

The Christian Ethics of Farmed Animal Welfare

A POLICY FRAMEWORK
FOR CHURCHES AND
CHRISTIAN ORGANIZATIONS



Christian Ethics of Farmed Animal Welfare

Acknowledgements

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The Christian Ethics of Farmed Animal Welfare:
A Policy Framework for Churches and Christian Organizations

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Christian Ethics of Farmed Animal Welfare

Executive Summary

This document presents a framework to guide UK churches and other Christian organizations in formulating policy and practice in relation to farmed animal welfare. It was authored by an interdisciplinary team in partnership with major UK churches and other organizations, as part of a three-year research project funded by the Arts and Humanities Research Council.

Christians should support the flourishing of farmed animals.

Christian belief in God's care for every creature is best expressed through an approach to farmed animal welfare based on the flourishing of farmed animals. Christian concern for farmed animal flourishing goes beyond narrower interpretations of farmed animal welfare focused only on avoiding pain, disease, and distress. Farmed animals glorify God by fully living out their particular abilities, activities, relationships, and characteristics. Their flourishing is threatened when they are subjected to impoverished environments and painful mutilations, deprived of social and familial relationships, killed after severely shortened lives, and selectively bred to prioritize productivity over welfare.

A Christian approach to the ethics of farmed animal welfare must attend to the complexity of animal farming, including its multiple connections with the welfare of humans, wild animals, and the environment. The flourishing of farmers, stockpersons, other farm workers, and rural communities has a strong connection to the flourishing of farmed animals. Most of those working with farmed animals want to do their best for the animals in their care, but they cannot do so unless they are rewarded appropriately for enabling farmed animals to thrive as animals, and not simply as products for consumption.

Christians should attend to whether farming systems promote animal flourishing.

Animals farmed in Britain — primarily chickens, fish, sheep, pigs, and cattle — each have species-specific needs. A flourishing life for each kind of animal is one that enables the expression of preferred species-specific behaviours. Part 3 of this framework sets out what this looks like for each species and evaluates how far current farming systems enable this flourishing.

This framework evaluates major British assurance schemes according to how much they enable the flourishing of farmed animals of each species. Farming systems we classify as offering animals **poor** opportunities for flourishing are characterized by unenriched environments, severe and prolonged negative experiences, mutilations, and breeding without sufficient regard for natural biology. Farming systems classified as **better** make significant improvements in these areas. Farming systems classified as **best available** are those that offer farmed animals the best opportunities for flourishing while producing animal products that are currently widely available. The report also recommends **further improvements** beyond the best available systems for each species.

Farmed animal welfare is a Christian concern.

Christians have strong faith-based reasons to be concerned about the ability of fellow animal creatures to reveal God's goodness in their flourishing lives. Christians have a particular and weighty responsibility towards the large numbers of animals raised for food, whose lives rest entirely in human hands. Many farmed animals in Britain do flourish, with attentive care and opportunities to thrive. Many others are currently farmed in systems that constrain their natural behaviours and their ability to flourish as creatures of God. Christians should attend to the relationship between their faith commitments and how animals are farmed, and rethink their practice in response.

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Christians have strong faith-based reasons to be concerned about the ability of fellow animal creatures to reveal God's goodness in their flourishing lives.

Churches, other Christian organizations, and other stakeholders should take action to promote the flourishing of farmed animals.

Churches and Christian organizations should promote the consumption of fewer but higher-welfare animal products, avoid products sourced from systems offering **poor** opportunities for flourishing, and switch to products from **better** and **best available** systems. They should value and support farmers and farm workers who provide the basic human necessity of food in ways that enable the flourishing of humans, farmed animals, wild animals, and our shared environment. They should engage in public policy debates on farmed animal welfare to seek regulatory and legal changes that enable the flourishing of farmed animals.

Farmers can help effect a transition towards fewer but higher-welfare animal products both by contributing to increased production of plant-based foods and by enabling farmed animals to enjoy lives in which they can flourish. But farmers cannot act alone: they need support from consumers, retailers, wholesalers, food manufacturers, investors, and policymakers.

Food retailers, wholesalers, and manufacturers can help effect a transition towards fewer but higher-welfare animal products by offering fair contracts that reward farmers appropriately for enabling the flourishing of farmed animals. They should set strategies to eliminate the sourcing of animal products from systems providing **poor** opportunities for the flourishing of farmed animals, and they should seek to promote and make more widely available products from **better** and **best available** systems. They should — in time — seek the further improvements we have identified beyond what is currently available. They should also make it easier for consumers to identify the welfare standards by which animals are farmed through improved labelling or the use of new technologies.



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Christian investors can help effect a transition towards fewer but higher-welfare animal products by influencing the practice of the companies they invest in whose operations affect farmed animal welfare. Investors — as shareholders in food retailers, wholesalers, manufacturers, the hospitality industry, and companies with agricultural land holdings — can encourage the development of policy and practice that encourage a transition towards higher farmed animal welfare standards and more plant-based foods. Christian investors should move to exclude from their holdings companies producing or retailing animal products from systems providing poor opportunities for farmed animal flourishing.

Policymakers should work for legal, regulatory, and trade changes that raise farmed animal welfare standards. They have broad opportunities to consider how policy in a wide range of areas can contribute to a transition towards higher farmed animal welfare standards and more plant-based foods. Raising the minimum UK farmed animal welfare standards permitted by law and requiring imported animal products to meet the same standards would improve animal flourishing.

Introduction

Aim

This document presents a framework to guide UK churches and other Christian organizations in formulating policy and practice in relation to farmed animal welfare.

A Christian theological account of creaturely flourishing directs UK churches to the ethical work of
improving
the welfare of the farmed animals whose products they consume

Authors

This framework was authored by an interdisciplinary team in partnership with major UK churches and other organizations, as part of a three-year research project funded by the Arts and Humanities Research Council. See the Appendix for a full list of authors and partners.

Summary

A Christian theological account of creaturely flourishing directs UK churches to the ethical work of improving the welfare of the farmed animals whose meat and products they consume and the farmers and farm workers who raise them. It encourages church-wide attention to how denominational investments, land use, education, preaching, retail choices, and consumption promote or undermine farmed animal welfare. This framework sets out a theological and ethical foundation for creaturely flourishing, species-specific information about and assessments of farmed animal welfare on the terms of this foundation, and recommendations for action by churches and other Christian organizations.

About Christian ethics

Christian actions reflect beliefs about God, God's relationship with creation, and human interactions with each other and with other creatures. Christian beliefs are

formed by biblical interpretation, church teaching and preaching, traditions, worship practices, and the witness of saints and heroes of the faith. Christian ethics narrates the connections between beliefs and practices, and it encourages Christian communities to live out those connections in their particular contexts. This framework assesses farmed animal welfare in a Christian ethical perspective, recognizing that this assessment will both overlap with and be distinct from perspectives from other religious and non-religious traditions of thought and practice. Christian theological reflection on the environment and on responsibilities towards other creatures, such as in Pope Francis's encyclical *Laudato si'*, is a key resource for considering farmed animal welfare.

Context

Ethical reflection about farmed animal welfare must recognize complex connections with related issues, such as global food systems, the economics of food production, the sustainability of agriculture, and the climate crisis. In the UK, the issue of farmed animal welfare is currently linked to debates about post-Brexit laws and regulations and the negotiation of international trade deals. This framework focusses on farmed animals and the ways they are farmed in the UK. Part 5 includes further reading on related issues.

Methodology

The Research Team drew on scriptural interpretation, church teaching, and Christian history to develop a theological presentation of creaturely flourishing and an ethical account of farmed animal flourishing. The team's veterinary researcher provided detailed information on species-specific farmed animal characteristics and needs, which the team then narrated in the terms of flourishing defined in Parts 1 and 2. Over the course of the project, the Research Team and Partners visited farms, in order to consider and discuss farmed animal flourishing in the midst of farmed animals, and to consult farmers. Successive drafts of this framework were shared with the Partners, who gave feedback that informed revisions.



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Ethical reflection about farmed animal welfare must recognize
complex connections
with related issues, such as global food systems, the economics of food production, the sustainability of agriculture, and the climate crisis.

Approach

This framework does not address the question of whether animals should be farmed. It does not engage with Christian arguments for vegetarianism or veganism, positively or negatively. Instead, it recognizes that animals are being farmed, that they are likely to be for the foreseeable future, and that different ways of farming animals have very different impacts on their flourishing and the flourishing of farmers, farm workers, rural communities, and wider human communities. From this starting point, the framework sets out a Christian evaluation of how animals are farmed, and it offers conclusions and recommendations for practice in relation to the production, retail, and consumption of farmed animals.

How to use this framework

Please use this document as a resource to help your church or organization, at any appropriate level, to discern how a Christian approach to farmed animal welfare might inform your practice. Your group may wish to tailor the theological and demographic emphases to reflect your particular priorities. The document is suitable for helping to assess and recommend denominational policies and investments, as well as denominational contributions to public policy debates. It can serve as a resource for educational programs, committee deliberations, congregational action plans,

and organizational platforms. The project focuses on farmed animal welfare in the UK, but many of the findings may be applicable in other countries. It has an explicitly Christian focus, in order to help guide the policy and practice of churches and Christian organizations. We recognize that there will be overlaps in analysis and conclusions with other religious and non-religious ethical approaches, and we hope this framework may also be of interest to organizations that do not have a Christian foundation or ethos. Part 5 points to resources such as presentations, a video introducing the project, and a study guide, that may be helpful for presenting and discussing this framework in different contexts, and for taking action in relation to its recommendations.

Structure

Part 1: Why farmed animal welfare matters to Christians

A theological basis for a Christian commitment to the flourishing of farmed animals

Part 2: Key features of a Christian approach to farmed animal welfare

An ethical account of how Christians might engage with farmed animal flourishing

Part 3: An evaluation of how well UK farming systems enable the flourishing of farmed animals

Detailed descriptions of what flourishing looks like for the major species of animals farmed in the UK

Part 4: Conclusions and recommendations for the policy and practice of churches and Christian organizations

How churches and other Christian organizations can contribute to improved animal welfare

Part 5: Resources and further reading

Resources to support the presentation and discussion of this framework, for taking action in relation to its recommendations, and for further reading

Part 1: Why farmed animal welfare should matter to Christians

Why farmed animal welfare?

Farmed animal products fill the shops, refrigerators, and plates of the UK, but most people have minimal awareness of the animals, their welfare, or the challenges that farming communities face. Farmers and those who work on farms and in abattoirs know farmed animals and their needs and are usually highly motivated to do their best for the animals in their care. But pressures to increase efficiency and reduce costs have given rise to production systems within which most animals farmed in the UK do not enjoy lives in which they can flourish *as animals*, rather than as potential products. As Part 3 of this framework makes clear, chickens, fish, pigs, and dairy cows fare particularly badly in some modern production systems, but there are issues for sheep and other cattle, too. Farmed animal welfare has complex connections with the economics of food production, with changing environmental conditions, with the stability of rural/farming communities, and with human access to healthy, affordable foods. All Christians are enmeshed in these systems that inhibit farmed animal welfare. All Christians bear responsibility for making sure that farmed animal welfare is considered at every point of economic, production, and consumption practice. Christians worship an incarnate God whose abundant care for creation exceeds human imagination, reaches beyond human limitations, and encompasses creatures great and small. Christians, as creatures in the image of God, bear responsibility for the welfare of those creatures farmed for human benefit. Christians should respond to God's infinite goodness by attending to the lives of the farmed animals whose products people routinely consume.

Why start with the Bible?

Christians considering their responsibilities towards farmed animal welfare necessarily draw on their interpretations of biblical texts. Christians in community have always engaged with church traditions of biblical interpretation, as they discern how to make sense of and respond to contemporary challenges. Christian communities regularly read and hear scripture during worship. Preaching, teaching, and Bible studies explore connections between the ongoing traditions of biblical interpretation and particular, gathered, Christian communities. Many Christians understand the Holy Spirit to play an important role in forming communities to receive and live out the Word of God, through engagement with scripture. The most compelling interpretations usually build on previous interpretations and the wider biblical context, while also pertaining to the community's distinctive context. When Christians face competing claims about scripture and scriptural teaching and farmed animal welfare, they can build on the Christian practices of community discernment, to determine the most faithful ways to respond to current circumstances.

Christian relationships with, and responsibilities for, farmed animals should reflect the purpose that all creatures share:

**to give glory to God,
to flourish.**

The Bible and farmed animal welfare

The interpretation of scripture and Christian teaching in this framework presents all creatures – humans and animals – as created by God to flourish in praise together. God gives humans a specific kind of responsibility of care for animals, which applies especially to farmed animals whose lives are entirely directed and shaped by humans to be products for consumption. Yet humans persistently fail to live as God's creatures, in godly relationships, and in their designated responsibility for animals. In the incarnation, God offers Jesus Christ as the means of healing those failures and reconciling all of creation, through and beyond death. In the fulfilment of time, all creation will give glory to God in the fullness of flourishing. For now, creaturely flourishing is limited, and human efforts to care for farmed animals are limited. Christians should demonstrate their hope in Christ's reconciliation of creation, by working now to improve the flourishing of farmed animals.

Humans and animals in relationship

Biblical accounts describe humans in relationships with each other and with other creatures, according to God's ordering of human and animal life together. God is the creator of everything that is, and God provides all that creatures need to live in harmony together. God makes covenants with humans that affect animals, and God makes covenants with animals (Gen 1:26–30; 2:16–17; 3:16–19; 9:8–17). Some prophets and animals demonstrate extraordinary relationships, such as Daniel and the lions who do not kill him (Dan 6), and Elijah and the ravens who bring him food (1 Kgs 17:2–6). Prophecies use animals and humans to illustrate God's interactions with creation and to represent peaceful coexistence (Isa 11:1–9; 65:17–25). Miracles demonstrating God's power and goodness often involve animals (Balaam's talking donkey, in Numbers 22; the

great fish that swallowed Jonah, in Jonah 1–2). Luke’s story of Jesus’ birth includes flocks of sheep (Luke 2:8–20); Mark describes Jesus’ arrival in Jerusalem on a colt (Mark 11:1–10). God is present in human/animal interactions; animal and human relationships reflect God’s actions in creation.

The New Testament, religious art, and church architecture illustrate human/God relationships using images of known and imagined animals. In Mark’s gospel, Jesus dismisses demons (who threaten human well-being) by sending them over a cliff in a herd of swine (5:6–20). Jesus foretells God’s judgement of righteous and unrighteous humans with a parable about separating sheep and goats (Matt 25:31–46). Jesus is described as God’s lamb, who takes away sins (John 1:29), and as a seven-horned, seven-eyed, resurrected lamb who has taken away sins (Rev 5:6). Early Christians signalled their presence to each other with the secret symbol of a fish, to indicate Jesus Christ: the Greek letters for the word fish [*ichthys*] indicate ‘Jesus Christ, Son of God, Our Saviour’. In Acts 10:9–33, Peter dreams that he is presented with unclean (not kosher) animals to kill and eat. When he hesitates, God assures him that God has made them clean. Peter does not interpret the dream literally, as a dietary directive, but allegorically, as encouragement to associate with and baptize the Gentile Cornelius and his whole household. These images creatively illustrate the closeness of God, humans, and animals. In daily life now, as in scripture, humans co-inhabit the world with animals, imagined and in the flesh. Humans have the imagination and agency to determine the character of their relationships with animals, whether they consider the animals to be wild, domesticated, companions, and/or food. Christians should draw on biblical interpretations of God with humans and with animals, as they discern how to engage with animals today.

Flourishing as shared creaturely purpose

Christian relationships with, and responsibilities for, farmed animals should reflect the purpose that all creatures share: to give glory to God, to flourish. God creates all there is, out of God’s overflowing goodness and love. The ultimate purpose of all creation is to express that goodness and love in ceaseless praise in the presence of God (Pss 145, 148, 150; Rev 5:13). In this life, human and animal creatures praise God by reflecting God’s goodness in their creaturely lives, with the unique capacities and gifts God has given them and to the extent possible before the ultimate fulfilment of creation. Humans praise God by directing their thoughts, prayers, and actions to God, and by reflecting God’s will in their relationships with each other and with all other creatures. Farmed animals praise God — they give glory to God — by gathering in social groups, dust-bathing, rooting, grazing, swimming, caring for their young, teaching and learning, and growing to maturity, all as created by God in their species-specific particularity. The best life, the

flourishing life, for each human and animal creature is the life in which the creature’s own fulfilment reveals the glory of God. Flourishing is also matter of relationships, as is farming. Farmed animals can best give glory to God with their lives when their needs are met and their interests are accommodated by those responsible for their care. Farm workers can give glory to God by helping farmed animals flourish, by recognizing and supporting the particular ways they give glory to God. Farming communities can flourish when their needs and interests are supported by farming systems, producers, retailers, and consumers. Relationships themselves — between farm workers and farmed animals — can give praise to God when they illustrate possibilities of nurturing and harmony beyond the apparent limitations of necessity and practicality.



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A Christian account of farmed animal flourishing differs from standard assessments of farmed animal welfare, by prioritizing animals’ biologically-informed activities and relationships as essential to their health and well-being. Christians attentive to farmed animals as creatures of God should seek to avoid inhibiting farmed animals’ natural behaviours, by which they praise God (Prov 12:10; 27:23–27). Farming cannot provide farmed animals with all of the opportunities and experiences of life enjoyed by their wild ancestors, but farming protects animals from some risks of harm that might befall them apart from farming supervision. Farming can grant farmed animals many chances to lead their particular creaturely lives, within the farming environment. A cow gives glory to God most fully in her God-given character, her natural behaviour as a cow, by grazing in pasture, by nursing her calves, and by gathering in social groups. The purpose of her life as a creature of God exceeds her use as a milk producer for humans. Humans praise God best by nurturing — rather than constraining — the capacity and interests of all creatures, as much as possible. Christians should exercise their responsibility for farmed animals by providing for them the best species-appropriate living conditions possible before their slaughter and consumption.

Dominion

Christians who interpret scripture with farmed animals in mind often refer to the creation stories in Genesis 1 and 2. The first presents God's creation of the cosmos in a narrative with some poetic features, imagined over the course of a week. God pronounces creation good, and then gives humans responsibility for the animals: *dominion in the image of God*. The second story is shorter, the schedule of creation is different, and the responsibility God gives humans is the naming of the animals. In the first story, the task of human dominion in the image of God is to abide peaceably with all creatures, sharing the abundant habitat and the green-plant diet God provides. As the story develops in subsequent chapters, biblical characters begin to resist God, and dominion in the image of God becomes more complicated. Dominion in the image God is also complicated for the people of God who interpret scripture in their own circumstances. Dominion responsibility can be described as stewardship, guardianship, vocation of care, or management. In certain periods, dominion has been understood as domination or mastery, but this policy framework agrees with most biblical interpreters in finding that domination does not accord with other biblical and theological accounts of godly relationships. Instead, our emphasis is on dominion in the image of God as a responsibility for animals that reflects God's sustaining care for all creatures. Modern scientific knowledge about the sentience, capacities, and needs of animals adds crucial information about how to exercise dominion responsibility towards farmed animals.

represents the image of God when it entails less violence and more peaceful interaction. Jesus describes God's complete attention to the needs of creatures: humans, and even each little bird (Matt 2:26). Many stories of the saints feature miraculous interactions with animals, reflecting extraordinary relationships of holy dominion. St Modestos healed working oxen; St Melangel stopped hunting dogs in their tracks and protected the hares; St Anthony preached to the fish (and they listened); and St Francis argued that responsibility for animals exceeds protecting them from harm to include caring for their every need. God's compassionate care for all creatures and the exemplary closeness of holy people and animals should inspire Christians to extend their dominion responsibility beyond the conventional standards of farmed animal welfare.

In order to exercise image-of-God dominion responsibility, people must know about the creatures they farm and the conditions that animals and humans need to thrive. Many people in biblical times and beyond lived in close proximity to domesticated animals who were often within or adjacent to the household. Shepherds ate sheep from the herds they cared for. Fishermen lived by the lakes or the sea where they caught fish. Ancient communities in Britain raised animals for food, beginning the gradual transformation of the countryside from forests to the rolling fields and pastures that now constitute the British landscape. Small-scale mixed farming has, for much of that time, kept the health of animals, soil, and plants in balance. In the UK today, many farmers still care for their animals in ways that allow them to lead lives in which they can flourish. But the growth of industrialized animal agriculture in recent decades has distanced consumers from the animals they consume, diminished farmed animals' opportunities to thrive, and transformed much of animal farming into the mass production of commodities. Now, increasing numbers of farmed animals find themselves in production systems that do not prioritize each animal's worth as a creature of God with particular characteristics, interests, and needs. Most chickens and pigs, and an increasing proportion of dairy cows, are kept indoors and fed concentrates rather than being allowed to graze or forage for food. This is not dominion responsibility for animals but product management, which seriously impedes their ability to flourish as animal creatures.

Systemic sin

It usually seems unreasonable, economically impractical, and idealistic to exercise dominion responsibility in ways that increase possibilities for farmed animal flourishing. Transitions towards higher animal welfare may seem impossible to fund, when consumer habits and retail profit margins drive higher production volumes at lower cost. The socio-economic structures that determine farming possibilities seem resistant to change. This

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Scripture offers examples of dominion responsibility in the image of God in its presentation of good shepherds who provide for, protect, and gently guide their sheep (Ps 23; Isa 40:10–11); who know and are known by their sheep (John 10). The Lord, as the Good Shepherd of humans, exercises the divinely perfected version of the good shepherding that humans can partially reflect. Prophetic visions of non-violent human/animal coexistence contrast the fulfilment of God's will (Isa 65:17–25, 66:1–3; Mic 6:6–8) with the creaturely conflict common in this life. Dominion responsibility better

pervasive web of interrelated limitations that inhibits both possibility and hope is what Christians call *systemic sin*. Individual sins are desires turned away from giving glory to God and towards lesser, narrower pleasures. These sins are usually small, but their cumulative effect, across populations and over generations, causes the brokenness, suffering, and death which constitutes systemic sin. This web is so extensive that no creatures are completely free of its temptations or its effects. The transformation of creation into the fullness of flourishing, in the glory of God, remains inaccessible to creatures without Christ's eschatological intervention. For now, human efforts to exercise dominion responsibility in the image of God require imagination, risk, and community support and can only hint at Christ's sinless dominion to come.

Unjust
economic structures
threaten the
well-being
of both farmers and animals.

The biblical account of the flood provides one creative illustration of systemic sin and its effects. In the story, humans have so thoroughly ruined life on earth with violence and death, that God decides to clear life from the earth and start fresh again. God directs Noah to save only his family and representative pairs of each animal species. After the flood, Noah offers some of the animals to God, as a sacrifice of thanksgiving (Gen 8:20). God responds by promising to Noah's family and to the animals never to flood the whole world again (Gen 8:21–22). God allows humans to augment the plant-based diet that the creation stories assign them with meat, but only if humans kill with great care and eat the animals without their blood (Gen 9:4–5). This is a dispensation – an accommodation for human limitations – not a divine order to eat meat, and God still expects humans to refrain from killing each other. Christians can read this story as a cautionary tale about unchecked cumulative sin and the risks of gratuitous violence and death. They can also read it as a reminder that, while freedom from death and killing is not a functional reality in this world of systemic sin, that freedom remains God's ultimate desire for creation. Christians who hope for the fulfilment of that promise in Christ demonstrate that hope when they provide the best possible living conditions for the farmed animals in their care, before their slaughter for human consumption.

Systemic sin explains why humans continue to treat animals and humans unjustly, even against their better judgements. At war and in peace, humans subject each other and animals to suffering and unjust labour and farming conditions, when the alternatives do not seem possible. Cultural imaginations categorize animals into groups to determine which humans will eat, which they will keep as companions, which they will farm, and which will receive more protection than others from human greed, gluttony, violence, maltreatment, and neglect. Standard farming systems greatly curtail animals' lifespans and limit the species-specific fulfilment during those shortened lives. Systemic sin describes the situations in which a giant web of pre-existing factors limits possibilities for improving the lives of humans and animals.

For example, unjust economic structures threaten the well-being of both farmers and animals. The low prices of animal products, corporate retailers' farmer contracts, and shareholder expectations can leave farmers struggling and unable to invest resources as they would like for their farmed animals. Humanity's careless consumption of resources and the devastation of soil, air, water, and habitats cause suffering for animals and humans. Animals suffer when humans cannot imagine how to thrive without diminishing the lives of other creatures. Systemic sin means that the whole cosmos is caught up in the effects of sin: no single consumer, farm worker, slaughterhouse worker, retailer, or corporate executive causes or prevents the effects of compounded human sin on farmed animals. Individuals and groups can work together towards more just economic structures, whether or not broad changes are possible. Christian communities who recognize their participation in systemically flawed social structures cannot change those structures overnight, but they can consider how their consumption of farmed animal products affects their communities and their fellow creatures. The body of Christ, the church, gestures towards the promised reconciliation of the cosmos by hoping, praying, and working for the well-being of all humans and animals now. Christian communities can enact their hope in Christ's ultimate transformation of creation, with their finite and limited human efforts to exercise dominion responsibility for the farmed animals whose products they consume.



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A Christian concern for farmed animal welfare recognizes the significant role that farming animals has played in human history, its ongoing contribution to feeding people, and its importance in shaping rural communities. Farming animals in ways that promote their flourishing can be a Christian vocation. A concern for farmed animal flourishing is not a demand for an ideal. Instead, it requires the pursuit of the best flourishing possible in the circumstances of 21st century farming. Similarly, a Christian concern for human flourishing today does not demand immediate perfection, but it aims for the best flourishing possible under the constraints of broken structures and human brokenness. Creaturely flourishing under the conditions of systemic sin is relative flourishing that can be improved or diminished. A Christian ethics of farmed animal welfare looks for possibilities to improve the flourishing of farmed animals, while recognizing that perfect flourishing is not possible in this life.

Christian concern for flourishing does not demand immediate perfection, but it aims for the best flourishing possible under the constraints of broken structures and human brokenness.

Incarnation

God, the uncreated creator of all, manifests as Jesus Christ, a fleshly creature, who, like all creatures, has a particular body, a particular family of origin and particular friends and companions, a particular location, a particular time. In the incarnation, Jesus Christ is fully human and fully divine: fully a unique, finite, creature, while also fully the eternal Christ, member of the one, indivisible Trinity, who creates, sustains, and saves. As the only fully divine, fully human creature, only Jesus Christ can completely release creation from sin and its effects. This release is promised, inaugurated, and not yet fulfilled by Christ, who has accomplished and will accomplish it. Christians in community should anticipate freedom from systemic sin, even while bound up in the web of constrained possibilities and diminished flourishing.

It may seem that the particularity of the incarnation would limit salvation to those creatures who match Jesus' physical specifications and context; but Christian

scripture and teaching claim that the life, death, and resurrection of this first century Jewish man offer reconciliation to Jews and Gentiles, children and adults, men and women, and the whole cosmos, in all time and space. By taking on a uniquely distinctive human body, Christ shares with all en fleshed creatures both their individual uniqueness and their various communal associations. Jesus Christ embodies a specific species, gender, family, faith, culture, location, and time, and is thereby incarnate for all specific humans, all animals, and all creation, each in their species-specific and individual relationships with God.

Crucifixion, resurrection, ascension

Jesus Christ takes on the creaturely finitude of humans and animals; he suffers rejection, loss, abuse, and pain; and then he dies. Biblical accounts describe Jesus' death as a fleshy, bodily death. His resurrection is a fleshy, bodily resurrection. He gathers with his followers to walk, talk, and eat with them, as a body who walks, talks, and eats. He assures them that when his body is gone, the Holy Spirit will continue his presence until his return; and then his body ascends. Jesus drags into death with him both humanity's sin and the effects of that sinfulness on all of creation. His resurrection and ascension inaugurate the reconciliation of all creation with God and with each other: humans with humans, animals with animals, humans with animals and with the earth and sky and sea, in Christ's dominion of creation (Col 1:19–2).

Creation still waits, in hope, for the completion of the reconciliation of the cosmos. Christians cannot know what this reconciliation will look like, for humans or for animals, but Christians can work to change the systems that resist and diminish reconciliation hopes. Christians can express their hope in that coming transformation by imagining and promoting new possibilities for human and animal flourishing to the extent possible today.

A Christian theology of eating

Human and animal creatures share with Jesus the essential feature of embodiment. As bodies, they are all situated in time and space; they are all born and they all die (although Jesus is at the same time the eternal Christ); and they all require bodily accommodations for survival in this world. In particular, they need to eat. The people of God have always claimed connections between their relationship with God and their relationship with food: they thank God for food; they petition God for favourable conditions for growing food; they raise plants and animals for food with the responsibility granted by God; they lament to God in times of famine; and they eat together in the name of God.

Location and social circumstances determine what and how humans and animals eat. Jesus lived and ate in first century Palestine, where diets comprised mostly

plant-based foods, with some meat (herded animals and domesticated animals living close to family homes) and wild-capture fish. Jesus was an observant Jew, and the preponderance of available evidence indicates that he adhered to the law set out in the Torah, according to the Judaic tradition. The Torah's dietary laws reflect God's holiness by sustaining God's ordering of creaturely categories. They name some birds, fish, and ruminant mammals as suitable for human use and consumption, and they prohibit others (Lev 11; Deut 14:1–21); they designate specific methods of slaughtering, preparing, and consuming animals; and they establish specific foods (including animals) for certain holy days. Many Jews today follow contemporary versions of these practices.

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Food was also a part of worship in the Judaism of Jesus' time, in the form of sacrifices offered to God at the Temple in Jerusalem. On designated occasions, the finest of the animals grown for a family's consumption were set apart and taken to Jerusalem to be prepared and slaughtered at the Temple's altar and offered to God. (Those too poor to own animals offered grain.) Some sacrifices called for the entire animal to be given to God (and therefore completely burnt at the altar). Most sacrificial meat was eaten by the priests, or by the priests and those who offered the animals. Families, including Jesus' family, offered sacrifices at the Temple at the presentation of an infant (Lev 12:8; Luke 2:22–24) and at Passover (Luke 2:41–52). The Passover sacrifice was a lamb; it was slaughtered by the priests of the Temple and then eaten by the household. Jesus and his family, friends, and followers ate their daily meals and worshipped God in this context: the best of a household's food was offered to God; all food was prepared according to laws reflecting God's ordering of creation.

Jesus (and Stephen and Paul after him) critique misdirected, improperly-practised sacrifice as idolatry or commodification (John 2:13–16; Matt 21:12; Luke 2:41–52); and yet, they and the earliest church members continued to participate fully in Judaic religious practices (Matt 5:23–24; Acts 21:17–26). When the Temple was destroyed (70 CE), Temple sacrifices ended. As increasing numbers of Gentiles joined the Jews who

followed Jesus, the church gradually came to understand Jesus Christ as the embodiment of the Law. The author of the Letter to the Hebrews argues for a new account of sacrifice, in which Jesus *is* the perfected sacrifice, who removes sin and provides eternal life, thereby replacing the previous animal sacrifices. This is not a directive for Christians to stop sacrificing animals (there were no more Temple sacrifices to stop); and it is not a directive for Christians to stop raising and eating animals. It was, instead, one of the early contributions to the developing theological understandings of Jesus Christ and of the Eucharist.

The Eucharist, Holy Communion, or Lord's Supper is, for most Christians, the meal that defines the gathered church. This meal performs the end of sacrificial death as a means of drawing nearer to God. Jesus' crucifixion deprives all other sacrificial death of ultimate purpose or benefit. His resurrection disempowers death and recasts life before death — and the promise of life after death — as the primary revelation of God. The Eucharist celebrates the undoing of death with a meal for which Christ's death is enough, even as its effects are both accomplished and still to come. Bread, not flesh, marks the body of Christ. Wine marks his blood. The Eucharist repeats Jesus' last meal with his disciples, but with the life-transforming difference that Jesus' death, resurrection, and ascension make. In Jesus' absence, this meal becomes his presence. This meal requires no suffering or death beyond his, even as we live in a world still full of suffering and death, because Christ has overcome the ultimate effects of systemic sin.

The Eucharist names a reality that does not appear to exist. Now, violence and death seem inescapable, even necessary: predators eat prey to survive, and most humans eat animal products as part of their daily nutrition. The practice of the Eucharist demonstrates the radical difference between the life we know and the life promised in Christ. The church's presentation of Jesus' body and blood as bread and wine echoes the creation stories' vision of non-predatory, plant-eating creatures, even though that world is impossible in life as we know it. Even more, the Eucharist anticipates Christ's death-free peaceable kingdom, which is just as impossible. And yet, the Holy Spirit renders this impossible meal a sign of divine possibility. The eucharistic meal signifies that freedom *from* the limitations of systemic sin and freedom for the uninhibited, shared praise of God are not only possible, but already on the way. The eucharistic meal reminds its participants that, ultimately, death will no longer dominate. The Eucharist expresses Christian hope in eternal life, unbound by natural violence and premature death. The Eucharist shapes the body of the church to anticipate the reconciliation and redemption that Jesus Christ offers through his body.

Christian ethics of creaturely flourishing reflects that eucharistic anticipation by expressing a hope that reaches beyond the potential achievements of creaturely

agency and beyond the limitations of systemic sin. This hope looks towards the ultimate completion of God's good creation through Christ, past human resistance to that goodness. Christians call this eschatological hope: hope beyond the world as we know it; hope for life unconstrained by sin, injustice, pain, and death; hope for the fulfilment of God's creation. Eschatological hope names the limitations of a broken world and claims the promise that God's will is being fulfilled through Christ and the Holy Spirit, even though we cannot imagine how that hope will be fulfilled. Christians live out their eschatological hope by providing glimpses of what Christ's transformation of creation might be like. These glimpses are only imperfect, incomplete visions of divine possibility, but they can challenge and resist assumptions that the way things are is the way they must always be.

One way that Christians can anticipate the hoped-for fulfilment of life in Christ is by paying attention to what they do between eucharistic meals. When Christians consume animal products, they can gesture towards eschatological hope by attending to the welfare of those animals from which animal products are derived. Dominion responsibility in the image of God entails care for the entire lives of animals before their consumption. Christians can exercise eucharistic hope for Christ's peaceable reconciliation of all creation by increasing opportunities for farmed animals to flourish while they are being raised. A world constrained by systemic sin limits imagination for change, in the face of practical, realistic, reasonable assumptions about what is possible for humans, animals, farming systems, and economic systems. The Eucharist can reclaim Christian imaginations and recast possibilities to express hope for what is ultimately possible in Christ.

Christians throughout time have demonstrated eschatological hope in what and how they eat and in how they treat those creatures used for human nourishment. Saints, men and women in religious orders, and those who care for the neediest continue to model simple meals of local fruits, vegetables, grains, without the high volume of animal products that requires mass production. Christians gather people together to share food, thanksgiving, and community. Christ-formed hospitality prioritizes those who are hungry, weary, strangers, traveling, and suffering as those who should be served first. Many Christians today continue to exercise varying degrees of abstinence (fasting, eating less meat, eating no meat, avoiding eggs and/or dairy) on certain days of the week, on holy days, and in specified seasons of the church calendar, in order to redirect their desires away from unexamined consumption and towards giving glory to God.

Apart from these exceptions, few UK Christians today currently consider eating as an ethical practice that demonstrates their beliefs about God or their relationships with other creatures. Consumers

generally select food based on personal taste, affordability, accessibility, and/or family and cultural tradition. Christians are not accustomed to expressing eschatological hope in their decisions about what and how much to eat or about the conditions of farmed animals and farm workers. Christians should draw on their understandings of God's creating and sustaining presence in the lives of humans and animals to consider supporting improvements to farming systems. Eschatological hope for harmonious life should inspire Christians to resist some of the apparently necessary constraints on farmed animal flourishing and to expand some practices of farming and consumption beyond what seems to be practical.

Figuring out how to align faith and practice requires community discernment and formation, and it requires Christians to seek and sustain peaceable relationships with each other, as well as with animals. Conflict amongst Christians diminishes creaturely flourishing now; a divided body of Christ will not display hope in the fulfilment of human and animal flourishing to come. Christians should strive for a unity that reflects eschatological hope for the flourishing of all of creation, as they work to increase the well-being of farmed animals and farming communities, of those who produce, distribute, and consume farm products, and of all creatures caught up in broken food systems.



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Conclusion to Part 1

Christians have strong reasons, grounded in core faith commitments, for being concerned about the flourishing of farmed animals and of those who work with them. These reasons should encourage individual Christians, churches, and other Christian organizations to ensure that their practice reflects these faith commitments as it affects the lives of farmed animals. This section has set out a theological context for considering farmed animal welfare in terms of flourishing. The next section builds on this foundation by setting out key features of a Christian ethical engagement with farmed animal welfare.

Part 2: Key features of a Christian ethics of farmed animal welfare

Introduction

Any Christian ethical approach to animal farming should attend to particulars. In public debate about animal welfare, ‘factory farming’ is sometimes used to describe the intensification of animal farming that has occurred since the Second World War, with greatly increased numbers of animals, more indoor farming, smaller space allowances, frequent use of cages and crates, and breeding to accelerate growth. Such intensification has made possible the large increases in the consumption of meat and animal products in this period. Nevertheless, because the term ‘factory farming’ has no formal meaning it may hinder nuanced understanding of these shifts in production and consumption and responses to them. In practice, intensive/indoor and extensive/outdoor production exist on continua defined by variables such as stocking density, freedom of movement, number of hours of outdoor access, and the proportion of nutrition provided by grazing and rooting.

Christian ethics should encourage attentive engagement with complex realities informed by accumulated experience and open conversation. There is no perfect response to current systems of animal farming, just as there is no aspect of current life untouched by systemic sin. Even the production of crops and vegetables for consumption is likely to involve the killing of some animals during mechanized harvesting or as a result of the use of pesticides. The challenge for Christians is to lean into and towards the fulfilment of creation, while living in the midst of today’s compromised relationships. Christians should bear witness to their hope for the reconciliation of creation by attending to farmed animal welfare.

We have argued that God creates each individual creature — animal or human — with their own nature, mode of existence, and lifespan. Most farmed animals naturally live in herds or groups, but these are made up of individual animals, each with their own species-specific, individual, and social needs. This theological attention to each individual means that the well-being of any individual farmed animal always matters. In the midst of unavoidable systemic sin, humans are unable to protect the interests of every farmed animal, but Christians can care for farmed animals in ways that reflect God’s interest in each creature. Even in the necessarily unnatural contexts of animal agriculture, there are ways to attend to animals’ particular needs. This individualized care can be easier to sustain on smaller scale farms, if the farm workers are able to exercise the highest quality care possible. Large-scale farming might rule out close relationships between farm workers and individual animals, and it might not provide the living conditions best suited for each member of a species, but it may allow for continuous health monitoring of each animal.

Farmers, stockpersons, farm workers, consumers, stakeholders, wholesalers, retailers, and investors each have very different perspectives on farmed animals and access to widely differing means of influencing their welfare. Christians who claim that God values each creature in their created goodness should all accept their share of responsibility for the welfare of farmed animals. Christians should seek to promote the highest level of welfare possible, both for each species of farmed animal and for each individual within species.

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Flourishing

Farmed animal welfare standards should facilitate and promote the best possible opportunities for animal flourishing. In this framework, we are setting out a Christian ethical account of creaturely flourishing as giving glory to God, which is the shared purpose of the life that humans and animals share. Farmed animals praise God by living out their particular species- and individual-specific abilities, activities, relationships, and characteristics. On our theological account of farmed animal welfare, conditions that deprive or inhibit farmed animals from living in their species-specific particularity are conditions that deprive or inhibit their flourishing. To flourish, farm animals do not simply need to be protected from possible harm; flourishing prioritizes the well-being of animals on the terms of their identity as particular animals.

In the UK farming industry, animal welfare standards (which have influenced standards in other countries) list several basic freedoms to which all farmed animals are entitled negatively: freedom from hunger or thirst; from discomfort; from pain, injury or disease; and from fear and distress. This requirement to satisfy negative freedoms aims to ensure that positive experiences outweigh negative experiences over the course of a lifetime. Policies that promote negative freedoms provide some protection and offer some possibilities for improved welfare, especially when enforced with adequate support for farmers. Provisions for negative freedoms contribute to farmed animal well-being and should be upheld throughout farming systems. The positive freedom to express normal behaviour also informs welfare standards. Although provisions for normal behaviour vary between species, they are likely to include access to outdoor space and pasture, access to sufficient maternal care, the chance to grow to maturity, opportunities for social interaction and companionship, appropriate materials for bathing and grooming, opportunities for making choices, and environments that facilitate play. (For more examples, see Part 3.) Farmed animals each need their appropriate negative and positive freedoms, with sufficient nurture and support to fulfil their complete range of capacities and to live a flourishing life.

are currently among the highest in the world. And yet, farmers still have limited opportunities to improve animal welfare, because of pressure from retailers, inadequate governmental support, and consumers who expect inexpensive animal products. This web of limitation, pressure, alienation, and unreasonable demands diminishes the welfare of animals *and* farming communities. Farming communities and farmed animals need support from everyone else, in order for farmed animal flourishing to improve.

Farming practices that diminish animal flourishing

A Christian approach to farmed animal welfare should attend to particular farming practices that determine the character and quality of farmed animals' lives. Five common farming practices cause animals harm and suffering and undermine their flourishing. Those who work with animals are likely to regret the perceived necessity of these practices and to prefer to offer a better life for the animals in their care. The frequency of these practices reflects the economic pressures on farmers from supermarkets' control of profit margins and consumers' demand for animal products. These and other stakeholders share responsibility for problematic farming practices. We discuss examples of how these practices relate to particular species in Part 3.

First, current farming practice routinely subjects farmed animals to impoverished lives in monotonous environments. Most poultry and pigs, and a growing proportion of UK dairy cattle, are kept indoors in environments that do not enable the expression of species-specific behaviours such as scratching or rooting in the earth, or grazing. Farming systems based on narrow understandings of animal welfare may not promote the positive freedom to enjoy preferred behaviours. The flourishing of farmed animals is diminished when they are deprived of a sufficiently stimulating environment within which to express normal species behaviour.

Second, most standard approaches to farming routinely employ animal mutilations, such as castration, tail docking, beak trimming, dehorning, and teeth clipping. These procedures cause pain and limit species-specific behaviours, but are practised in order to reduce the incidence of future ailments and injuries that animals may otherwise cause to each other and to stockpersons within particular production systems. Mutilations are conventionally considered the least expensive way to reduce the incidence of these ailments and injuries, and consumers and retailers do not currently pay enough for farmed animal products to allow farmers to take the financial risk of changing aspects of their systems. If farmed animal welfare is understood only in terms of freedom from pain and suffering, then mutilations could be seen as beneficial to animal welfare. Our

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Some ethical positions on farmed animal welfare focus chiefly on lessening pain and suffering. This approach risks justifying an impoverished life for farmed animals, so long as they suffer no serious pain. The Christian ethical approach we are presenting focuses on the flourishing of animals as God's creatures and leads to a different and much broader understanding of farmed animal welfare that reaches beyond reducing suffering to attend to the whole of each creature's life.

At the same time, we recognize that systemic sin affects farming as much as it affects every other aspect of life. Farming cannot provide for full animal flourishing without sufficient resources. The UK's animal welfare standards

*Five common farming practices
cause animals*

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Understanding of flourishing takes a broader view of animal welfare that includes positive freedoms as well as negative freedoms: decreased pain is not the only feature of flourishing. Mutilations damage animals' body parts and thereby curtail biological behaviours. Horns, tails, beaks, testicles, and teeth are not optional body parts. Mutilations diminish the positive freedoms of creatures.

In conventional farming systems, mutilations may cause animals less, or shorter-term, pain and suffering over the course of their lives than that experienced by non-mutilated animals in the same conventional farming systems; however, the accompanying loss of positive freedoms undermines the apparent advantages of mutilations. Further, not all animal welfare concerns can be resolved with simple equations of negative and positive freedoms: male calves may live longer lives if they are castrated. Assessments of flourishing are complicated, but there are more resources for improving farmed animal welfare than those most commonly considered. Mutilations are not the *only* response to the problems they are designed to address. Changes to farming systems can help diminish pain and suffering *and* sustain some positive freedoms (including increased living space, environmental enrichment, access to pasture, longer maternal access, and decreased distress).

Many farmers find it difficult to end mutilations, due to the constraints of diet, space, finances, staffing, climate, and disease prevention. Farmers need substantive support in order for changes on this scale to be possible and successful. Experimental trials must demonstrate alternatives (by eliminating the problems that the mutilation is intended to address), and resources for transition must be provided. Christians who affirm God's love for each creature should accept their responsibility of dominion in the image of God and strive for creaturely flourishing. They should seek opportunities to reduce or eliminate mutilations, and to ensure that adequate pain relief is provided where mutilations continue to be practised.

Third, dairy and pig production commonly separate family groups prematurely, preventing natural mothering behaviours in females and the enjoyment of care by young. Moreover, in broiler and laying hen production, eggs are usually removed from the hen as soon as they are laid. The chicks never meet their mothers. Standard systems of farming present economic incentives for farmers to break up family groups very soon after birth: one advantage of separation is that it can reduce the risk of diseases transmitted from mothers to offspring within particular farming systems. System changes will require both financial assistance and persuasive models of success. Christians committed to flourishing should affirm the importance of creaturely social and family relationships and promote system changes to enable those relationships. Farmed animal groups should be maintained for longer periods of time to allow hatching, feeding, grooming, learning, and play, all of which contribute to flourishing.



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Fourth, farmed animal flourishing is greatly curtailed by the severe shortening of lifespan for economic or production reasons. Some animals die early of disease or injury. Freedom from such deaths is one of the negative freedoms most farmers aim to provide. But the large-scale slaughter of young farmed animals, at a fraction of their normal life expectancy, prevents them from enjoying their positive freedoms, across their full period of growth and adult life. Longer lives enhance flourishing; shortening lives diminishes flourishing. Producers should seek opportunities to reform their systems by farming breeds that allow different production types to be combined, rather than killing and disposing of unwanted animals. For example, breeds of hens should be preferred that can provide both eggs and meat to avoid the current commercial practice when breeding laying hens of killing male chicks at one day old. Chicken embryos may now be sexed in the egg, ending the maceration or gassing of newly-born male chicks, or these males may be raised for meat as broiler chickens. With appropriate markets, calves born into dairy herds may be farmed for veal or beef, and increased consumption of mutton might reduce the

number of lambs slaughtered. Consumer preferences need reshaping by churches, church organizations, and individual Christians. Christians who recognize God's sustaining love for creatures should be invested in helping to sustain the well-being of farmed animals well into maturity.

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Fifth, the flourishing of farmed animals is threatened by selective breeding practices that have prioritized utility for humans over animal well-being. Farmed animals as we know them have been bred to provide more of the features that producers and consumers desire, but they are still the same species as prior to domestication, retaining the same natural needs and interests of their species. The Christian ethical approach of this framework recognizes God's love for each particular creature and affirms that animal species are created with specific divinely-given characteristics. Selective breeding and genetic modification alter the bodies of farmed animals; however, the needs, instincts, and innate capacities of animals do not disappear. Some animal behaviours that seem normal in a farm context may be responses to the constraints of breeding modifications.

Advocates for breeding and genetic alteration programmes typically emphasize the potential health benefits for animals; although in practice increased productivity may become the priority. Conventional selective breeding can diminish welfare by damaging animal health and the capacity of individual animals and family groups to behave naturally. Examples include sows bred to give birth to more piglets than they are able to suckle, and broiler chickens bred to grow so rapidly that their legs cannot support the weight of their body, with many becoming painfully lame. The powerful new technology of genome-editing seems very likely to exacerbate and intensify such problematic impacts on farmed animals. The long-term effects of gene alteration are not yet apparent. Christians invested in animal well-being should endorse breeding that aims to improve individual and herd health, rather than treating animals merely as production units that can be always be improved for consumer markets.

Farming and local communities

Animal farming is grounded in the exercise of caring responsibility by farmers, stockpersons, and farm workers for both raising and slaughtering farmed animals. In Genesis, after the flood, God allows humans to kill animals for their own use, providing that the animals are acknowledged as God's gift to humans. However, the Old Testament also regulates slaughter processes in ways that minimize suffering in the context of the range of stunning and slaughter methods then available. Today, UK regulations require animals to be stunned before slaughter, in order to eliminate pain at the time of killing. The law allows for exemptions from stunning when meat is to be consumed by Muslims or Jews. Most animal welfare advocates regard non-stun slaughter as inhumane. Sometimes this judgement is deployed in antisemitic and Islamophobic ways. Meanwhile, movements within Islamic and Jewish communities are working for changes to improve animal welfare during life and at slaughter. Non-stun slaughter is only one of a number of slaughter-related welfare issues across all animal farming. Long-distance transport to abattoirs, animal handling for transport and through the abattoir, and pre-stun or pre-kill restraints can all diminish animal well-being and flourishing. These practices all demand careful engagement with current peer-reviewed welfare science and with Christian ethical concerns about the length and quality of animals' entire lives. Cross-cultural criticism may fail to appreciate efforts for change within religious traditions and ignore damaging practices in secular contexts. Animal welfare should never be invoked to promote Islamophobia or antisemitism.

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Today, long-term human relationships and settled communities are still fundamental to animal farming. Established and other historic churches have played a key role in rural communities, operating important pastoral support networks for farmers, who may work long hours, suffer social isolation, and find it difficult

to take any time off from work. Now, ecumenical chaplaincies reaching out to farming communities provide the main pastoral support the church offers to farmers. Positive farmer well-being in a community context is likely to enhance farmed animal well-being. In contrast, the well-being of farmers and animals is seriously undermined by unjust contracts between food business operators and farmers that require farmers to change what they supply at short notice or to absorb the impacts of sudden fluctuations in demand. Supermarkets should pay farmers fairly for their animals and the products derived from them and include a share in profits. The food industry should accept its responsibility for financially supporting farmer and farmed animal well-being. Individuals and institutions should be prepared to pay more for higher-welfare meat and/or consume fewer animal products if possible. However, it is unrealistic to expect those on lower incomes to pay higher prices for animal products without a wider social commitment to ensure that everyone has the means to afford food that is healthy, environmentally sustainable, and produced to high animal welfare standards.

Sustainability in the global community

Christian ethics recognizes the world as an ordered and fragile gift of God and is inevitably ecological. In the animal farming context, ecology is fundamentally about maintaining respectful and health-giving relationships between humans and humans, humans and animals, and humans and the natural world, and correcting these when they become unhealthy. Animal farming affects and is affected by the cleanliness of water and air and the fertility of soil, which are essential to environmental, global, climate, human, and animal survival.

The impact of the actions of churches, church organizations, individual Christians, and their wider communities on vulnerable people and communities should be a major Christian ethical concern. High reliance on animal farming by wealthy nations and people reduces food availability for poorer nations and people, because arable production is used to feed animals rather than people. 83% of the world's farmland is used for farmed animals and the feed they eat (Poore & Nemecek, 2018). The growth of animal agriculture is only one of the unsustainable areas of human activity that needs to be addressed in the context of the current climate crisis; but, nonetheless, farmed animals significantly contribute to climate change and pollution, which make disproportionately high impacts on poorer regions. Globally, the demand for meat and livestock feed is a major factor in deforestation and habitat loss driving the mass extinction of wild animals (Stoll-Kleemann & Schmidt, 2017), with farmed animals exceeding the biomass of all wild mammals by 24 times (Smil, 2011). Industrial trawling contributed to a 90% reduction in fish stocks during the 20th century (Lotze & Worm, 2009).



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The shift to fish farming has damaged wild marine populations, by destroying habitats, causing pollution through waste products, and introducing both exotic species and pathogens (Lam, 2020). These factors create a pressing imperative to reduce global consumption of meat, fish, and dairy products, and to replace these with non-animal protein sources that are less carbon-intensive and less polluting. The UK must play its part in responding to these global challenges. Low-intensity modes of farming livestock on biodiverse pastures can be part of a UK plan for reaching carbon neutrality. UK churches are well positioned to help communities discern the local ramifications of widespread concerns and then take steps that attend to the particular local challenges of landscape, soil, economics, and the human and animal population involved.

Conclusion to Part 2

A Christian approach to the ethics of farmed animal welfare must attend to the complexity of animal farming, including its multiple connections with the welfare of humans, wild animals, and the environment. Christian belief in God's care for every creature requires an approach to farmed animal welfare based on the flourishing of farmed animals. This approach mandates concern about farmed animals subjected to impoverished environments, mutilations, deprivation of social and familial relationships, severely shortened lives, and breeding practices that prioritize productivity over welfare. Consumers, retailers, food producers, investors, and landowners share responsibility with farmers and stockpersons to take steps to enable the flourishing of farmed animals more fully. The following section considers the particular modes of flourishing of different farmed animal species and the extent to which this flourishing is enabled in current farming systems.

Part 3: A Christian ethical evaluation of current UK systems of farming animals

Introduction

Following the account of why farmed animal welfare is a Christian concern in Part 1, and the key features of a Christian approach to the topic in Part 2, this section surveys and evaluates the ways farmed animals are currently raised in the UK in light of the concept of flourishing outlined in Parts 1 and 2. All creatures flourish when they have the best possible opportunities for fulfilling their creaturely purpose of giving glory to God, each in their particular ways. The analysis we present has significant overlap with existing assessments, and assurance schemes. This framework's distinctive emphasis on farmed animal flourishing adds criteria shaped by Christian theology and ethics.

Contemporary animal welfare science is a crucial resource in determining whether animals are flourishing. It provides detailed species-specific knowledge concerning the nature, growth, mode of life, and preferences of animals. Judgements about the degree to which farmed animals are able to flourish within particular farming

systems are therefore strongly informed by key animal welfare science findings, such as the natural biology and preferred behaviours of wild species, the balance of positive and negative feelings and experiences of farmed animals, how these feelings and experiences contribute to the animals' long-term mood, the ability of farmed animals to choose pleasurable activities, the avoidance of prolonged negative experiences, and the degree to which the natural goal or 'telos' of an animal is obstructed by selective breeding or mutilations.

After introducing some of these core concepts, we take each of the major farmed animal species in turn. We ask what it means for particular species to flourish, and then consider how well this flourishing is enabled within current production systems. We evaluate assurance schemes as providing *poor*, *better*, or *best available* opportunities for animal flourishing, propose *further improvements* and use these evaluations as the basis for our Recommendations in Part 4.

Current UK Farming Practice: Overview

The animals that we farm — mammals, birds and fish — experience their lives through a succession of positive, neutral or negative feelings that influence their overall longer-term mood. A flourishing animal will have many positive experiences and few severe or long-term negative ones. Theories of evolutionary biology suggest that pleasurable (rewarding) and unpleasant experiences have developed to better promote biological fitness. For example, if an animal finds nutritionally important food pleasurable it is more likely to seek such food, and expending energy on pleasurable play activities improves attributes such as social understanding and physical prowess. Likewise, learning from unpleasant experiences, such as pain or ingesting bitter poisons, protects against harm.

Opportunities for pleasure may come in several forms, for example through tasty food, play, giving or receiving maternal care, interacting with members of a familial or social group, or overcoming cognitive challenges. Each individual will have their own preferences for pleasure influenced by personality and prior experience. Providing meaningful choice of opportunities for pleasure in an animal's environment will promote positive experiences according to individual taste and internal homeostatic drivers at any time. In addition, if a pleasurable opportunity is chosen rather than imposed, the level of reward experienced increases.



Wild Boar (*Sus scrofa*), piglets playing together (iStock.com/schnuddel)



Maternal care (iStock.com/Roman Kybus)



Dustbathing (iStock.com/debibishop)



Shelter (iStock.com/itakefotos4u)



Cow brush (iStock.com/madsci)

Avoiding severe and prolonged negative experiences; for example, pain, physical illness, and boredom are necessary parts of a flourishing life. However, transient and mild stressors may serve to promote better resilience later in life and, as contrast, accentuate pleasure when it comes. Protecting animals from disease through appropriate environments and good management is essential.

Paying regard to the natural biology of an animal can help to identify positive opportunities and avoid negative experiences. For example, the wild ancestors of many farmed animal species, spent a large proportion of their time searching for and eating food. When food is easily available to animals on farms, they may experience boredom, with little to occupy their time, or frustration, if physiologically unnecessary but evolutionarily 'hard-wired' foraging behaviours are thwarted in an unsuitable environment.



Wild boar foraging in their natural woodland habitat (iStock.com/foment)

Even within one species of farmed animal, breeding has developed a diversity of genotypes promoting productivity characteristics to a greater or lesser degree. This breeding changes metabolic requirements so that some animals are so driven by the need to eat and rest that they are predisposed to disease or have limited opportunity for wider pleasures. The breeding also changes physical attributes in ways that can inhibit flourishing. It is essential that the selective breeding of animals ensures they have genetics that allow them opportunities for flourishing.

Altering the fundamental characteristics of an animal by mutilations, such as tail docking, castration, or dehorning, necessarily restricts the ability of the animal to engage in preferred species behaviours. Avoiding such mutilations will avoid the pain associated with the procedure as well as protect the biological characteristics of the animal.

In the sections that follow, we focus on the major farmed animal species in the UK: chickens, fish, sheep, pigs, and cows. Other species are farmed in the UK, including ducks, turkeys, geese, quail, halibut, turbot, deer and goats. Still other animals are killed for food from the wild, such as sea fish species, deer, rabbit and game birds. To find out more about the welfare of these species please refer to the resources in Part 5.

Our ethical evaluation of how current ways of farming animals enable their flourishing uses three categories: **poor, better, best available**. We then suggest **further improvements** beyond current practice to increase flourishing.

- Farming systems offering animals **poor** opportunities for flourishing are characterized by one or more of the following practices: keeping animals in environments with little opportunity for meaningful choice of pleasurable experiences, subjecting them to severe and prolonged negative experiences, selectively breeding animals for productivity without adequate regard for their natural biology or capacity to experience pleasures, and subjecting animals to mutilations.



FROM TOP:

- Cow with horns* (iStock.com/Stephanie Michaud);
- Uncastrated pigs with non-docked curly tails* (iStock.com/Bartosz Luczak);
- Sheep with long tail* (iStock.com/Jose Pauwels)

- Farming systems offering animals **better** opportunities for flourishing represent significant improvements over systems we rate as **poor**. **Better** systems are characterized by significant progress in providing meaningful choice of pleasurable experiences, avoiding subjecting animals to severe and prolonged negative experiences, breeding animals with attention to their natural biology and their capacity to experience pleasures, and taking steps to avoid mutilations.

- Farming systems offering animals **best available** opportunities for flourishing are the best among those currently available within the UK. They are characterized by best performances in providing a choice of pleasurable experiences, avoiding subjecting animals to severe and prolonged negative experiences, using breeding strategies that prioritize enabling natural biology and enhancing capacities to experience pleasures, and avoiding mutilations.

Beyond the characteristics of best available we identify **further improvements** that would provide

opportunities for farmed animal flourishing beyond current practices. These would provide excellent and diverse choices of pleasurable experiences; enable the full expression of natural biology, such as the giving and receiving of maternal care for durations comparable to those in the wild; and allow growth to maturity.



Current UK Farming Practice: Chickens

What does a flourishing life mean for chickens?

A flourishing life for chickens encompasses pleasurable experiences, as well as avoidance of prolonged pain and other harms. Despite differences in appearance, jungle fowl and domestic fowl have very similar social, emotional and cognitive abilities (Garnham & Lovlie, 2018). Jungle fowl live under trees and in small clearings, and the domesticated chicken shows a preference for this type of environment (Zeltner & Hirt 2008; Gilani, Knowles, & Nicol, 2014).

Wild chickens form into small social groups of up to 15 individuals, with a dominant male and several hens and subordinate males (Garnham & Lovlie, 2018). Chickens are highly motivated to forage, spending large proportions of their day doing so (Channing, Hughes, & Walker, 2001; Mishra et al., 2005), even in the presence of abundant food (Lindqvist & Jensen, 2008).

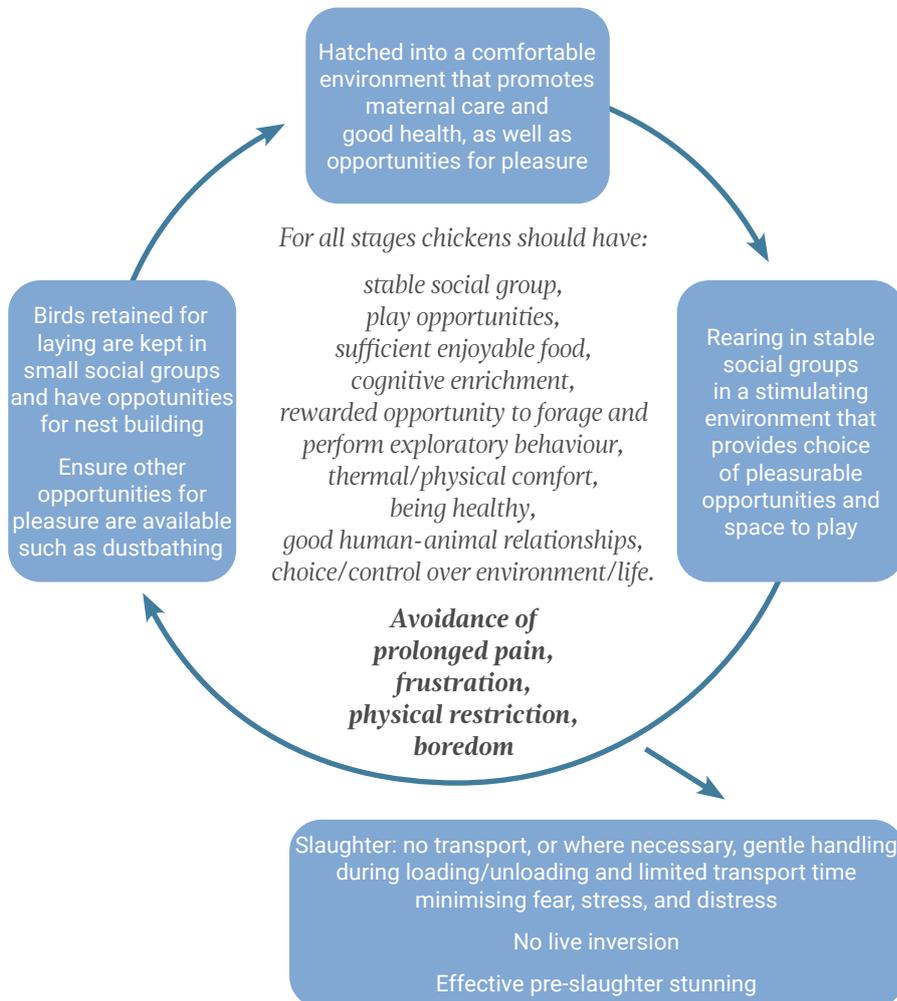


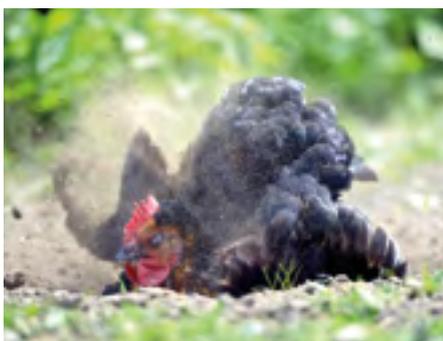
CLOCKWISE FROM TOP: Red Jungle Fowl (Wikimedia/ A. J. T. Johnsingh, WWF-India and NCF, CC BY-SA 4.0 licence); Foraging domestic chickens (Andriy Blokhin/Alamy Stock Photo), (iStock.com/Irina Kononova)



Chickens perching at height at night (iStock.com/csmorrell)

Chickens also spend a high proportion of their time standing and resting. At night they choose to perch at height (Olsson & Keeling, 2000). The social relationship between a mother hen and her chicks prepares them for their social and physical environment (Edgar, Paul, & Nicol, 2013; Edgar, Held et al., 2015; Edgar, Kelland, Held, Paul, & Nicol, 2015). Chickens will spend time preening, and this is augmented where possible by bouts of dustbathing, on average every two days (Olsson & Keeling, 2005). Chickens eat a wide variety of vegetation, seeds and insects or occasionally other animal proteins, displaying clear preferences for certain foods (Sherwin, Heyes, & Nicol, 2002).





CLOCKWISE FROM TOP LEFT: Chickens appear to enjoy eating worms from a young age (Gay Bumgarner/Alamy Stock Photo); Chicks learn about their environment from the hen (iStock.com/Nataba); Dustbathing (Peter Cripps/Alamy Stock Photo)

What are the key challenges in enabling such a life in the context of farming?

Chickens were first domesticated well before 8,000 years ago from several species of jungle fowl in southeast Asia, moving north into China and across central Asia (West & Zhou, 1988) before coming to Britain in the Iron Age, around 3,000 years ago (Maltby, Allen, Best, Fothergill, & Demarchi, 2018). They were probably more valued for other qualities than food initially, but they started to become more abundant and an apparent food source during Roman Britain around 2,000 years ago. Today the chicken is ubiquitous, being farmed in huge numbers (22 billion on farms, 66 billion slaughtered each year) on every continent (FAO, 2019). Chickens have been increasingly bred for either laying eggs or producing meat resulting in distinctly different-looking birds.

There are around 41 million laying hens in the UK (BEIC, 2019), down from a peak of 60 million in the 1930s, producing over 11 billion eggs (87% self-sufficient) (BEIC, 2019). Until the 1930s, male layer birds were removed at 16 weeks for the table. Post-war specialist breeding improved efficiency of both the layers and meat birds. The number of broiler chickens produced for meat has risen steadily in the UK from around one million a year in 1950 (Godley & Williams, 2007) to just over 1.1 billion today (Defra, 2018). Self-sufficiency is currently about 89% (Defra, 2018). However, due to preference for white meat there is substantial trade to deliver the required amount to the UK, reducing the practical estimate of self-sufficiency to 60% (Thomas, 2018).



Meat (broiler) chicken with pronounced breast (engkritchaya sirawatmetha/Alamy Stock Photo)



Lighter framed laying hens (Wayne Hutchinson/Alamy Stock Photo)

Chickens farmed for eggs

Laying hens are light bodied and produce around 300 eggs a year, far more than the annual 4-7 egg clutch of the original jungle fowl (Anwar, Ali, Rais, & Mahmood, 2016). They are typically hatched at a breeder farm where unproductive males are killed once hatched. Development is continuing to avoid this practice through sexed chicks or sexing during the egg phase to allow removal prior to full development. The females will be reared at a rearing farm until around 16 weeks when they will be transported to the laying farm. Just over half of

all eggs (54%) are produced in Free Range systems (BEIC, 2019), usually accredited to RSPCA Assured standards where they can be kept in flocks of up to 16,000 birds and must have access to a large range with cover (RSPCA, 2017b). Despite the opportunity to range, free-range birds, like caged birds, may still redirect foraging activity to other birds resulting in feather loss if the environment is inadequate (FeatherWel, 2013). The majority of UK hens have their beaks trimmed as chicks to prevent damage.

Hens producing organic eggs must have free range access and be kept in smaller flock sizes without beak trimming (Soil Association, 2016). They account for 2% of the market (BEIC, 2019). Eggs from caged hens make up 44% of all eggs produced, but 35% of eggs sold via retailers (BEIC, 2019). Battery cages were prohibited within the EU in 2012. Cages for groups of hens must now contain a nest box, perch and scratching area, but the cages are still highly restrictive and offer limited opportunities for pleasure.

Generally laying hens are kept only for about a year, at which point egg production declines to a point of being uneconomic. They are then sent for slaughter, and the meat may be used for stock or exported.



LEFT: Free-range shed. The outside range is accessed via pop-holes at floor level (not visible in the photo) (iStock.com/daseaford)

BELOW: Range with trees planted to provide desirable cover for the hens (FLPA/Alamy Stock Photo)





Non-beak-trimmed bird: the upper beak overhangs the lower (Cindy Sutton/Alamy Stock Photo)



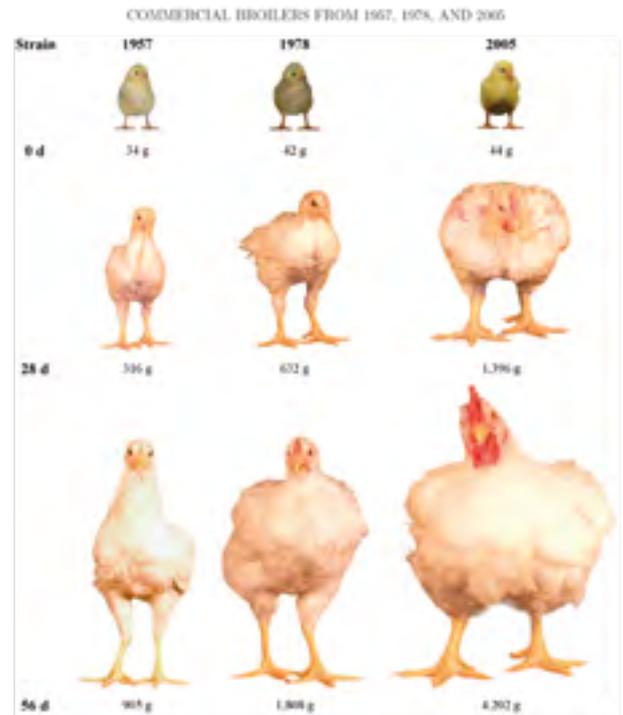
Beak-trimmed hen (Matthijs Wetterauw/Alamy Stock Photo)



Non-beak-trimmed organic hens with cockerel (Zuzana Dolezalova/Alamy Stock Photo)

Chickens farmed for meat

Chickens farmed for meat, often called ‘meat chickens’ or ‘broilers’, have developed considerably since the 1950s and now gain muscle and over-large breasts in half the time and using around 65% of the food previously required (Farmers Weekly, 2014).



© E. Agreval changes in size (inset view 33E and front view photos) of University of Alberta Meat Control strain numbers 1978, and Ross 308 broilers (2005). Within each strain, images are of the same bird at 9, 28, and 56 d of age. Color version in (Zuidhof, Schneider, Carney, Korver, & Robinson, 2014)

Birds are hatched at a distant farm and then transported to grow in large sheds on farms. They spend a large proportion of their day lying down and eating and can suffer from lameness and other disease conditions. They have little opportunity for pleasures and may be physiologically unable to avail themselves of any that are present. Both males and females are reared, and they are currently killed at 35–40 days of age (BPC, 2017). Slower growing breeds are required by RSPCA Assured and must be at least 56 days old at slaughter. There is also a requirement for a lower stocking density and some enrichment, and these birds are more healthy and active, displaying more positive behaviours (RSPCA, 2017a). Organic birds are required to be even slower growing (minimum 81 days at slaughter) and have access to pasture, including some cover, a lower stocking density and small group size (Soil Association, 2016). The broiler breeder birds supplying farms of all types suffer considerable hunger (Nicol et al., 2017) as their feed must be restricted to prevent them growing too fast to be a healthy breeding adult.

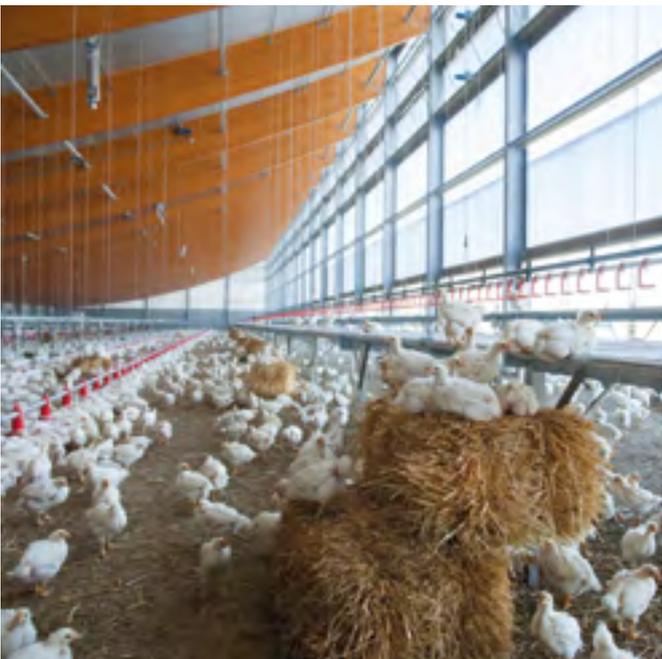
Almost all chicken is Red Tractor farm assured (95.5%). A small proportion is RSPCA Assured to higher standards that may include free-range production (3.5%). Organic chicken accounts for under 1% of production (BPC, 2017).

Slaughter

Most chickens are stunned before slaughter (90%). Gas stunning is used on 70% of all chickens and 20% are stunned using an electrical water bath. Many halal-compliant chickens are stunned prior to slaughter. Of the birds that are not stunned, 9.7% are halal and 0.3% shechita (FSA, 2019). The electrical water bath requires the birds to be hung upside-down on shackles, which is unpleasant, before entering the water bath, where care has to be taken that birds of different sizes do not receive pre-shocks and are adequately stunned. Although gas stunning may result in several seconds of respiratory distress, it avoids live inversion and is considered by many to be preferable to electric stunning (FAWC, 2009).



Standard broiler farm
(A Room with Views/Alamy Stock Photo)



Higher welfare indoor broiler farm with enrichment bales and a veranda (Photo courtesy of CiWF)

How far do different systems in use in the UK enable a flourishing life?

Chickens farmed for eggs	Lion Code enriched cages	RSPCA Assured free-range	Organic
Access to range required	✗	✓	✓
Cages banned	✗	✓	✓
Beak trimming banned	✗	✗	✓
Welfare outcomes monitored	✗	✓	✓
Pre-slaughter stun required	✗	✓	✓
Group size limited to 3,000	n/a	✗	✓
Male chicks not killed	✗	✗	✗
Chicks required to be reared with mother hens	✗	✗	✗



Organic broiler farm
(Paul Glendell/Alamy Stock Photo)

Chickens farmed for meat	Red Tractor Standard bird	Red Tractor Indoor Enhanced Welfare	Red Tractor Free Range	RSPCA Assured	Organic
Access to pasture required	✗	✗	✓	✗	✓
Slow growing breed required	✗	✓	✓	✓	✓
Lower stocking density required	✗	✓	✓	✓	✓
Welfare outcomes monitored	✗	✗	✗	✓	✓
Pre-slaughter stun required	✓	✓	✓	✓	✓
Chicks required to be reared with mother hens	✗	✗	✗	✗	✗

The Christian ethical framework we have developed for the flourishing of farmed animals leads to the following evaluation:

- Chickens have **poor** opportunities for flourishing when they are kept in environments such as unenriched broiler sheds or ‘enriched’ cages with little opportunity for choice of pleasurable experiences; when they are selectively bred in ways that reduce their physiological ability to choose pleasurable experiences; when they are subjected to mutilations such as beak trimming; when they are subjected to high stocking densities; and when they are slaughtered without stunning or within hours of hatching.

Chickens farmed for eggs

- The RSPCA Assured free-range scheme provides chickens with **better** opportunities for flourishing, by banning cages, monitoring welfare outcomes, and requiring pre-slaughter stunning.
- The Organic certification provides **best available** opportunities for flourishing because it goes beyond the RSPCA Assured free-range scheme by prohibiting beak trimming and limiting group size.
- **Further improvements** to opportunities for flourishing beyond what is currently offered for laying hens would include: reintegrating farming chickens for eggs and meat, ending the practice of killing male chicks, allowing hens to exercise maternal care of their chicks, giving chickens access to outdoor wooded areas, and allowing laying hens longer lives before slaughter. Some small-scale producers are already implementing many of these changes, and products from animals farmed in these ways may be available locally.

Chickens farmed for meat

- The RSPCA Assured scheme provides **better** opportunities for flourishing, by requiring slower growth rates, lower stocking densities, monitoring of welfare outcomes, and pre-slaughter stunning.
- The Organic certification satisfies our criteria for offering **best available** opportunities for flourishing because it requires much slower growth rates and access to pasture.
- **Further improvements** to opportunities for flourishing beyond the current best available for chickens farmed for meat would include: reintegrating chickens farmed for eggs and meat, allowing chicks access to maternal care, and giving chickens access to outdoor wooded areas. Some small-scale producers are already implementing many of these changes, and products from animals farmed in these ways may be available locally.

Current UK Farming Practice: Fish

Over 360 fish species are farmed around the world (Humane Slaughter Association, 2018). These have a great diversity of physical characteristics, natural behaviours, and optimal habitats. Within the order 'fish' there is also diversity of evolutionary lineage, with some species, such as the coelacanth, remaining almost unchanged for millions of years. The two major species farmed in the UK are from the Salmonidae family, the Atlantic salmon (*Salmo salar*) and the rainbow trout (*Oncorhynchus mykiss*), and these species will be addressed in this framework. However, to a lesser degree 15 other species, including brown trout, sea bass, halibut, carp, and tilapia are also farmed in the UK. It should be noted that much of our non-species-specific knowledge of fish biology comes from research conducted on other species, particularly the common laboratory species zebra fish, and goldfish.



Salmon returning to Northumbrian river to spawn (Design Pics Inc/Alamy Stock Photo)

What does a flourishing life mean for salmon and trout?

There is clear evidence that fish are sentient, with the ability to experience pain, respond to drugs that reduce pain, and learn to avoid painful stimuli (Sneddon, 2009). However, research into the experiences of fish is at an early stage, with some questions about the core experience of pain, for example, still unanswered (Prunier et al., 2013). Research into positive fish experiences is only now developing, so evidence for these experiences is currently weaker. A few studies have shown that fish demonstrate preferences for environmental enrichments (Imanpoor, Gholampour, & Zolfaghari, 2011; Smith & Gray 2011; Sullivan, Lawrence, & Blache, 2016).

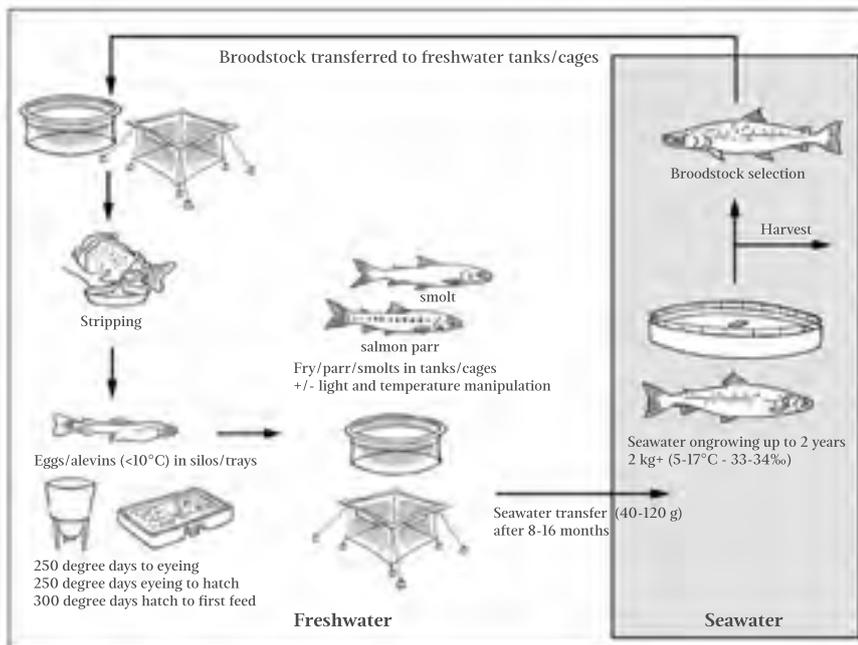
Atlantic salmon are a migratory species native to the Atlantic Ocean. They hatch in the freshwater rivers in North America and Northern Europe, spending 2–5 years in the river, growing from the alevin hatchling to become fry and then

parr/fingerlings before transitioning for life in seawater (smolting). The smolts migrate downriver into the sea and spend around four years as predatory pelagic deep-ocean fish before eventually returning to the river to spawn and, usually, to die (FAO, 2005a).

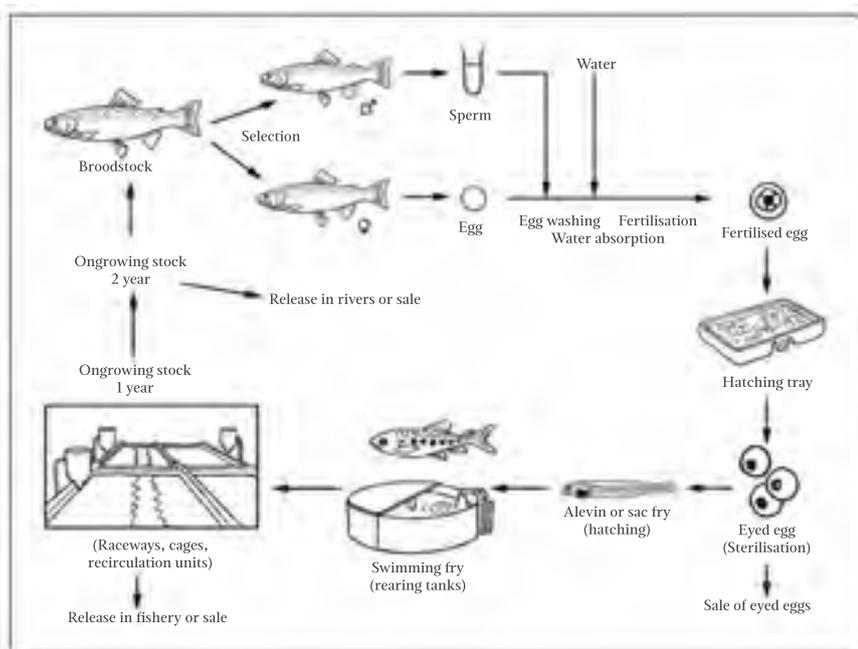
The rainbow trout is native to the Pacific tributaries in Asia and North America and some sub-species spend time in sea water during different life stages. Different strains may live entirely in freshwater rivers or lakes, whilst others may follow a similar migratory life to the Atlantic salmon (FAO, 2005b).

Both species are carnivorous, eating eggs and insects when small and then fish or other animals once they grow. They are also prey to other sea animals and some land animals throughout their life stages, and have a reproductive strategy of producing thousands of eggs per spawning. Survival rates are particularly low in the freshwater stages.

Commercial aquaculture systems contain several stages, as illustrated in the following two figures.



Production cycle of *Salmo salar* (FAO, 2005a)



Production cycle of *Oncorhynchus mykiss* (FAO, 2005b)

Box 1. Overviews of life stages and farming.

Atlantic Salmon, *Salmo salar*

- **Broodstock:** Age 2-3 winters at sea or in shore-based salt water tanks, weight 10-20kg. Generally held in shore-based, fresh water tanks prior to stripping of eggs and sperm. Anaesthetised before stripping and not allowed to recover. ~1500 eggs/kg of fish.
- **Eggs:** mixed with sperm in the hatchery. Infertile eggs removed. Kept in fresh water of the highest available quality. Up to 510 degree days to hatch.
- **Young stock:** called successively alevin, fry and fingerlings/parr.
 - **Alevin:** Young with yolk sac attached, 0.1 to 0.3g. Kept in fresh water in indoor trays/tanks, in the dark. Loss of yolk sac just prior to first feeding. Time to first feeding depends on temperature.
 - **Fry:** Kept in indoor tanks. First sorted by size ('graded') at around 5g.
 - **Fingerlings/Parr:** Transferred to larger tanks indoors, outdoors or in fresh water lochs for 6 to 12 months, depending on conditions.
- **Smolt:** the stage of adaptation to salt water, alternatively:
 - S0: Smolting at 6 months induced by photoperiod and/or dietary constituents (e.g. increased salt content).
 - S1: Smolting at 10-12 months, 75-120g.
 - S2 (unusual): Smolting at 12-24 months, up to 400g.
 Transferred to sea pens or seawater tanks.
- **Grilse/One sea-winter salmon:** Matured after one year at sea, 3-4kg.
- **Two sea-winter salmon:** 18-20 months at sea (longer for broodstock), 5-10kg.

Rainbow Trout, *Oncorhynchus mykiss*

- **Broodstock:** Kept in fresh water. May have photoperiod manipulated to control timing of reproduction. Females may be masculinised by hormone treatment. Eggs and sperm are manually stripped after anaesthesia.
- **Eggs:** Incubated ('laid down') in trays, typically at 10°C. Called 'green ova' until eyes are visible around 16d, then 'eyed ova.' Around 85% are all-female, produced by sperm from masculinised females, and around 15% are triploid produced by heat or pressure shock after fertilization.
- **Alevin:** Young with yolk sac after hatching around 30d post-fertilization. Kept in indoor trays.
- **Swim-ups:** Stage of first feeding, around 20d post-hatch.
- **Fry:** Transferred to nursery/fry units: troughs, tanks or raceways, typically indoor or covered, with bore or spring water. 0.6-10g (1.5-4 months). First graded at around 5g.
- **Fingerlings:** 10-40g (4-7 months). Transferred to fresh water on-growing systems at 25-40g (5-7 months): raceways, earth ponds, tanks or pens/cages in lakes/lochs.
- **Grow-ons for slaughter:** Killed for the table market at >300g (12-15 months) before sexual maturity (all females).
- **Grow-ons for restocking:** Transferred to angling waters at >500g (>15 months). Triploids preferred for larger size and sterility.
- **Grow-ons for seawater transfer:** Transferred to nets/pens in seawater at >100 g (9 months). Slaughtered at 3-4kg after 1-2y in seawater.

(FAWC, 2014)



Atlantic salmon alevin with yolk sacs (Ann and Steve Toon/Alamy Stock Photo)

What are the key challenges in enabling such a life in the context of farming?

Farming Salmonidae is fundamentally different from farming terrestrial species. Salmonidae live in an underwater, three-dimensional environment, where temperature and other environmental factors control physiological responses to a greater degree. Their natural migratory, carnivorous nature with developmentally immature young, more akin to larvae, is unique amongst other farmed animals (FAWC, 2014). In conjunction with this, growing these species to marketable weight has welfare risks, because the aquaculture industry is relatively new. Although young have been raised in the UK to restock leisure salmon fishing facilities since the 19th century, sea-pen farming was only developed in the 1960s in Norway (FAO, 2005a). Fish production is usually reported by weight. However, it is estimated that 19–45 million salmon (maximum 10kg weight) are raised each year in the UK. The numbers of trout are even harder to estimate due to the large size range sold (300g–4kg) but may be around 36 million (Eurogroup for Animals, 2018).

The key general welfare challenges are: maintaining appropriate water quality for good health, providing sufficient environmental variation for homeostasis, the inability to attend to individual fish welfare amongst such large groups, handling and slaughter (FAWC, 2014). Other issues, not addressed in this framework, include the welfare of cleaner fish (wrasse) used to eat sea lice from salmon, and the control of predators such as seals or otters.

Breeding animals

Breeding fish are kept in separate pens and anaesthetized, with or without recovery, to 'hand strip' eggs and sperm from the fish. Rainbow trout females may be chemically masculinized in order to produce higher/all-female populations, which mature to greater weights before slaughter prior to sexual maturity. 8,000–30,000 eggs can be harvested from one fish.



Hand-stripping a salmon (Ann and Steve Toon/Alamy Stock Photo)



CLOCKWISE FROM LEFT: Atlantic salmon fry (Nature Picture Library/Alamy Stock Photo); Atlantic salmon parr (FLPA/Alamy Stock Photo); Atlantic salmon smolt (jack perks/Alamy Stock Photo)

Young fish

Alevins, with their yolk sac, are developmentally immature and may not have the mechanisms to experience pain or other feelings. It has been suggested that this ability develops by the free-feeding stage when the yolk sac disappears after around 20 days and the fish weighs up to 0.3g (FAWC, 2014). There is a relatively low survival rate in the early life stages although this has reduced over recent years. For example, the rate for salmon has risen from 22% in 1987 to 67% in 2011, from egg to smolt (FAWC, 2014). Fish are typically housed in bare tanks in very large numbers, for example 100,000 per tank, where individual care is impossible. Transport to rearing sites usually occurs in tanks by road or boat. Handling for grading, medication, or transport is stressful, especially when 'crowded' into smaller areas, although automated systems are being developed to reduce this stress.

Rearing fish

Once salmon are transported to the sea pens they are kept in very large groups at a high stocking density, increasing the risk of fin and skin damage, poor water quality, disease, need for medication, and mortality. Many environmental factors cannot be controlled easily, such as temperature and flow. Fish are grown for 1–2 years in the sea before slaughter. Mortality may be up to 14% (Salmon and Trout Conservation Scotland, 2017). Feed restriction is common before transport and killing and, if prolonged, is detrimental to welfare.

Slaughter

Commercial UK farmed salmon and trout are slaughtered following either electrical or percussive stunning. This contrasts with wild capture fishery, where stunning is less likely to be used. Farmed fish may be moved in high-speed water flows, which are stressful, and then removed from water for a short period before stunning. Systems of effective underwater stunning are under development.



Wild rainbow trout in a stream (iStock.com/stammphoto)

How far do different systems in use in the UK enable a flourishing life?

More than 95% of UK salmon and trout are produced to the Code of Good Practice for Scottish Finfish Aquaculture standards. Around 67% of salmon are farmed to RSPCA Assured standards (Salmon and Trout Conservation Scotland, 2017) with a very small number of farms producing organic salmon or trout.

Salmon	Code of Good Practice for Scottish Finfish Aquaculture	RSPCA Assured	Organic
Avoidance of artificial single-sex strains, polyploidy or monoclonal colonies	✗	✓	✓
Maximum sea pen stocking density	✗	17kg/m ³	10kg/m ³
Maximum freshwater stocking density	✓	60kg/m ³	25kg/m ³
Limit in length of feed restriction	✗	✓	✓
Humane slaughter methods	✓	✓	✓
Environmental enrichment	✗	✗	✗



Wild Atlantic salmon (iStock.com/slowmotiongli)

The Christian ethical framework we have developed for the flourishing of farmed animals leads to the following evaluation:

- Fish have **poor** opportunities for flourishing when their breeding is manipulated through single-sex strains, polyploidy, and monoclonal colonies; when they are subjected to high stocking densities with consequent higher risks of fin and skin damage, poor water quality, disease, need for medication, and high mortality rates; when they are subjected to long periods of feed restriction; and when there is insufficient environmental variation to allow meaningful choices.
- The RSPCA Assured scheme provides **better** opportunities for flourishing, by prohibiting certain breeding techniques, establishing limits for stocking densities, limiting feed restriction, and requiring humane slaughter methods.
- Organic standards offer the **best available** opportunities for the flourishing of farmed fish, by requiring substantially lower stocking densities than other systems in most cases.
- **Further improvements** to the flourishing of fish beyond current systems would include attention to environmental enrichment. It is striking that not even the best available assurance scheme specifies environmental enrichment that would allow fish a choice of preferred spaces within their environment. It may not be possible to provide adequately for the flourishing of fish in the relatively small volumes of water in current aquaculture systems.

Current UK Farming Practice: Sheep

What does a flourishing life mean for sheep?

A flourishing life for sheep encompasses pleasurable experiences, as well as avoidance of prolonged pain and other harms. Sheep enjoy some of the more common mammalian pleasures, such as those derived through maternal care, play, or eating tasty foods. They also have some specific attributes which influence how they choose to spend their time. For example, as ruminants, wild sheep species spend a large proportion of their time in bouts of eating high fibre grass forage (Michelena et al., 2006; Perez-Barberia et al., 2007; Singh, Bonenfant, Yoccoz, & Cote, 2010) and then resting, often lying, to chew the cud. They live in a range of mainly open or mountainous regions. As a prey species they need to remain vigilant against predation, especially lactating females with lambs (Singh et al., 2010).

In the wild, sheep tend to form small, affiliative and synchronised single-sex social groups, especially when there is a large difference in size between males and females (Perez-Barberia et al., 2007; Singh et al., 2010). These groups only mix during the breeding season.



Scottish Blackface sheep (iStock.com/1111IESPDJ)



Suffolk sheep (Sheryl Watson/Alamy Stock Photo)



Soay sheep are an ancient breed with naturally short tails and annually moulting fleece (Bob Gibbons/Alamy Stock Photo)

What are the key challenges in enabling such a life in the context of farming?

Sheep are thought to have been domesticated around 10,000 years ago from wild mouflon in Mesopotamia (Dwyer, 2009). They were probably brought to Britain around 6,000 years ago by Neolithic settlers (Ryder, 1964).

There are around 33 million sheep and lambs in the UK at peak time, a figure which has remained relatively constant since a sharp

drop following the foot-and-mouth outbreak of 2001, from around 44 million ovines a year during the 1990s (Defra, 2019a). The vast majority of sheep in the UK are used to produce meat, although there are a few dairy sheep enterprises which will not be discussed further here. There are over 1,500 domestic sheep breeds around the world (FAO, 2015). In the UK some breeds, such as the Scottish Blackface, are able to survive and produce lambs in the relatively harsh conditions of upland hills, with little shelter, sparse food availability and often

inclement weather. However, for all their hardiness, these sheep grow slowly and are not considered productive when conditions are more favourable. Lowland sheep breeds such as the Suffolk, on the other hand, produce more lambs and will grow much more rapidly on lush pasture. Whilst there is some interchange of genetic material between these two sheep populations they generally operate distinctively, for example, with respect to annual cycle and environments.



Hefted Herdwick sheep on the hillside (John Bentley/Alamy Stock Photo)

Breeding animals

Breeding ewes are generally kept outside for most, if not all, of the year. The formation of long-lasting affiliative relationships is important to them, as is the inter-generational transfer of knowledge of resources available to them, particularly in harsh times. The practice of hefting, whereby flocks maintain their own territories in open land, dates back many centuries.

During lambing, ewes will usually be brought to nearby fields, or housed, to enable more individual care by the stockperson. Lowland breeds are more likely to require lambing assistance.

Once the ewe–lamb bond is established and both ewe and lamb are healthy, if the weather is suitable, they will usually be let back outside. Lambing naturally occurs in spring but early lambing, even as early as December, may be induced by hormonal implants in the ewes in autumn to bring them into season sooner. Maintaining good body condition, and avoiding foot rot and parasitic infections, are key for the ewes during the summer months.



Lambing shed with sheep waiting to lamb on the left and newly-lambed ewes and lambs kept together in small pens for a couple of days (Wayne Hutchinson/Alamy Stock Photo)



Sheep kneeling to graze are suffering from painful lameness, caused by foot rot, for example (David Barley/Alamy Stock Photo)

Ewes with young lambs (Realimage/Alamy Stock Photo)



CLOCKWISE FROM TOP LEFT: Sheep shearing in Scotland (MediaWorldImages/Alamy Stock Photo); Sheepdog rounding up sheep (Farlap/Alamy Stock Photo); Winter housing for sheep (iStock.com/K Neville); Harsh winter conditions for sheep on the hill (Kay Roxby/Alamy Stock Photo); Two blue-faced Leicester rams mutually grooming (Nigel Cattlin/Alamy Stock Photo)

Most sheep are sheared in early summer to protect them against heat stress and fly strike. All gathering and handling for sheep is disruptive and often stressful, including shearing, worming, foot treatments, and sorting.

The use of dogs to manage sheep prompts a predator-vigilance response, probably increasing stress (Beausoleil, Stafford, & Mellor, 2005).

Usually lambs will be separated from their ewes sometime after 12 weeks when natural weaning is well under way (Arnold, Wallace, & Maller, 1979). Rams will be mixed into the flock during the autumn for natural mating, having usually been maintained in small single-sex pairs or groups for the rest of the year.

Over the winter, ewes may face the challenges of harsh conditions in upland areas or may be housed in a protected but unstimulating housing environment.

Growing lambs/sheep

Lambs are usually reared with their mothers in a relatively extensive system. Lowland lambs, and some upland lambs, are routinely tail-docked, usually using a rubber ring in the first few days of life. This is performed to help prevent fly strike, which affects most flocks, although there are other ways to keep the back end clean to prevent fly strike (FAWC, 2008). Male lambs are often castrated at this time to prevent unwanted breeding and to improve carcass quality. Both tail docking and castration are usually performed using a rubber ring that constricts the blood and causes the tissues to die and eventually drop off. This results in both short-term and potentially some longer-lasting pain (FAWC, 2008).

As the lambs grow they become more playful, climbing, running and jumping, often in large groups when given the opportunity.

Lambs are generally kept with their mothers, gradually eating more forage and potentially some concentrate food for 3–4 months. Faster-growing lambs may be sent directly to slaughter from the mixed flock, while others may be weaned and grown in groups for several months. Sheep are a heavily

traded species, either for slaughter (47%) (FSA, 2019) or for breeding. Measures have been put in place to limit the commodification of sheep (buying, transporting, and selling around the country for profit), but this still takes place, increasing stressful experiences for the animals.

Slaughter

Most sheep (75%) are stunned, usually electrically, before slaughter, including 46% that are both stunned and halal. The proportion of sheep not stunned prior to slaughter, mostly

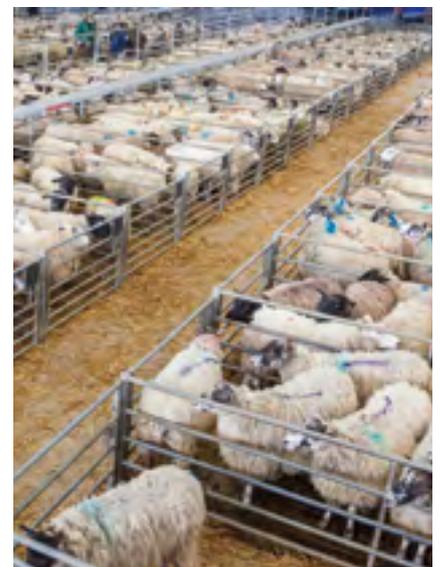
for halal markets at home (19%) and abroad (6%), is the highest of any farmed species (FSA, 2019). The UK exports around 40% of production, 80,000 tonnes, about the same as it imports, mostly from New Zealand, balancing availability throughout the year and desirable carcass cuts (AHDB, 2019b). Around 40% of lamb is sold via supermarkets, 25% in ethnic markets, and 35% through independent outlets, including caterers (NSA, 2016). In England, 59% of cull ewes and 75% of lambs are farm assured (AHDB, 2017), with 3% being organic (Defra, 2019b), and a handful of farms RSPCA Assured.



The rubber rings and withering tails can be seen on these lambs (FLPA/Alamy Stock Photo)



Lambs playing (Ed Brown/Alamy Stock Photo)



Sheep market (Martyn Williams/Alamy Stock Photo)

How far do different systems in use in the UK enable a flourishing life?

Sheep	Red Tractor	Quality Meat Scotland	Farm Assured Welsh Livestock	Northern Ireland Lamb Farm Quality Assurance Scheme	RSPCA Assured	Organic	Pasture for Life
Access to pasture required in grazing season	✗	✗	✗	✗	✓	✓	✓
Tail docking banned	✗	✗	✗	✗	✗	✗	✗
Castration banned	✗	✗	✗	✗	✗	✗	✗
Welfare outcomes monitored	✗	✗	✗	✗	✓	✓	✗
Pre-slaughter stun required	✓	✓	✗	✗	✓	✓	✓
Minimum weaning age 45 days	✗	✗	✗	✗	✗	✓	✓

The Christian ethical framework we have developed for the flourishing of farmed animals leads to the following evaluation:

- Sheep have **poor** opportunities for flourishing when they lack pasture access in grazing season, are subjected to mutilations such as tail docking and castration, are weaned prematurely, are transported over long distances, or are not stunned before slaughter.
- The RSPCA Assured scheme provides **better** opportunities for flourishing, by requiring access to pasture, pre-slaughter stunning, and monitoring of welfare outcomes.
- The Organic and Pasture for Life certifications offer **best available** opportunities for flourishing through their specification of a minimum weaning age of 45 days. Soil Association Organic certification includes inspector monitoring of welfare outcomes.

- **Further improvements** to opportunities for flourishing beyond what these schemes currently offer include finding alternatives to tail docking and castration, extending minimum weaning times to 12 weeks, reducing permitted transport times, and extending the length of life of lambs before slaughter. Some small-scale producers are already implementing many of these changes, and products from animals farmed in these ways may be available locally.

Current UK Farming Practice: Pigs

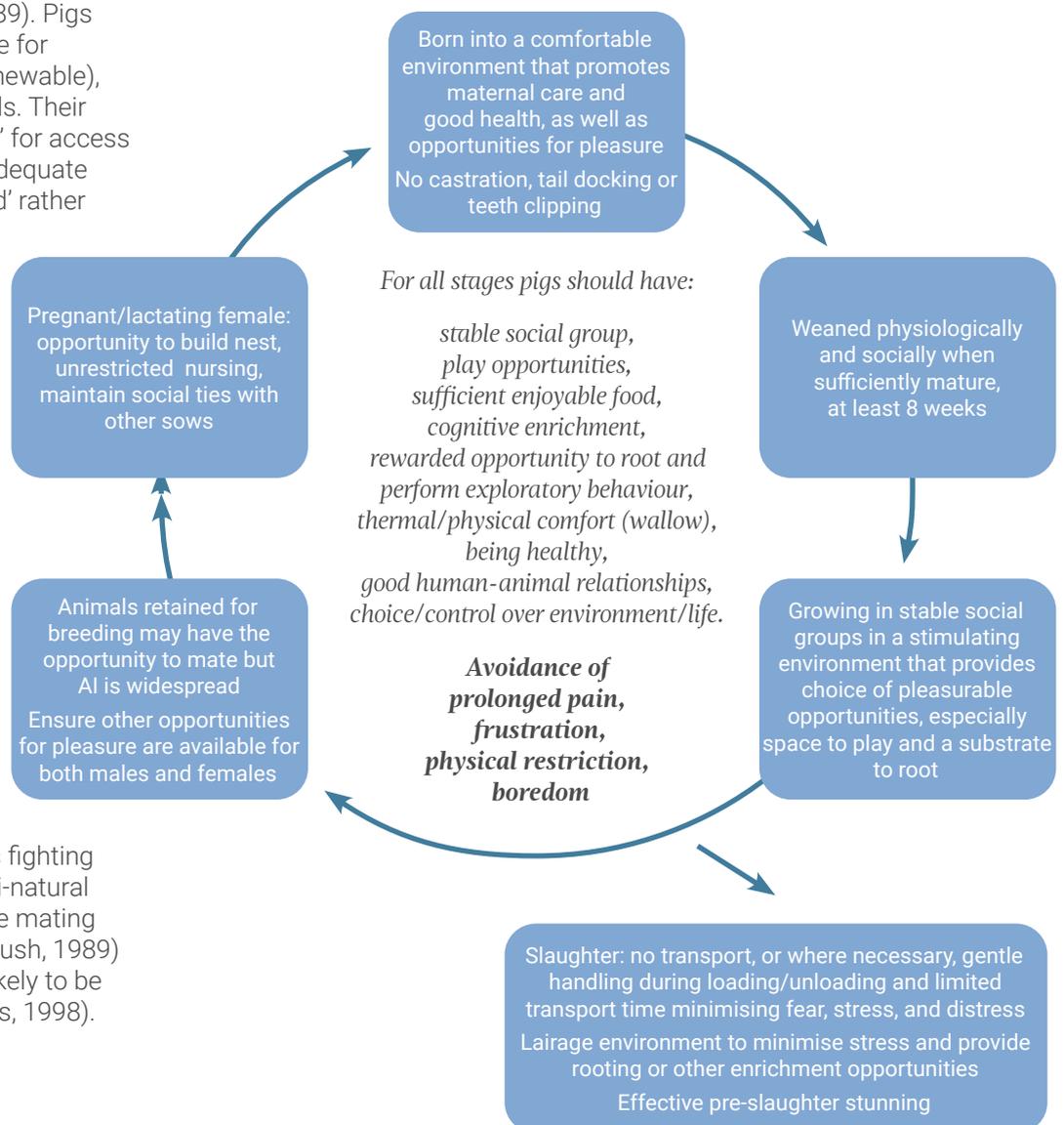
What does a flourishing life mean for pigs?

Pigs enjoy some of the more common mammalian pleasures, such as those derived through maternal care, play, or eating tasty foods. They also have some specific attributes which influence how they choose to spend their time. For example, the domestic pig has an evolutionary need to perform exploratory oral behaviour, even in the absence of food rewards (Beattie & O'Connell, 2002). In semi-wild settings, domestic pigs spend a high proportion of their active time engaged in such behaviour (Stolba & Woodgush, 1989). Pigs show a strong preference for complex, destructible (chewable), novel and edible materials. Their willingness to 'work hard' for access to these suggests that adequate oral exploration is a 'need' rather than a luxury and that alternatives, such as pen fittings, restrict natural behaviour (Studnitz, Jensen, & Pedersen, 2007). Likewise, in the 24 hours prior to birth, sows and served gilts (pigs pregnant for the first time) will naturally build a nest and, in captivity, will work hard to access materials to do so (Vanheukelom, Driessen, & Geers, 2012). Lacking most sweat glands, pigs thermoregulate when too warm by utilising an uncontaminated wallow where possible. Injurious fighting is rare in the wild or semi-natural environments outside the mating season (Stolba & Woodgush, 1989) and social instability is likely to be stressful (Arey & Edwards, 1998).

What are the key challenges in enabling such a life in the context of farming?

Pigs were domesticated approximately 10,000 years ago in the Near East and were subsequently introduced into Europe roughly when the European Wild Boar was domesticated, during the 4th millennium B.C. (Larson et al., 2007). Domesticated pigs lived a relatively wild existence within wooded countryside until land clearances for grazing from the 12th century encouraged the keeping of single or small numbers of 'cottage pigs' fed on kitchen scraps (Watson,

2004). From the 18th century, different breeds of pigs have been developed with different attributes like increased productivity, including larger size and producing two litters of piglets a year (Watson, 2004). By the 1930s, some UK pig farming systems had rapidly intensified, and although outdoor systems were also common until the 1960s, indoor intensive systems became the dominant method of farming pigs (Woods, 2011).





CLOCKWISE FROM TOP: Free range sows (iStock.com/savoilic); Small pen indoor housing for sows (FLPA/Alamy Stock Photo); Pig with nose ring (iStock.com/ MoriaDemby); Sow in wallow (Juniors Bildarchiv GmbH/Alamy Stock Photo)

During this post-war period there was a marked change in pig husbandry towards indoor farming, and modern methods such as artificial insemination developed (Brassley, 2007), leading to rapid production improvements. Following an initial post-war rise in the numbers of pigs farmed, the UK pig industry has declined steadily over recent years. In 1994 just over 7.9 million pigs were recorded in a census of UK pig farms, of which 800,000 were breeding sows. A quarter of a century later the industry has reduced to 4.6 million pigs, including 413,000 breeding sows (Defra, 2019).

Breeding animals

Sows in the UK are either kept indoors (60%), in larger groups in barns or smaller groups in pens, or outdoors (40%) in groups in paddocks with a straw-based shelter. They mostly have access to straw to perform exploratory behaviour. However, many permanent paddocks are very denuded, offering sub-optimal opportunities for foraging. Organic farms tend to manage this by rotating pigs onto new paddocks and using denuded paddocks for arable cropping. In addition, non-organic outdoor sows may be nose-ringed to discourage rooting by making it painful and thereby reducing destruction of the paddock. Wallows will likely be available outdoors.



CLOCKWISE FROM TOP LEFT: Sows confined in highly restrictive farrowing crates. (FLPA / Alamy Stock Photo); Some farmers are keeping groups of sows and piglets together indoors (inga spence/Alamy Stock Photo); Sow and piglets in an outdoor arc in Norfolk (Ernie Janes/Alamy Stock Photo); Pigs kept outdoors in Lincolnshire (jaspix/Alamy Stock Photo); Piglets suckling, north west England (Washington Imaging/Alamy Stock Photo)

Sows play in a range of ways, such as with a branch or other interesting object, although less frequently than younger pigs. Most sows are moved to a different, individual place for farrowing. The farm management system relating to these movements influences the social stress experienced by sows. Maintaining social relationships is important and changing social groups can lead to fighting and stress.

Most indoor-housed breeding sows will be confined in a highly restrictive farrowing crate from about one week prior to farrowing to weaning at around four weeks post-farrowing. Farrowing crates allow only standing and lying for the sow, no possibility to turn around or provide maternal care other than suckling. It is not possible to nest-build. This is highly frustrating for sows.

Outdoor sows are moved to an individual paddock and arc to give birth, where they are free to nest-build in straw and tend to the piglets.

Organic farmers must breed and rear their animals outdoors on grass utilising a rotation system with shelters to protect from weather extremes. Nose-rings are prohibited and social groups are maintained through good farm management.

Piglets and growing pigs

Piglets are frequently tail-docked (71%) (AHDB, 2019a) by a sharp blade without pain relief, to reduce tail biting. They may also have their teeth clipped to prevent injuries to sow teats and other piglets. In the UK castration is not permitted by any farm assurance scheme. However, it is permitted in the EU and most other countries that the UK imports meat from.

Piglets will typically be weaned from the sow at four weeks of age, but organic pigs are weaned later, from 40 days.

Most pigs, even those born outdoors, are reared indoors for most of their lives. The majority of pigs (68%) (AHDB, 2019a) have access to straw or another foraging substrate. The rest have bare solid flooring or slats and a chain to manipulate, often with a wood or plastic object on the end.

Outdoor-reared pigs are weaned into large tents/shelters with outdoor access (but not necessarily pasture) for about half their lives.

Slaughter

Pigs are slaughtered at around six months old. Most are transported to a slaughterhouse where they are stunned before killing. Stunning is either electrical, which is instantaneous if applied well, or by CO2 gas, which is unpleasant and which the pigs attempt to avoid.



FROM TOP:
Slatted pen with automated feeding system (FLPA/Alamy Stock Photo); Tail docking a piglet (agrarfoto.com/Alamy Stock Photo); Poor enrichment in slatted pen (FLPA/Alamy Stock Photo); Free range pigs are outside most of their lives (Keith M Law/Alamy Stock Photo, Holmes Garden Photos/Alamy Stock Photo)

How far do different systems in use in the UK enable a flourishing life?

Around 95% of pigs are covered by an assurance scheme. Many unassured pigs probably experience good welfare, but this is impossible to ascertain without further information. This may be obtainable by visiting the farm or smallholding.

The UK farm assurance schemes covering pigs include Red Tractor/Quality Meat Scotland, with welfare standards just above legislation; RSPCA Assured, with significantly higher standards; and Organic, with the highest standards.



Mark Lord / Alamy Stock Photo

Pigs	Red Tractor	Quality Meat Scotland	RSPCA Assured	Organic
Free farrowing required	✗	✗	✓	✓
Tail docking banned	✗	✗	✗	✓
Castration banned	✓	✓	✓	✓
Manipulable substrate required	✗	✗	✓	✓
Welfare outcomes monitored	✓	✓	✓	✓
Nose-ringing banned	✗	✗	✗	✓
Access to outdoors	✗	✗	✗	✓
Weaning at 40 days or later	✗	✗	✗	✓
Pre-slaughter stun required	✓	✓	✓	✓

The Christian ethical framework we have developed for the flourishing of farmed animals leads to the following evaluation:

- Pigs have **poor** opportunities for flourishing when they are raised in environments they cannot manipulate; when they are subjected to mutilations such as castration, tail docking, and nose-ringing; and when sows are restricted in farrowing crates.
- The RSPCA Assured scheme provides pigs with **better** opportunities for flourishing by requiring free farrowing and a manipulable substrate.

- The Organic certification offers **best available** opportunities for flourishing, because it goes beyond other schemes in prohibiting tail docking and nose-ringing, requiring access to the outdoors, and requiring that weaning takes place at 40 days or later.
- **Further improvements** to opportunities for flourishing beyond what is currently offered would include extending lifespan and providing an even more diverse environment, such as access to wooded areas. Some small-scale producers are already implementing many of these changes and products from animals farmed in these ways may be available locally.

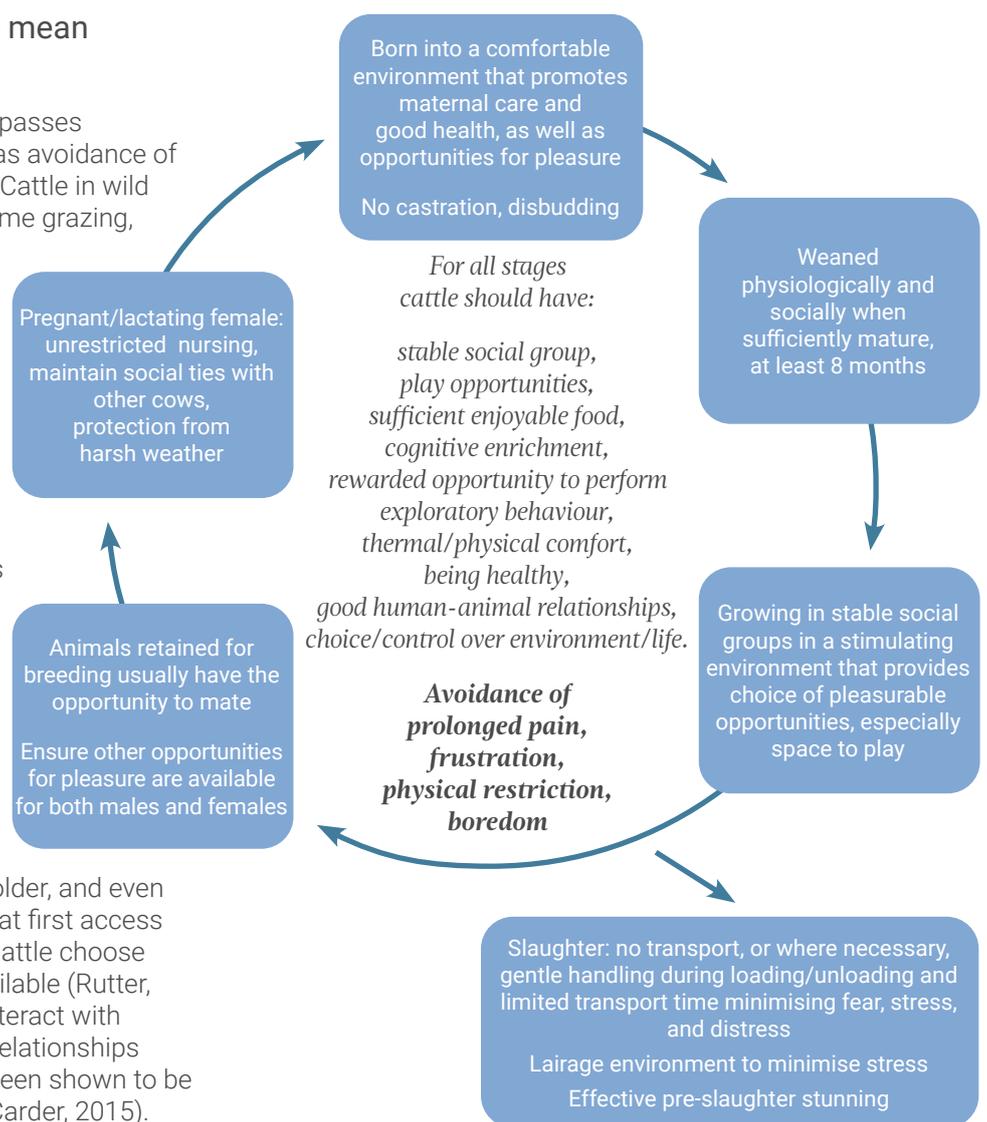
Current UK Farming Practice: Cattle



Cattle feeding in a mixed sward (Simon Bratt/Alamy Stock Photo)

What does a flourishing life mean for cattle?

A flourishing life for cattle encompasses pleasurable experiences, as well as avoidance of prolonged pain and other harms. Cattle in wild settings spend 90–95% of their time grazing, ruminating, and resting (Kilgour, 2012). Given a choice, dairy cows prefer to spend time at pasture, especially at night, but will opt for housing in certain climatic conditions (Charlton, Rutter, East, & Sinclair, 2011; Falk, Weary, Winckler, & von Keyserlingk, 2012). Cattle lead complex social lives, with cows forming long-lasting relationships with daughters and other cows (Reinhardt, Reinhardt, & Reinhardt, 1986). Cattle have been shown to enjoy social interactions (Laister et al., 2011), including between cow and calf (von Keyserlingk & Weary, 2007), but both males and females fight occasionally (Hall, 1989). Calves enjoy playing as they get older, and even adults play occasionally, such as at first access to pasture after winter housing. Cattle choose to eat a range of plants when available (Rutter, 2010). Dairy cattle in particular interact with humans frequently, and positive relationships between people and cows have been shown to be pleasurable for cows (Proctor & Carder, 2015).





The Chillingham Cattle in Northumberland are an ancient closed herd that, over centuries, has seen minimal human interference

IMAGE CREDITS FROM LEFT:
(Nature Picture Library/Alamy StockPhoto)
(AC Images/Alamy Stock Photo)

What are the key challenges in enabling such a life in the context of farming?

Cattle were domesticated around 10,000 years ago from aurochs in the fertile crescent, resulting in the European 'taurine' type of animal, and again from a different type of auroch resulting in zebu type cattle also seen today (Pitt et al., 2019). Domesticated cattle probably came to the UK around 6,000 years ago (Cummings & Morris, 2018), when wild aurochs were also present. At that time, they were used by Neolithic farmers for dairying as well as for meat, having been bred for prolonged lactations and year-round breeding (Gron, Montgomery, & Rowley-Conwy, 2015).

In the UK there are almost 10 million cattle, of which around 1.9 million are adult dairy cows and 1.5 million are adult beef animals, and the remainder are cattle below two years of age (Defra, 2019a). Around 2 million beef cattle are slaughtered each year for meat (National Beef Association, 2016). Dairy cattle and beef cattle breeds are now highly specialized with distinctive body shapes having been bred either to produce milk on a light body frame or for rapid growth of large muscles.

This means that male dairy calves are of little value for meat production,

and some are killed rather than reared for meat. Dairy farmers try to manage this problem by crossing a proportion of their dairy cows with a beef bull; and, as most dairy animals end up in the food chain, around 50% of all beef produced in the UK comes from the dairy sector. The UK is 75% self-sufficient in beef (National Beef Association, 2020). In the UK, slightly more liquid milk is produced than consumed, but only around 60% of the cheese consumed is made from UK milk (AHDB, 2020a; AHDB, 2020b).



Holstein-Friesian dairy cow (Andrew Payne/Alamy Stock Photo)



Limousin bull (Farlap/Alamy Stock Photo)



CLOCKWISE FROM TOP LEFT: Cubicle housing for dairy cows (FLPA/Alamy Stock Photo); Milking parlour (Terry Mathews/Alamy Stock Photo); Straw yard (FLPA/Alamy Stock Photo) BELOW: Cow-calf dairy system (Holger Burmeister/Alamy Stock Photo, Smiling Tree Farm smilingtreefarm.com)



Cattle farmed for milk

In the UK most dairy cattle give birth every year. The calf is removed from the mother within a few hours or days and the cow is milked for around ten months before the cycle repeats. Dairy cows have been genetically selected to produce high volumes of milk and require specialist care to prevent the very common 'production diseases' of lameness, affecting around a quarter of all cows at any time, and mastitis, which averages 35 cases per 100

cows per year (CHAWG, 2018). Most dairy cattle have access to pasture during the summer months but are housed during winter, and approximately 10% are housed all year round (CHAWG, 2018). Hormonal treatments are frequently used in dairy cows, and artificial insemination is very common. Milking is usually twice daily through a manual system, but a minority of farms use a milking robot and cows can choose when to visit.

The majority of dairy housing is in a cubicle system, although cows prefer loose housing in a bedded yard where they can determine lying orientation and proximity to other cows (Fregonesi, von Keyserlingk, & Weary, 2009; Seyfi, 2013). Longevity of dairy cows is poor, with an average age at culling of six years, and the number of lactations being just 3.6 (Hanks & Kossabati, 2017).



Young calves in individual pens (FLPA/Alamy Stock Photo)



Disbudding a calf (FLPA/Alamy Stock Photo)



Calf rearing unit (John Eveson/Alamy Stock Photo)

Once dairy calves are removed from their mother they are usually reared singly, or initially in pairs and then as required by legislation from 8 weeks in larger groups. Around 20% of dairy bull calves are killed shortly after birth, but there are industry strategies aiming to eliminate this practice (CHAWG, 2018). Separation of cows and calves is stressful for both, denies both cows and calves pleasure and health benefits, and removes opportunities for the calf to learn from the mother (von Keyserlingk & Weary 2007; Wagner et al., 2015). However, early separation may be less stressful

than separation once the bond has strengthened (Flower & Weary, 2001), and separation may be part of a disease management strategy within given system constraints. There is growing interest in dairy production that keeps cows and calves together with a range of methods allowing both calves and humans access to milk. Calves may be castrated and/or disbudded in the first week, which are both painful if inadequate or no pain relief is provided. They are fed milk at first, then with forage presented to develop the rumen. Nutritional weaning is usually earlier than the 8–10 months in natural

settings (unpublished data and Reinhardt, Reinhardt et al. 1986). Female calves destined for the dairy herd will usually spend the next couple of years on a dairy farm being trained for the herd, such as in cubicles and the milking parlour. Calves being reared for meat may be bought by a calf rearer, where calves are mixed in large groups, may be at risk of respiratory disease, and may or may not have access to pasture before being slaughtered at around 18+ months or more. There is a tiny amount of veal production in the UK.



Beef suckler cows and calves (David Platt/Alamy Stock

Cattle farmed for beef

Traditional beef production in the UK has centred on a suckler system, in which a beef cow will be naturally mated with a beef bull living with the herd, calve in the springtime, and rear the calf at pasture during the summer. Cows and calves will often be separated at around 5–6 months. Castration is frequently performed, although some entire bulls may be reared successfully. The use of polled breeds reduces the need for disbudding some animals. Winter housing can limit behavioural freedom; conversely, conditions can be poor if cattle are kept outside over winter. Some cattle are very hardy and overwintered on upland hills. Some beef cattle are reared intensively in indoor pens with limited behavioural opportunities.



Winter housing (Chris Robbins/Alamy Stock Photo)

Slaughter

A minority of cattle are sourced via a market (13%), and almost all cattle (99%) are stunned, usually with a captive bolt, before slaughter (FSA, 2019).

How far do different systems in use in the UK enable a flourishing life?

Almost all milk comes from Red Tractor farm assured cows, and about 2.4% of all milk is organic. Around 79% of all beef farms are farm assured (NFU, 2013) with a small proportion being organic. Pasture for Life is a scheme that accredits farms that only feed ruminants grass and other forage.

Cattle farmed for milk	Red Tractor	RSPCA Assured	Organic	Pasture for Life	Free Range Dairy
Access to pasture required in grazing season	✗	✓	✓	✓	✓
Calves not separated from cows	✗	✗	✗	✗	✗
Castration banned	✗	✗	✗	✗	✗
Disbudding banned	✗	✗	✗	✗	✗
Welfare outcomes monitored	✓	✓	✓	✗	✗
Pre-slaughter stun required	✓	✓	✓	✓	✓
Minimum weaning age 12 weeks	✗	✗	✓	✓	✗
Killing male calves prohibited	✗	✗	✗	✓	✓

Cattle farmed for beef	Red Tractor	Quality Meat Scotland	Farm Assured Welsh Livestock	Northern Ireland Beef Farm Quality Assurance Scheme	RSPCA Assured	Organic	Pasture for Life
Access to pasture required in grazing season	✗	✗	✗	✗	✗	✓	✓
Castration banned	✗	✗	✗	✗	✗	✗	✗
Disbudding banned	✗	✗	✗	✗	✗	✗	✗
Welfare outcomes monitored	✗	✗	✗	✗	✓	✓	✗
Pre-slaughter stun required	✓	✓	✗	✗	✓	✓	✓

The Christian ethical framework we have developed based on the flourishing of farmed animals leads to the following evaluation:

- Cattle have **poor** opportunities for flourishing when they lack pasture access during the grazing season, are subjected to mutilations such as castration and disbudding, are weaned prematurely, are transported over long distances, or are not stunned before slaughter.

Cattle farmed for milk

- The RSPCA Assured scheme provides **better** opportunities for flourishing, by requiring access to pasture, monitoring of welfare outcomes, and pre-slaughter stunning.
- The Organic, Pasture for Life, and Free Range Dairy certifications offer **best available** opportunities for flourishing, with each specifying a high forage diet. The Organic and Pasture for Life set a minimum weaning age of 12 weeks; the Free Range Dairy scheme does not set a minimum. The Pasture for Life and Free Range Dairy schemes prohibit the killing of male calves. Soil Association Organic certification includes inspector monitoring of welfare outcomes.
- **Further improvements** to opportunities for flourishing beyond what these schemes currently offer include finding alternatives to castration and disbudding, reintegrating cattle used for beef and dairy, extending the minimum weaning time to eight months, and extending the lifespan of cows. Some small-scale producers are already implementing many of these changes, and products from animals farmed in these ways may be available locally.

Cattle farmed for beef

- The RSPCA Assured scheme provides **better** opportunities for flourishing, by requiring monitoring of welfare outcomes, and pre-slaughter stunning.
- The Organic and Pasture for Life certifications provide **best available** opportunities for flourishing by requiring access to pasture in grazing season. Soil Association Organic certification includes inspector monitoring of welfare outcomes.
- **Further improvements** to opportunities for flourishing beyond what is currently offered in these schemes include finding alternatives to castration and disbudding, and reintegrating cattle used for beef and dairy. Some small-scale producers are already implementing many of these changes, and products from animals farmed in these ways may be available locally.



Social licking (iStock.com/iphotographer)



Calves playing (EyeEm/Alamy Stock Photo)

Part 4: Conclusions and recommendations for policy and practice

Conclusions

Farmed animal welfare is a Christian concern. Christians have strong faith-based reasons to be concerned about the ability of fellow animal creatures to glorify God in their lives as farmed animals. Christians have a particular and weighty responsibility towards the large numbers of animals raised for food, because their lives are entirely in human hands. Many UK farmed animals are currently reared in ways that greatly diminish their opportunities to flourish: selectively bred to enhance their productivity rather than to enhance their well-being, subjected to short lives in monotonous environments that do not allow the expression of species-specific behaviours or maternal care, and mutilated to prevent them injuring each other in sub-optimal conditions. Other farmed animals in Britain are reared in ways that enable them to enjoy more flourishing lives. Christians should attend to the relationship between their faith commitments and how animals are farmed, and rethink their practice in response.

We evaluated systems according to the opportunities they provide for flourishing, with systems graded poor, better, or best available.

Christians should support farming systems that enable farmed animals to flourish. In Part 3 of this framework, we evaluated systems for raising farmed animals according to the opportunities they provide for flourishing, with systems graded **poor, better, or best available**, and we identified further opportunities for improvements. We conclude that production systems that provide **poor** opportunities for farmed animals to enjoy flourishing lives are inadequate. We encourage producers, retailers, and consumers to move towards systems delivering **better** opportunities for flourishing, to seek ways to move beyond that to those identified as **best available**, and to seek **further improvements** beyond these. This transition will require inter-dependent changes, some of which are long-term. In particular, it is clear that farmers cannot implement change without increased consumer demand for higher welfare animal products and without contracts that reward farmers appropriately for delivering higher welfare. Although this framework judges the systems within which farmed animals are raised as fundamentally affecting the flourishing of farmed animals, we recognize that the well-being of animals within each system is significantly determined by the quality of care they receive, which should be an independent focus of concern.

Christians should make and support changes towards consuming fewer but higher welfare animal products.

This approach to farmed animal welfare is often referred to as consuming 'less and better' animal products. Farmed animal welfare is linked to production and consumption levels: the rapid increases in production and consumption of animal products in the past several decades were only possible through the use of intensive production methods that provide poor opportunities for farmed animal flourishing. Farming systems that provide better opportunities for animal flourishing produce fewer animals per unit of input and at greater cost. In addition, replacing intensive systems with extensive ones enabling greater flourishing (especially for chickens and pigs), while maintaining current production levels, would increase greenhouse gas emissions and have other negative environmental impacts. Since farmed animal welfare is important, independent of environmental concerns, it should not be sacrificed for reduced carbon emissions. Reducing overall production and consumption of animal products avoids this trade-off. Reducing consumption also helps make more costly, higher welfare, animal products affordable within institutional or domestic budgets. Shifting to fewer but higher welfare animal products, for which farmers are appropriately remunerated, satisfies sustainability and animal welfare goals while enabling food to be affordable and farmers to make their living. The UK must play its role in the transition towards consuming fewer animal products and obtaining these products from systems we have identified as better or best available. Christian churches and other organizations should take practical steps in this direction.

Christian communities should value and support farmers, stockpersons and farm workers.

Most of the people who farm animals in the UK seek to treat them well. They are currently subject to extraordinary pressures as a result of asymmetric power relations between producers and retailers, the challenge of having to make long-term investment decisions in times of uncertainty, difficulty attracting qualified farm workers, increasingly demanding reporting requirements, disease threats, and public concern about animal welfare. Communities need to value and support the people who provide their food. Churches can play an important role in making and strengthening connections with farming communities, including, for example, helping to create local markets for farm products produced to high animal welfare standards.

Mutilations should be reduced and, where possible, eliminated. Christians should be concerned about the proliferation of farmed animal mutilations reviewed in Part 3, such as beak trimming chickens; tail docking pigs; and castrating pigs, cattle, and sheep. These often cause pain and suffering, and they constrain bodily behaviours essential to flourishing. If mutilations are necessary in order to make particular production systems viable, then consideration should be given to changing the systems.

Some system changes can be implemented quickly, and others will take longer. Where mutilations continue to be practised, adequate pain relief should be used.

Breeding technologies should prioritize animal flourishing over productivity. For several decades, breeding has prioritized production and modified physiological characteristics of farmed animals according to the preferences of producers and consumers, without adequate attention to the flourishing of the farmed animals. The rapid growth rates and short lives of chickens bred for life in broiler sheds produce bodies that cannot thrive. Double-muscled beef breeds suffer increased disease, stress, and birthing problems. New breeding technologies such as genome-editing present new and even more serious welfare threats than selected and marker-assisted selective breeding. All genetic breeding should be interrogated to determine whether the anticipated effects will enable the flourishing animals.

Production systems should support maternal care and life in family groups. Family relationships are important to flourishing. In dairy herds, calves should be allowed to remain with their mothers rather than being removed within a few hours of birth in order to maximize milk production for humans. For pigs, free farrowing systems that allow the piglets to remain with the sow for longer should replace farrowing stalls. Chickens should be hatched from eggs in the nest and reared with a hen rather than artificially incubated away from the hen. These systemic changes will take time to implement. Some farmers are pioneering beneficial changes in some of these areas.

Production systems should allow longer lives for animals killed before maturity. Decreasing lifespan reduces flourishing. Broiler chickens should be able to live longer than the norm of 35–40 days. Beef and dairy production should be reintegrated so that male calves born to dairy cows, and female calves born to cows that are not needed for milking, can be reared for meat rather than killed soon after birth. Similarly, the farming of chickens for meat and eggs should be reintegrated to avoid killing unneeded male chicks from laying hens hours after hatching. Incremental changes are already being implemented by some producers; reintegrating production systems will require longer to realize.

Farmers play a key role in effecting change. Farmers have to make a living within the tight constraints noted above, within the context of a transition towards increased production of more plant-based foods, reduced production and consumption of animal products, and improvements in farmed animal welfare. They are also constrained by the immediate context of their farms: the location, size, ecology, and capital available. Despite these constraints, farmers can play an active role in shaping the future of their industry and helping to effect the transition. Many will be able to contribute to increasing the supply of plant-based foods for human



Dinendra Hariya / Alamy Stock Photo

consumption, where this can be done sustainably and profitably. Farmers and other stakeholders can work together to locate and expand markets in which they are financially rewarded for enabling the greater flourishing of farmed animals.

Consumers of animal products need to be prepared to pay for higher welfare products. Animal products are currently inexpensive for consumers to purchase, because they come from farming systems that prioritize cost above farmed animal flourishing. Progress towards higher farmed animal welfare will make animal products more expensive, but consuming higher welfare animal products need not lead to higher domestic and institutional catering budgets. Food costs can be lowered when reduced consumption of animal products is combined with increased consumption of plant-based alternatives, which generally cost less than animal products. These changes need to be accompanied by a wider social commitment to ensure that everyone has the means to afford food that is healthy, environmentally sustainable, and produced to high animal welfare standards.

UK farmers need fair contracts. Much of the current trading of farmed animal products in the UK is unfair to farmers and their animals. Contracts do not sufficiently reward farmers, and they contain too few incentives to enable flourishing for farmed animals. Consumers, retailers, wholesalers, farmers, investors, and other stakeholders can all play roles in demanding and enabling fair trade in farmed animal products, to reward farmers for improving their animals' opportunities to flourish.

Churches and Christian organizations should engage with public policy. Churches and many other Christian organizations have opportunities to exercise their responsibility to influence the regulations governing farmed animal welfare. Christian engagement with politicians and other policymakers has the potential to affect public attitudes and broad trends in how farmed animals are treated.

Recommendations

Recommendations for churches and Christian organizations

Source animal products from farming systems that promote the flourishing of farmed animals. Churches and Christian organizations should seek to shift to higher-welfare sourcing of farmed animal products. They can do this by identifying strategies to replace animal products sourced from systems delivering **poor** opportunities for farmed animal flourishing (as identified in Part 3) with those identified as **better** or **best available**. They should then try to make progress from **better** to **best available**, promote the **further improvements** the report identifies, and encourage their members and stakeholders to make similar choices in their own consumption. For **better** products, look for those certified as RSPCA Assured. For **best available** products, look for those certified as Organic, Pasture for Life, or Free Range Dairy. Local providers may offer products that exceed these standards.

Promote the consumption of fewer but higher-welfare ('less and better') animal products. For the reasons noted in p52, above, churches and Christian organizations involved in producing, selling, or consuming farmed animals or products derived from them should adopt strategies that further the dual goals of reducing overall consumption of farmed animal products and sourcing remaining animal products from systems identified in Part 3 as **better** or **best available**.

Engage with public policy on farmed animal welfare.

Churches and other Christian organizations should let politicians and other policymakers know that Christians want farmed animals to be given more opportunities to flourish. Christians should publicize their support for regulatory and legal changes to improve farmed animal welfare.

Churches and Christian organizations should seek to shift to **higher-welfare** sourcing of farmed animal products by identifying strategies to replace animal products sourced from systems delivering poor opportunities for farmed animal flourishing

Recommendations for farmers

Help effect a transition towards fewer but higher-welfare animal products. Farmers have an essential role to play in both changing production systems to facilitate farmed animal flourishing and contributing to increased production of plant-based foods. When recognizing this key role and responsibility, it is also important to note that farmers cannot act alone: they need collaboration from the other parties addressed within these recommendations, especially in finding and creating markets providing appropriate rewards for their work.

Recommendations for food retailers, wholesalers, and manufacturers

Help effect a transition towards fewer but higher-welfare animal products. Food retailers, wholesalers, and business operators play a powerful role in setting the terms of the contracts that determine the remuneration that farmers, stockpersons, and other farm workers receive for their work. They control the products available for purchase, and influence consumer demand. They should set strategies to eliminate the sourcing of animal products from systems identified in Part 3 as providing **poor** opportunities for the flourishing of farmed animals. They should seek to promote those products we have identified as **better** and **best available**. In time, they should look for **further improvements**, such as those we have identified as beyond what is currently available.

Value and support farmers. Churches and Christian organizations should value and support farmers in providing the basic human necessity of food in ways that improve the flourishing of humans, farmed animals, wild animals, and our shared environment. Locally, churches and Christian organizations should seek opportunities to make links with local farmers in order to provide local markets for higher welfare animal products and to reduce farmers' social isolation.



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Trade fairly with farmers. Contracts with farmers should provide fair remuneration for their work and should provide financial incentives for farmers to raise animals in ways that allow more opportunities to flourish.

Help consumers choose high welfare animal products. Labelling on animal products should make it easy to identify the welfare standards by which the animals were raised. New technology, such as smartphone apps enabling QR code scanning of products, could make information about these more easily available to consumers, aiding comparison and informed decision-making. Marketing should encourage a transition towards consuming fewer but higher welfare animal products.

Recommendations for Christian investors

Invest in companies enabling the flourishing of farmed animals. Christian investors have the opportunity to influence the practice of the companies they invest in whose operations affect farmed animal welfare. As shareholders in food retailers, wholesalers, manufacturers, the hospitality industry, and companies with agricultural land holdings, investors can promote the development of policy and practice that encourage a transition towards more plant-based foods and farmed animal welfare standards that provide **better** or **best available** opportunities for the flourishing of farmed animals. In particular, investors should seek to exclude from their holdings companies producing or



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retailing animal products from systems that provide poor opportunities for farmed animal flourishing. Investors should also review their holdings in companies that derive profits from supplying products to farmers operating low-welfare systems.

Recommendations for policymakers

Work for legal, regulatory, and trade changes that raise farmed animal welfare standards. Policymakers have multiple opportunities to consider how policy in a wide range of areas can contribute to a transition towards higher farmed animal welfare standards and more plant-based foods. Raising the minimum UK farmed animal welfare standards permitted by law and requiring imported animal products to meet the same standards would improve animal flourishing.

Part 5: Resources and further reading

Supporting resources for this framework

Visit the CEFAP project website (<https://abdn.ac.uk/cefaw>) for additional copies of this framework, a short video and Powerpoint presentation introducing the project, a study guide for use by individuals and groups, and other resources.

Animals in Christian theology and ethics

Introductory works aimed at a lay audience

- Camosy, C. (2013). *For Love of Animals: Christian Ethics, Consistent Action*. Cincinnati, OH: Franciscan Media.
- Hobgood-Oster, L. (2008). *Holy Dogs and Asses: Animals in the Christian Tradition*. Urbana: University of Illinois Press.
- Hobgood-Oster, L. (2010). *The Friends We Keep: Unleashing Christianity's Compassion for Animals*. Waco, TX: Baylor City Press.
- Kowalski, G. A. (2001). *The Bible According to Noah: Theology as if Animals Mattered*. New York: Lantern Books.
- Linzey, A. (1994). *Animal Theology*. London: SCM Press.
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Academic works

- Adam, M. B., Clough, D. L., & Grumett, D. (2020). A Christian Case for Farmed Animal Welfare. *Animals*, 9, 1116.
- Adams, C. J., & Donovan, J. (Eds.). (1995). *Animals and Women: Feminist Theological Explorations*. Durham, NC: Duke University Press.
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- McDaniel, J. B. (1989). *Of God and Pelicans: A Theology of Reverence for Life*. Louisville, KY: Westminster John Knox.

Miller, D. (2012). *Animal Ethics and Theology: The Lens of the Good Samaritan*. London: Routledge.

Miller, P. C. (2019). *In the Eye of the Animal: Zoological Imagination in Ancient Christianity*. Philadelphia: University of Pennsylvania Press.

Webb, S. H. (1998). *On God and Dogs: A Christian Theology of Compassion for Animals*. New York: Oxford University Press.

Webb, S. H. (2001). *Good Eating: The Bible, Diet and the Proper Love of Animals*. Grand Rapids, MI: Brazos Press.

Wennberg, R. N. (2002). *God, Humans, and Animals: An Invitation to Enlarge Our Moral Universe*. Grand Rapids, MI: Wm. B. Eerdmans.

Farmed animal welfare and the welfare of animals killed from the wild

Animal Welfare Committee: reports and opinions on farmed animals available at <https://www.gov.uk/government/collections/awc-advice-to-government>

Broom, D. M. & Fraser, A. F. (2015). *Domestic Animal Behaviour and Welfare*. Wallingford, UK: CABI.

Compassion in World Farming: research reports on farmed animals available at <https://www.ciwf.org.uk/research/>

Grandin, T. (Ed.). (2015). *Improving Animal Welfare: A Practical Approach*. Wallingford, UK: CABI.

Keeling, L. J. & Gonvou, H. W. (Eds.). (2001). *Social Behaviour in Farm Animals*. (3rd ed.). Wallingford, UK: CABI.

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Animal agriculture in the context of environmental and social issues

Adams, C. J. (1990). *The Sexual Politics of Meat: A Feminist-Vegetarian Critical Theory*. Cambridge: Polity Press.

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Springmann, M., et al. (2018). Options for Keeping the Food System Within Environmental Limits. *Nature* 562, 519–25.

Taylor, S. (2017). *Beasts of Burden: Animal and Disability Liberation*. New York: The New Press.

UK farmed animal assurance schemes

- Schemes rated in this framework as offering farmed animals **best available** opportunities for flourishing:
 - Biodynamic Agricultural Association <https://www.biodynamic.org.uk>
 - Free Range Dairy <https://freerangedairy.org>
 - Organic Food Federation <http://www.orgfoodfed.com>
 - Pasture for Life <https://www.pastureforlife.org>
 - Scottish Organic Producers Association <http://www.sopa.org.uk>
 - Soil Association <https://www.soilassociation.org>
- Schemes rated in this framework as offering farmed animals **better** opportunities for flourishing:
 - RSPCA Assured <https://www.rspcaassured.org.uk>
- Other schemes
 - Code of Good Practice for Scottish Finfish Aquaculture <http://thecodeofgoodpractice.co.uk>
 - Farm Assured Welsh Livestock <https://www.fawl.co.uk>
 - Northern Ireland Beef & Lamb Farm Quality Assurance Scheme <https://www.lmcni.com/farm-quality-assurance/>
 - Red Tractor <https://redtractor.org.uk>
 - Quality Meat Scotland <https://www.qmScotland.co.uk>

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Appendix: Research Team and Partner Organizations



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Research Team

- Professor David L. Clough, Department of Theology and Religious Studies, University of Chester (Principal Investigator)
- Dr David Grumett, School of Divinity, University of Edinburgh (Co-Investigator)
- Dr Siobhan Mullan, Bristol Veterinary School, University of Bristol (Co-Investigator)
- Dr Margaret Adam, University of Chester (Postdoctoral Researcher)

Representatives of Partner Organizations

Churches

- Church in Wales: Revd Canon Carol Wardman, Advisor for Church and Society
- Church of England: Revd Dr Mark Betson, National Rural Officer
- Church of Scotland: Dr Murdo Macdonald, Policy Officer, Society, Religion and Technology Project; Mr Adrian Shaw, Climate Change Officer
- Roman Catholic Bishops' Conference of England and Wales: Bishop John Arnold, Bishops' Conference Spokesman on the Environment
- Methodist Church: Revd Elizabeth Clark, National Rural Officer
- United Reformed Church: Revd Elizabeth Clark, National Rural Officer

Other Partner Organizations

- Anglican Society for the Welfare of Animals, Revd Dr Helen Hall, Chair
- Catholic Concern for Animals: Mr Chris Fegan, Chief Executive
- Church Investors Group: Dr James Corah, Secretary
- Compassion in World Farming, Dr Joyce D'Silva, Ambassador Emeritus
- Pasture for Life: Dr John Meadley, Board Member
- Pan-Orthodox Concern for Animals: Dr Christina Nellist, Editor
- Veterinary Christian Fellowship: Mr Mike Christian, Committee Member



Christian Ethics of Farmed Animal Welfare