

# **CROP ENVIRONMENTAL ENGINEERING**

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***Published by***

**SCIENTIFIC PUBLISHERS (INDIA)**

5 A, New Pali Road, P.O. Box 91

Jodhpur 342 001 (India)

E-mail: [info@scientificpub.com](mailto:info@scientificpub.com)

Website: [www.scientificpubonline.com](http://www.scientificpubonline.com)

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**ISBN : 978-93-90749-46-1 [P/B]**

**978-93-90749-45-4 [H/B]**

**eISBN : 978-93-90749-47-8**

Printed in India.

## Preface

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Crop production is function of number of aspects that includes the soil, the surrounding atmosphere and plant itself. Combination of all the three factors results in optimum growth and production. Till few years back all these factors were considered independently. However, now we have knowledge and resources to understand the interactions and its significance.

The subject, “**Crop Environmental Engineering**” was a new subject when we started teaching the Ph. D students of Soil Sciences in a Post-Graduate College of Agriculture in 2009. The students found the subject very alien because this is not exactly discussing the topics that they are familiar with. The same problem we faced when we offered the subject to M. Tech students in an Agricultural Engineering College. As students almost three decades back, we did not have such subjects either. Nevertheless, we found the subjects very interesting because it brings agronomists, soil scientists and soil and water engineers to the same platform. It is an interdisciplinary subject. It tries to look into interactions of agriculture vis-à-vis the environment below and above the ground where the crops grow.

As we progressed, we realized that students still find it difficult to comprehend the subject as there is no single book available which can offer more than two topics. Students need to explore books from soil science to thermodynamics and plant physiology to protected cultivation for this subject. Therefore we have decided to work on this book so that students can at least enter into the subject and get a foundation before exploring deeper into the topics discussed.

No book can be comprehensive. We have tried to discuss as many topics as possible primarily required for this subject. However, we might have left intentionally or unintentionally some topics. We also tried to avoid giving special emphasis to any specialization. Hope this book can be a good guide for

the students who try to learn the environmental influences on crop production.

We must admit that we have tried to repackage what is already available in different text or reference books so that the information on each topic is available at the same place. We have tried to make the things very simple to be understood by even a layman with very less scientific background. However, the definitions, equations and deductions of any theory could not be altered and picked up from the sources as mentioned.

We profusely thank our students, past and present, our employer for supporting us to bring out this book.

We are grateful to **M/s Scientific Publishers (India)** for agreeing to bring out this book. Special thanks goes to the management team of Scientific Publishers (India) for their patience with us and the effort made by them for this book.

August 15, 2021

**Prof. P. K. Bora**  
**Prof. B. C. Kusre**

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