

Sustainability of What? Recognising the Diverse Values that Sustainable Agriculture Works to Sustain

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ABSTRACT

The contours of sustainable systems are defined according to communities' goals and values. As researchers shift from sustainability-in-the-abstract to sustainability-as-a-concrete-research-challenge, democratic deliberation is essential for ensuring that communities determine what systems ought to be sustained. Discourse analysis of dialogue with Michigan direct marketing farmers suggests eight sustainability values – economic efficiency, community connectedness, stewardship, justice, ecologism, self-reliance, preservationism and health – which informed the practices of these farmers. Whereas common heuristics of sustainability suggest values can be pursued harmoniously, we discuss how this typology reflects the more intricate project of balancing values in tension with one another.

KEYWORDS

Sustainability, agricultural ethics, environmental ethics, sustainability values

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I. INTRODUCTION

Sustainability is an essentially contested concept. Since the rise of sustainability discourse in policy documents such as the Bruntland Report, what counts as sustainability, and what sustainability must count, have evolved significantly. More recently, social movements have mobilised around sustainability, calling attention to the different values that might be brought under the banner of sustainability and, if successful, ensuring that those values are among the values that society sustains (Dryzek 2013, Escobar 1998). The result is a push for more sustainable methods of agricultural production that integrate economic, environmental and social factors in the food system (DeLind 2011, Feenstra 2002). This study explores how this evolution is unfolding in the context of sustainable agriculture. Our approach is concerned with the role that values play in this context. While ‘values’ can be a notoriously difficult notion to define, we think of values as dynamic characteristics of beings that guide their practices and goals, and (for human beings) can be articulated and appealed to in justifying these practices and goals. We are especially interested in the relationship between the sustainability values of farmers crucially located within this social movement and possible agricultural research that could respond to these values. What do these farmers value, and how can agricultural research design and carry out studies that might provide tools for realising these farmers’ values?

We begin by briefly reflecting on the relationship between sustainable agricultural research and community values. This section coalesces around the challenge, ‘Sustainability of What?’, to show that articulations of sustainable agriculture necessarily implicate particular normative commitments as researchers move from sustainability-in-the-abstract to sustainability-as-a-concrete-research-problem. Next, after sharing the methods of our focus groups and content analysis, we consider eight sustainability values that emerged through this dialogue: economic efficiency, community connectedness, stewardship, justice, ecologism, self-reliance, preservationism and health. For each sustainability value, we offer examples of its articulation, notable subthemes within each value and possible conceptual tensions internal to the value and between different values. We do not intend these findings to present a representative systematisation of farmer values, even in Mid-Michigan. Rather, these findings are illustrative of our theoretical framework for understanding values through careful attention to the practices farmers employ to sustain valued social-ecological systems. We close by considering how the diversity of sustainability values articulated in these focus groups compares with the three prevalent heuristics of sustainability, which suggests that actual sustainability values regularly cut across typologies derived from these models.

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II. SUSTAINABILITY OF WHAT?

Agriculture is a central component of sustainability (Goodland 1997, National Research Council 2010) and agricultural practices are increasingly seen as key factors impacting environmental sustainability (United State Department of Agriculture 2013, Horrigan et al. 2002, Conway and Barbier 1990). There is, however, lingering disagreement about the general concept of sustainability (Raffaelle et al. 2010, Thompson 2010, Seghezze 2009, Norton 2005, Williams and Millington 2004, Brundtland 1987).

One common conception of sustainability is that it entails the operation of a system so as to not compromise the future operation of that system (Dresner 2008). We refer to this dimension of sustainability as 'structural sustainability'. Notice that neither 'system' nor 'operation' are specified here, nor do they need specification for structural sustainability to make sense. All sorts of agricultural systems may operate in all sorts of fashions that we would be willing to characterise as structurally sustainable. Paul Thompson offers the Ancient Egyptian agricultural system as an example of a system that might be structurally sustainable, even though the content of the system diverges from contemporary values. Egyptian society depended on the annual capture of the Nile floods in order to irrigate the fields that fed the civilisation, and this capture was accomplished by Egypt's slaves. From the point of view of structural sustainability, the Egyptian agricultural system was sustainable until invaded by armies external to the system (Thompson 1992). Yet when present-day agricultural researchers investigate the means to structural sustainability, they do not consider whether the Egyptian institution of slavery might sustain our modern agriculture. This brings us closer to what Thompson refers to as sustainability as a 'goal-directed concept', where sustainability is taken to include key normative criteria that rule out widespread oppression like Egyptian slavery.

What the example of Egyptian agriculture demonstrates is that structural sustainability is not a narrow enough concept to distinguish the types of agricultural systems that society currently accepts under the banner of sustainability. As researchers begin to specify the system and the operations of study, sustainability becomes a more concrete research problem with important material and normative constraints. As Brian Norton explains:

Understanding and rating the importance of various dynamics in physical space requires an understanding of the goals and of the values that, by not being protected or achieved, define an environmental or planning problem. Regarded physically, the complexity of environmental problems reveals itself in the multiple layers of causation in complex, dynamic systems. But in fact, of course, there is an infinite number of layers and dynamics in every physical system; it is human values, interests, and perspectives that determine which of these dynamics are important and worth monitoring (2005: 136).

Our study is motivated by Thompson's and Norton's insights about the role of human values and goals in the definition of sustainability research challenges. As Thompson points out in the example above, 'structural sustainability' is not alone specific enough to mobilise research that is responsive to a democratic community's sustainability goals. Communities' concepts of sustainability are both structural and goal-oriented. As Norton points out, it is human values and goals that direct our attention to specific biophysical dynamics that warrant scientific investigation.

While Norton stresses that the biophysical world is complex, and that there are endless biophysical dynamics that might warrant investigation, we might also stress that the world of human values is complex (Schwartz 1994). Values are dynamic and complexly interwoven with patterns of behaviour (Crompton 2010). In actual practice it is often values which promote the interests of a few powerful elite individuals or institutions that have a disproportionate effect on agricultural sustainability research, as they do on societal structures as a whole (Perfecto, Vandermeer and Wright 2009). These interests are constrained in various ways by complex power relationships – dominant institutions might want to bring back the Egyptian slave agriculture model, but their exploitation of farm labourers is constrained by social movements, laws and regulations, the willingness of individuals to participate in certain practices and so on (e.g. Drainville 2008). Settling on the values that ought to warrant scientific investigation is no less complicated than understanding the mechanisms that will assist communities in their realisation of these values. One way to determine what values ought to inform scientific investigation is through democratic deliberation (Shrader-Frechette 2010, Longino 2002). Researchers will need constantly to return to dialogue to ensure that research is responsive to community values.¹ We believe this dialogue would benefit from a diversity of conceptual frameworks that direct attention to a wider array of values and a wider array of understandings of what a value is, and we believe the discussion below suggests one such different understanding.

In effect, our discussions of sustainability can be thought to address the question, 'Sustainability of *what*?' While we may agree that our agricultural systems must be sustainable, different communities may have very different systems in mind that they work to sustain (Werkheiser and PISO 2015). In other

1. Here and elsewhere our methodological assumptions differ from some social psychological approaches to understanding values. These approaches have called into question the role that values actually play in shaping environmental behaviours (see Heberlein 2012 for a discussion of this challenge). Note first that our approach does not ask participants to self-report their values, which is an exceedingly difficult task. Instead participants reported on their daily practices and their justifications for those practices, which is much more familiar terrain. Also note that we do not intend our framework to predict future practices of our participants, in part because those practices are constrained by social and political circumstances. Instead we are interested in our participants' values because those values can call into question the legitimacy of existing institutions such as research programmes.

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words, we might agree that any system we esteem must be sustainable, but still disagree substantively about what that system should be. Colloquially, we ordinarily refer to these systems as a way of life, and we talk about sustaining these systems by talking about the practices that carry forward that way of life. A farmer may think about sustainability by thinking about the resilience of their farm's ecology, for example, and their farming practices indicate where they draw the boundary between what is internal to their system and what is external. Work by rural sociologists reveals, however, that farmer practices are informed not only by farmer values but also by constraints on the pursuit of these values. Colter Ellis (2013) details the ways that narratives such as stewardship and husbandry work to sustain exploitative relationships between ranchers and livestock. Insofar as these ranchers genuinely value symbiotic relationships with their livestock, and insofar as narratives such as stewardship do produce exploitation, we should exert caution when investing in these narratives. Still, as Ellis, Goldberger (2011), Stock (2007) and Carolan (2006) practice, it's through returning to dialogue (through techniques such as interviews and focus groups) that we can clarify our values and interrogate whether our practices – discursive and otherwise – are failing us.

It is worth noting that some conceptions of sustainability would appear to sidestep the question, 'Sustainability of what?' According to those conceptions of sustainability, the content and boundary of the system can remain unspecified because sustainability always requires the ability to move between different systems. If sustainability only counted total resources or total choices, then the content and boundaries of the system would not matter as much (Norton 2005). Leaving these components unspecified may unwittingly marginalise certain types of systems that could be sustained. For example, new technologies that improve efficiency may dramatically increase the total resources of a farm, but these technologies may at the same time compromise the self-reliance of the farm. As our study suggests, many farmers forego the possibility of easily moving between different types of systems in favour of working to sustain a very particular type of farm (e.g. a self-reliant farm that isn't dependent on synthetic fertilisers). Research that supports the total resources or total choices conception of sustainability may be irrelevant to these farmers, even though it is certainly the case that alternative research could contribute to their sustainability goals.

III. METHODS

The research team conducted focus groups to encourage direct marketers to discuss their environmental management practices in an open conversation that was designed to elicit community values (Wodak and Meyer 2009). Recruitment was limited to these direct marketers, farmers who market produce

through venues such as farmers' markets and community supported agriculture (CSAs), in order to concentrate on the values of farmers who engage with and are responsive to the public. Given these interactions, direct marketers are crucially located to participate in food-based social movements (Lyson 2004). To tap into the 'organic social networks' of this farming subgroup, snowball sampling was used in following up on farmer recommendations regarding which farmers and networks to include (Noy 2008, Goodman 1961). All of these farms grew produce, and several farms also produced finished products such as honey, eggs and meat, or other animal products. In total, 104 individual farms were contacted, with 23 individuals representing sixteen farms choosing to participate in dinner discussions (several farms indicated that they would like to attend but could not spare any time during the growing season). The mean farm size was 12.5 hectares while the median farm size was 5.56 hectares. Six of sixteen farms were certified organic. All of the participants identified as white, while thirteen identified as male and ten as female.

Focus groups were scheduled for three-hour blocks, with the first half hour dedicated to unrecorded introductions. During introductions, the research team shared their interest in the project, their relation to the funding organisation (Kellogg Biological Station Long-Term Ecological Research) and the project's goal of representing the values of local direct marketers in agricultural research. We also explained the discussion format. Individuals were given two minutes to sketch out their own answers before group discussion started, and individuals chose whether to volunteer what they had written. One team member would track key discussion points on a large public notepad to encourage the group to refer to previous ideas when appropriate. When discussion reached a natural stopping point or exceeded the allotted time by more than ten minutes, participants were asked to take a moment to reflect on this public notepad and comment on its accuracy and comprehensiveness.

Two one-hour blocks of discussion were divided by a half-hour break for the dinner. Over the two hours of discussion, the team posed the following five questions: (1) What does sustainable agriculture mean to you? (2) What practices do you use on your farm to achieve sustainability? (3) How do you market your produce as sustainable? (4) What practices would a good environmental certification programme promote? (5) What agricultural research would help you achieve your sustainability goals? These questions were designed in consultation with researchers with a history of interaction with this farming community. The questions direct discussion to important 'focal practices', which are familiar topics on which members of the community may have different opinions, given their different experiences and values (Thompson 2000, Borgmann 1987). The first question, 'What does sustainable agriculture mean to you?', set a stage for subsequent dialogue by demonstrating the diversity of content subsumed under the general idea of sustainability. By recording these definitions on the public notepad, team members and participants were

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able to reference the diversity of values that organically arose. For example, if the group persistently discussed the importance of local agriculture without detailing their reasons, a team member could ask whether local agriculture was important because (gesturing to the notepad) it decreased fossil fuel consumption, or increased connections in the community, or something new. This helped prevent the team from introducing values that were not antecedently introduced by the group.

The remaining four questions all centred on focal practices that were familiar to participants. Usually, group discussion proceeded through participants (1) sharing their practices or beliefs and (2) explaining their reasons for employing that practice or holding that belief. Most commonly, other participants would endorse the reasoning or offer additional reasons for employing the practice; rarely would participants openly disagree with one another. The team would interject if the team was unclear about the values that the participant was evoking, such as in the example on local foods, or if the conversation seemed mired in detailed descriptions of existing standards/certifications without indicating whether the specific criteria were valuable.

At the close of the discussion, participants were each handed a stamped, self-addressed envelope for thoughts that they did not have the chance to share or that they considered after departing. The participants also received emails with summaries of their focus group discussions in order for individuals to comment and to express dissent if the summaries of group values did not reflect their individual values.

Qualitative coding of the transcripts was based on Ahuvia's (2001) method of public justifiability. According to Ahuvia, a public justifiability model is better suited for complex content analyses requiring significant theoretical sensitivity. By leveraging the collective theoretical sensitivity of the research team, public justifiability helped to ensure that competing interpretations were given extensive consideration. Ascertaining the implicit values or goals of discussants required attention to at least (1) interaction between speakers, (2) patterns of speaker contributions and (3) disambiguation of meaningful agreement and conversational norms. The first stage of coding was intended to inductively generate coding categories used during the second stage of coding. Inductive generation of codes via content analysis was conducted initially independently, with all researchers identifying discussion that did imply some values or goals, collecting these values into related themes and defending these themes to the research team (for a good discussion of content analysis see White and Marsh 2006). The values were generated via interpretive content analysis, a technique designed to draw out latent content by going beyond the most manifest features of the text (Ahuvia 2001).

Once initial coding categories were settled through deliberation, these codes were assigned to all transcripts to explore the prominence of different values. This second stage of coding required at least three researchers for a

given coding session, with researchers taking turns to offer initial interpretations of the discussion. Codes were assigned to relatively self-contained arguments, rather than assigned based on speaker turn; a given speaker turn might contain several self-contained arguments, just as a given argument may extend over multiple speaker turns. When any researcher disagreed with a given interpretation, the team would offer reasons for competing interpretations until an interpretation appeared most likely; for those more familiar with independent coding, this method amounts to live reconciliation of coding. This public justification fostered theoretical sensitivity to whether arguments were continuous or self-contained and whether an argument appealed to one value or another. As Morse (1997) points out, the reliability and simplicity that can be gained with small units of analysis and rigid codes can sometimes lose depth of analysis. Units of coding built out of ideas and messages rather than turns helped to achieve our goal of preserving the context within which values are articulated (Garrison et al. 2006).

IV. FINDINGS

Twenty per cent of the transcript was researcher facilitation while another 5.6 per cent was coded as 'not applicable' because researchers agreed that the text did not clearly imply a value. Discourse coded as 'not applicable' usually consisted of descriptions of various practices or institutions without taking a normative position on the matter; when examples were used to illustrate a value, those descriptions were treated as 'value-laden' and coded as representative of the value that the participant used the description to illustrate. The remaining (non-facilitation, value-laden) discourse was coded across the eight sustainability values identified inductively. Below we discuss how each of these values was articulated in the order of their prevalence in conversation: economic efficiency, community connectedness, stewardship, justice, ecologism, self-reliance, preservationism and health. We have omitted specific percentages, given that the study is not intended to be representative but rather to illustrate the diversity of values and the ways that these values might bear on concrete research questions. However, it is important to note that no value accounted for more than 21 per cent or less than seven per cent of the value-laden expressions.

Before exploring the details of each of these sustainability values, one additional theme emerged during the discussions but was omitted here. Many of the farmers conveyed the value of 'stability' or 'security,' and we initially classified these expressions as a unique sustainability value. However, this value referred more to structural features of a sustainable system as opposed to goal-oriented features. Since (1) participants did not explicitly contrast stability with sustainability and (2) since we elsewhere focused on the way of life

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which practices sustained, we chose to interpret expressions of stability/security by considering what the discussed practices were stabilising or securing. For example, if a participant indicates that they needed to secure protection against drought because drought would jeopardise their economic wellbeing, we recast the expression as working to sustain economic wellbeing.

Economic efficiency

Economic efficiency was the most frequently expressed value. In general, discussions were categorised under the goal ‘economic efficiency’ when the social-ecological system discussed was conceived of in economic terms. Hence the actual practices and objects discussed in these conversations tended to be very broad, since a great deal of farm life can be conceptualised according to economic terms (e.g. labour hours, profits, costs, etc.). Since discussing these practices in such terms renders them commensurable – farmers could weigh the economic consequences of different practices – we treated the practices as directed toward a unique goal. Often, even when farm life was conceptualised in economic terms, the goal of the farmer was to sustain their economic livelihood, to make ends meet, or avoid going under. Participants acknowledged, ‘a huge part of [sustainability] is the business side of things and whether you are trying to run a business that is profitable and that will sustain itself in this capitalist economy’. Participants discussed efficiency in regard to various practices, such as vertical gardening and companion planting. Often economic efficiency was balanced against other goals, such as ecologism, exemplified in one participant’s goal of ‘squeezing as much out of one space as possible while still maintaining ecological goodness’. Other subthemes involved planting to meet consumer preferences and minimising labour time and costs.

The relation between economic efficiency and community connectedness was commonly acknowledged. Community support was discussed as a means for marketing and ensuring farm longevity: ‘I think if you are enjoying what you do and if you are involved in the community, then it will show and that will bring more people in’ and, further, ‘We’re looking for that niche market, that person who wants to be healthier, the person who wants to supports someone local, that person who wants to be on the new bandwagon, which is going to be around for quite some time.’ Sometimes the relation with the community was articulated as instrumental to economic efficiency, but more frequently community connectedness was understood as a value in its own right.

One further point warrants discussion. Valuing economic efficiency does not obviously entail sustainability, since many of the practices listed above may aspire toward the *growth* of the farm without worrying about whether this growth is sustainable from the point of view of a broader system. Further, economic gain could be viewed as a mere means to realising other values; a farmer could pursue efficiency in order to secure the resources to be a better

steward, or to afford more just practices. However, economic efficiency was rarely discussed instrumentally, nor was it discussed as a means for economic growth. Most expressions of economic efficiency did identify a system in the 'farm-as-firm', and the goal was to sustain this system or 'make ends meet'. Further research would help shed light on the ways that economic efficiency is articulated as an intrinsic value on its own right as opposed to an instrumental value.

Community connectedness

The second most prevalent value expressed in discussion groups took connectedness of a given community as the central goal. Participants discussed building connections within their communities or, as one participant put it, 'opening up opportunities for relationship building and for local empowerment'. Strengthening these relationships would lead to a more resilient system that could withstand irregular environmental or economic perturbations. Farmers trusted that sustainability was better secured when people see the farm as important to the community, perhaps even a 'shared space that actually belongs to them, not just to us'. Community connectedness was characterised by conversations about communication, education and inclusiveness. Communication was seen as important at farmers' markets where they could communicate by 'knowing [the customers'] children's names and by knowing where they come from and helping them along with being sustainable at home', but it also included using the farm as a means of 'opening our doors to those interested in learning about sustainable agriculture'. Education was important because farms and farmers 'are teachers to our community in a way' as well as 'learners,' and can 'reach that younger next generation and makes up for what they don't have'. Community connectedness was well summarised by one participant, who explained:

You on your farm can't feed the world, obviously, but in your small kind of microcosm of your farm in your neighborhood, you can feed those people. If each community starts doing this, it spreads and spreads. Teach people how to use conservation techniques, how to use cover crops, how to use manure, how to compost. Teach people these things and you might lose a few customers to doing their own gardening, but then they're being self-sufficient and they teach someone else.

This passage reflects a common way of thinking about 'local empowerment', quoted above, whereby community members are encouraged to take food systems under their personal and communal control. The last theme of inclusiveness resonated strongly, with several participants honoring 'where that customer is. There are many walks, many food walks too. There might be differences, but that doesn't mean one's right.'

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Stewardship

The third most prevalent value expressed in discussion was the value of stewardship. Generally, discussions of stewardship concerned how well the farmer knew her farm and its needs, and how quickly and effectively she could respond to disruptions. Key themes included embeddedness in the place of the farm, attentiveness to the farm's specific character and the authenticity of stewarding farmers. Establishing a place-based relationship with the land involved recognising that 'places are created, not just by the environment and geological histories, but by human histories and by the relationships that have formed and by the values that adhere to that over time'. Attentive stewards avoided one-size-fits-all solutions, which requires 'being fluid and being receptive and being responsive and maintaining certain kinds of balances'. These orientations move away from a strictly scientific view to a less controlled, adaptive approach:

There's a lot of discretion and a lot of judgment and a lot of values at play ... and not controlled kinds of experimentation. Not that we're opposed to science. This is not what I'm saying, but we don't operate in that mold.

Indeed, participants emphasised the importance of monitoring, testing and knowing the soil, weeds and beneficial insects. Through their interactions, participants also challenged 'these sort of starry eyed idealist hippies who come out and imagine they're going to go out and, I don't know, sniff the wind and stand in the field'. Participants positioned their stewardship practices against romanticised conceptions in order to articulate the experiences necessary for knowing their farms.

Justice

Justice was the fourth most prevalent value expressed in discussions. When the farmers discussed justice, they were generally concerned with whether the overall agricultural system was fair to everyone involved, including farmers, farm workers, eaters and (for urban farms) individuals in nearby neighbourhoods. Specific themes included access to a living wage, access to healthy and affordable food, concern for future generations, concern for non-human animals and participation in the decision-making on any of these themes. Participants noted that 'the whole purpose for [their urban farm] was not to support ourselves but was to create opportunities for others and to provide fresh food for urban dwellers at a reasonable price and create an accessible source of fresh food for people who live in places where it's not easily accessible'. Others expressed a concern for future generations:

I mean we have to keep the resources we have here for us and our generation to do what we're doing, and we have to leave some our kids and our grandkids. We have to feed future generations ... We can't just live in the moment and kick

the can down the road and just use up our resources and expect someone to figure out the problem down the road.

Concern for non-human organisms was occasionally articulated, with one participant arguing, 'I think that the national organic program is still learning a lot every year about what makes sense; I don't know that they have the animals' best interest in mind.' Finally, many of the farmers were attuned to the just participation of farmers when setting policies or conducting agricultural research, as demonstrated by a conversation between two participants:

Participant 1: The most brilliant designs of things are created by farmers. Like [exemplary farmer], he just has a brain for it. Now he knows how to farm. I think making sure that the researchers are not only consulting with farmers, obviously they are doing that, it'd be silly not to, but actually employing them.

Participant 2: Yeah visiting farms and not just taking this theoretical research approach to, 'well we have these plots here' and these ten locations that aren't actually realistic.

Tensions were occasionally expressed between justice and economic efficiency, with one farmer being 'very concerned with pricing structures', but not wanting to 'run ourselves into the ground'. This farmer praised opportunities for applying for grants as a way to reduce this tension. Another farmer strove to price their products 'so it is affordable, and also so it can provide jobs for people and fair wages', two goals which were not always easily harmonised.

Ecologism

We have labeled the fifth most frequently expressed value by farmers as 'ecologism', which was distinct from a similar environment value discussed below as 'preservationism'. Many of the farmers discussed goals and goal-directed practices that sustained a resilient ecology on their farm – an ecology where relationships are flexible enough to persist with minimal intervention by the farmer, and despite random fluctuations and chance occurrences (Holling 1973). In general, this ecological resilience was discussed by referring to naturally occurring ecological processes that the farmers sought to imitate as part of their agricultural practices: 'providing natural lifeways in the farm and creating them when they don't exist'. Key themes in the ecological resilience category included promoting biodiversity, building resilience and imitating non-human ecologies. Diversity and resilience were brought together by one participant, who noted 'the need for diversity ... and for redundancy. We have none of that in industrial systems. As a matter of fact, they are designed to eliminate redundancy.' On the matter of imitating ecological processes, one participant posed the challenge, 'How do you shape what you are planting, the pasture land, everything ... Can you form something, a natural system, where they're not going to come, where they don't want to be?'

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The value of ecologism was often expressed as being in tension with economic efficiency. As one participant explained: ‘that’s the way the natural world works. There’s no straight rows, and I’m compromising, my rows are straight. I have to be able to harvest, I have to be able to get in there, it has to be a clean system in and out.’ Another participant posed the question: ‘What are the smartest ways for farmers to be thinking about producing things in a way that their crops can exist in concert with all the organisms that are existing in their system.’ One participant called for more research to help them make decisions in harmony with economic efficiency and ecologism:

I would kind of like to see something like a permaculture system set up, how beneficial it is time wise, production wise, and economically to have a system that is really self-sufficient in terms of having on-site water in ponds or rivers or a lake, either man-made or natural.

Self-reliance

The sixth most frequently expressed value during discussions was the value of self-reliance. Whereas community connectedness takes the broader community as the sustained system, self-reliance focuses on the individual household, and in this case the farm. Central subthemes include personal responsibility, distrust toward authority and a general commitment to material and epistemic independence. Both personal responsibility and distrust toward authority were valued in one participant’s frustration, who explained, ‘people just rely on the government to say “oh the FDA says it’s ok, so it’s ok for me” and there’s just this blind faith that big brother will take care of us. We need responsibility. If I make a decision to buy from this farm, I’m responsible for the health of my family.’ Another farmer asked,

Who controls the rules and regulations of what we can put on the crops? There’s politics involved in all stages of this. The big conglomerates that push the chemicals are the ones that don’t want you to use cow poop because they can’t patent it and market it and push it. You can grow it yourself.

Self-reliance required independence from material inputs such as petroleum products, but also the independence to make one’s own decisions without relying on the expertise of others.

Preservationism

We have labelled the seventh most frequently expressed value ‘preservationism’. Whereas ecological resilience focused on imitating processes understood as natural, preservationism was principally concerned with substances believed to be natural. Conversations that appealed to preservationist values tended to distinguish the human-managed farm from the pristine environment

appropriately external to this operation. Often farmers were as concerned with farming substances tainting the environment outside the farm as they were concerned with unnatural substances entering the farm itself. Extensive discussion of synthetic fertilisers, or generally any product connected to the petroleum industry, characterised this category. For example, many participants expressed ambivalence about using plastics, sharing 'we use plastic as well, which I use for all my drip lines and maybe my hoop house, so I'm not being any idealist about it, but ... we could think about not using as much plastic as we are'. Further, discussions of including native species, or even excluding non-native but beneficial species, was identified with preservationism. For instance, participants expressed concerns that a GMO is 'going to destroy the native crops because it's going to hybridise'.

Since common models of sustainability collapse different environmental values under the more general banner of environmental sustainability, it is worth attending to potential tensions between ecologism and preservationism. One participant pointed out that 'agriculture in general is kind of set up not to be truly sustainable because farmers manipulate the land around them to produce things that are not native' but that, given that constraint, the goal must be to manipulate the land in a way that imitates ecological processes. Another participant alerted the group that 'we keep [discussing] beneficials. I have this issue with introducing beneficial predators to take care of a pest issue if they're not native ... and I think there's some research being done on perennial strips and building up habitats for beneficials'. Here the priority was preservationism, and ecologism could be pursued only if it was consistent with the preservationist's valuing of native species.

Health

Health, the least frequently expressed value in these discussions, reflects a further contraction from the connected community through the self-reliant farm to the integrity of the human body. Sustaining a healthy system most frequently referred to human physiological impacts, though occasionally psychological well-being was also discussed. Frequently, health dimensions were connected to environmental quality, as in the concern that 'different soils that are depleted in certain ways produce food that is depleted in certain ways'. One subtheme involved recognising concerns for food safety, in regard to farm scale, product volume and business transparency. For smaller operations, farmers suggested there is less room for human error as 'we don't have that kind of volume going through, so we have time to make sure everything is done properly'. As far as psychological health, participants agreed that 'There's something about being out there in the sun and things and not being sick a lot because you're outdoors and you're active'.

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Health was occasionally discussed as a means for marketing produce, as many farms used freshness to promote product sales: ‘Everybody knows that produce starts losing nutrient value the minute it’s harvested. To keep that freshness, you can’t do any better than buying locally.’ However, others discussed a more holistic approach:

For me it was about, you know, physically treating your body as good as you can to fight off cancer and diabetes and the chronic things we all deal with like heartburn that we don’t attribute to the food we put in our body, so that’s an important part of education to, what you put in your body and what the effect is.

V. DISCUSSION

By clarifying how values constrain and are in tension with one another, agricultural researchers can be more accountable to farmers’ values. This clarification can be brought out by contrasting the eight systems gleaned from these discussions and common models of sustainability based on three concentric circles of environmental, social, and economic sustainability (Lozano 2008, Dawe and Ryan 2003, Flint and Houser 2001). The three concentric circles models offers an orderly way of understanding how economic decisions are made against a background of social practices, and how those social practices themselves rely on a sustainable relationship to the environment. All models rely on simplifying assumptions in order to facilitate generalisation. Given the continued emergence of frameworks such as social-ecological systems, few would doubt the interplay between the economic, social and environmental features of sustainability. What we want to stress here is that the pursuit of particular values can be in tension with the pursuit of other values. Consider the following three schematics in Figure 1.

The first image in Figure 1 depicts the three concentric circles model. An advantage of the second image (Yates 2012) is that the circles are not necessarily concentric, but do overlap. These areas of overlap represent the sets of practices that sustain multiple systems that we value. Indeed, as the second image shows, entire literatures have emerged that elaborate the intersections of these systems and our ability to harmonise our practices that sustain them.

We offer the third image to show how complicated these models can become when they attempt to map the intersections of value-laden practices for particular individuals with plural values. This hypothetical individual has prioritised community connectedness over self-reliance and self-reliance over health, so that a health-sustaining practice is pursued as long as it doesn’t interfere with the prioritised values. Stewardship overlaps with the three aforementioned goals sometimes, but not always, and sometimes stewardship also overlaps with ecologist and preservationist values. And for this hypothetical farmer, neither justice nor economic efficiency play a role in guiding practices

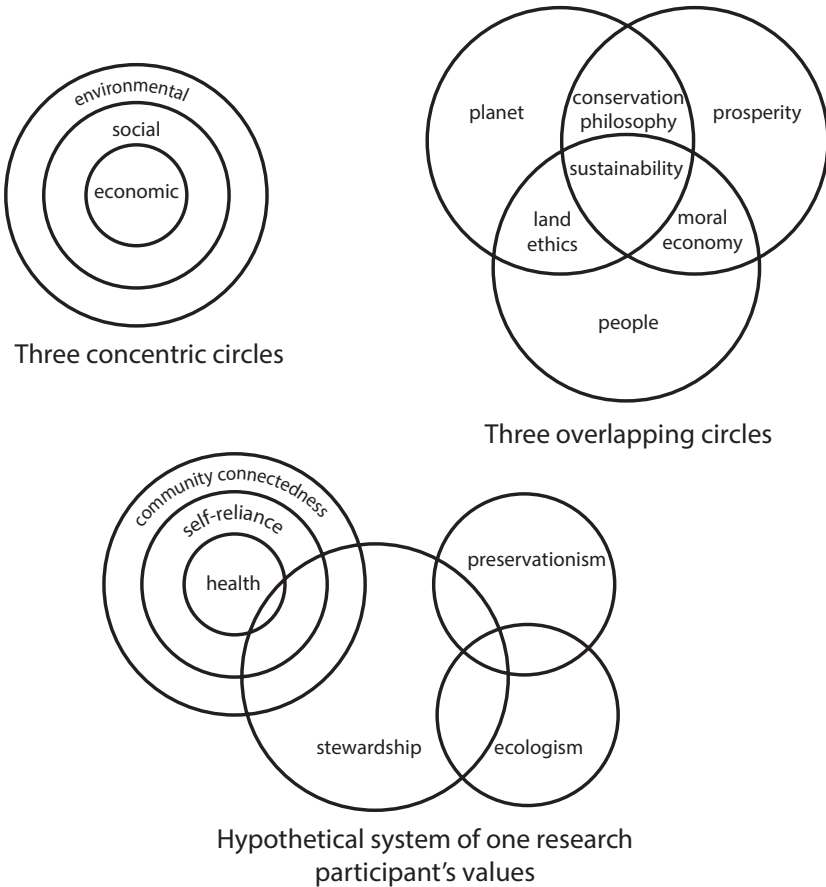


Figure 1. Individuals enter deliberation with complicated and unique priorities, which are simplified and harmonised through community negotiation.

and goals. While models like these can depict where values do and do not overlap, they have a hard time showing how practices relevant to one system can actively interfere with another system. Our point is not that the three concentric circles model, or the three overlapping circles model, are wrong. Rather, our point is that the elegance of these models is a possible achievement as a community moves from the plurality of stakeholder values to a systematic articulation of community values. This articulation ought to proceed democratically, where community members are open to revising both their values and their value-laden practices to coordinate their way of life with others. Yet it is no surprise that these negotiations produce a systematic articulation that doesn't perfectly align with individuals' values.

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Dialogue with these farmers suggests that sustainability values are not only diverse, but prioritised in arrangements that reflect a significant departure from simplistic models. Take, for example, values categorised as stewardship. For many farmers, stewardship reflected a constitutive goal; while these farmers might be willing to compromise on other values, they were unlikely to compromise on their stewardship practices. This parallels Ellis' (2013) finding that stewardship was co-constitutive of identity, though we are reluctant to draw Ellis' conclusion that the narrative of stewardship was ideological, or in the service of exploitative interests. In our conversations with farmers, stewardship established meaningful constraints on the way that stewards were able to achieve other sustainability goals. Even if a practice helped realise economic or ecologicistic values, unless that practice was consonant with stewardship, stewards reported that they instead pursued economic or ecologicistic values through other (even less effective) practices. Discussions of the woes of large agricultural machinery exemplified this prioritisation; farmers had no doubt that larger machinery would save money and might even prevent degradation, but they had reservations about devices that were less sensitive to the particularities of their farm. To use Carolan's (2006) phrase, such devices widened the 'epistemic distance' between the steward and her farm.

These sorts of tensions are not surprising; indeed they reflect the contested nature of the values that are at stake in food systems. The tension between ecologism and preservationism shows how nuanced these tensions can be. In his more recent (2015) *From Field to Fork: Food Ethics for Everyone*, Thompson notes that 'it is possible to think that environmental ethics requires protecting ecosystems *from* agriculture, but it is also possible to valorize certain configurations of flora and fauna that have been profoundly affected by farming or grazing and to regard these configurations as the nature that needs to be preserved' (161). Our dialogue with farmers suggests that different farmers are working to realise these different possibilities and to find ways of balancing aspects of each. Here we echo recent calls by Leith and Vanclay (2015) and Elliott (2013) to align agricultural research with these community-based projects.

VI. CONCLUSION

Our dialogue with farmers motivates a very general sketch of how values 'define an environmental or planning problem' (Norton 2005). The picture is something like this: Farmers engage in practices that sustain a way of life, a way of life that must intricately balance diverse values across the many decisions that these farmers make on a daily basis. The answer to 'sustainability of what?' then is a social-ecological system, but a social-ecological system that is always contingent on the particular values and goals of individuals and

communities. Before understanding these values and goals, *too many* social-ecological systems are candidates for sustainable agricultural research. Each farmer alone engages in practices that work to sustain a fairly specific social-ecological system. What deliberation helps to negotiate is how stakeholders can share in a way of life such that they can coexist within a subset of these social-ecological systems. By articulating the values that are common across diverse farmers' sustainability practices, farming communities are better able to recognise opportunities for harmonising their diverse values and practices.

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REFERENCES

- Ahuvia, A. 2001. 'Traditional, interpretive, and reception based content analyses: Improving the ability of content analysis to address issues of pragmatic and theoretical concern'. *Social Indicators Research* **54**: 139–172. [CrossRef](#)
- Borgmann, A. 1987. *Technology and the Character of Contemporary Life: A Philosophical Inquiry*. Chicago: University of Chicago Press.
- Brundtland, G.H. 1987. *Report of the World Commission on Environment and Development: Our Common Future*. United Nations.
- Carolan, M. 2006. 'Do you see what I see? Examining the epistemic barriers to sustainable agriculture'. *Rural Sociology* **71**(2): 232–260. [CrossRef](#)
- Conway, G.R. and E.B. Barbier. 1990. *After the Green Revolution: Sustainable Agriculture for Development*. London: Earthscan.
- Crompton, T. 2010. *Common Cause: The Case for Working with our Cultural Values*. World Wildlife Fund.
- Dawe, N.K., and K.L. Ryan. 2003. 'The faulty three-legged-stool model of sustainable development'. *Conservation Biology*: 1458–1460. [CrossRef](#)
- DeLind, L.B. 2011. 'Are local food and the local food movement taking us where we want to go? Or are we hitching our wagons to the wrong stars?' *Agriculture and Human Values* **28**: 273–283. [CrossRef](#)
- Drainville, A.C. 2008. 'Present in the world economy: The Coalition of Immokalee Workers (1996–2007)'. *Globalizations* **5**(3): 357–377. [CrossRef](#)
- Dresner, S. 2008. *The Principles of Sustainability*. New York: Routledge.
- Dryzek, J.S. 2013. *The Politics of the Earth: Environmental Discourses*. Oxford: Oxford University Press.

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- Elliott, K.C. 2013. 'Selective ignorance and agricultural research'. *Science, Technology, & Human Values* **38**(3): 328–350. [CrossRef](#)
- Ellis, C. 2013. 'The symbiotic ideology: Stewardship, husbandry, and dominion in beef production'. *Rural Sociology* **17**(4): 429–449. [CrossRef](#)
- Escobar, A. 1998. 'Whose knowledge, whose nature? Biodiversity, conservation, and the political ecology of social movements'. *Journal of Political Ecology* **5**(1): 53–82.
- Feenestra, G. 2002. 'Creating space for sustainable food systems: Lessons from the field'. *Agriculture and Human Values* **19**(2): 99–106. [CrossRef](#)
- Flint, R.W. and W.L. Houser. 2001. *Living a Sustainable Lifestyle for our Children's Children*. Bloomington: iUniverse Press.
- Garrison, D.R., M. Cleveland-Innes, M. Koole and J. Kappelman. 2006. 'Revisiting methodological issues in transcript analysis: Negotiated coding and reliability'. *Internet and Higher Education* **9**: 1–8. [CrossRef](#)
- Goldberger, J.R. 2011. 'Conventionalization, civic engagement, and the sustainability of organic agriculture'. *Journal of Rural Studies* **27**(3): 288–296. [CrossRef](#)
- Goodland, R. 1997. 'Environmental sustainability in agriculture: Diet matters'. *Ecological Economics* **23**: 189–200. [CrossRef](#)
- Goodman, Leo A. 1961. 'Snowball sampling'. *The Annals of Mathematical Statistics* **32**(1): 148–170. [CrossRef](#)
- Heberlein, T.A. 2012. *Navigating Environmental Attitudes*. Oxford: Oxford University Press. [CrossRef](#)
- Holling, C.S. 1973. 'Resilience and stability of ecological systems'. *Annual Review of Ecology, Evolution, and Systematics* **4**: 1–23. [CrossRef](#)
- Horrigan, L., R.S. Lawrence and P. Walker. 2002. 'How sustainable agriculture can address the environmental and human health harms of industrial agriculture'. *Environmental Health Perspective* **110**(5): 445–456. [CrossRef](#)
- Leith, P. and F. Vanclay. 2015. 'Translating science to benefit diverse publics: Engagement pathways for linking climate risk, uncertainty, and agricultural identities'. *Science, Technology & Human Values* **40**(6): 939–964. [CrossRef](#)
- Longino, H. 2002. *The Fate of Knowledge*. Princeton NJ: Princeton University Press.
- Lozano, R. 2008. 'Envisioning sustainability three-dimensionally'. *Journal of Cleaner Production* **16**(17): 1838–1846. [CrossRef](#)
- Lyson, T.A. 2004. *Civic Agriculture: Reconnecting Farm, Food, and Community*. Medford, MA: Tufts University Press.
- Morse, J.M. 1997. "'Perfectly healthy but dead": The myth of inter-rater reliability'. *Qualitative Health Research* **7**(4): 445–447. [CrossRef](#)
- National Research Council. 2010. *Toward Sustainable Agricultural systems in the 21st Century*. Washington, DC: National Academies Press.
- Norton, B.G. 2005. *Sustainability: A Philosophy of Adaptive Ecosystem Management*. Chicago, Illinois: University of Chicago Press. [CrossRef](#)
- Noy, Chaim. 2008. 'Sampling knowledge: The hermeneutics of snowball sampling in qualitative research'. *International Journal of Social Research Methodology* **11**(4): 327–344. [CrossRef](#)

- Perfecto, I., J. Vandermeer and A. Wright. 2009. *Nature's Matrix: Linking Agriculture, Conservation and Food Sovereignty*. Sterling, VA: Earthscan Press.
- Raffaëlle, R., W. Robinson and E. Selinger. 2010. *Sustainability Ethics: 5 Questions*. New York: Automatic Press.
- Schwartz, S.H. 1994. *Beyond Individualism/Collectivism: New Cultural Dimensions of Values*. SAGE publications, Inc.
- Seghezze, L. 2009. 'The five dimensions of sustainability'. *Environmental Politics* **18**(4): 539–556. [CrossRef](#)
- Shrader-Frechette, K.S. 2010. 'Analyzing public participation in risk analysis: How the wolves of environmental injustice hide in the sheep's clothing of science'. *Environmental Justice* **3**(4): 119–123. [CrossRef](#)
- Stock, P.V. 2007. "'Good farmers" as reflexive producers: An examination of family organic farmers in the US Midwest'. *Sociologia Ruralis* **47**(2): 83–102. [CrossRef](#)
- Thompson, P.B. 1992. 'The varieties of sustainability'. *Agriculture and Human Values* **9**(3): 11–19. [CrossRef](#)
- Thompson, P.B. 2000. 'Farming as a focal practice', in E. Higgs and D. Strong (eds), *Technology and the Good Life?* Chicago: University of Chicago Press. [CrossRef](#)
- Thompson, P.B. 2010. *The Agrarian Vision: Sustainability and Environmental Ethics*. Lexington: University of Kentucky Press. [CrossRef](#)
- Thompson, P.B. 2015. *From Field to Fork: Food Ethics for Everyone*. Oxford: Oxford University Press. [CrossRef](#)
- United States Department of Agriculture. 2013. Know Your Farmer Know Your Food. USDA.gov. Accessed 22 Jan. 2014 from <http://www.usda.gov/knowyourfarmer/>
- Werkheiser, I. and Z. Piso. 2015. 'People work to sustain systems: A framework for understanding sustainability'. *Journal of Water Resources Planning and Management* **141**(12). [CrossRef](#)
- White, M.D. and E.E. Marsh. 2006. 'Content analysis: A flexible methodology'. *Library Trends* **55**(1): 22–45. [CrossRef](#)
- Williams, C.C. and A.C. Millington. 2004. 'The diverse and contested meanings of sustainable development'. *The Geographical Journal* **170**: 99–104. [CrossRef](#)
- Wodak, R. and M. Meyer. 2009. 'Critical discourse analysis: History, agenda, theory and methodology'. *Methods of Critical Discourse Analysis* **2**: 1–33.
- Yates, J.J. 2012. 'Abundance on trial: The cultural significance of "sustainability"'. *The Hedgehog Review* **14**(2): 1–8.