Synthesis

Author's Note

The research for this essay was difficult at first as I couldn't find any good sources, but eventually I did get the sources I was looking for, I even found an 8th source while writing. The writing process involved making an outline, then adding an overview of the sources, then using that along with my AB and the abstracts of the sources to create a general idea of what I was going to write down in my head, which I then used to write the actual essay. The hardest part was figuring out what to take from the sources, especially the longer ones, but the actual writing was pretty easy since I've been thinking about this topic for quite some time as I am working on a project with a similar topic. The genre of this is an argumentative synthesis essay, which is important to be able to convey both sides of the argument effectively while still arguing for a certain viewpoint and is the best way to present this evidence. The intended audience is policy makers, farmers, consumers, and anyone with an interest or questions on sustainable agriculture. The purpose of this essay is to analyze the complex issues and viewpoints surrounding sustainable agriculture, evaluate tradeoffs, and develop an argument that although there are tradeoffs, they are not permanent and resolvable. The situation and topic of my essay is sustainable agriculture, specifically the cost of transitioning and cost to consumers, as well as other benefits and drawbacks of sustainable agriculture. The digital tools I used were the NDSU Library Database and Google Scholar to look for sources. I got all but one source from the NDSU Library, which was somewhat difficult to figure out and get the right mix of key words to search for to get the sources I wanted. I also got pee feedback to make things more concise and avoid repetition, which I implemented by breaking up sentences and removing anything unnecessary or redundant.

How do the Financial Risks of Transitioning to Sustainable Agriculture for Farmers Align With or Contradict the Food Affordability and Security Concerns of Non-Farming Consumers

In today's world, modern agricultural practices have raised concerns, including soil degradation, water pollution, excessive chemical use, and excessive greenhouse gas emissions. In response, sustainable agriculture emerged as an alternative that promises to reduce or solve these issues. Sustainable agriculture is an approach to farming that aims to be more environmentally friendly by using methods such as no-till farming, crop rotations, organic farming, etc. However, sustainable agriculture is not without its own problems. It tends to have a higher upfront cost and running cost and tends to have lower yields resulting in worse efficiency and profitability. This makes it less economically viable in comparison to conventional modern methods. This creates financial risks for farmers and possibly increases food prices for consumers while bringing food security concerns.

This raises an important question: how do the financial risks of transitioning to sustainable agriculture for farmers align with or contradict the food affordability and security concerns of non-farming consumers? Through answering this question, I found that while sustainable agriculture presents economic challenges, especially in terms of cost and food security, these challenges can be mitigated or removed entirely through policy support, technological innovation and adoption, and socio-economic adaption. This synthesis will

examine themes of food security, cost, and environmental and health benefits to evaluate whether sustainable agriculture can balance economic drawbacks with environmental benefits.

One of the main concerns with sustainable agriculture is its potential impact on food affordability and security. Research comparing the Visegrad Group in Europe to India found that sustainable practices does have the ability to reduce food output, especially in countries without strong policy support (Bhagat & Magda, 2021). In Visegrad countries, however, sustainable farming has been more successful due to subsidies, training, and access to resources This shows the importance of having a strong economic and institutional backbone in adopting sustainable practices. Similarly, Chrisendo et al. (2026) identified multiple socio-economic drivers, such as income level, education, and access to resources, that influence whether farmers are willing to adopt sustainable practices. They found that consumers play a role in whether farmers adopt these practices, with the older generations and men tending to be less likely to switch to a sustainable diet. They also found that perception and education plays a huge role in whether people support sustainable practices and their willingness to switch diets. Research done by Gibson et al. (2020) also found that consumer behavior plays a role. They found that while some consumers are willing to pay more for sustainable food, cost remains the biggest barrier for many. In addition, there are also programs like the Pekarangan Pangan Lestari (P2L) Program in Indonesia that show how sustainable home gardening can improve food security. However, challenges such as lacking support and long-term planning limit its effectiveness and appeal Khaerah & Nara (2025). The findings of this study are also supported by Beasley (2025), who argues that investment and support for sustainable food systems is essential to ensure food security on a global scale, especially in vulnerable regions such as impoverished and war torn countries.

Together, this evidence suggests that sustainable agriculture can both support and threaten food security, depending on economic conditions and policy support. While the higher costs and reduced yield typically associated with sustainable agriculture tend to threaten food security and affordability, these risks are not inherently caused by adopting sustainable practices, but rather the conditions under which they are implemented. When governments and organizations back sustainable farming by providing services such as

subsidies, education, infrastructure, and access to resources, sustainable practices can become more economically viable and even improve food access in the long term. This shows that the financial risks faced by farmers do not necessarily contradict consumer concerns about affordability. Instead, it shows the need for a systemic solution to bring down production costs and lower consumer prices.

In contrast to economic concerns, sustainable agriculture offers significant environmental benefits that can indirectly support farmers and consumers. Conventional farming practices have contributed to environmental degradation. This has prompted this need to shift to more sustainable practices that conserve resources such as freshwater and soil quality. Gibson et al. (2020) shows that sustainable agriculture can reduce water usage and lessen environmental impact, which is becoming increasingly important as freshwater becomes more scarce. Additionally, technological advancements are helping to address efficiency and output concerns. Popkova et al. (2023) emphasizes the importance of new technologies and innovations such as artificial intelligence, precision agriculture, and improved data collection and processing can improve productivity while still being environmentally friendly. These new technologies help to reduce costs, improve yields, and minimize environmental harm, making sustainable agriculture more feasible and attractive. However, these new technologies have a high initial cost and uncertain returns of investment, which presents an unignorable and unavoidable barrier to adoption for farmers (Hundal et al. ,2023). Additionally, broader societal and institutional influences, such as educational priorities and policy decisions, play a role in shaping agricultural practices and their adoption (Pettit, 2023).

This evidence demonstrates that the environmental benefits of sustainable agriculture can cause long-term economic advantages, helping to offset initial cost, even though there are risks for low return of investment for newer technologies. By protecting natural resources and improving efficiency, sustainable practices can create a more stable and resilient food system. This shows that the perceived contradiction between farmer cost and consumer affordability is very real, but not permanent. Instead, sustainable agriculture represents a long term investment in the environment, economic stability, and food security. As technologies advance and support grows, the gap between cost and affordability will likely narrow to serve the interests of both farmers and consumers.

In conclusion, sustainable agriculture presents both challenges and opportunities in financial risks for farmers, food security, and food affordability for consumers. This synthesis has shown that while higher costs and reduced outputs pose short term challenges, these issues can be addressed and solved through policy support, technological innovation, and socio-economic adaption. Evidence from these studies show that sustainable agriculture can improve food security and be more environmentally friendly when properly supported and adopted. Ultimately, it should be understood that sustainable agriculture is not inherently against economic or food concerns, but rather it requires strategic implementation and support to ensure that both farmers, consumers, and the environment benefit from the effort. As the environment worsens and pressure for green alternatives grows, investing in sustainable agriculture will be essential for global food security and a resilient, healthy food supply.

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