

BURLEIGH DODDS SERIES IN AGRICULTURAL SCIENCE

What is agricultural ethics and why does it matter?

Paul B. Thompson, Michigan State University, USA



What is agricultural ethics and why does it matter?

Paul B. Thompson, Michigan State University, USA*

- 1 Introduction
- 2 Key concepts: ethics and common morality
- 3 Common morality in agriculture and food systems
- 4 Topics in agricultural ethics
- 5 Methods in agricultural ethics
- 6 Agricultural ethics: why it matters
- 7 Can agricultural ethics be taught?
- 8 Conclusion
- 9 Where to look for further information
- 10 References

1 Introduction

The title of this chapter illustrates the curious grammar of the word *ethics*. Native speakers of English commonly speak of ethics as something that people have or lack. In this sense, ethics are rules of behavior or patterns of conduct. Readers should notice the shift from the plural ‘are’ in the previous sentence to the verb ‘is’ in the title of the chapter. The meaning of the word ‘ethics’ changes from naming a collection of related practices, activities or principles to indicating a singular practice or activity. While this might seem like a trivial observation, it is indicative of a deeper confusion that has dogged the reception of Robert Zimdahl’s important work on agricultural ethics. This explains why there is a need for a chapter called ‘What is agricultural ethics?’

This chapter will work through some meanings of the word ‘ethics’ as it might be applied in the context of agriculture and food systems. Readers will arrive at my answer to the question ‘What is agricultural ethics?’ at the endpoint

* Paul B. Thompson, Professor of Philosophy, of Community Sustainability and of Agricultural Food and Resource Economics and W.K. Kellogg Professor Of Agricultural, Food and Community Ethics, Department of Philosophy, Michigan State University, USA

of this journey, but here is a start: Agricultural ethics is a specific discipline for inquiry into the myriad normative issues that interpenetrate every aspect of agricultural production and food systems. As understood in the specific sense developed here, agricultural ethics matters because some unique features in the institutionalization of agricultural science and education have created gaps in the thought processes that support policy and the innovation process for agricultural technologies. The chapter concludes with some remarks on teaching agricultural ethics.

2 Key concepts: ethics and common morality

The twentieth-century philosopher R. M. Hare (1919-2002) recognized a distinction between what he called *common morality* and philosophical ethics. Common morality, Hare said, is what your grandmother knew to be ethically correct. One does not need a philosopher to explain this. Everyone, Hare wrote, internalizes a set of rules or norms for regulating their own behavior and correlative expectations for the conduct of others. These norms are communicated and socially reinforced through words such as 'good', 'bad', 'right' and 'wrong' and through legal and religious institutions that codify and promote shared practice revolving around concepts of justice, virtue, honesty and loyalty. It is surprisingly difficult to account for the sources of these norms, but we should not doubt their existence or their binding authority over many domains of personal and social conduct. Similarly, the generally small cultural variations in a community's normative expectations should not obscure the core of shared norms in virtually every known human society. That is common morality (Hare, 1981).

Hare was hardly alone among philosophers and social theorists in holding such a view, but his understanding of the relationship between the cultural form of common morality and the activity of moral philosophers is helpful in the present context. As noted, most elements of common morality are stable across different cultural groups. These include norms of truth-telling and prohibitions against stealing, robbery and physical violence against others, except in well-specified contexts. However, there are both differences across cultures and change over time within any given society. As an example, slavery was seen as morally justified for a considerable period in Western history. By the time chattel slavery was the dominant source of labor in the agriculture of the American South, it was viewed as a dubious and regrettable but necessary practice. The perspective shifted finally to the judgment that slavery is morally unacceptable. This transition marks a change in the common morality that was of particular importance for agriculture. Hare argued that philosophical ethics plays a special role in these transformations. It is an activity that assembles and curates intellectual resources for questioning common morality on specific points. A

philosopher or social critic deploys these resources to offer rationally based assessments of how or whether changes in common morality are warranted.

Many contemporary philosophers would accept the notion that there is little point in questioning those aspects of common morality that seem to raise no disagreement, but they would also agree that philosophical ethics can be helpful both in challenging problematic aspects of common morality and in resolving that challenge in a manner that is ethically progressive. Hare used complex reasoning to support his judgment that there is one best way to pursue questions at the philosophical level (a form of utilitarianism). There is continuing debate among philosophers on this matter. Some agree that a well-specified ethical theory should rule over analysis at the philosophical level, whether or not they agree with the specifics of Hare's approach. Others, including myself, think methods in philosophical ethics cannot be specified much beyond a general commitment to the exchange of reasons and a good faith effort to understand and then accept, modify or rebut the views of those with whom you, at first blush, disagree. (A more detailed discussion of methods follows later in the chapter.) In either view, progressive approximation of the morally correct response is possible, and fallibility is a pervasive feature of the human condition.

Other philosophical views create barriers to the critique and evaluation of common morality in agricultural universities and research institutes. The influential economist Glenn L. Johnson (1918–2003) thought many agricultural scientists had adopted a flawed positivist philosophy of science. In this view, normative principles have no place in science, so agricultural scientists simply refuse to discuss ethical norms bearing on their science or the practice of agriculture (Johnson, 1976). The view is flawed because the statement 'normative principles have no place in science' is a normative principle. Scientists cannot follow it without doing what the principle itself says that they should not do (Thompson, 2004). Alternatively, the training of applied scientists (and I would add, especially social scientists) encourages them to adopt a stance of critical disengagement from disagreements about the ethics of farming practice. There may be good reasons for adopting this stance, but the model proposed by Hare shows that an ability to withhold the expression of one's moral commitments in certain instances does not imply that moral inquiry is impossible. Like any inquiry, moral inquiry can be frustrating and end in failure, but one would hope the practice of science would equip practicing scientists to deal with the possibility of this kind of disappointment.

By this point, readers may have guessed where this is all leading. On the one hand, people who work in agriculture and its supporting industries are subject to the expectations of common morality. They can be said to fail ethically when they do not meet these expectations. On the other hand, agricultural ethics is a form of philosophical ethics. It is the deployment of the analytic, argumentative and discursive tools of philosophical ethics to questions arising in agricultural

practices and in the science and policy domains that support the production, processing and distribution of food and fiber. As such, it differs from the ways in which common morality functions to regulate the conduct of farmers, researchers, public officials and others who fill various roles in the food system. Those of us who aim to practice the form of inquiry that constitutes agricultural ethics do not mean to suggest that our work is, in any respect, a replacement for common morality. Much of the time, talk of ethics in agriculture is going to advert back to common morality. No one needs a philosopher to come in and endorse the proscription of lying or theft. However, before considering why agricultural ethics matters, it will prove helpful to provide some examples of how common morality functions in agricultural situations.

3 Common morality in agriculture and food systems

Farmers, ranchers and people who work for input firms or companies that process and distribute agricultural commodities are expected to act in an ethical manner. They are not supposed to lie or steal, and they are supposed to engage in fair, respectful dealing when interacting with others. This is not exceptional; it is what is expected of everyone. However, people being what they are, such expectations are not universally fulfilled. Just as nearly everyone breaks the law by exceeding the speed limit now and then, almost everyone who works in food and agriculture probably commits small ethical failures now and then. Other failures are egregious and have serious consequences. Both types of failure lead people to call for renewed attention to ethics in food and agriculture, but it is doubtful that even egregious failures call for a philosophical form of agricultural ethics.

Violations of the common morality are revealed by journalists covering food and agriculture, by criminal investigators and by social scientists conducting studies of food and fiber production or other aspects of the global food system. For example, in 2014 Richard Marosi, a staff writer for *The Los Angeles Times* reported the abuse of field workers in the Mexican tomato export industry. The abuses included dangerous and unhealthy working and housing conditions, illegal withholding of earned wages and threats of violence (Marosi, 2014). In 2009, just 2 years after they had executed their chief food safety official on charges of corruption, the Chinese government revealed a conspiracy to contaminate supplies of infant formula. Thousands were sickened, and there were at least three deaths (Sharma and Paradkar, 2010). In 2020, a Scottish sheep farmer was convicted of contaminating jars of baby food as what he claimed to be a protest against unfair treatment by the food industry (Davies, 2020).

Listing examples of this sort could continue indefinitely. There are two points to note. First, these cases are not ethically complicated. It is easy to see that unethical conduct occurred. Second, such cases precipitate a call

for renewed attention to ethics. Such calls imply a decline in compliance with the norms of common morality or a measurable increase in the frequency or severity of violations. If true, such trends can have complex underlying causes requiring a multidisciplinary analysis and measured social experimentation with remedial measures. There may or may not be value in having someone regarded as a moral authority make pronouncements about the unethical nature of such conduct, and there may or may not be a reason to introduce training sessions and classwork for practitioners under the heading of ethics. One can imagine research projects and compliance tactics being introduced under the rubric of agricultural ethics. However, the specifically normative or ethical dimension of such phenomena is not in question. We are talking about ethics in the plural as something that people have or lack, not ethics in the singular as a form of normative inquiry.

The upshot is that the people who call for attention to ethics may not be calling for ethics in the philosophical sense Hare and many philosophers understand. A related phenomenon unfolded in bioethics. The term *bioethics* was popularized by Van Rensselaer Potter (1911-2001) in the 1960s. He saw bioethics as a form of interdisciplinary inquiry intended to address normative uncertainties posed by population growth, environmental decline and new reproductive technologies (ten Have, 2012). Following the creation of institutional review boards (IRBs) intended to curtail researchers' abuse of human and animal subjects, Potter's vision was sublimated by researchers who interpreted bioethics as research ethics and understood research ethics solely in terms of the compliance measures introduced by IRBs (Rollin, 2006). This is not to say IRBs were unnecessary or imply they do not address ethical issues. Nevertheless, the singular focus on the enforcement of ethically uncontroversial norms has obscured the role Potter expected a critically reflective inquiry into the normative dimensions of applied biological systems to play.

4 Topics in agricultural ethics

As departments of bioethics became institutionalized in medical schools, hospitals and biomedical research institutes, the term has become implicitly understood as oriented to medicine and public health. In fact, some of the questions Potter associated with bioethics are questions in agricultural ethics. For Potter, the tension between global population growth and resource depletion was central. He was clear in stating that decisions about converting land to agricultural use and intensification of food production require new forms of ethical analysis (Potter, 1971). The thought that global food production should be expanded by any means necessary *can* be supported by ethical principles, but it is also countered by the need to preserve uncultivated areas for the preservation of biodiversity. In addition, principles prioritizing the rights

of smallholding farmers can constrain agricultural reforms intended to intensify production systems. Moral arguments ranking the need to feed human beings above these other concerns were explicitly challenged by population ecologists such as Garrett Hardin, who argued that when the human population exceeded the carrying capacity of the global environment, the cost in lives and misery would exceed that of tempering the impulse to expand agriculture indefinitely (Hardin, 1974).

By the 1980s, the moral imperative to feed the world was being advanced to justify the industrialization of the food system, sanctioning the use of crop protection technologies known to have toxic effects on non-target species and alleged to have human health effects through contamination of groundwater and residues in food. A massive round of farm bankruptcies in the United States raised ethical questions about the social function of household farming and the structure of rural communities. Critical studies of the environmental and social impact of Green Revolution crops in less industrialized economies linked the domestic and international debates over the future of agriculture. However, Robert Zimdahl argued that the scientific staff and leadership in both public and private agricultural research exhibited an uncritical moral confidence in the justifiability of increasing yields, preventing them from even acknowledging, much less actively participating in the intricate ethical debates around these issues (Zimdahl, 2002).

Another class of problems descend from challenges to common morality itself. Peter Singer, a former student of Hare, launched a lifelong project of reexamining the ethical foundations of human relationships with animals with his book *Animal Liberation: A New Ethics for Our Treatment of Animals*. The book was originally published in 1975 and has undergone several editions, along with other updates and modifications to his philosophical position. Singer argued that just as experiences of pain or suffering should be given equal consideration without regard to race or gender, the same should hold with regard to the pain or suffering of all sentient creatures. *Animal Liberation* also included chapters documenting what Singer took to be the unethical treatment of animals in several areas, including livestock production (Singer, 1975). Soon others were arguing for the philosophically more radical idea that all vertebrate animals possess the characteristics historically thought to serve as the basis for moral rights, a view that made vegetarianism mandatory on moral grounds (Regan, 1983).

These attempts to rethink the moral standing of animals continue to provoke turmoil within the common morality, and there is little doubt that animal agriculture has felt the effects of animal liberation and animal rights. In 2004, Bernard Rollin delivered a keynote at the annual meeting of the American Society for Animal Science. Rollin described a cultural change that he characterized as 'a new social ethic' had modified public expectations for the treatment of

livestock. He argued that concentrated animal feeding operations fail to pass even traditional ethical tests for ethical husbandry (Rollin, 2004). Research on livestock welfare in food production accelerated within the agricultural research establishment. As argued by David Fraser, the operationalization of this research requires scientific tools for measuring physiological indicators of welfare and estimating cognitive affect, but these measurements must be supported by ethical judgments about what matters for animal welfare (Fraser, 1999). Fraser is not talking about common morality. Animal welfare science requires disciplined philosophical reflection and exchange of views.

This brief survey of the topics calling for critically reflective agricultural ethics is far from exhaustive. If there was any topic able to shake the moral confidence of the agricultural research establishment, it was the public's reaction to the use of recombinant DNA in the development of new crop varieties. An early controversy over the animal drug recombinant bovine somatotropin sparked a congressionally mandated moratorium in the United States. Although the product was eventually approved for use in the United States, it was rejected in Europe and Canada, and by 2020, many American dairy cooperatives and milk processors had banned its use due to continuing consumer resistance. European rejection of all so-called GMOs was the most dramatic rejection of gene technologies. ('GMO' is an acronym for 'genetically modified organism' that is possibly as misleading as all agricultural plants and animals have been genetically modified.) While psychology and political activism play roles in this phenomenon, the questions such as when hesitancy is appropriate, whether labeling should be mandatory, who controls the technology and its interaction with the hunger, farmer rights and animal welfare issues discussed above all involve philosophical issues that common morality is not equipped to deal with (Thompson, 2020).

5 Methods in agricultural ethics

As the preceding sample of topics testifies, agricultural ethics is an inherently multidisciplinary form of inquiry. Virtually every social science research method can be relevant to assembling and analyzing the relevant empirical data, and many methods from the natural and computational sciences are important, as well. However, by the late 1970s, Johnson was arguing that humanistic methods were also necessary. In criticizing the agricultural sciences as overly positivistic, Johnson was calling out the agricultural disciplines' avoidance of explicitly normative methods, and he meant to include the work of agricultural economists and rural sociologists along with that of agronomists and others who applied biophysical methods (Johnson, 1976). His point can be appreciated as a feature of the root questions researchers in these fields typically ask. As a scholarly discipline, ethics is an organized inquiry in pursuit of questions like 'How should

I (or we) act?’ or ‘What is the right thing to do, given these circumstances?’ The theoretical dimension in ethics hones in the meaning or criteria for *should* or *right*, while in other scientific disciplines, the assumed criteria for *should* and *right* are exempted from further questioning so that more effective means can be identified. The notion that this is how agricultural scientists *should* proceed is what Johnson meant by positivism.

The list of humanistic methods for this ‘honing in’ is too long to summarize in a book chapter, but two very general themes can be identified. First, much of the expertise in philosophical ethics (and also law) comes from mastering terminology that functions to classify and categorize normative concepts and patterns of reasoning. For example, philosophical training in ethics allows the practitioner to partition most normative evaluations into one of three categories: deontology, consequentialist (or utilitarian) and aretaic (or virtue-oriented). Deontological ethics treats rules and duties as the stopping point for an ethical inquiry and often takes some notion of rights (or justified claims on the activity of others) as their fundamental subject matter. Consequentialist theories assign value to the outcome precipitated by an action or policy and derive normativity by applying a decision rule to a comparative evaluation of likely outcomes from each of the options available to a decision maker. Utilitarianism is the most common form of consequentialist theory, urging decisions that require considering the change in welfare for all affected parties and selecting the option that maximizes welfare satisfaction. Aretaic ethics (or virtue theory) takes character or excellence to be the heart of ethical inquiry and understands normative ideas in terms of relationships that promote social virtues such as trust, confidence, citizenship and mutual affection.

This brief characterization of the three forms does not, of course, equip the reader with the ability to apply them in an ethical analysis. Expertise in ethics arises from extensive familiarization with cases, variations and nuances within each major type, much as training in law requires both facility with legal terminology and mastery of the way that judges have applied these concepts in specific cases. As discussed briefly above, some philosophers take the view that one of these major types of ethical thinking is the correct one. They may then argue that apparent applications of the other two can be reduced to some interpretation of their favored type. Others see each type as having different strengths and weaknesses and view selecting one approach, rather than another, or developing some combination of types to be a process of judgment applied in specific cases. All philosophers are sensitive to the way that positions derived from one type can create stereotypical patterns of contradiction with other types. The tension between utilitarian arguments for increasing agricultural yields at all costs and the rights of smallholding farmers is an example of such a pattern (see Kenmore et al., 2004).

The second theme concerns the method for moving from the mastery of concepts and interpretive schemes to a judgment of what is ethically right in a particular case. At the most rudimentary level, ethicists and jurists both apply analogies to compare cases on the presumption that like cases should be treated similarly. Methods for bringing the judgment of multiple minds to bear on this process include structured and semi-structured debate, where antagonists challenge one another's analysis. In law, this is done before a judge or jury, while in philosophy it is the public (including posterity) that functions as the jury. It is a lengthy, uncertain and fallible process that can take decades or more to play out, but the fact that human slavery has no defenders in the present age demonstrates that it can be decisive. More rapid, if also more tentative, results are achieved by treating the scholarly community as the jury or by combining ethical debate with participatory methods that utilize panels recruited for the express purpose of rendering a judgment (see Thompson, 2014).

Thomas Beauchamp and James Childress developed a bioethics guidance framework for ethical reflection called *principlism*. A principlist review might convene physicians, technical specialists and representatives from patient groups with bioethicists to conduct a structured conversation on a particular treatment or technical procedure. The group works systematically through four principles, discussing how the treatment or procedure could raise ethical issues with respect to each. The four principles are as follows:

- 1 *Benevolence*: The benefits or goods that affected parties will enjoy as a result of the technology's implementation or use.
- 2 *Non-maleficence*: A principle derived from the medical principle 'do no harm'. Adverse impacts, compromises to welfare and harm experienced by affected parties as a result of the technology's implementation or use.
- 3 *Autonomy/dignity*: The ways in which an affected party's freedom or fate are limited or compromised by the use (or even existence) of the technology. The ways in which the technology might result in a failure to respect these beings or persons for who and what they are.
- 4 *Justice*: The ways in which the use of the technology or its aftermath might be considered unfair. Ethically significant discrepancies in the distribution of benefits and burdens (Beauchamp and Childress, 2019).

Professor Ben Mepham, an agricultural scientist at the University of Nottingham, modified the principlist framework so that it would be more relevant to agricultural ethics. Mepham treated the four principles listed above as column headers and then added a list of rows headed participants, third parties, non-humans and the environment, creating a four-by-four matrix. Participants in an ethical review work through all 16 cells discussing how the four principles of

benevolence, non-maleficence, autonomy and justice apply to each type of affected party (Mepham, 2008). Mepham's ethical matrix is intended to function as a heuristic or rubric for collaborative reflection and discussion, as reflected in Beauchamp and Childress's use of principlism in medical rounds or IRB. The rubric is non-directive with respect to the outcome of decision-making; it merely guides collective review by highlighting areas that might be overlooked in a conventional marketing or cost-benefit analysis or omitted in a biological or engineering risk assessment. The ethical matrix has been used widely in Europe to evaluate both large-scale and small-scale innovation projects, many with applications in agriculture (see Mepham, 2000; Kaiser et al., 2007; Cotton, 2009; Webster et al., 2010; Jensen et al., 2017).

6 Agricultural ethics: why it matters

There are two general reasons why agricultural scientists and the educational and research institutions in which they work should engage in the critical, philosophically reflective activities of agricultural ethics. The first is that the outcome of debates affects the fate of their work, as well as the practice of agriculture itself. Scientists who expect their findings and innovations to be utilized can find themselves disappointed when other parties create ethically based barriers to the uptake of their research. The second is agricultural scientists should strive to do what is ethical. In cases where common morality does not provide guidance or where key tenets of common morality are being challenged, critically reflective agricultural ethics is agricultural scientist's best hope for doing the right thing. This section discusses each reason why agricultural ethics matters.

The lack of widespread public support for gene technology demonstrates what happens when scientists and research organizations fail to be full participants in the process of ethical inquiry. The controversy over genetically engineered crops and livestock species cannot be reduced to a single cause, but ethical objections to the use of rDNA gene transfer on food plants and animals were in print well before the earliest widespread plantings of herbicide-tolerant and *Bacillus thuringiensis* crops appeared in the late 1990s. A more robust ethics research capacity within agricultural universities and experiment stations would have at least prepared the science community to anticipate controversy (Thompson, 2020). More potentially contentious technologies are poised for application during the second quarter of the twenty-first century. A more thorough and better-institutionalized capacity for ethics can help leaders anticipate social challenges and potential pitfalls that these technologies might face as artificial intelligence and robotic technologies are introduced into agricultural production systems (Sparrow and Howard, 2021).

The first set of reasons appeals to scientists' hopes for getting uptake from their work. In that respect, they function as a specific type of self-interest. To the extent that agricultural scientists genuinely believe that their work will serve the interests of humanity, these tactical or instrumental reasons for ethical inquiry become part of the effort to persuade others. Here, the work of ethics conjoins with the expertise of communication specialists. However, the development of a communication strategy bleeds seamlessly into the second set of reasons why ethics matters. One must ask questions like, is a factually false or insincere communications strategy offset by the benefits of a technology's eventual success? For example, Jeffery Burkhardt has argued that agricultural scientists often overstate the evidence for future benefits in order to gain public support for a particular line of research. A thoroughgoing utilitarian might conclude that stretching the truth is justified by the benefits of convincing others to support the position that leads to the best outcome. However, as Burkhardt notes, neither philosophers nor the public has understood the duty to speak truthfully in such terms (Burkhardt, 2001). One can argue that science has such a strong alliance with norms of truth-telling that deliberate perpetuation of falsehoods or oversimplifications is forbidden by the deontological (i.e. rule-based) norms that govern the very process of science. With this thought, the explanation of why ethics matters shifts from the role of persuasion into the second category of reasons: supporting scientists' responsibility to act ethically *tout court*.

In considering what it means for scientists to act ethically, it is helpful to recall Hare's distinction between common morality and the deliberative thinking associated with philosophical ethics. Common morality applies to everyone. It dictates norms of honesty and non-maleficence that fall on scientists just as they fall on everyone. It provides the rationale for condemnation of egregious instances of scientific fraud (Kennedy, 2006). However, there are aspects of the scientific enterprise that test the applicability and justifiability of these norms, leading to the need for more sophisticated tools of philosophical analysis. The most dramatic examples have been outside the agricultural sciences. Nazi doctors conducted painful experiments resulting in death, disfigurement and mental torment of prisoners in concentration camps. In the United States, a study designed to track the long-term development of syphilis in a group of black men was allowed to continue even after penicillin was known to cure the disease. In both cases, scientists believed that the long-term collective benefit to humankind outweighed the costs to individuals who were victimized by these studies (Berger, 1990; Brandt, 1978).

The Nazi experiments and the Tuskegee study are now regarded as paradigm examples of unethical research. There is thus a sense in which the norms requiring informed consent from research subjects have been absorbed into common morality. This was not clear at the time the offending science was done, not so long ago. The claim that benefits would outweigh harm was

plausible and supported by a particular understanding of utilitarian ethics. The utilitarian argument was eventually overturned by the deontological principle requiring informed consent. These cases from the history of biomedical research exemplify the sense in which unreflective adherence to a single ethical principle can lead scientists into practices that, over time, are considered to be deeply unethical. Beauchamp and Childress's principlism was intended as a rubric that would help scientists avoid such errors, though, as discussed earlier, the creation of IRB oversight may have undercut the reflective dimension of ethical review, converting the process into a bureaucratic exercise in checking tick boxes (Rollin, 2006). The point to stress is that reflective and open-minded review (e.g. the process of doing ethics) can and should be instrumental in making the process of scientific research ethical.

In fact, though, there is more. Scientists stand in a fiduciary relationship with members of the public that extends their responsibilities beyond that of common morality. This means that scientists have a responsibility to use their expertise in a way that is consistent with the interests of their clients, the public at large. In their study on the social responsibilities of gene drive research, Pamela Sankar and Margaret Cho review successive editions of the US National Research Council publication *On Being a Scientist*, as well as documents on scientific responsibilities from the US National Institutes of Health and various Presidential bioethics commissions. Although these sources state a responsibility to serve the public, Sankar and Cho find their statements on social responsibility to be vague. In some cases, they suggest that scientists have fulfilled their responsibilities simply by policing fraud and observing IRB requirements, then doing 'good science' – a notion defined in terms of rigor, rather than moral responsibility. However, they note that gene drive researchers have gone further, forswearing activities that, though profitable for researchers and their funders, could involve applications that are not consistent with the public interest (Sankar and Cho, 2015). This is the essence of fiduciary responsibility, a term used in the financial industry to distinguish financial advisers that serve client interests from those who adopt a 'buyer beware' attitude toward investment products on offer.

In other contexts, I have questioned whether scientists *do* adhere to the ethics of fiduciary responsibility. It is not clear, for example, that scientists working in the private sector put the public interest ahead of opportunities for financially lucrative research (Thompson, 2018). Although there may be circumstances in which research tools are legitimately deployed in pursuit of self-regarding ends, on my reading, *On Being a Scientist* describes the role of the scientist qua scientist as implying an overriding concern for the public welfare that would not be associated with a typical for-profit venture. The third edition includes sections on how scientists should approach the potential for conflicts of commitment, as well as more conventional conflicts of interest,

and encouraging scientists to subject their ideas to procedures of collective assessment (NRC, 2009). The fiduciary responsibility in agricultural science is arguably stronger still, as practitioners in universities often cite 'the land grant mission' of conducting research that is in the public interest. Attention to ethics in the sense of a deliberate and critically aware process of reflective evaluation is central to the land grant mission (Zimdahl, 2003).

7 Can agricultural ethics be taught?

Whether or not agricultural ethics is teachable depends on what one means by agricultural ethics and what one means by teaching. In this section teaching will be understood as a formalized activity conducted in venues such as classes, workshops and short courses. It is distinguished from mentoring, advising and the overly broad 'teaching by example'. I take it as obvious that ethics of all kinds are indeed taught by example, but since one seldom knows when one is serving as an example, this form of schooling is not amenable to discrete, planned activities designed specifically to bring about a well-defined end. We commonly speak of our entire life's experience as contributing to our education, and in this sense, it is obvious that ethics is something that we learn. This does not exclude the possibility that some people learn it better than others. However, to the extent that ethics becomes a learning objective to be addressed by definite pedagogical techniques, it is less clear that agricultural ethics is teachable.

In these closing remarks, I rely on some 40 years of experience in classroom instruction, as well as individual instruction, to offer some generalizations. The background to this is, again, Hare's distinction between common morality and philosophically reflective ethics, which includes agricultural ethics. Although common morality is definitely learned, it is not really taught. Common morality is an accumulation of habit and socialization into categories for mutual engagement with other people and the world at large. Any attempt to shift from these largely unconscious processes of acculturation toward a didactic presentation of content is either propaganda or already a step in the philosophical direction. The primary result of classes intended to teach principles of common morality is to reinforce the notion that somebody in a position of authority over the curriculum thinks it is important. This is not insignificant, but it is nonetheless unlikely to result in an edificatory intellectual process.

Agricultural ethics, on the other hand, can be taught, but only if ethics is understood as an activity, as something that people do, rather than as the codified result of such a process, like a set of rules or an algorithmic decision procedure. Robert Zimdahl's career-crowning book, *Agricultural Ethics - An Invitation* covers a much more exhaustive set of topics than have been reviewed in this chapter. It was intended as a book that might be used in an advanced

undergraduate or even graduate ethics class for the agricultural sciences (Zimdahl, 2020). Yet even if Zimdahl's book is teachable, I cannot imagine teaching from it in the manner that the bulk of the content for agricultural science education is taught. In my experience, the best-structured learning occurs when students are presented with contrasting views on a topic and encouraged to analyze each view, laying out the strong and weak points in each position. On the one hand, a summary of competing arguments is itself an analysis of a controversy and does not substitute for a student's reading and original analysis of primary materials. On the other hand, such summaries can be enormously helpful to people who are trying to make sense of a disagreement. However, such people are not really students; they are already participants in an ongoing ethical debate.

This observation points toward an underappreciated aspect of ethical pedagogy. The *timing* of ethics education is crucial. The educational psychologist Lawrence Kohlberg (1927-1987) argued that children apply different approaches to moral thinking at different stages in their intellectual development. They proceed from simply avoiding punishment through forms of conventionalism before reaching the ability to weigh the costs and benefits in their late teens and early 20s. Kohlberg thought that most people would not reach the most advanced stage, a form of self-regulating deontology in which people understand the right action in terms of universalizable duties until approximately their mid-20s (1981). The details of Kohlberg's theory are contested, especially in light of empirical research showing that women appear to take a rather different path, but my point is simply to note that even if he is only vaguely correct, people are not in a position to undertake sophisticated moral reasoning during the years that they are generally undergoing classroom education. Agricultural ethics is more likely to have an impact when it is conducted as an integral component of the research process, as opposed to something relegated to the curriculum.

The theme that runs throughout this chapter is for readers to be mindful of the difference between the agricultural ethics that is something we can expect everyone to have and something that functions as an activity, as something that people - especially agricultural scientists - do. I have characterized the former as a common morality, a set of norms and standards for practice that people (should) internalize through social interactions with others. There are times when this process goes astray, and there are sociopaths for whom it fails altogether. It is reasonable to think that a program or center on agricultural ethics would take up some of the social psychology and communications research needed to address such problems, but that is not how agricultural ethics has been defined for the purposes of this chapter. Agricultural ethics is a specific form of reflective, deliberative multidisciplinary inquiry that combines elements from each

discipline in the agricultural sciences (including agricultural economics and rural sociology) with humanistic methods from history, law, literature and, of course, philosophy. It will be most effective when focused on specific, controversial issues. It can help researchers and policymakers avoid gross pitfalls and misunderstandings in the pursuit of their activities, but more importantly, it can help them get things right at the start.

8 Conclusion

When one hears complaints about the lack of ethics among farmers, food industry firms or other actors in the food system, it is usually an individual or incorporated group's failure to abide by the terms of common morality. Sometimes these are moral failures on the part of the actors in question. Someone or some institutionally organized person has failed to abide by commonly accepted norms. They have allowed laxity or some personal interest to override commonly accepted norms of honesty and non-maleficence. I have argued that while philosophers can help us recognize the *nature* of these failures (that is what I have been doing in this chapter), calling in a philosopher is probably not the most effective way to correct such problems. However, there are also failures that arise because individuals face conflicting social expectations, and where changes in infrastructure, technology or policy make it difficult to fulfill expectations without making unreasonable personal sacrifices. There are also cases where expectations themselves are changing, and that change can also affect what we take a failure to be. It is in these more complex examples of moral failure that philosophical ethics can help.

The potential for confusion over this difference between failures in common morality and challenges that call for a structured, critical reflection creates a barrier to the institutionalization of ethics within agriculture. People who are focused on common morality are right to be skeptical about the benefits of research or teaching in agricultural ethics. This barrier is further reinforced by disciplinary norms within the agricultural sciences, including economics, sociology and other social sciences. Of course, there are also actors in the food system who have disreputable reasons to avoid scrutiny. These factors discourage the type of inquiry that Robert Zimdahl has urged upon his colleagues in the biologically oriented agricultural sciences.

Yet, agriculture has seen two centuries of dramatic transformation in its technical base. While contemporary production systems produce high yields, they are manifestly plagued by environmental problems, problems that will only be amplified in the era of rapid climate change. What is more, longstanding injustices in agricultural labor have not been resolved, while the rate of diet-based disease climbs. At the dawn of the twenty-first century, unprecedented amounts of venture capital are being invested in

the agricultural sector. Innovators seek to marry machine learning, sensing technology and big data to the chemical, genetic and mechanical technologies that dominated the nineteenth and twentieth centuries. Posterity deserves a reflective questioning that evaluates the potential – positive *and* negative – implicit within these unprecedented changes. That is what agricultural ethics is, and why it matters.

9 Where to look for further information

Several of the sources cited in the reference section provide more detailed or alternative approaches to the definition and application of agriculture. Readers should consult Mephram, 2008 and Beauchamp and Childress, 2019 as general introductions to general methods in bioethics. Johnson, 1976 and Rollin, 2006 discuss challenges for conducting ethical inquiries in the context of scientific research. Robert Zimdahl's two books (2002 and 2020) provide a more extended introduction with discussion of specific examples and case studies of relevance to agricultural research and the practice of farmers and ranchers. There are dozens of introductory overviews covering basic concepts in philosophical ethics. Many scientists have found *The Elements of Moral Philosophy* by an American philosopher, James Rachels (1941–2003) to be especially useful. The book continues to be released in new editions with contributions from Rachels' son Stuart.

Peer-reviewed journals such as *The Journal of Agricultural and Environmental Ethics* and *Agriculture and Human Values* are the primary home for topical studies in agricultural ethics. Both are indexed in AGRICOLA, the U.S. National Agricultural Library's electronic search tool. In general, work on specific topics in agriculture can be carried out with an electronic search of scholarly journals by conjoining the word *ethics* to the topic of interest (e.g. search on 'agricultural biotechnology' and 'ethics'). However, some science-oriented indexes, such as PubMed, do not index peer-reviewed journals in the humanities and some social science fields, and many important studies in agricultural ethics continue to be published in monographs. A less accurate but more inclusive tool such as Scholar Google may produce more satisfactory results. In addition, Springer publishing's *Encyclopedia of Food and Agricultural Ethics* is a continuously updated electronic resource.

The primary professional organization for agricultural ethics is the European Society for Agriculture and Food Ethics (<https://www.eursafe.org/>), along with the subsidiary Asia-Pacific Society for Agriculture and Food Ethics (<https://www.apsafe.online/>). The North American scholarly community is more diffuse, but many agricultural ethicists participate in the Agriculture, Food and Human Values Society (<https://afhvs.wildapricot.org/>).

10 References

- Beauchamp, T. L. and Childress, J. F. (2019). *The Principles of Biomedical Ethics* (8th edn.). New York: Oxford University Press.
- Berger, R. L. (1990). Nazi science—The Dachau hypothermia experiments. *New England Journal of Medicine* 322(20): 1435-1440.
- Brandt, A. M. (1978). Racism and research: The case of the Tuskegee Syphilis study. *Hastings Center Report* 8(6): 21-29.
- Burkhardt, J. (2001). Agricultural biotechnology and the future benefits argument. *Journal of Agricultural and Environmental Ethics* 14(2): 135-145.
- Cotton, M. (2009). Evaluating the ethical matrix as a radioactive waste management deliberative decision-support tool. *Environmental Values* 18(2): 153-176.
- Davies, C. (2020). Tesco blackmail trial: Farmer convicted of spiking baby food. *The Guardian*. Accessed August 20. Accessed October 31, 2021. Available at: <https://www.theguardian.com/business/2020/aug/20/tesco-blackmail-trial-farmer-nigel-wright-convicted-spiking-baby-food-blackmail-plot>.
- Fraser, D. (1999). Animal ethics and animal welfare science: Bridging the two cultures. *Applied Animal Behaviour Science* 65(3): 171-189.
- Hardin, G. (1974). Lifeboat ethics: The case against helping the poor. *Psychology Today Magazine* 8: 38-43, 123-126.
- Hare, R. M. (1981). *Moral Thinking: Its Levels, Method, and Point*. New York: Oxford University Press.
- Jensen, K. K., Michalopoulos, T., Meijboom, F. L. B. and Gjerris, M. (2017). Perceptions of ethical challenges within the low input breeds project. *Food Ethics* 1(2): 109-125.
- Johnson, G. L. (1976). Philosophic foundations: Problems, knowledge, solutions. *European Review of Agricultural Economics* 3(2-3): 207-234.
- Kaiser, M., Millar, K., Thorstensen, E. and Tomkins, S. (2007). Developing the ethical matrix as a decision support framework: GM fish as a case study. *Journal of Agricultural and Environmental Ethics* 20(1): 65-80.
- Kenmore, P. E., Stannard, C. and Thompson, P. B. (2004). *The Ethics of Sustainable Agricultural Intensification*. Rome: Food and Agricultural Organization.
- Kennedy, D. (2006). Responding to fraud. *Science* 314(5804): 1353.
- Kohlberg, L. (1981). *The Philosophy of Moral Development: Moral Stages and the Idea of Justice*. New York: Harper & Row.
- Marosi, R. (2014). Hardship on Mexico's farms, a bounty for U.S. tables. *The Los Angeles Times*. Accessed January 1, 2022. Available at: <https://graphics.latimes.com/product-of-mexico-camps/>.
- Mepham, B. (2000). A framework for the ethical analysis of novel foods: the ethical matrix. *Journal of Agricultural and Environmental Ethics* 12(2): 165-176.
- Mepham, B. (2008). *Bioethics: an Introduction for the Biosciences* (2nd edn.). New York: Oxford University Press.
- NRC (National Research Council). (2009). *On Being a Scientist: A Guide to Responsible Conduct in Research*. Washington, DC: National Academies Press.
- Potter, V. R. (1971). *Bioethics: Bridge to the Future*. Englewood Cliffs, NJ: Prentice-Hall.
- Regan, T. (1983). *The Case for Animal Rights*. Berkeley, CA: University of California Press.
- Rollin, B. E. (2004). Annual meeting keynote address: Animal agriculture and emerging social ethics for animals. *Journal of Animal Science* 82(3): 955-964.
- Rollin, B. E. (2006). *Science and Ethics*. New York: Cambridge University Press.

- Sankar, P. L. and Cho, M. K. (2015). Engineering values into genetic engineering: a proposed analytic framework for scientific social responsibility. *The American Journal of Bioethics* 15(12): 18-24.
- Sharma, K. and Paradkar, M. (2010). The melamine adulteration scandal. *Food Security* 2(1): 97-107.
- Singer, P. (1975). Animal liberation: A ethic for our treatment of animals. In: *New York Review*. New York: Random House.
- Sparrow, R. and Howard, M. (2021). Robots in agriculture: Prospects, impacts, ethics and policy. *Precision Agriculture* 22(3): 818-833.
- ten Have, H. A. (2012). Potter's notion of bioethics. *Kennedy Institute of Ethics Journal* 22(1): 59-82.
- Thompson, P. B. (2004). The legacy of positivism and the role of ethics in the agricultural sciences. In: Scanes, C. G. and Miranowski, J. A. (Eds.), *Perspectives in World Food and Agriculture 2004*. Ames, IA: Iowa State University Press, pp. 335-351.
- Thompson, P. B. (2014). Agricultural ethics. In: Thompson, P. B. and Kaplan, D. M. (Eds.), *Encyclopedia of Food and Agricultural Ethics*. New York: Springer Reference, pp. 54-61.
- Thompson, P. B. (2018). The role of ethics in gene drive research and governance. *Journal of Responsible Innovation* 5(Suppl 1): S159-S179.
- Thompson, P. B. (2020). *Food and Agricultural Biotechnology in Ethical Perspective* (3rd edn.). New York: Springer.
- Webster, J., Bollen, P., Grimm, H., Jennings, M. and Steering Group of the RETHINK Project. (2010). Ethical implications of using the minipig in regulatory toxicology studies. *Journal of Pharmacological and Toxicological Methods* 62(3): 160-166.
- Zimdahl, R. L. (2002). Moral confidence in agriculture. *American Journal of Alternative Agriculture* 17: 44-53.
- Zimdahl, R. L. (2003). The mission of land grant colleges of agriculture. *American Journal of Alternative Agriculture* 18(2): 103-115.
- Zimdahl, R. L. (2020). *Agricultural Ethics: An Invitation*. New York: Springer.