

Preface

The field of Plant Microbe Interactions is very broad. It covers all topics in which microbes influence or even determine plant activities. Plant enemies can be pathogenic viruses, microbes or insects which cause pests. Fortunately, these enemies in turn have natural enemies in the form of beneficial microbes, which can protect plants against pathogens and pests. As is rather common in this field, we included nematodes and insects in the book. Although they are not microbes, they have in common with microbes that some can cause harm to, and others help protect, the plant. Another group of microbes is beneficial for plant growth. Some microbes promote plant growth, for example by producing “plant” hormones or by making nutrients available to the plant. Other beneficial microbes can alleviate plant stress or can inactivate environmental pollutants, thereby cleaning the environment and allowing plants to grow without toxic residues. The present market share of biologicals is estimated at 1.6 billion USDs and is growing fast. In the past years the trend is that major chemical companies buy smaller biotech companies.

For this book I have invited the world’s top scientists to summarize the basic principles of all these topics in brief chapters which give a helicopter view on the subjects. The book also contains important techniques, success stories and future prospects. The topics include basic as well as applied aspects. Hereby we make an attempt to close the gap that still exists between fundamental and applied research. In my opinion the two fields need each other and cooperation will create a win-win situation for both parties. Since space is limited, the authors have often referred to reviews. For more detailed information, the reader can consult primary articles listed as references in these reviews.

This book is meant for everybody who is interested in plant-microbe interactions and in the roles microbes can play in making agriculture and horticulture more sustainable. These include academic scientists, industrial professionals working in agriculture, horticulture, biotech and food industry, students, teachers, as well as government officials and decision makers who quickly want to make themselves familiar with particular aspects of this broad field. Using this information as a basis, also a non-specialist reader should be able to understand more complicated articles and to discuss selected topics with colleagues. To read the book, basic knowledge of plant science, microbiology, biochemistry, and molecular biology is helpful.

Ben Lugtenberg, editor

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