



Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production

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Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production From Academic Press

Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production provides information on a field that is helping to offset the threats that unusual weather and shortages of land and natural resources bring to the food supply.

As alternative options are needed to ensure adequate and efficient production of food, this book represents the only available resource to take a practical approach to the planning, design, and implementation of plant factory (PF) practices to yield food crops. The PF systems described in this book are based on a plant production system with artificial (electric) lights and include case studies providing lessons learned and best practices from both industrial and crop specific programs.

With insights into the economics as well as the science of PF programs, this book is ideal for those in academic as well as industrial settings.

- Provides full-scope insight on plant farm, from economics and planning to life-cycle assessment
- Presents state-of-the-art plant farm science, written by global leaders in plant farm advancements
- Includes case-study examples to provide real-world insights

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Editorial Review

Review

"**Plant Factory** is very useful for a beginner interested to venture into crop production using plant factory system. It provides a comprehensive information from all aspects of crop production under a housing or factory system, inclusive the design of the structure and lighting and their maintenance. I would recommend it to be used as a textbook for horticulture course on vegetables production system where land is limited such as in urban areas. The science or technical know-how is very strong as a lot of research has been conducted to support the claims. It is quite unusual for a book to even provide information on the training centre whereby a trainee can register himself or herself. As it mentioned, this system of vegetables production is rather costly and the economics or cost-benefit analysis should be included as one of the main topic in the book. Also, the risk or probability of failure of the entrepreneur investing in this system to succeed or make money should also be highlighted. Also, it will be quite useful to know the perception of customers or how to convince the customers to pay more for the vegetables produced in the plant factory." -- Prof. Dr. Che Fauziah Ishak, Universiti Putra Malaysia

About the Author

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Chief Director, Association for Plant Factory Managers

Chief-Director, Japan Plant Factory Association (NPO)

Professor Emeritus of Chiba University

Summary of Academic achievements

Publications: 270 original papers, 140 review papers, 159 miscellaneous papers,

171 book or book chapters, 7 translations of books from English to Japanese

Patents: 20 active patents, 50 approved patents in total

Number of Invited Lectures at International Meetings: 47

Number of Invited Lectures at National Meetings: 85

National and International Awards

2009 Awarded for Lifetime Achievement from The Society for In Vitro Biology

2003 Awarded for outstanding contribution from Japanese Society of High Technology in Agriculture

2002 Purple Ribbon Award from Prime Minister of Japanese Government for the academic achievement of environmental studies in biology.

2002 Friendship Award from Chinese Government for the 2003 achievement of outstanding contribution to Chinese horticultural industry

2000 Fellow, Japan Association of International Commission of Agricultural Engineering

1997 Japan Prize for Agricultural Science for the academic achievement “Growth Regulation and Mass-propagation of in vitro plantlets by Physical Environment Control” awarded by Japanese Academy of Agricultural Sciences and by Yomiuri Newspaper Co.

1992 Prize for academic achievement in “Environmental Control in Photoautotrophic Plant Tissue Culture” awarded by Japanese Society of Environment Control in Biology.

1991 Prize for academic achievement in “Fundamental Research on Environmental Control Methods for Factory-type Transplant Production” awarded by Japanese Society of High Technology in Agriculture.

1982 Prize for academic achievement in “Solar Light Transmission in Greenhouses” awarded by the Society of Agricultural Meteorology of Japan

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Areas of Expertise

- Environmental stress physiology
- Modeling and crop production under controlled environment
- Nutrient and salinity management for efficient use of water and fertilizer
- Micropropagation

Dr. Genhua Niu is an off campus faculty at the Texas A&M AgriLife Research Center at El Paso with 100%

Research Appointment. Her areas of special expertise are in environmental stress physiology and plant production in controlled environment. Her current research areas include identifying drought and salt tolerant low water use plant materials for urban landscape, quantifying growth and physiological responses of crops to drought, salt and heat stresses, and determining the minimum water requirement for urban landscape plants for maintaining a healthy landscape while conserving water. In addition, Dr. Niu is also working on evaluating the salt and drought tolerance of a range of bioenergy crops and vegetables for the semi-arid region. As a researcher at an off campus research center, Dr. Niu closely works with county extension agents on local extension programs. She also collaborates with faculty members at the Department of Horticultural Sciences, other research centers, and colleagues at other universities on research programs and graduate student education by co-advising and serving as a graduate committee member. In professional society service, Dr. Niu has been active by serving as officers of several working groups for American Society for Horticultural Science and USDA regional meetings.

Professional Recognition:

- Extension Communications Award by Southern Region American Society for Horticultural Science. Mengmeng Gu, Dotty Woodson, Bart Drees, Steve George, Joe Masabni, Monte Nesbitt, Kevin Ong, Tony Provin, Benjamin Wherley, Doug Welsh, Genhua Niu, John Pitt, Christin LaChance, Charriss York, Richard White, James Thomas, Charles Fontanier, Jonathan Smith, Reagan Hejl.
- 2014. Earth-Kind Landscape Management.
- Bridget Fellow of Japan Society for Promotion of Science, 2010. Host: Chiba University from Nov 6 to Dec 11, 2010.
- USDA CSREES National Water Program Award for Outstanding Integrated Activities for Water Resources, Rio Grande Basin Initiative Team Member, 2007.
- First USDA national teamwork award for integrated water resources, ranked number 1 out of 37 nominations.
- Vice Chancellor's Award in Excellence, Rio Grande Basin Initiative Team Member, 2006, Texas A&M University Agriculture Program.
- Post-doctoral research Fellowship of Japan Society for Promotion of Science (JSPS), 1997 - 1998, Chiba University, Japan.
- Japanese Government Scholarship recipient, 1992 -1997, Chiba University, Japan

Users Review

From reader reviews:

Bobby House:

Nowadays reading books become more and more than want or need but also get a life style. This reading routine give you lot of advantages. The benefits you got of course the knowledge the particular information inside the book which improve your knowledge and information. The info you get based on what kind of book you read, if you want attract knowledge just go with schooling books but if you want really feel happy read one with theme for entertaining including comic or novel. Often the Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production is kind of reserve which is giving the reader capricious experience.

Rose Slagle:

Reading can be called a head hangout, why? Because when you find yourself reading a book particularly a book entitled *Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production* your brain will drift away through every dimension, wandering in every aspect that maybe unidentified for but surely might be your mind friends. Imaging each and every word written in a book then become one contact form conclusion and explanation this maybe you never get just before. The *Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production* giving you one more experience more than blown away your brain but also giving you useful information for your better life in this particular era. So now let us demonstrate the relaxing pattern at this point is your body and mind is going to be pleased when you are finished examining it, like winning a. Do you want to try this extraordinary shelling out spare time activity?

Corinna Edwards:

The book entitled *Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production* contain a lot of information on the idea. The writer explains your ex idea with easy method. The language is very easy to understand all the people, so do definitely not worry, you can easy to read it. The book was written by famous author. The author provides you in the new era of literary works. It is easy to read this book because you can continue reading your smart phone, or gadget, so you can read the book inside anywhere and anytime. If you want to buy the e-book, you can open their official web-site along with order it. Have a nice learn.

Ana Worcester:

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