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# Clark University Class of 2026

# Research Proposal – Addressing the Climate Crisis through Head, Heart, & Hands: Exploring Natural Farming Solutions

# SECTION 1. Project Description

## Abstract

This project builds a bridge from the science of climate change, including the viable solution of regenerative agriculture, to the social science of how to inspire communities to not only understand but also embrace a transition to regenerative agriculture. While scientific data is plentiful, inspiration seems deeply lacking, even as the climate clock is ticking. The facts and future predictions are out there, and so are some solutions. Yet there remains an immense disconnection between individuals in their day to day life, and the participation required to improve things. People know things are bad, but don't think they can or know how to do anything – and that needs to change. This project seeks to connect strategies for mobilizing communities not only through their heads (scientific and financial data), but also through their hearts (belief and inspiration), and ultimately to their hands (policies and decisions that make regenerative farming a reality).

**Clark Department:** Geography/Environmental Science

**Sponsoring Clark Faculty:** Professor Williams, cwilliams@clarku.edu

## Introduction

Since embarking on a search for knowledge surrounding the climate crisis, I have been confronted by mind-blowing solutions, including regenerative agriculture. Thus, I often wonder if what stunts human action from responding to climate change is the paralyzing combination of minimal access to scientific information followed by individuals’ strong sense of disempowerment. It’s easy to get lost in apathy when the facts are so stark: even if all carbon emissions are eradicated entirely, emissions from just the animal agriculture sector would make it impossible to stay below the 1.5c threshold. We’re accustomed to disconnecting emotionally when information gets too big or too uncomfortable. We don’t even get close to figuring out what we can actually do: instead, we do our laundry or cook dinner and maybe fantasize that a billionaire tech genius will potentially think of a new tool to solve the problem.

Yet there are many solutions to the climate emergency that exist right in front of us, if we could somehow communicate in ways that help people move from overwhelm or ignorance to action. The importance of regenerative agriculture and a plant-dominant food system as well as its benefits for the environment could create a whole new way for us to feel connected —we can reconnect with nature, become conscious of the impacts we have on the earth, and figure out how to heal the environment in a supportive way. I can’t emphasize enough that while this project focuses on regenerative agriculture, that is not all that it is limited to: it’s more like the front door to a connected set of issues that our world is facing. There is an extreme mental health crisis among farmers who are losing their livelihoods because their soil is so depleted. The food we eat is lacking all of its nutrients, and we aren’t producing as much of it. It is currently impossible to feed the world with the typical western diet but is possible with a plant-based food system. The seeds we plant are empty of variation or biodiversity. We have driven to extinction animals and species that are essential to ecosystems. The air and water we breathe are polluted. Our food system has been identified as a national security threat. Diseases and health issues like cardiovascular disease, cancer, diabetes, and obesity are killing the population. A transformation to a regenerative and sustainable food system can solve all of these. The list can truly go on, but I believe that the area of regenerative agriculture and the research I plan to embark on is essential if we wish to have any shot at a future that is not defined by environmental catastrophe and human suffering. **Approach**

I will be collecting various kinds of data, all relevant to establishing a plan for inspiring communities to move to regenerative farming, as outlined below.

**Scientific & Personal Interview Data in the Farming Community:**  I would like to gain experience of regenerative farming, and would plan on doing work through the World Wide Opportunities on Organic Farms, which will allow me to gain hands-on experience, knowledge, and education of a working farm. This will also provide me with the opportunity to speak directly with experts in this area. On the scientific front, I will take samples of soil from farms that use traditional practices in comparison to those that use regenerative practices; I can also compare crop yield, nutritional value, and levels of nutrients like nitrogen. I will record data in various forms such as photographs, soil samples, and comparative tables. In terms of personal interviews, understanding how individual farmers feel will allow me to perceive aspects I would have otherwise missed. For instance, one of the major blockages for farmers from turning to regenerative practices is the social and financial aspect of having to break away from the norms and community of their neighbors. The voices, feelings, and needs of individual farmers are critical to understanding, especially in the context of the rising suicide rate among farmers.

**Interviews with Relevant Non-Profit Organizations:** Organizations dedicated to restoring the environment have deep experience in what is working and where the challenges are when it comes to moving communities forward. For instance, a non-profit called Kiss the Ground focuses on providing support for farmers and education about regenerative agriculture. They have a Farmland Transition Program, as well as grant and funding opportunities that can support farmers. I plan to connect with key stakeholders from other organizations such as Understanding Ag, Farmers Footprint, and Healing Earth. My goal would be to understand (a) what communication strategies these organizations have been using that lead them toward success in bringing communities into regenerative agriculture and (b) what they understand the blocks and resistances to be – policy-based, financial, and in terms of change management – when it comes to moving communities toward regenerative agriculture.

**Interviews with Relevant Scholars:** I have already had some success in networking with scholars inside and outside of the Clark community, as people in the climate field tend to be very generous. I plan on consulting with some of the professors and academics I continue to learn so much from at Clark, such as Professor Karen Frey, Professor Abby Frazier, Professor Morgan Ruelle, Professor John Rogan, and Professor Christopher Williams. I also plan to consult with other academics and scholars who are involved in areas that relate to my research. But will also continue current conversations I am in with Seth Godin (who sent me a number of books to read and gave me some good advice) and Professor Susan Murcott from MIT (who brought me into a day of TED Talks on the MIT campus and has invited me to bring Clark into the Climate Clock initiative), among others. I will also plan to speak to scholars like Zach Bush, MD, and other professors who specialize in soil biology, environmental science, and climate change.

## Support & Academic Connections

This project will allow me to gain knowledge in areas that will strengthen all of my academic experiences. I am pursuing a major in Global Environmental Studies and a double minor in Environmental Science and International Development and Social Change. My research here connects and contributes to both the work I am already part of and plan to take on in the future.

In my Intro to Environmental Science & Policy: Introductory Case Studies (EN 101), I am currently writing a policy brief focused on the unsustainability of animal agriculture and its contribution to climate change. My work from this class will help me highlight relevant connections to regenerative agriculture. Another course, Climate Systems & Global

Environmental Change (GEOG 263), has provided me with knowledge about numerous aspects of climate science. An extremely useful element from this class I will take forward are best practices of data storage and data representation. My experience with Excel will allow me to store the data I collect in an organized manner that I can then turn into graphs and charts that demonstrate my findings.

I also plan to implement GIS techniques I learned in my Earth Systems Science (GEOG 104) class to demonstrate land change and depict other measures of soil, land, and the environment. This class, along with my GEOG 263, has equipped me with a lot of relevant science behind the inner workings of biological systems.

I seek to further tie in my research with already existing personal and academic connections. For instance, during the fall semester, I worked alongside Professor Rogan to revitalize the arboretum by removing invasive plant species, cleaning the land, and planning ways to increase biodiversity. This connection provides the seamless integration of bringing regenerative practices and knowledge I acquire back to the arboretum and the community of Worcester. I am also an officer of the Clark Environmental Action Club which aims to provide students and the community with educational opportunities as well as ways to get more directly involved. This semester we are hosting discussions by professors and students, and I think it would be a great opportunity for me to present my findings. This project will also help fortify me in any action I wish to take to improve Clark environmentally. I have been in contact with President Fithian directly, and am in touch with Professor Williams who is working to develop a Sustainability Council here at Clark. It is exciting that this project will allow me to truly make use of what I have learned and positively impact my local community while also working on a larger spectrum. However, I think that it is also extremely important that information about climate change live not just within academic settings, but also be available to the public and society as a whole. This is one of the reasons why I have recently started my own blog where I publish writings about climate change in an effort to share the mind-blowing things I have learned in a digestible way that can hopefully alert people to action.

My project is deeply motivated by my passion for addressing the climate crisis. I see how much our environment is suffering and the little time we have left to do something about it. While this is a time of loss and despair, I think it is also a time filled with opportunity. Regenerative agriculture, as well as countless other sustainable practices, are one of the imperative solutions we have. For too long, the effects of modern agriculture that cause severe soil erosion, reliance on fossil fuels, and food insecurity have been ignored (Rhodes, 2017). How we treat the soil is deeply connected to so many other facets of the planet – air, water, and energy, as well as our earth. Additionally, improved soil quality increases food security, decreases negative impacts on ecosystems, limits soil disturbance to increase carbon storage, mitigate floods, prevent ocean dead zones, and support ecological processes overall (Ontl, 2012). Furthermore, our current systems are major contributors to climate change and have severe impacts on the environment. Adjusting current agriculture practices has shown to be beneficial not just biologically but also economically. A switch to a more sustainable system offers opportunities for improved community wellbeing and social capital (Pearson, 2007). Many studies have been conducted that show how incentivizing regenerative agriculture is on numerous levels – all of which leads me to a passionate desire for this project to become part of helping others to benefit from these incentives as they become inspired to act.

## Virtual Feasibility

While some aspects of this research will obviously be lost, it will certainly still be able to go on if COVID-19 precautions are needed. I could continue to conduct interviews and research online. Rather than having direct hands-on experience at a regenerative farm, I can watch recordings and read logs of researchers and other people who have studied this area before.

Pandemics—a result of climate change, especially from within the unsafe conditions of our food systems—show how pressing this work is if we hope to avoid further catastrophes. If the CDC guidelines as well as the health of others demonstrated that it would be best to keep things virtual, I would be sure to take whatever steps were needed to protect everyone’s health and wellbeing.

## Project Outcomes

By the end of the summer, I will be able to combine my personal experiences, scientific data, and teachings in a way that will allow me to formulate a plan moving forward. My goal is to bring back what I have learned to an academic setting, but also to local communities. In addition to writing a more formal brief for academic situations, I also want to create some sort of guide or simple breakdown of regenerative agriculture that I can give to anyone who is interested in learning more.

The product I would produce is a plan for how to mobilize community stakeholders to embrace regenerative agriculture, including a compilation of research from multiple areas:

* Scientific data about the effect of regenerative farming on the land and climate
* Financial data about the rewards of regenerative agriculture for individual farmers
* Organizational data from groups already working in this field to collate their insights about factors that ensure successful communications with the farming community and their lessons learned about what gets in the way of mobilizing farming communities

In addition, I will produce a description of how the next stage of my work would continue.

# SECTION 2. Link to Professionals Goals, Short & Long Term

A major part of my goal is not just to conduct research but to truly communicate and implement it. I want to present my findings at ClarkFest as it will allow me to share important information with the Clark community. Presenting at a regional or national conference is something of interest as well. It is also a priority that I consider how I can use certain regenerative practices on a local level as well. For example, I plan on working with Professor Rogan to see how we might be able to implement regenerative tactics that can help the arboretum. The Regional Environmental Council (REC) and the Worcester Native Plants Initiative (WNPI) often hold workshops to engage the public and since I am already familiar with the organizations and have worked with them, seeing if I could give a workshop about regenerative agriculture and its importance to climate change would be an impactful opportunity.

Outside of the short-term goals I have, this research directly connects to my professional and future goals. This project is deeply linked to the work I plan to do moving forward. I plan on continuing research focused on the natural solutions we have to climate change and seek to find ways to communicate and bring them to the public. My work will also help me further establish myself in the field and make meaningful connections that will help me in the future. While I am just a first-year student, being able to demonstrate my ability and proficiency in conducting research will allow me to gain access to other opportunities. The skills that I learn and the people I connect with will help propel me on my journey of positive action. One professional and aspirational goal that I have is to start a non-profit organization. Its focus would be to unite individuals with one another and help them collaborate and feel equipped to deal with current environmental and global issues in a meaningful way. I want to figure out ways in which I can help the planet and others, and the tools I acquire from this project would be essential in doing that.

# SECTION 3. Preliminary Bibliography

Kwauk, C. T., & Casey, O. M. (2022). A green skills framework for climate action, gender empowerment, and climate justice. Development Policy Review, 40, e12624.

This research article outlines the importance of creating environments that are conducive for effective dialogue. Talking about climate change and other environmental issues is not easy, and can be a touchy subject. This article offers useful insight that will help me communicate important truths about the climate, but also do it in a way that can empower individuals and stimulate climate action.

Lineman, M., Do, Y., Kim, J. Y., & Joo, G. J. (2015). Talking about climate change and global warming. PloS one, 10(9), e0138996.

This source helps me understand the sentiments the general public has when it comes to climate change. The study also highlights how outlets like social media can have a big impact on the information people are consuming, and explores what drives polarity and makes talking about environmental issues difficult. I will be using this information as I think about communicating my finds with others.

Ontl,T. A. & Schulte, L. A (2012) Soil Carbon Storage. *Nature Education Knowledge* 3(10) :35

The Department of Natural Resource Ecology and Management at Iowa State University published this paper that illustrates how vital soil is to ecological processes, but more specifically exemplifies its importance to carbon storage. It further details how this happens by explaining the positive impacts of soil organic matter (SOM) and its needed role in ecosystems.

Pimentel, D., Wilson, C., McCullum, C., Huang, R., Dwen, P., Flack, J., ... & Cliff, B. (1997). Economic and environmental benefits of biodiversity. *BioScience*, *47*(11), 747-757.

With our current economy, I recognize that while something might be good for the environment, it does not always mean that it will be adopted. This article published in the *BioScience* Journal will help me further understand some of the economic benefits of biodiversity.

Poore, J., & Nemecek, T. (2018). Reducing food’s environmental impacts through producers and consumers. *Science*, *360*(6392), 987-992.

This paper helps provide important information about the widespread effects of current food production. It is useful because it compares multiple different food systems and illustrates how producers as well as consumers play a systemic role. Having a more connected relationship between producers and consumers is one key part of having multiple smaller based regenerative farms.

Rhodes, C. (2017). The Imperative for Regenerative Agriculture. *Science Progress* (2017),

100(1), 80–129 Paper 1700224 doi:10.3184/003685017X14876775256165

This paper highlights the necessity of Regenerative Agriculture by addressing current conditions as well as what we can expect for the future if we continue on our current route or take the opportunity to adjust. It clearly outlines how modern agricultural practices are not sustainable or practical especially if we hope to do anything that will have a positive or at least non-adverse impact on the climate.

Schreefel, R.P.O. Schulte, I.J.M. de Boer, A. Pas Schrijver, H.H.E. van Zanten. (2020) Regenerative agriculture – the soil is the base. *Global Food Security*, 26(100404), 2211-9124, [https://doi.org/10.1016/j.gfs.2020.100404.](https://doi.org/10.1016/j.gfs.2020.100404)

This journal addresses the current negative impacts but also outlines the incentives that the adoption of these practices has in store. The article has also helped me understand some of the things that can help support a transition to regenerative systems outside of just the physical practices put in place for plant and soil management.

# SECTION 4. Conclusion

Thank you for taking the time to read my proposal. This research is something that I am not just extremely passionate about, but also believe presents itself as a viable solution to the climate emergency. In reality, the solution exists just below our feet. I feel that this is one way in which humans can become a keystone species—rather than destroying life, we can create and support it.

Rather than hoping and waiting for someone to solve our current issues, I want to begin my journey. By contributing information and practices I learn, I can work to address soil degradation, biodiversity loss, desertification, habitat and species extinction, and air/water pollution. In totality, this research goes far beyond just me but extends to the many interdependent facets that will be part of a sustainable future.

I hope that I will be able to be a part of a movement towards a future that is in accord with nature. A flourishing ecosystem and environment would not just solve one issue of the climate crisis, but also help feed the world with enough nutritional food, provide jobs, create habitats for animals, sequester carbon, enrich our soils, clean our water, reshape our subsidybased agricultural model, and connect people with nature.