

# Multiple Cropping

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## Foreword

This symposium is the first major publication of the three societies on one aspect of increasing food production beyond increasing cultivated area and increasing yields; that is, harvesting more than one crop from the same piece of land in a year. It provides recognition to this aspect of crop intensification as one of the major tools for preventing food shortages throughout the world.

The purpose of the symposium was to bring together the available knowledge about multiple cropping systems, both ancient and new. A uniform terminology was presented and used throughout. The ancient traditional tropical multiple cropping systems were summarized from a regional perspective never attempted before. New systems developed in the U. S. during the last decade are described in detail. Both fundamental and applied aspects of multiple cropping are presented from a multidisciplinary viewpoint. It is hoped that this publication will serve as a basic reference of what is known about multiple cropping as of 1976.

The breadth of the publication is illustrated by the viewpoints and contributions of authors from different parts of the world and representing several disciplines. The authors range from all regions of the U. S., Australia, Colombia, Costa Rica, Guatemala, India, Lebanon, Nigeria, the Philippines, and the United Kingdom. They are agricultural engineers, agricultural economists, agrometeorologists, agronomists, crop physiologists, entomologists, soil chemists, soil physicists, soil fertility specialists, soil conservation specialists, and weed control specialists.

The Symposium was cosponsored by Divisions A-3, A-4, A-6, C-3, S-4, and S-6 with Division A-6 carrying leadership for organization of the papers. We extend a special appreciation to the organizing committee: D. H. Myhre, G. R. Carlson, R. R. Allmaras, and P. A. Sanchez, Chairman, and to the editorial committee: G. B. Triplett, P. A. Sanchez, and R. I. Papendick, Chairman.

F. L. Patterson, President  
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R. L. Mitchell, President  
Crop Science Society of America

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# Preface

Multiple cropping is not a new concept but instead a centuries-old technique of intensive farming that has persisted in many areas of the world as a method to maximize land productivity per unit area per season. As defined in this publication, multiple cropping means growing two or more crops on the same field in a year. The practice is most prevalent in areas of high rainfall in the tropics where temperature and moisture are favorable for year-round crop production. Systems in use today have evolved largely from experience and in response to high food demand in densely populated areas.

Recent world food shortages and prospects of inadequate supplies in the future have prompted accelerated interest in methods for increasing food production. Gains in production per unit area with monoculture cropping with single harvests per season have not been impressive in recent years, and the potential for improvement through new technology remains uncertain. More promising for many areas to increase food output is development and application of new technology for multiple cropping systems. Though the history of multiple cropping is old, the concept has received only limited attention from the scientific viewpoint, and that only in relatively recent times. In limited instances where new technology has been applied to exploit space, moisture, and radiation resources, phenomenal gains in food output have been reported.

The development and application of technology to improve the efficiency of multiple cropping systems will not be an easy task. In parts of the tropics, systems in use are extremely complex, and the basis for estab-

lished cropping patterns are often poorly understood. In the northern latitudes where farming methods are highly mechanized, development of systems is only in the beginning stages relative to those in the warmer, more populated areas.

The papers in this publication are the result of a symposium on "Multiple Cropping" held at the 1975 American Society of Agronomy annual meetings. Organizers were P. A. Sanchez of North Carolina State University, R. R. Allmaras, D. L. Myhre, and G. Carlson, all of the Agricultural Research Service, U. S. Department of Agriculture. The objectives of the Symposium were to bring together the present knowledge about multiple cropping systems on a worldwide basis. The papers cover (i) a description of what farmers and researchers are doing in specific geographical regions, (ii) basic concepts of crop performance in multiple cropping systems, and (iii) specific agronomic practices. Although the papers do not include all of the aspects of the subject, they should provide a basis upon which the potential for improvement in land productivity through multiple cropping can be assessed.

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