BOOK REVIEWS

SOIL—USE AND IMPROVEMENT

This book on soil is a most valuable compilation of background material for anyone who is interested in the future welfare of our country.

The historical story of erosion down through the ages and the erosion that man brought about here in the United States to date is not an encouraging picture. However, we do know how erosive forces act.

The idea of each raindrop being a "bomb" will be surprising to many. But everyone has seen mud splattered 3 feet up on a new white house before the grass grew thick enough to absorb the shock of the raindrops. It will also come as a surprise that most of the soil fertility is floated off in surface runoff. Fine crop residue is light and the raindrops can easily detach it.

Wind has the same effects as water. The exact method by which wind moves soil is also clearly explained in the text and by well selected photographs.

Until the mechanics of erosion are studied and understood, it is not likely that effective preventive measures will be taken.

The suggested exercises at the end of each chapter in this book will illustrate visually the mechanics of erosion and the effectiveness of the protective practices. A close adherence to the exercises will enable the student to answer the questions which follow the exercises.

After the mechanics of erosion have been thoroughly explained and illustrated, the characteristics of the various kinds of soils, how they are surveyed, and the land capability classes are carefully explained in detail. These factors are all evaluated and used in land judging. This enables the student to make a factual inventory of the presently existing condition for any specific plot of land.

The comparative value of the various agricultural plants and crops, their arrangement in effective erosion control patterns, and the best management of all residues for protection and improvement of the soil, are given their rightfully prominent place. Grassland farming is now being recognized as the basis for a sustaining prosperous agriculture.

The need for protective measures and the kinds of measures required to make the ranges and the woodlands more productive are well covered. With this information the student can develop the necessary local adaptations from local experience and study.

The practical value of the foregoing studies is seen as they are brought together for use in helping to develop a basic conservation farm plan. It is clearly shown how the local people through the Soil Conservation Districts and Watershed Plans help in developing adapted practices with specifications for establishment that meet local conservation needs.

The inter-relationship of soil, plants, and water is brought out in the chapters on Water Disposal, Irrigation, and Drainage.

The student, conservation farmers, and agricultural workers will be more effective conservationists after reading and studying "Soil—Its Use and Improvement."—T. C. MAUER.

A MANUAL OF SOIL FUNGI
Revised, 2nd Edition


One who has used the first edition of the Manual (1945) knows that it is a classification of soil fungi of the classes Phycomycetes, Ascomycetes, and Fungi Imperfecti. There are keys to the classes, orders, families, genera, and species, with descriptions of each and line sketches of the organisms of many genera. About 700 species of 172 genera are described. One-fourth of the species are members of the genera Penicillium, Aspergillus, and Fusarium. Most of the material of the first edition is included unchanged, but 32 genera and 142 species have been added. There are many additional references and 14 plates with 85 photographs of representative sporulating structures which should be helpful in identifying the fungi isolated from the soil.

In the words of the author, "The fungi included in the manual are chiefly those species which have been cultivated artificially on various types of biological media. Excluded are the terrestrial mushrooms, the plant pathogens which are considered to be soil-borne but which have not been isolated directly from the soil, and the forms which have been reported from leafmold, decayed wood or other substrates that have not yet become fully incorporated in the complex known as soil." The author makes no claim that all of the fungi that thrive in soil are described. Since the principal basis for inclusion of a species was its ability to grow on laboratory media, there is no evidence that those species that are described are indeed the most important ones in soil. Undoubtedly many of the nutritionally fastidious fungi are omitted, including some that are important as converters of organic materials, mycorrhiza formers, and parasites of microscopic soil invertebrates. None of the yeasts, Basidiomycetes, or Myxomycetes is included, nor the interesting fungi that are predaceous on nematodes, protozoa, or other soil-inhabiting micro-organisms.

In spite of obvious limitations, the Manual should be very useful in characterizing most of the fungi that are recovered from soil on agar plates.—ROBERT L. STARKEY.