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## Book Review

*Agribusiness as the Future of Agriculture-The Sugarcane Industry under Climate Change in the Southeast Mediterranean.* By Youssef M. Hamada. Apple Academic Press, Inc., Palm Bay, FL, 2021. ISBN 9781771888424.

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*Agribusiness as the Future of Agriculture-The Sugarcane Industry under Climate Change in the Southeast Mediterranean* by Youssef M. Hamada was published by Apple Academic Press, Inc. The author is a professor emeritus of the Agricultural Economics Research Institute in Egypt and has extensive international experience working in Africa and Asia. The book was written with the emphasis on uncertainty and risk and the need to manage both short-term price and income risks and long-term risk recognizing the importance of sugar for the rapidly growing population and the expansions of sugar cane production in southern Egypt. Given the vast amounts of water required by sugar cane the potential climate changes exacerbate the need for managing water resources in the dry climate of Egypt.

The book includes 10 chapters. Each chapter, except chapter 1, presents an abstract and is organized in sections followed by a list of the cited references and can be read independently of other chapters. The Introduction, chapter 1, informs the reader about the background and the purpose of the book. Chapter 2, *Agribusiness for Southeast Mediterranean's Prosperity*, focuses on implications of water scarcity and the opportunities of agribusiness development in the region to alter the commodity-based exports.

The next four chapters focus on climate change and range from the discussion of causes and effects (chapter 3) through the impact of global warming (chapter 4) to specific impacts on crop yields and farm income (chapter 5) to effects on food security (chapter 6). In chapter 4 several sections focus on climate change related health problems, potential for weather events and climate shifts on food security, and the cycle of poverty. The author emphasizes the role of science in identifying uncertainties and offering solutions. Chapter 4 continues with the general discussion and elaborates on the future risks associated with climate change. The discussion is limited to general comments and would have been strengthened by illustration of potential effects in the region and threats to its crops. Chapter 5 mentions the benefits of organic agriculture. The discussion centers on specific changes in seasonal weather patterns in Egypt. The author outlines wide-ranging consequences for crop yields and farm incomes. Chapter 6 includes a number of photographs and provides more detailed discussion of implications stemming from climate change to food security. Among the raised issues are implications for food systems, potential changes in food availability, access and utilization. Also discussed are the issues of food system stability and vulnerability of livelihoods facing possibly new risks and the adoption of insurance schemes.

Chapter 7 shifts the focus to human risks of the climate change and possible threat of poverty, especially of the population residing in the semi-arid regions of Africa and the world. The chapter presents a discussion of adaptation to weather risks in agriculture and advocates sustainable adaptation measures. The chapter contains numerous photographs to illustrate various conditions.

Chapter 8 advocates expanding agribusiness, including processing and value addition as a way to transform agriculture. Making agribusiness a priority offers a path for economic growth reducing poverty. Chapter 9 pays attention to the climatic shifts and the alleviation of poverty in the southern Mediterranean through adaptation. After discussing the possible vulnerable groups and inequalities in experiencing the negative effects of possible climate change, the author discusses the threat of costs increase, water supply, and agricultural productivity, but mentions that the future developments may also create new opportunities and indicates some projects creating win-win outcomes, including the biomass energy generation. Finally, chapter 10 presents a mathematical model of future sugar cane industry. The chapter lists variables used in the model, tabulates the results and graphically illustrates the obtained optimum resource allocation in the sugar cane production in Upper Egypt. The conclusion section of chapter 10 summarizes well the relevance of the book's subject to the situation in Egypt and its future of sugar cane production.

Overall, the book is easy to follow and provides a good overview of the concerns about the changing weather patterns and climate change in a region heavily dependent on irrigated agriculture. The chapter devoted to mathematical modeling of the sugar industry can be of interest to students interested in an example of empirical modeling that illustrates the required data and stages of the model construction and presentation of results. Researchers in countries producing sugar cane can gain insights into the specific conditions in Egypt and draw conclusions for their own industry. The book crowns the long career of an empirical scientist.