

Economic Botany of Crop Plants



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and

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Senior Readers

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*Dedicated to
Sri Sai Baba of Shirdi*

Preface

The present book "ECONOMIC BOTANY OF CROP PLANTS" is a drastically revised text of our earlier book "A TEXT BOOK OF ECONOMIC BOTANY" (1989, Wiley Eastern). Two new chapters have been included, namely Ethnobotany and Biotechnology and Transgenic Plants. These chapters have been dealt with in detail touching all the modern aspects of Genetic Engineering. There have been certain deletions in the book like: (1) Vernacular names in 14 Indian languages have been removed for all plants. (2) Many photographs have been deleted due to cost production and certain technical difficulties. (3) Diseases and Pests and Ecology portions have been deleted. (4) Statistical tables have been totally removed and only a summarized account is given at the end of the book as an appendix, and (5) Chromosome numbers which is a long list has been completely deleted.

Line drawings are retained as such but were reduced in size. There have been suggestions from different quarters that the book was too heavy for a student, though it serves as reference book for teachers. This is the reason why so many deletions were made in this new book.

'A Text Book of Economic Botany' (1989) was reviewed in a praising way in three International Journals devoted to Economic Botany, like "Economic Botany" (1990), "Taxon" (1991) and "New Zealand Journal of Botany" (1993). R.E. Schultes, Emeritus Professor of Harvard University, USA, states in his Foreword as "the authors have approached the subject matter in a rather different way from that commonly employed in many of the recent books and often in great detail and that the book is appropriate for more advanced studies".

Prof. B.B. Simpson of Texas A & M University, USA, praised the book as an "Encyclopedia of economic botany and any student of economic botany should consult this book as a reference", in her review in the 'Economic Botany' Journal (1990).

Prof. Verne Grant of Texas University, USA, commented it as an 'excellent compendium on Economic Botany' (1990).

Dr. Rudolf Schmid of University of California, USA, in his review in the Journal 'Taxon' states that in the foreword, "R.E. Schultes congratulates the authors 'on this valuable contribution to our science' and the publisher who has done economic botany a distinct favour and service in publishing his outstanding volume 'I can say no more'".

Prof. W.R. Sykes of Lincoln, New Zealand reviewed in 'New Zealand Journal of Botany' (1993) as "A number of works on economic plants have been published within the last decade or so, but few cover the range of species of this one".

Late Prof. M. Krishna Rao of Andhra University, Waltair (India) commented that "the volume adequately covers the syllabi of all Universities and can thus serve as a text book for courses in Economic Botany for Bachelor's and Master's degrees in Botany, Agriculture and Forestry. The coverage of topics and details provided, make it a useful reference book for all those interested in Economic Botany" (1990).

Dr. Sambamurty greatly acknowledges his family members for their patience and encouragement during the preparation of the new book. The authors greatly thank the authorities of Sri Venkateswara College for their interest in the book.

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PLANTS FOR MAN By R.W. Schery, 2nd ed.1972, Prentice Hall Inc. Englewood Cliffs, New Jersey, USA.

THE CLOVE TREE By G.E. Tidbury, Grossby Lockwood & Sons Ltd. 39, Thurloc Street, S.W.7. England, 1949.

COLOR ATLAS. MEDICINAL PLANTS OF JAPAN II. By J. Takatori, Hirokawa Publishing Company, Tokyo (Japan), 1970.

SPICES VOL. II, MORPHOLOGY, HISTOLOGY AND CHEMISTRY. By J.W. Parry, Chemical Publishing Company Inc., New York, USA, 1969.

CEREAL CROPS. By W.H. Leonard & J.H. Martin, The Macmillan Company, New York, USA, 1963.

THE FRUITS OF THE EARTH. By F. Bianchini & Corbetta, Cassel & Collier. Macmillan Publishers Ltd. 35, Red Lion Square, London.

DIRECTORATE OF ECONOMICS, Ministry of Agriculture, I.C.A.R., New Delhi (India), 1985.

PRODUCTION YEAR BOOK. F.A.O. Rome, 1980 & 1984.

THE WEALTH OF INDIA, Publications Division, C.S.I.R., New Delhi (India).

AN INTRODUCTION TO THE BOTANY OF TROPICAL CROPS., By L.S. Cobley & W.M. Steele, The English Language Book Society and Longman, London, 1976.

United States Department of Agriculture, Washington, USA.

Photo Library, I.C.A.R., New Delhi (India).

Archaeological Survey of India, New Delhi (India).

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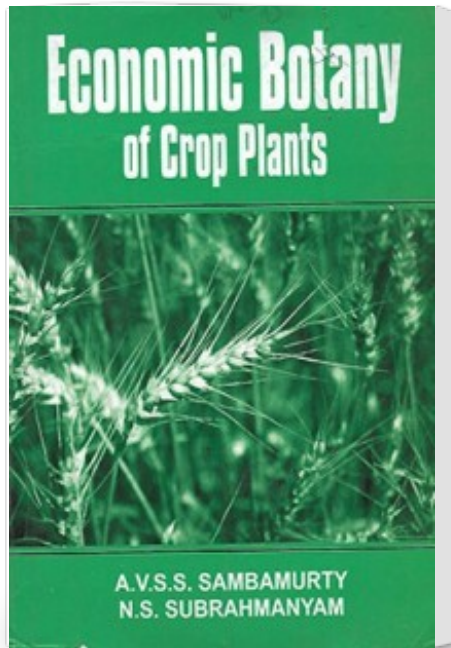
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