

Toward a Theology of Sustainable Agriculture

Sustainable agriculture provides for present food and fiber needs, gives fair compensation to those entrusted with caring for the land, encourages healthy communities, and can continue far into the future. Few Christians have yet tackled this daunting field. The benefits to Christians and others may be great. Christians must recognize the biblical imperative of good stewardship of God's creation, and the special issues of agriculture, so common in biblical themes. Secular companies, governments, and other institutions can gain from the wisdom and values of the Scriptures, still highly esteemed by many, and tied closely to our collective roots.



In North America, discussion of sustainable agriculture per se has been ongoing since the 1980s, and sustainability issues have been significant since the dust storms of the 1930s. Modern agriculture is highly automated, fossil-fuel driven, and chemical intensive. Among challenges produced by these methods of agriculture are unsustainable erosion rates, ground-water pollution by pesticides and fertilizers, and increasing resistance of pest species to chemical methods of control. The use of fossil fuel has been shown to contribute to atmospheric carbon dioxide and to related changes in global and regional climate. Recent works have focused on what has become a recognized triad of concerns in sustainable agriculture: environment, economics, and community.¹ I would add to this triad some of my own perceptions, primarily from the view of an ecosystem modeler and engineer. I am very interested in *transitions* and how we manage transitions in dynamic natural and engineered ecosystems.²

We are in a period of rapid change both in our nation and in the world. We are experiencing high levels of affluence and long life in some places and population growth at explosive rates in other places. Consequently, the impact on the environment probably is greater than ever before. In the United States, mechanization of agriculture, recognized as one of the "greatest engineering achievements of the twentieth

century" according to a recent National Academy of Engineering Survey, has contributed to a radical shift in demographics.³ This has allowed our agricultural workforce to drop from about 70% of the population in 1900 to approximately 7% (involved in all aspects of food growth, processing, and distribution) in 2000. Only about 2% of our population remain "on the farm." This dramatic change in demographics has contributed to further social changes and challenges.⁴

It is in this context that the secular writers of North America have viewed sustainable agriculture in recent years. Thus, concerns have focused on the shrinking farm communities, loss of farmers, and conversion of farmland to either "development"—e.g., real estate, roads—or to forests.⁵ Other problems that have become clearer and, in some cases, more focused have been environmental concerns.

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caused people to question the intense mechanization of agriculture.⁶ Immense animal holding facilities have increased the severity of waste management and runoff problems. In the dairy industry, for example, the number of cows on farms has increased from about twenty-five to around five hundred on average in the last few decades. Pig operations and poultry operations have also increased dramatically in size with concerns over ownership, waste management, odors, and animal welfare all appearing as major issues. Aquaculture—the raising of aquatic species such as fish, algae, reptiles, and crustaceans—has grown dramatically in recent years, partly in response to the need for less expensive protein sources. However, the ecological impacts of aquaculture have been increasingly questioned in recent years.⁷

Many of these pressures have forced farmers to “get bigger or get out.” Many farmers who are in business today have millions of dollars invested in land and equipment, and the average farm size in many states is well over one thousand acres. Economic pressures have grown along with community concerns and environmental issues. Hence, the triad of concerns is well documented in the secular arena.

Additionally, a vague sense of ethical or values issues has emerged. Some of these issues deal with our cultural values that are derived mostly from Judeo-Christian ideologies with a largely European influence. Animal rights, rights of laborers, environmental concerns, concepts of community and neighbor, and concerns over long-term land tenure have all been addressed to some extent in the sustainable agriculture literature.⁸

The Challenge of Ethics in a Postmodernist World

These issues, I believe, have been a challenge. They are issues that deal with basic values, and they are being discussed in a largely postmodernist context of which many authors are unaware. The interesting juxtaposition of a historical and somewhat active Judeo-Christian ethic with a postmodernist or “relativistic” ethic has led to some interesting discussions, but mostly to much confusion. Most North American churches and Christians, with some notable

exceptions,⁹ are largely unaware of the considerable controversy over environmental issues in general and sustainable agriculture in particular.

Starting from the secular sphere, I construct an argument from present definitions and future possibilities of sustainable agriculture. Then, using Scripture, I clarify these issues that are, at heart, heavily value-laden. Referencing Scripture in considering the future of food sources is quite relevant since the United States is a country highly influenced by Jewish and Christian ethics from its millions of practicing Christians and Jews. Judeo-Christian values based in Scripture have remained consistent despite changes in our society. These consistent and time-tested values, which many in North America and around the world still hold, can inform and improve the process of creating a more sustainable food system. I will discuss the following areas: environment, economics, community, system dynamics or transitions, and intergenerational equity.¹⁰ Figure 1 shows a biblical vision of sustainability in agriculture. The triad of creation care, the great commands to love God and love your neighbor, and the themes of stewardship and provision derived from biblical principles roughly parallels the secular sustainable agriculture triad of environment, social, and economic concerns and adds the Christian themes of redemption and restoration as central to sustainability.

Being Good Stewards of the Environment

Maintaining the health and productivity of the environment is essential for many of our human needs, including air, water, and food produced from the land and sea. I maintain that we have achieved, in large part, the “dominion” that is spoken of in Genesis, but have failed in many ways to “keep” our land. Genesis 1 speaks of God’s creation as “good” and of there being an order in which the plants are to be “food for the animals” and later food for humans. Psalm 19:1 reminds us that “the heavens declare the glory of God and the firmament showeth His handiwork.”¹¹ The basic concepts of these Scriptures is that God’s creation is “good,” i.e. it has some inherent value, and that we are to view the creation in such a way that it

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reminds us of God. We recognize that we live in a fallen world. We also recognize the concept of redemption that points to a great hope. This basic Christian concept will be discussed later.

A second theme in the environment area is humans as stewards. According to Scripture, God created humans to “serve and keep” the land (Gen. 2:15). Some authors have explored the stewardship concepts implied by these Hebrew words.¹² Exodus 23:11 and Leviticus 25:4 each speak of the land being allowed to rest and recover. Leviticus says that “during the seventh year the land shall have a Sabbath rest, a Sabbath to the Lord; you shall not sow your field nor prune your vineyard” (25:4). Land is viewed as valuable but we are to allow it recovery time, an ancient form of fallow. Leviticus 25:6–7 refers to a Sabbath “for ... cattle and ... animals,” which seems to imply that some wild animals are expected on the farm. These animals are allowed rest and space in the farmscape. Precisely how much land or habitat is to be preserved for wild animals (and plants) is not clear, but this passage and others provide biblical support for caring for God’s creation, wild and domesticated.

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As for the concept of Sabbath, Matthew, Mark, and Luke each record the story of Jesus picking grain and eating it on a Sabbath. His response to the Pharisees who questioned him about breaking the law was that “[t]he Son of Man is Lord of the Sabbath” (Luke 6:5). So we find that the Sabbath, while a basic biblical principle, is to be considered with regard to God. There may be cases where variations on the Sabbath theme are appropriate, but nevertheless, I suggest that allowing recovery time in agricultural systems is a wise concept.

We also see warnings of excess. Exodus 23:11 suggests that the harvesting should allow “the needy of your people to eat and the beast of the field to eat.” Isaiah 5:8 warns: “Woe to those who add house to house and join field to field, until there is no more room, so that you have to live alone in the midst of the land!” What does this interesting statement mean? If there are many houses and fields, there will likely be many people. What does this prophet mean by “alone”? Perhaps we are being warned to be fruitful, but also to allow the rest of nature to be fruitful. Perhaps we are being warned that if we destroy the nature we depend upon, we will eventually die out ourselves. Can and should we not only preserve but restore God’s good creation that he has entrusted to us? These prophetic warnings and questions lead to the next theme—economics.

Economics in Sustainable Agriculture and Scripture

Economic themes are common throughout the Old and New Testaments. Interestingly, if one tracks certain words, we see shifting perspectives on those ideas. Money is one of these concepts. In the Old Testament, we see money almost inevitably equated with the value it represents. Hence, it is seen as a good thing. David received a crown “and its weight was a talent of gold and in it was a precious stone.” This is seen as a positive value. Money was used in the Old Testament to buy land (thus, land has value), goods, and even slaves (Ex. 12:44).

However, even in the Old Testament, we see warnings against the abuse of money. “If you lend money to My people, to the poor among you, you are not to act as a creditor to him; you shall not charge him interest” (Ex. 22:25). By Jesus’ time, “He found in the temple those who were selling (goods) and the money changers seated at their tables.” This abuse of money, people, and God’s house enraged him and “he drove them all out of the temple” (John 2:14–15). Money still had value but it was being worshiped and used in ungodly ways. Acts 8:18–20 relates the story of Simon trying to “buy” the Holy Spirit and Peter responding, “May your silver perish with you because you thought you could obtain the gift of God with money!”

Later in the New Testament, money is seen in a very negative way. “The love of money is the root of all sorts of evil and some, by longing for it, have wandered away from the faith and pierced themselves with many griefs” (1 Tim 6:10). I suggest that economics is important in sustainable agriculture in the sense that the farmer needs to be paid for his work and must be paid enough to care for the land and the creatures over which he has dominion. However, the *love* of money, which seems to gain the upper hand at times—and, in fact, is the driving force for many of our large corporations—is to be resisted. When money is used to give or show value it can be a good thing. When it is worshiped or abused or used to coerce people into

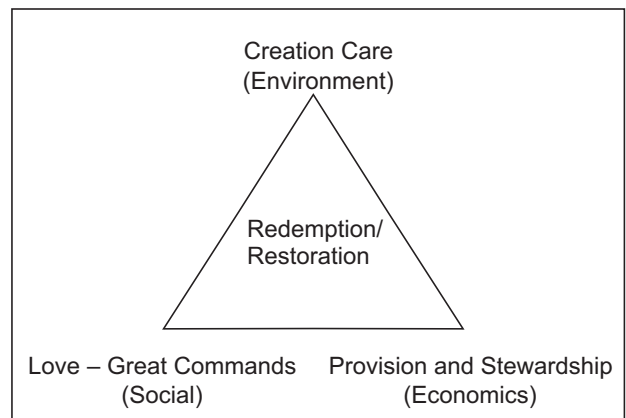


Figure 1. A Biblical View of Sustainability in Agriculture. The triad derived from biblical principles roughly parallels the secular sustainable agriculture triad of environment, social, and economic concerns (shown in parentheses), and adds the Christian themes of redemption and restoration as central to sustainability.

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ungodly actions, it is dangerous. We must speak up and say so. Clearly, the Bible has much to add to this discussion. These are social values, which are also relevant in communities.

Agricultural Communities: Healthy and Godly

The Scriptures have much to say with regard to human relationships and community. The Ten Commandments and the two great commandments (to love God and to love our neighbor) speak directly to social and community concerns. The concepts of respecting and caring for one's neighbor are so basic that no society can survive long without them. Including these basics is essential in any community, but despite them, changes may occur, as they have in many parts of agricultural America. Dealing with these changes is essential, and we may glean some wisdom from the Bible.

Managing Transitions

In Jeremiah's time, the removal of many of Judah's people to Babylon was a cause of suffering, but Jeremiah bought a field (Jer. 32). This purchase was a statement of faith; he believed God would redeem his people. God has indeed redeemed his people (John 3:16), and we now live by grace. Our communities will change. But by following God's commandments, we can have hope for the people and for the land as Jeremiah did. Much more could be said on social values in the Bible since that is a central biblical theme, but I will leave the discussion here and continue with other relevant topics.

I would like to suggest that we are not talking about mere survival here, but that we should also consider the concept of redemption and restoration. A sustainable agriculture will not only maintain present status, but will actively seek to restore those lands, waters, soils, ecosystems, people, and other creatures that have been harmed in the past. We look forward to a future in which agriculture will be an integrated, restorative, healthy, and flourishing enterprise for people and for God's creation.

Intergenerational Equity and Justice for the Poor

Intergenerational equity—leaving a good legacy for our children—is a theme of Scripture and of sustainability. The Bible speaks of intergenerational equity, of the consequences of our forbears. It is said that the "sins of the father will be visited unto the fourth generation" (Ex. 34:7), but the "good deeds unto the thousandth" (Deut. 7:9). This directs us with Nehemiah to acknowledge that "I and my fathers have sinned" (Neh. 1:6), to repent, and then by God's grace, to rebuild and to restore in order to provide for future generations. This is a strong theme in the Bible where the concept of "eternity" is common. I suggest that we consider the long-term implications of our actions and be accountable for them.

Justice and fairness to the poor (Isa. 60) are also essential. Justice is another theme in the Bible and one we need to consider in our actions. We should make certain the poor are fed, be wise with our resources, and be godly in our actions. In addition, we are called to be merciful, and we are called to redemption and to new growth. This is where I hope we are headed with our agriculture.

Redeeming and Restoring Creation and Agriculture

We are called to build healthy communities, not to love money, and to be good stewards of the land. We are to be fruitful and to allow fruitfulness of the land and other creatures. We are not to build "until we are alone in the land" (Isa. 5:8). I would add one more concept: redemption over time. We are redeemed, paid for by the sacrifice of God's Son, according to Scripture (John 3:16). We are to live that way—to forgive, to redeem, and to restore those people and things around us. I suggest that this is an essential part of our work. We are not merely to see ourselves as negative agents, consuming and polluting, but as redeemed agents (2 Cor. 5:18–19). We can be agents of positive change. We have been redeemed, and, submitting our collective sins to God, we can become agents of positive change in "regrowing His garden."

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We can not only reduce erosion but also improve the soil, helping it to rebuild faster than it would otherwise. We already bring "streams to the desert" by irrigating. There are certainly arguments about how much of this to do, but there are so many places where we have collectively destroyed ecosystems that we have much work to do in rebuilding and regrowing. If our agriculture can be productive, in tune with the rest of creation, and friendly to the other creatures, this can be one way in which we can redeem our world.

Specific groups of people will have different roles. Farmers need to care for the land, and perhaps there is a necessary density of farmers on the land to assure its continued care. Society needs to make sure that the efforts of farmers are appreciated and that farmers and farm communities are cared for so that they, in turn, can effectively steward the land and resources for which they are responsible. Engineers need to consider agriculture less mechanically and more biologically. Aquaculturists need to consider how their production impacts the water, native fish stocks, and other aspects of their environment.¹³

We need to be more nurturing and visionary. We need to consider not only efficiency and effectiveness, but also other humans, the environment, and our motives. Companies and governments, as well as individuals who grow, process, and eat food, need to put the love of money second and recognize the real value behind money. In all things, we need to consider healing and restoration (Rev. 22:1). Christians should envision the day when the "River of Life" and the "Tree of Life" provide food every month and the leaves are "for the healing of the nations" (Rev 22:2). Non-Christians can gain insights into cultural values deeply rooted in Judeo-Christian belief systems. These beliefs suggest that we start the healing process now, by God's grace, by making our entire food and fiber system not just more sustainable, but more just and merciful, while we become wise stewards of the resources God has provided. *

Notes

¹Miguel A. Altieri, *Agroecology: The Science of Sustainable Agriculture* (Boulder, CO: Westview Press, 1994); R. H. Caffey, R. P. Romaine, and J. W. Avault, "The Sustainability of Crawfish Aquaculture," in *Proceedings of the International Association of Astacology*, 587-99; S. Gliessman, *Agroecology: Ecological Processes in Sustainable Agriculture* (Chelsea, MI: Sleeping Bear Press, 1998); John E. Ikerd, "Healing and Creativity: A Whole Vision for Rural America" (paper presented at the National Catholic Rural Life Conference, Des Moines, IA, Nov 5-6, 1999); and David Pimentel and Marcia Pimentel, "Population Growth, Environmental Resources and Global Food," *Journal of Sustainable Forestry* 9, no. 1: 35-44.

²Steven G. Hall, *Temperature Feedback and Control Via Aeration Rate Regulation in Biological Composting Systems* (Ph.D. diss., Cornell University, 1998).

³"Greatest Engineering Achievements of the Twentieth Century," National Academy of Engineering Survey (2000). Available from www.greatachievements.org/greatachievements.

⁴Wendell Berry, *What Are People For* (San Francisco: North Point Press, 1990); and Wes Jackson, Wendell Berry, and B. Colman, eds., *Meeting the Expectation of the Land* (Berkeley, CA: Northpoint Press, 1986).

⁵Ibid.

⁶David Pimentel and Marcia Pimentel, "Population Growth, Environmental Resources and Global Food."

⁷R. H. Caffey, R. P. Romaine, and J. W. Avault, "The Sustainability of Crawfish Aquaculture"; C. E. Boyd and C. S. Tucker, "Sustainability of Channel Catfish Farming," *World Aquaculture* 26 (1995): 3, 45-53; Rosamond Naylor, et al., "Effect of Aquaculture on World Fish Supplies," *Nature* 405 (29 June 2000): 1017-23; and R. R. Stickney, "Aquaculture on Trial," *World Aquaculture* 19 (1988): 3, 16.

⁸Miguel A. Altieri, *Agroecology: The Science of Sustainable Agriculture*; R. H. Caffey, R. P. Romaine, and J. W. Avault, "The Sustainability of Crawfish Aquaculture"; S. Gliessman, *Agroecology: Ecological Processes in Sustainable Agriculture*; Wes Jackson, Wendell Berry, and B. Colman, eds., *Meeting the Expectation of the Land*; and C. E. Boyd and C. S. Tucker, "Sustainability of Channel Catfish Farming."

⁹Lionel Basney, *An Earth Careful Way of Life* (Downers Grove, IL: InterVarsity Press, 1994); and Wayne D. Roberts and P. E. Pretiz, eds., *Down to Earth Christianity: Creation Care in Ministry* (San Jose, Costa Rica: AERDO/ESA/EEN, Ediciones Sanabria, 2000).

¹⁰Miguel A. Altieri, *Agroecology: The Science of Sustainable Agriculture*; R. H. Caffey, R. P. Romaine, and J. W. Avault, "The Sustainability of Crawfish Aquaculture"; S. Gliessman, *Agroecology: Ecological Processes in Sustainable Agriculture*.

¹¹Biblical references are from the Revised Standard Version of the Bible, ©National Council of Churches of Christ in America.

¹²Wayne D. Roberts and P. E. Pretiz, eds., *Down to Earth Christianity: Creation Care in Ministry*; and Calvin DeWitt, *Caring for Creation: Responsible Stewardship of God's Handiwork* (Grand Rapids, MI: Baker Books, 1998).

¹³Wayne D. Roberts and P. E. Pretiz, eds., *Down to Earth Christianity: Creation Care in Ministry*; and Wes Jackson, Wendell Berry, and B. Colman, eds., *Meeting the Expectation of the Land*.