

## REVIEWER REPORTS

### Reviewer Comments:

#### Reviewer 1

My review is different from what the authors or the editors expected. I made only a few comments in the manuscript. My comments are below.

The paper asserts that agriculture is primed for power disparities. I agree. The great majority of farmers are male. One would have to explore the sociological literature for discussion of why that is true.

This comment prompted us to change our domination matrix from being a general table to one applied to help identify features in each domain which may lead to an over-representation of men as compared to women as US farmers/landowners. We believe this change renders the use of the matrix of domination more tangible and more relatable for readers like the reviewer.

We highly commend the reviewer for undertaking this reflection, and can recommend the following book, as it is a seminal piece of work on this topic and we know women farmers who feel it accurately describes their experiences:

Sachs, Carolyn. *The invisible farmers. Women in agricultural production*. 1983.

However, we want to emphasize that gender is not the only dimension through which power is experienced in agriculture, and we rewrote several sections to make this clear.

I offer a small example from my agricultural experience in developing countries of the Third World. Weeding crops has been done in many places and still is done by women and perhaps children. If a machine is required (a plow) or if animals are required (cultivation) - men do it.

This is a great reflection and we would hope applying the matrix of domination to that context could help unpack why those disparities exist. Saugeres 2022 touches on the themes of how work is distributed according to culture perceptions of power, but due to space limitations we did not include discussions of this depth in the current paper. We provide the citation here because the reviewer may find it interesting: Saugeres, L., 2002. The cultural representation of the farming landscape: masculinity, power and nature. *Journal of rural studies*, 18(4), pp.373-384.

Introduction - The paper assumes that everyone knows what agroecology is. I question that assumption. Agroecology is a developing academic discipline that studies ecological processes applied to agricultural production. It uses ecological principles (which have been ignored in agricultural research) to suggest and do the research on new management practices.

As the reviewer demonstrates, the exact definition of agroecology is not widely known or accepted. We believe the definition of agroecology includes a social component, so we rephrased this sentence and added a citation specific to describing the (contested) definition we are utilizing:

*There have been calls for and attempts to codify reflexivity in the fields of food studies and agroecology<sup>8-10</sup>, reflecting both fields' inclusion of the human experience in their scope<sup>11,12</sup>.*

11. Wezel, A. *et al.* Agroecology as a science, a movement and a practice. A review. *Agron. Sustain. Dev.* **29**, 503–515 (2009).

The paper mentions multiple dimensions of power and provides only one citation of empirical studies.

We provide one citation for the concept of intersectionality. We do not provide citations of empirical studies (as there are many), but we rephrased the sentence to clearly point the reader to the book for more details.

*The framework is rooted in empirical studies of power (the reader is directed to D'Ignazio and Klein 2020 for discussion of these studies) and while the term Data Feminism may invoke an assumption of gender focus, Data Feminism emphasizes intersectionality, or the need to study multiple dimensions of power<sup>14</sup>*

It would improve the paper if the collective experiences of the authors had a bit more explanation.

We agree and changed the sentence as follows:

*Our perspectives are strongly framed by our collective personal, academic and professional experiences in the industrialized agricultural systems of the United States (US), and specifically of those in the maize-producing areas of the Midwest.*

2. Research for the public good.....

It is at this point that my limited, narrow, view of data feminism drifts away from power to gender. I do not have and have not explored the data on resistance to power within the agricultural realm. But within the agricultural realm male dominance is clear. The gender resistance of men is what requires intentional examination and intervention. Power is important. Although men dominate agriculture's power they don't even know they do and are reluctant to begin to understand the role of gender inequality. Therefore, the power problem is men's mindset - their ignorance.

We agree and changed the headings and table to reflect the fact that awareness of power is quite important in a Data Feminism framework:

*Table 1. Summary of paper structure*

<b>Theme</b>	<b>Research phase(s) for application</b>	<b>Data Feminism- derived reflection</b>	<b>Reflection-motivated activities</b>
<b>Awareness of Power</b>	Hypothesis generation and study design	Research for the public good should seek to equalize power	Serving the margins, leveraging science, expanding the concept of scientific measurements
<b>Reciprocity</b>	Conducting and implementing research	Farmer-researcher relations should be reciprocal	Multi-dimensional compensation, metrics for success
<b>Framing</b>	Analysis and distribution	All research is values- informed	Acknowledging the presence of values in research, supporting diverse framings

## 2.1 Serving the margins....

It is reasonable to claim that in much the world women grow food and men grow commodities. The commodities include wheat, rice, canola, soybeans, and other major crops. Commodity are sold to one or more international companies that produce what we eat

## 2.2 Technical audits

Some explanation of how each the good examples relates to feminism would be appropriate

We agree. We added one sentence summaries to the end of each section to link the activities back to the Data Feminism framework.

## 3. Farmer-researcher.....

Provide examples of the myriad opportunities in the agricultural realm to distribute power more equitably. Surely there is something beyond how experimental plots are managed by researchers.

We believe the reviewer misinterpreted this section, so we rewrote it for clarity. We hope the new form makes it clear why we focused on the farmer-researcher relationship, and why this relationship is relevant to actionable recommendations under the Data Feminism theme of reciprocity (as reciprocity represents the counter to relationships based on extraction).

## 3.2 Metrics for success.

Once again, my bias and my hope for success and should be focused on the existing and proper role of women in the agricultural enterprise.

We believe we addressed this comment through previous edits.

## 4. Values-informed...

Most scientists agree their research is objective. They must also agree it ts subjective because the scientists decide what will be studied and how it is to be done.

I agree research is values-informed. But what are the values? Values are universal principles that guide human behavior. Moral values can be regarded as specific norms and beliefs of a specific culture, religion or social group. Ethical values: equality, freedom, justice and integrity, are applicable in different contexts and are fundamental for the promotion of equality and justice in societies, and indeed of power.

You can't get away with mentioning values without some discussion of the values that determine desirability.

These comments caused us to reflect on the aim of this section, and we rewrote it to draw the focus to the act of reflecting on the values we have embodied as a result of our trainings and the institutions we work for. Of particular note is the addition of the following text:

*As scientists, we must accept that our training socializes us to value certain processes or outcomes in research. Data Feminism encourages interrogation of these passively inherited values and the attendant limitations these values place on our ability to 'see' the multiple, valid ways of approaching agricultural problems.*

## 5. Conclusions

I think the demonstrates how agriculture ought to contribute to examining, challenges and distribution power rather than agriculture's unique contributions to the examination.

The conclusion mentions sustainability. It is something everyone is for. At least one important question is what must be sustained?

We changed the conclusion to address the reviewer's reflections, and to omit the opaque reference to agricultural sustainability the reviewer mentions.

*For agricultural researchers, engaging with Data Feminism need not be overwhelming nor demand world changing activities; it simply asks that one reflect on power disparities and values embedded in their research. Agricultural scientists who examine, challenge, and work to redistribute power can uniquely contribute to ongoing work towards agricultural (and social) equity, and may concomitantly experience positive impacts on research creativity and stakeholder participation. Furthermore, agricultural scientists who build self-awareness of their socialized values and how those inform their perceived problems and solutions in agriculture are better equipped to recognize, incorporate, and solicit diverse framings, which promotes better outcomes for agricultural research overall. We hope this Perspective demonstrates both the worthiness and feasibility of such pursuits.*

For example - When the morally good goal of feeding a growing world population bumps against the morally good goal of protecting the environment there is a value question science cannot answer. When the environment's natural objects are valued only in terms of their worth to humans and can be and are legally destroyed or modified. There is a moral problem.

We rewrote the section on values to highlight socialized values, rather than personal values.

Power, gender roles, and data feminism all play a role to play in agricultural sustainability. I encourage you not to treat sustainability too casually.

We agree, and we addressed this in an above comment by rewriting the conclusion and focusing on agricultural (and social) equity.

Finally. I applaud the authors for addressing an agricultural problem that has been largely ignored within the agricultural enterprise. I think the work should be published and hope the authors will consider and appropriately incorporate some of my comments

We are grateful for this compliment, and think the paper is much improved due to the reviewer's comments.