

WEED MANAGEMENT



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FOREWORD

A weed may be quite generally defined as a plant growing in the wrong place from the farmer's point of view. Man, however, when he learned to grow his food and developed the art of farming, desired to grow large areas of one kind of plant only and immediately came into conflict with nature, and to him extraneous plants growing among his crops became weeds. A knowledge of the nature and habits of the common weeds of cultivation is essential to the farmer if he is to control them or possibly turn them to his use.

Weeds reach into every dimension of the agro ecosystems and pose a great threat to human welfare. It is estimated that world agriculture loses more than US 20 billion every year because of weeds. These undesirable weed vegetation divert energy from the direction desired by man and devour about 12 per cent of the world's food production. Weeds also are responsible for causing allergies of humans and death of livestock.

It is an innocent belief that all weeds are unwanted and harmful. Besides being the source of food and fodder for wild life and livestock, several weeds are highly medicinal. Even in modern times, about 200 medicinal herbs are used in different medicinal systems.

A knowledge of the nature and habits of weeds also helps to select the chemical and application techniques to control them effectively. In addition to herbicidal research, it is even more important to understand weed biology and ecology to detect alternative methods to control them.

This book contains habitat, ecology, reproduction, morphological description, economic importance and control measures for weeds particularly in temperate, tropical and sub-tropical regions. This publication, which has long been under preparation, is an attempt to place such knowledge at the disposal of the students, agriculture / horticultural scientists and farmers.

I feel that this book would fill a long felt gap on the biology, ecology and control of weeds. The present work will have a great

impact in the world of science and stimulate the minds of teachers, researchers of agriculture/horticulture and the pharmaceutical industry. In addition, this book would be useful as a text book cum reference book to agriculture universities and general universities, for both graduate and post-graduate students.

Sincerely hope that agronomists, botanists, ecologists, pharmacologists and native medical practitioners would derive maximum benefits from this book to understand weed biology and ecology and help to take the intricacies of problematic weeds.

I warmly compliment the authors for their endeavour in bringing out this useful publication. Their strenuous efforts deserve all appreciation.

Place: Coimbatore

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PROLOGUE

Weed science involves the study and control of the more aggressive and troublesome elements of the world's vegetation, and accordingly constitutes parts of such subjects as plant ecology and plant geography. Weeds occupy an important place in Agriculture. Early men learned to pullout associated volunteer vegetation with his crude stone tools to avoid weed competition. Thus, when man tried to change the natural progression in order to grow his crops, he had to fight an up hill battle against the natural weed succession.

Weeds utilize the privileges of cultivated plants and reduce the components useful to crop plants. Weeds hinder the productive capacity of agricultural lands and interfere with human activities in several ways. They pose serious problems in highways, waterways and rail roads, health hazards to livestock and spoil the quality of agricultural products. In the temperate regions where major crops and vegetables commonly grown, almost half of the efforts of farming are devoted to the battle against invading weed vegetation.

Many wild weeds are still highly popular as medicines in India for curing several diseases. Although weeds are understore and unwanted, they are in some way or the other, beneficial to human beings. Not only ancient people but modern man is also dependent on weeds for medicinal, ornamental and ceremonial purposes. Weed scientists should take the responsibility of awakening the common man to the economic importance of weeds vegetation. Instead of eradicating, weeds should be put under control. The degree of control is the measure of success of farming, society, nation and civilization.

The present book has been written specially keeping in view the biology, ecology and economic importance of weeds present particularly in temperate, tropical and subtropical regions. Yet no book exists which deals with temperate, tropical and subtropical weeds and their control. It has been prepared as a text and reference book for graduates and post - graduate students of agriculture or horticulture and researchers in agriculture.

We look forward to a continuing dialogue with readers for reorganization and improvement of the subject in the years to come. Finally, we conclude that this book will place in the hands of the teacher a mine of information about the very commonest of plants to be found in the fields of temperate, tropical and subtropical regions and it will provide a source of knowledge about the weeds prevalent and associated with crop plants.

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Tremendous advances in agriculture technology particularly weed science have been made in recent years. Although most of the information in the first edition of the 'Weed Management - Principles and Application' is still current, much new information are now available. The writing of this edition has been a team effort by many outstanding scientists. Many wild and old weeds are still more familiar in India and abroad as medicinal plants. Information regarding description of weed flora was collected through publications made by elderly and eminent weed scientists of India and abroad. We are deeply indebted to all of them for sharing their vast knowledge.

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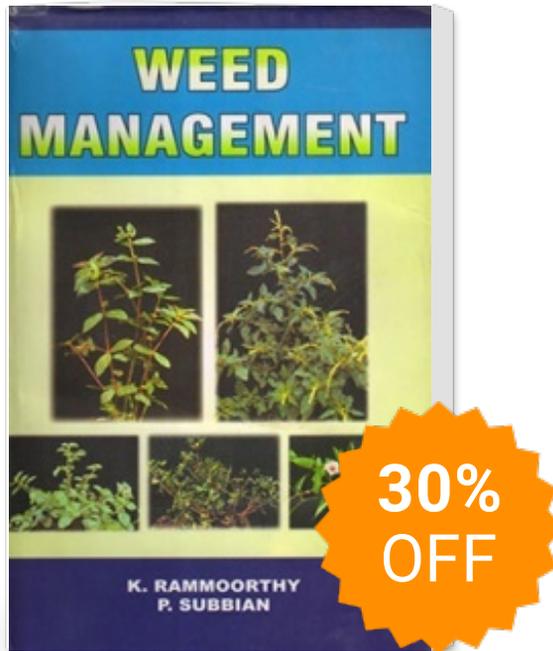
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