 2009; Gocsik et al. 2014; Burkhardt et al. 2005).

3 Research Question and Methodology

Given the identified gap in literature, this work aims to critically and systematically examine the room for as well as the applicability of ethical decision-making processes in agricultural management in the EU, specifically looking into the constraints farmers may face. A qualitative research design was adopted to explore the multi-dimensional and context-specific nature of ethical decision-making in agriculture. This approach allowed for an analysis and synthesis of available scientific literature, theoretical models, and governmental documents. To prevent reflecting biases of secondary data, the study cross-referenced input from multiple reputable sources and focused on peer-reviewed studies as well as official documents obtained from government institutions. Scientific articles were sourced through the databases Google Scholar and JSTOR; of those two, Google Scholar yielded the broadest range of papers and has given the best results. The selection focused on studies published after 2000, however, in 10 out of 102 sources, older content, and especially philosophical work, proved to be of enduring value. Policy documents were retrieved from the European Commission's official website, ensuring alignment with current regulations and strategies, whilst data on European agriculture was sourced via Eurostat, offering contextual insights into decision-making environments. Furthermore, the EU sources were selected based on their relevance to ethical issues, focusing on documents published after 2015 to ensure currency. Appendices 2 to 4 contain a detailed analysis of keywords, literature, and publication dates.

The analysis began with an examination of decision-making options available to European farmers. This step was critical for understanding the constraints faced by agricultural managers, including economic, legal, and technical dimensions. Incorporating these factors along with ethical considerations provided a comprehensive view of the decision-making landscape. The applied synthesis of ethical decision-making models was based on recurring steps identified in the literature, ensuring the proposed model captured widely accepted stages

while remaining thorough. Selected scenarios illustrated practical applications of the framework, drawn from common ethical dilemmas identified within the literature review.

4 Results

4.1 Decision-Making Options and Constraints in European Agriculture

Agricultural holdings in Europe operate within a complex landscape highly influenced by and interconnected with political, legal, economic, ecological, social, technological, and agronomical contexts (Serebrennikov et al. 2020; Burkhardt et al. 2005) that affect the business choices available to agricultural managers. Therefore, the following provides a general overview regarding the strategic options typically available to average European farms and the external and internal constraints limiting them.

4.1.1 Options

To illustrate the available choices, it is necessary to establish what constitutes a typical farm in the EU. In 2020, about 93% of the farms were classified as family farms, in which at least 50% of the workforce consisted of family members (Eurostat 2022). However, about 56% of the total agricultural economic output has been produced by larger agricultural enterprises with a legal or group-holding form (Eurostat 2022). The most typical farm specialization was crop production, accounting for 58%, with over half focused on field crops and the remainder on permanent crops and horticulture. This was followed by about 22% livestock specialists, including most prominently dairy, cattle, and poultry. Finally, 19% of European farms practiced mixed animal and crop farming (Eurostat 2022)(see Appendix 5 for diagram on specializations). Organic farm area made up about 11% of total European agricultural land in 2022 and 7% of bovines were reared organically (Eurostat 2024). The organically cultivated area increased sharply by 79% between 2012 and 2022 (Eurostat 2024). However, the statistics on European farms vary greatly by country, leading to farmers facing different structural conditions. While

there is no European statistic on bioenergy as a share of arable land use, it was approx. 20% of arable land in 2021 in Germany (Bundesministerium für Umwelt 2023). Furthermore, about 57% of crops produced in Germany have been used as feed in 2021 (Böhmerle 2023, 7).

As identified within the literature review, one key area of decision-making options with ethical implications revolves around land use. Further choices are the engagement in animal farming as well as the adoption of organic farming practices. Additionally, managers must weigh the implementation of controversial technologies such as biotechnology and pesticides alongside choices related to purchasing and selling strategies. There are also variations in how agricultural managers approach landscape stewardship and their level of engagement with the local community. Overall, European agricultural managers confront multifaceted decision options, including smaller selections such as the choice of cultivated plant or animal species, each of which carries distinct ethical implications.

4.1.2 External and Internal Constraints

Constraining external factors beyond the control of farmers significantly limit the business choices available to European agricultural holdings (Schoon and Te Grotenhuis 2000; Gocsik et al. 2014). A major factor is of political nature, having legal implications. The European agricultural sector is regulated across various areas and therefore management choices for farmers are influenced on multiple levels. For instance, currently only one strain of GM maize is authorized for cultivation within the EU (European Commission, n.d.-a). There are further regulations concerning agricultural practices, including fertilizer, pesticide, and general land use, as well as animal husbandry practices (Serebrennikov et al. 2020). Moreover, the EU intends to transform agriculture towards more sustainability, as contested in the Green Deal (European Commission 2019) and the Farm to Fork Strategy (European Commission 2020), which include even stricter policies, such as on pesticide and fertilizer use, and incentivize an expansion of organic farming. Economically, farmers that are implementing

higher environmental and animal welfare standards depend on sufficient demand and market infrastructure as well as price premiums. These are either paid by consumers through certifications and quality standards such as the EU organic standard or through subsidies from the Common Agricultural Policy (CAP) in the EU (European Commission, n.d.-b; Gocsik et al. 2014; Farmar-Bowers and Lane 2009; Guth et al. 2020). Furthermore, agricultural holdings are subject to uncertain factors such as volatile markets, interest rates, weather conditions, and diseases (Hayden, Mattimoe, and Jack 2021; Farmar-Bowers and Lane 2009), leading to the need of reducing economic vulnerability. Evolving technology increases economic pressures to be able to access innovations and therefore keeping up with competition (Hayden, Mattimoe, and Jack 2021; Hendrickson and James 2005), reinforced by structural change in Europe toward a smaller number of larger farms (Eurostat 2022). The ongoing concentration and industrialization of the market (Arnalte-Mur et al. 2020) including the integration of supply chains has further eroded decision-making autonomy, limiting production and selling choices (Hendrickson and James 2005). For instance, in sectors like poultry farming, production contracts significantly constrain farmers' ability to adopt alternative practices (Scientific Advisory Board on Agricultural Policy 2015). The availability of education and information as well as the extent of research are other important factors determining the development of farming practices as well as alternatives (Farmar-Bowers and Lane 2009).

Regarding internal constraints, farm-specific factors like size, location, financial health, and management structure also play a crucial role in leading to constraints (Farmar-Bowers and Lane 2009; Hendrickson and James 2005). Larger farms, for instance, may face higher debt levels, which can impede their ability to adopt environmentally oriented practices despite their potential benefits, or, conversely, financially stable ones may also be more able to adapt to a changing industry and implement higher standards (Mccann et al. 1997). Furthermore, the economic and technical viability of ethical options poses constraints in applicability (Melé

2010). Additionally, the life cycles of the farm and family influence the time horizons and investment decisions, thereby introducing a layer of personal and intergenerational dynamics into managerial choices (Gocsik et al. 2014). On the individual level, the characteristics of the agricultural manager, including their skills, motivation, and the strength of their professional networks, can pose constraints (Farmar-Bowers and Lane 2009).

4.2 Application of a Synthesized Decision-Making Model

Existing general ethical decision-making literature suggests several recurring steps of ethical decision-making (Maddalena 2007; Wallimann-Helmer and Kräuchi 2021; Woiceshyn 2011; *SAGE Brief Guide to Business Ethics* 2012; Bleisch, Huppenbauer, and Bamberger 2021) as a structured approach to ensure clarity and moral accountability. The synthesis leads to six comprehensive steps, with the input and synthesis overview illustrated in Appendices 6 to 7.

4.2.1 Recognition and Problem Identification

The ethical decision-making process begins with identifying the ethical dimension of a managerial decision, serving as the foundation for the entire process. In the case of a land-use decision, for example, an agricultural manager must acknowledge the moral dilemmas inherent in the choice such as effects on food security and the environment.

However, this initial stage may hinder the implementation of ethical considerations from the beginning. A potential issue is the lack of ethical capability (Pimentel, Kuntz, and Elenkov 2010) that constitutes a deficiency in the ability to identify and deal with ethical situations. For instance, a farmer might not recognize or disregard the ethical implications of a land-use decision as low-impact and thereby fail to acknowledge personal responsibility. In the case of the adoption of GM crops, the responsibility for possible environmental damage arguably does not lie solely with the farmers but rather with the breeding corporations or governments (Meijboom and Stafleu 2016). The incapability to think outside one´s own attitudes and needs

can also lead to an inability to consider other stakeholders (Caughron et al. 2011; Pimentel, Kuntz, and Elenkov 2010). Individuals involved in agriculture often believe to occupy high moral ground by being part of feeding the world, and they possess a "moral confidence" in their profession, which can lead to a reluctance to examine their choices critically (Chrispeels and Mandoli 2003, 4). On the other hand, most farmers are familiar with the public debates around the known controversies in farming (Meijboom and Stafleu 2016) and are therefore aware of the different viewpoints. Furthermore, especially the aspect of sustainability should be of self-interest and consequently not need complex ethical considerations (Bieling, Eser, and Plieninger 2020). Conversely, as in the case of the adoption of GM crops, agricultural managers often stick to technical or financial considerations over ethical dimensions, especially when operating under tight economic constraints (Vänninen et al. 2009). This is especially true when external sources of information, such as agricultural consulting, frame decisions primarily in terms of profitability, overshadowing ethical considerations (Serebrennikov et al. 2020).

4.2.2 Information Gathering and Fact Analysis

Once the ethical issue is identified and acknowledged, the next step involves gathering comprehensive and reliable information, analyzing the context. This ensures that the farmer fully understands the ethical and practical dimensions of the decision. In the case of land-use decisions or the adoption of organic farming, questions to answer would include the current state of global food security and how it is impacted by European farmers opting not to produce food on their land. In addition to that, environmental effects should be examined.

However, in many cases, especially regarding changes and innovations, there are conflicting facts on possible implications of ethical relevance, e.g., impacts of glyphosate on biodiversity (Meftaul et al. 2020). Another example are GMOs as a new technology for which there is a remaining uncertainty of the effects (Vänninen et al. 2009). Farmers might have to rely on different sources provided, where the individual evaluation of the trustworthiness of

these sources could have an impact on the evaluation (Vänninen et al. 2009). Similarly, conflicting studies on the yields and environmental effects of organic farming (Gomiero, Pimentel, and Paoletti 2011) may confuse decision makers, emphasizing the importance of robust information sources. Another potential issue is the accessibility of reliable sources and the manager's ability to evaluate sources as well as avoid biases in the analyses, especially because web searches and word of mouth between peers figure among the main means of farmer information gathering (Király et al. 2023). Moreover, the fast-paced nature of agricultural operations often limits the time and priority given to thorough fact-finding and analysis (Melé 2010), resulting in reliance on scarce information and evaluations of one´s own.

4.2.3 Moral Principles and Argument Identification

Informed by the information gathered, the agricultural manager identifies the moral arguments that should guide the decision, with normative frameworks playing a central role.

The ethical literacy of the farmer is a major issue crucial for the applicability of this step. While farmers have been found to have moral convictions, the strength of expression and development depends on their characteristics or typology (Schoon and Te Grotenhuis 2000; Sulemana and James 2014). The decision maker must be aware of the different frameworks available and how to apply them, e.g., for the application of virtue ethics, the farmer must identify their virtues (Melé 2010). This requires ethical education usually lacking in the agricultural context (Thompson 2015). Another challenge lies in the multitude of frameworks and principles to apply, resulting in diverse and sometimes contradictory arguments (Sarvestani 2024; Tarsney, Thomas, and MacAskill 2024) that do not necessarily provide clarity regarding the appropriate principles or the distribution of responsibility (Meijboom and Stafleu 2016). For example, consequentialist ethics might emphasize maximizing societal benefit, while justice ethics focus on ensuring fair distribution of benefits and burdens. Further examples of different framework conclusions are illustrated in Appendix 8.

4.2.4 Evaluation and Option Assessment

With the arguments and conclusions from ethical frameworks in mind, the manager evaluates the available options and systematically assesses them against ethical criteria, e.g., sustainability, fairness, and societal impact, determining the most moral course of action.

Yet, when there is no option fully satisfying all stakeholders or principles, the often-conflicting arguments make trade-offs necessary (Korthals 2001). The availability of several nuances of actions considering an ethical issue constitutes another level of complexity. For example, the decision on how to utilize the available land involves nuances such as the amount utilized for one purpose, the utilization efficiency of the products, and the specific kind of production, as each can have different ethically relevant implications. Furthermore, not every ethically acceptable option is feasible (Melé 2010). As previously shown, external and internal constraints, e.g., legal constraints or a lack of resources, reduce the options available to European agricultural managers. Ultimately, ethical considerations must still be balanced with other dimensions and practical realities, particularly economic factors (Burkhardt et al. 2005), as these are critical for the continued operation of a business, posing a key concern of agricultural managers (Schoon and Te Grotenhuis 2000). For example, animal farming can help generate income throughout the year (Hendrickson and James 2005) in contrast to the seasonal income from crop cultivation. Therefore, in practice, managers might prioritize the economic health of the holding over broader societal or environmental considerations (Vänninen et al. 2009). The overall difficulty lies in navigating the plurality of arguments as well as ranking the needs to reach a decision (Unger 2022). Moreover, the previously discussed uncertain consequences that affect decision-making impede the evaluation of options in a finite way (Tarsney, Thomas, and MacAskill 2024). This can lead to decision fatigue and the adoption of more conservative choices due to perceived infeasibility (T. R. Peterson 1991).

4.2.5 Decision-Making and Implementation

In the next step, the agricultural manager chooses an option that reflects the ethical principles and arguments identified in the evaluation and proceeds to implement it.

Given the acknowledged layered aspects of the agricultural context and the challenges of conflicting or uncertain arguments, as well as the requirement of balancing several dimensions and decision nuances, the decision-making process will rarely arrive at an ethically complete solution. It is in the complex nature of ethical dilemmas that any decision will entail negative aspects (Pimentel, Kuntz, and Elenkov 2010), which often leads to unsatisfied stakeholders (Unger 2022). Regarding the implementation, external pressures such as fluctuating market prices or policy changes can further disrupt the execution of ethically grounded decisions (Barnes et al. 2022). For example, transitioning to organic farming may align with ethical principles but could encounter financial and logistical barriers during certification and market entry, eventually hindering the implementation of the ethical decision.

4.2.6 Follow-Up and Evaluation

After deciding the farmer monitors and evaluates the outcomes of the decision to ensure they align with the intended ethical objectives. Evaluation criteria might include environmental indicators, such as soil health and biodiversity, and social outcomes, e.g., improvements in food availability and community well-being. If the evaluation reveals unintended consequences, such as ecological degradation, the strategy can be adjusted in the future.

However, the operational realities of farming can constrain the iterative process of follow-up and evaluation. Similar to the step of gathering information, time constraints may limit feasibility. Moreover, defining criteria for success in ethical terms, e.g., community well-being or ecological improvements, can be challenging when the outcomes are long-term or intangible (Maddalena 2007). At the same time, as previously discussed, the evaluation needs to include economic outcomes. Another time issue arises due to the dynamic nature of the

agricultural sector. For instance, new information or technologies can disrupt existing evaluations (Chrispeels and Mandoli 2003), necessitating a revision of earlier steps.

5 Discussion

As Chrispeels and Mandoli (2003, 4) stated, few in the agricultural sector actively partake in ethical analyses of their actions or can clearly articulate the reasons behind their decisions. While the synthesized ethical decision-making model provides a structured process for navigating moral dilemmas, systemic, institutional, and individual factors constrain its application as discussed in the previous chapter. Ethical decision-making cannot be utilized without considering these constraints (Pimentel, Kuntz, and Elenkov 2010), which underscores the need for pragmatic approaches that acknowledge the complexity of agricultural decision-making, bridging the gap between theoretical principles and practical implementation.

A critical implication of the findings for management practice in agriculture is that a successful implementation of ethical decision-making requires a shift in the managerial mindset of farmers. Agricultural managers must recognize the value of integrating ethical reasoning into their decision-making processes, even when doing so involves additional complexity or effort. Moreover, they should be able to explore diverse issues and viewpoints early in the process of addressing ethically sensitive matters. This allows for the development of a well-rounded perception of the situation, ensuring that the concerns of all stakeholders are considered (Caughron et al. 2011). Together with moral competence, farmers' hands-on experience with ethical issues such as land use and animal welfare enables them to contribute meaningfully to public debates, providing valuable insights that other stakeholders may lack (Meijboom and Stafleu 2016). Through a more reflective stance, this shift can enhance the participation of farmers in the public discussion and potentially improve the communication with consumers. While it may rarely be possible to find a comprehensive solution satisfying all stakeholders,

e.g., due to remaining uncertainties in agricultural issues, strengthening the public discourse could lead to better solutions in the long-term (Chrispeels and Mandoli 2003).

This leads to the second implication, which is that the previously explored pragmatism could be a fruitful approach (examples in Appendix 8). The overarching framework aligns with the conflicting realities of European agricultural management and allows farmers to prioritize actionable and contextually relevant solutions, focusing on what is feasible rather than pursuing idealized outcomes (Drašček, Rejc Buhovac, and Mesner Andolšek 2021). This approach is particularly useful in navigating the trade-offs and constraints in agricultural decision-making (Korthals 2001). The inherent pluralism, which acknowledges the coexistence of multiple ethical frameworks and values, enables a more nuanced decision-making process, fostering trust and collaboration among stakeholders (Korthals 2001; Noll 2018). However, further research must critically test the applicability of pragmatism against its critique, particularly the characteristics attributed to it such as vagueness, non-commitment, and relativism, where moral values become subjective (A. L. Peterson 2020).

To enhance the applicability of the ethical decision-making model, several strategies can be considered. Simplifying it to reduce the time and resources required for its application could enhance the practicability for agricultural managers and lead to broader adoption, e.g., through tools such as guidelines for information gathering and decision trees derived from ethical principles. As Provis (2010, 13) noted, pattern recognition for ethical and managerial decision-making is crucial in simplifying the process. For instance, the use of virtue ethics and principles can employ intuition in complex issues (Woiceshyn 2011; Melé 2010). A further key strategy involves enhancing ethical literacy among farmers. Training programs or workshops focused on ethical reasoning, stakeholder engagement, and balancing competing priorities can improve managers' ability to apply ethical frameworks effectively (Burkhardt et al. 2005). Agricultural universities play a critical role in this effort, as they are uniquely positioned to institutionalize

ethics education within the sector, preparing future managers to address moral dilemmas proactively (Burkhardt et al. 2005; Meijboom and Stafleu 2016). This institutionalization of ethics should be relevant for everyone in the food system, including scientists, regulators, and other decision makers (Chrispeels and Mandoli 2003). On the business level, the implementation of ethical codes of conducts can provide guidance to all individuals involved in the organization, which has not yet been as widely implemented in European agriculture as it has in other sectors (Meijboom and Stafleu 2016). Finally, farmers can improve over time through experience and reflection. As Melé (2010, 643) noted, practical wisdom develops through practice of moral virtues, enabling managers to refine their ethical reasoning abilities.

A limitation of this work poses the absence of primary data, such as interviews or surveys, which limits the direct applicability of findings to farm settings. Future research should quantitatively examine the applicability of ethical decision-making in agriculture and the implementation of the recommendations on a broader scale, which was beyond this thesis' scope. Similarly, several ethical frameworks and their application in agriculture that are touched upon here could be explored further in depth. Added comparative research and interdisciplinary approaches integrating all necessary dimensions would enrich our understanding of sustainable agricultural practices. As Elm and Radin (2012) noted, additional research on ethical decision-making is essential for the ability to have a positive impact on ethical behavior of agricultural managers and to improve their relationship with the public. The broader nature and theoretical synthesis of this work however provides a comprehensive foundation for future empirical research while also motivating the integration of ethics in agricultural management practices.

6 Conclusion

The critical examination of integrating ethical decision-making frameworks into European agricultural management highlights the complex nature of the ethical dilemmas

embedded in modern farming practices as well as decision options and constraints faced by European agricultural managers. Given the growing societal and environmental pressures on agricultural systems (Chrispeels and Mandoli 2003), ethical considerations are no longer peripheral but central to effective and sustainable farm management (Burkhardt et al. 2005). As Carr (1999, 45) noted, a professional must possess moral competence, and it is a duty for the professional to exercise independent moral judgment. Therefore, farmers need to cultivate moral competence, exercising independent moral judgment to navigate the multifaceted ethical dimensions. The synthesized six-step ethical decision-making model can guide farmers; however, a variety of external and internal influences, limited resources, and the ethical literacy of agricultural managers constrain its practical application. By inducing a shift in farmers' mindsets, adhering to pragmatism, and providing the necessary support mechanisms, it is possible to promote ethical decision-making in European agriculture. The findings highlight the importance of improving ethical literacy, simplifying ethical frameworks for practical use, and fostering collaboration among stakeholders. By institutionalizing ethics within the agricultural systems, all actors in the food sector can make decisions that benefit operations and contribute to broader societal and environmental well-being, promoting trust, sustainability and adaptiveness to a dynamic world. Lastly, the failure to include farmers' professional insights entails a significant cost to the quality of public discourse on agricultural ethics (Meijboom and Stafleu 2016). Engaging farmers as active partners in the ethical discourse is vital to fully understanding and addressing the complexities of agricultural dilemmas. Rather than trying to make ethically complete decisions, which is rarely feasible in the agricultural context, the focus should lie on strengthening the public discourse for better long-term ethical solutions to the complex issues. These recommendations provide a roadmap for advancing ethical decision-making as a cornerstone of modern agricultural management, attempting to bridge the gap between theory and practice.

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Appendix

Table of Appendices

Appendix 1: List of Abbreviations

EU	European Union
GM	Genetically Modified
GMO	Genetically Modified Organism

Appendix 2: Keywords for Literature Research

Illustrated with freewordcloudgenerator.com, words displayed appearing more than once in the searches, size based on frequency

Appendix 3: Keywords of Used Literature

Illustrated with freewordcloudgenerator.com, 75 most frequently appearing words displayed, size based on frequency

Appendix 4: Year of Publishing of Used Literature

1948 ••••••••••••••••••••••• **1972** •••••••••••• **1984** •• **1986**(2) •••• **1991**(2) •••• **1996** •

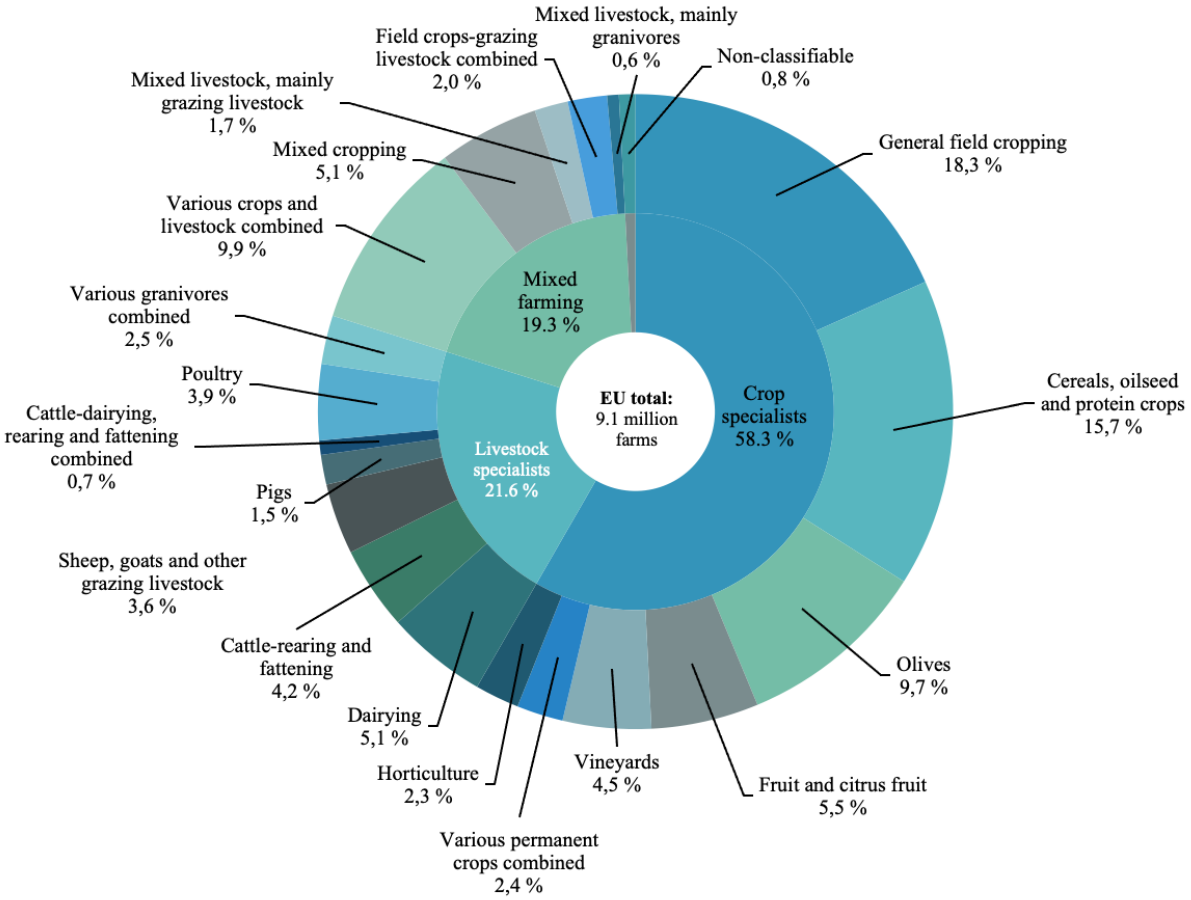
1997 •• **1999** • **2000**(4) • **2001**(4) • **2002** • **2003**(3) • **2004**(2) • **2005**(3) • **2006**(3) • **2007**(3) •

2008 • **2009**(3) • **2010**(6) • **2011**(3) • **2012**(5) • **2013**(3) • **2014**(3) • **2015**(4) • **2016** • **2017** •

2018(3) • **2019**(5) • **2020**(8) • **2021**(7) • **2022**(4) • **2023**(4) • **2024**(6)

Note: Number of times a year was used in brackets, underlined if used more than 5 times

Appendix 5: Farms by Type of Specialization (Share of All EU Farms, %, 2020)



Source: Eurostat (2022) "Farms and Farmland in the European Union - Statistics Explained."

Appendix 6: Input for Synthesized Decision-Making Model

Maddalena (2007, 72-74):

Asses

1. State the problem
2. Gather information
3. Verify problem
4. What is the best possible outcome?

Plan

5. List all options
6. Test each option

Implement

7. Make a decision and implement

Evaluate

8. Define criteria for evaluation
9. Resolution and follow-up

Wallimann-Helmer and Kräuchi (2021, 501-504):

1. Irritation
2. Collecting the ethically relevant facts
3. Determining the ethical question
4. Clarifying the arguments put forward
5. Decision-making
6. Implementation

Woiceshyn (2011, 318):

1. Recognition of a moral dilemma
2. Identification of applicable moral principles
3. Application of principles
4. Resolution of dilemma

SAGE Brief Guide to Business Ethics **(2012, 46-48):**

1. Identify the Ethical Dimensions Embedded in the Problem
2. Collect Relevant Information
3. Evaluate the Information According to Ethical Guidelines
4. Consider Possible Action Alternatives
5. Make a Decision
6. Act or Implement

Bleisch, Huppenbauer, and Bamberger (2021, 17-128):

1. Analysis of the current situation
2. Identify the moral question
3. Analysis of the arguments
4. Evaluation and decision
5. Implementation

Appendix 7: Synthesized Decision-Making Model

Step	Description	Key Question
Recognition and Problem Identification	Begin by identifying the presence of an ethical issue or moral dilemma. Recognize the ethical dimensions embedded in the problem and state the moral question explicitly. This stage involves acknowledging irritation or discomfort, signaling the need for ethical consideration.	What ethical concerns are present in this situation?
Information Gathering and Fact Analysis	Collect all relevant information, focusing on facts that have ethical significance. Analyze the current state and verify the problem's validity. This step ensures that the situation is fully understood before moving forward.	What are the ethically relevant facts?
Moral Principles and Argument Identification	Identify applicable moral principles and clarify the positions and arguments held by different stakeholders. This includes considering the ethical guidelines and frameworks relevant to the context.	What ethical principles and stakeholder perspectives apply?
Evaluation and Option Assessment	List all potential courses of action and test these options against ethical criteria. Evaluate the arguments and weigh them according to the moral principles identified. Consider possible outcomes and determine which aligns best with ethical standards.	What are the possible actions, and which is the most ethically sound?
Decision-Making and Implementation	Make a decision based on the evaluation process and proceed to implement it. Ensure that the chosen course of action aligns with the identified moral principles and effectively addresses the ethical dilemma.	How can this decision be practically and ethically implemented?
Follow-Up and Evaluation	Define criteria to evaluate the decision's outcomes. Assess whether the intended ethical objectives were achieved and consider any necessary resolutions or follow-up actions.	Did the decision fulfill the ethical goals, and what can be learned for the future?

Appendix 8: Simplified Example of Conflicting Arguments from the Frameworks

Ethical Dilemma	Consequen-tialism	Deontology	Virtue Ethics	Justice Ethics	Pragmatism
Land Use for Bioenergy vs. Food Production	Prioritize bioenergy if it reduces overall emissions and benefits society in the long term, even at the cost of reduced food availability.	Producing food takes precedence because it respects the fundamental right to food security for all individuals.	A virtuous farmer should balance environmental care and community well-being, seeking moderation and responsibility.	Focus on distributive justice: ensure that the decision does not dispropor-tionately harm vulnerable populations who rely on affordable food.	Focus on what is feasible, context-dependent, and be collaborative, considering stakeholder input and practical constraints.
Intensive Livestock Farming	Justifiable if it meets global food demands efficiently, despite welfare concerns.	Unethical if it violates the duty to not induce harm on animals/ animal rights.	A virtuous farmer shows compassion and stewardship, minimizing harm to animals.	Emphasize fairness in the distribution of burdens and benefits, considering both humans and animals as moral stakeholders.	Consider local social norms, economic realities, and the feasibility of alternative practices.
Adoption of GMOs	Ethically acceptable if it increases food security and reduces environmental impacts overall.	Unethical if it undermines the autonomy of farmers and consumers or poses unknown risks.	A virtuous farmer is cautious, considering both innovation and the integrity of natural systems.	Address inequalities in access to GMOs, ensuring small-scale farmers and developing countries benefit equitably.	Embrace GMOs if they solve pressing issues but remain adaptable to new evidence or concerns.