PREFACE

Although nematodes are as numerous as arthropods, the contribution of the nematode community to the soil ecosystem is just beginning to be assessed. The paucity of available information on the role of the total nematode community in the soil may be because historically it has been studied as several independent areas of research. In past centuries, the study of soil nematodes has been delegated to the agricultural nematologists due to the direct relationship between losses in crop yield and the abundance of plant parasitic nematodes. To these nematologists, we owe our knowledge of methodology, taxonomy, biology, and interactions of mainly phytoparasitic nematodes. More recently, ecologists have been interested in the structure and function of the total soil nematode community, which includes not only the primary consumers of roots, but bacterivorous, fungivorous, predaceous, and omnivorous nematodes and their relation to other soil microflora and fauna. Because of the ecologist's interest in the flow of energy and cycling of nutrients, they have contributed areas of knowledge previously unexamined by agricultural nematologists. Investigators from the ecological and agricultural areas seem unaware of each other's work. To stimulate communication between the soil ecologists and agricultural nematologists, a symposium was held in the summer of 1980 at the annual meeting of the American Institute of Biological Sciences in Tucson, Arizona. This book contains papers presented at that symposium, some of which are meant to encourage thought and others to offer data and information to aid us in our understanding and future assessment of the nematode's role in various soil ecosystems.

The presentations at the symposium were divided into distinct areas, primary consumption, decomposition, and synthesis and validation, as are the papers in this book. It is hoped that in reading these papers, one can appreciate the necessity for good sampling techniques (Goodell) which will influence quantitative estimates of soil nematodes (Freckman) in the ecosystem. Primary production as affected by the different life habits and energy requirements of phytoparasites is examined by Ferris, and the effect of interspecific nematode interactions on primary production is discussed by Duncan and Ferris. Phytoparasites and other members of the nematode community are discussed in a no-till agroecosystem (Stinner and Crossley). The present state of knowledge of nematodes and decomposition is summarized by Yeates and Coleman and in desert soils by Whitford et al. A more specific study of nematodes and their role in cellulose and chitin decomposition is discussed by Trofymow and Coleman. Information derived from various studies has been used to synthesize and validate two different models; the prediction of population fluctuations of a primary consumer on corn roots (McSorley et al.), and the prediction of population dynamics and carbon flow in bacteriophagic nematodes (Anderson and Kirchner).

The goal of this volume then is to further communication between soil ecologists and nematologists and to stimulate more studies of this large and diverse group of soil fauna.

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