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Book Review: *A Biomass Future for the North American Great Plains: Toward Sustainable Land Use and Mitigation of Greenhouse Warming* By Norman J. Rosenberg

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with degrees in soil physics and meteorology, sets out to examine the potential for the North American Great Plains as a major source of biomass for producing cellulosic ethanol. The book's theme is the feasibility of converting a portion of the Plains from input-intensive grain crops to more sustainable biomass crops. Rosenberg's fundamental thesis is that, in the face of diminishing groundwater supplies and increased energy costs, it is likely the acreage of water- and fertilizer-intensive grain crops will decline in the Great Plains, and that a viable alternative would be to dedicate a portion of the region to biomass crops for energy. Much of the region should be put back into perennial grasses anyway, and devoting land to biomass for energy would have better economic and social returns than simply letting the land revert to the "buffalo commons."

Seven chapters describe the natural resources, agriculture, people, and society of the region from the standpoint of economic and environmental sustainability. Historically an important "breadbasket" for the nation, the long-term future for agriculture here is in question largely due to depletion of water resources. Adding to that is the possible impact of the climate change "wildcard," which could cause this inherently fragile agroecoregion to become even less conducive to grain production, particularly in the drier western portions. Rosenberg postulates that biomass production using perennial native grasses could provide a more sustainable alternative than current irrigation-dependent arable farming.

Through the sequestering of CO₂ in the soil and the replacement of fossil fuels with biofuel, biomass from the North American Great Plains could also make an important contribution to climate change mitigation. Although the author clearly identifies the opportunities presented by biomass production in the region, he also acknowledges and addresses numerous questions and concerns, including the issue of food vs. fuel production and problems associated with transporting biomass long distances in a water-limited region with relatively low-biomass yield. The book does not try to convince the reader that biomass production is the only route to agricultural sustainability in the Great Plains, but an option that should be seriously considered. The region needs more grass on the land, and biomass production is preferable to simply returning the land to a natural unmanaged state.

This book presents a comprehensive, thoroughly researched, and timely treatment of the topic. Interpretive summaries at the end of each chapter emphasize salient points and are very helpful to the reader. Illustrations (including color plates in end materials) are useful, but a number have poor resolution, making them difficult to interpret. The book is appropriate for upper-level students and other individuals interested in sustainable agriculture, agroecology, bioenergy, and related topics. **Steven L. Fales**, *Department of Agronomy, Iowa State University*.

A Biomass Future for the North American Great Plains: Toward Sustainable Land Use and Mitigation of Greenhouse Warming. By Norman J. Rosenberg. Dordrecht, The Netherlands: Springer, 2007. xviii + 198 pp. Maps, figures, tables, references, index, color plates. \$139.00 cloth.

In *A Biomass Future for the North American Great Plains*, Norman Rosenberg, an agricultural meteorologist