Book Reviews

FIELD EXPERIMENTATION WITH FRUIT TREES AND OTHER PERENNIAL PLANTS

This publication from the Commonwealth Bureau of Horticulture and Plantation Crops is a worthy continuation of that Bureau's series of technical communications. Mr. Pearce has done a fine job of collecting and interpreting statistical literature at present in existence on the subject of perennial crops. Much of the illustrative material is taken from experiments conducted at East Malling during the last 30 years.

The book is written as a reference text for the practical worker in research on perennial crops. The author assumes a basic knowledge of statistics is held by his readers. A brief quotation will best express the practical approach of the author (page 81):

"Plants are not measured primarily to provide data for statistical analyses but to give records that will describe to others what was apparent to the investigator at the time. The other purpose of confirming what has been suspected, by making possible a significance test, though important, is yet secondary."

The book is divided into nine chapters. The first three are devoted to readable presentations of basic experimental designs. Succeeding chapters discuss the calibration of perennial material and the use of covariance; the size, shape, and number of plots and replications; trial designs for specific investigations such as manural trials, methods of culture, pruning, and pest control; the analysis of results covering the analysis of several years results, and results from experiments at several locations; some mishaps and remedies; and the measurement of perennial plants.

A series of four appendices carry examples of computation of the analysis of variance, partitioning of treatment sum-of-squares, and the analysis of covariance. The bibliography consists of 194 titles.

This book will be primary interest to those workers interested in tree fruit crops. The principles set forth, however, are of universal application and all field research workers may find useful information.—M. N. Dana.

HYDRAZINE
By C. C. Clark, Baltimore, Maryland: The Mathison Chemical Corporation, 135 pages, 1953.

The opening chapter states, "Hydrazine (N₂H₄) is a colorless, hygroscopic liquid having an odor resembling that of ammonia but with several of its physical properties similar to those of water. Like ammonia it is generally classified as an inorganic chemical".

This textbook treatment of hydrazine reviews the literature pertaining to this versatile chemical, including that from scientific journals, patent literature, reference books, and other materials. The author states that it is reasonably complete up until the year 1949 although a few later references are included. The compound was employed by the Germans in combination with hydrogen peroxide as a propellant for the first rocket plane. Production of the material was begun by the Mathison Chemical Corporation in 1947. Commercial production of the material is in the offing.

Chapter titles include:

Appendices include methods for the analysis of hydrazine and a glossary of hydrazine derivatives.

Several hundred references are appended to the various chapters. Although of primary interest to the chemist, this work is of background interest to the soil chemist because of the use of this compound as an analytical reagent. It has been employed as the phenylhydrazine in connection with the identification of aldehydes and ketones in connection with plant chemistry.—M. L. Jackson.

THE INTELLIGENT USE OF THE MICROSCOPE

The author states that the classical optical microscope "has reached such a degree of perfection that the development of new techniques such as phase contrast, or reflecting objectives, can alone achieve improved results." While these developments are being made, however, students and research workers will find it profitable to refresh themselves with this guide to the possibilities and limitations of the ordinary microscope. Improved efficiency and satisfaction should result from the experiences and lessons it contains.

The chapters are well-balanced between optical theory and the practical manipulation of the instrument. The chapters cover limits of resolution, types of equipment and accessories, illumination and filters, measurements, photomicrography and phase contrast microscopy. A general bibliography and subject index is provided.

The book is featured by excellent technical drawings and tabulated information which is helpful in achieving a maximum efficiency of operations. Subject matter is conveniently arranged with numerous subheadings which allow easy reference. The author appears to have achieved his intention of providing a simple and orderly framework of facts for the amateur, student and even the expert.—J. T. MEDLER.

MARGINAL LAND IN BRITAIN

When a nation's land raises food for only half its population, and the deficit can no longer be made up on the world market, the need for developing some 5 million acres of "marginal" land and the way to go about it become very practical problems in national policy. Such is the situation in present-day Britain described clearly by a worker long on intimate terms with British agriculture. British farmers today can adequately feed 20 million people. There is an obvious need, then, for using every possible acre of land to increase domestic production. Ellison feels strongly that some of that increase can be made on the 5 million marginal acres which are described as "land which normally requires a greater input of labor and materials—or cost—than land described as average for a given return."

The problem, as Ellison sees it, is not one of finding out what to do with these 5 million acres, but rather of finding a method of financing their development. "The need is for capital investment to encourage greater production from these areas, rather than a differentially subsidized price for the commodities they produce. Any such subsidy would of course be markedly different from that which is now given to a wide range of agricultural products under the existing system of guaranteed markets and prices."

In turning the marginal lands into productive enterprise, Ellison stresses the desirability of making them flexible so that they would be more likely to stay in production if there are any marked changes in emphasis and profitability of certain commodities. Recognizing a strong sentiment which favors public subsidy to increase production on land that is already good, he suggests that extending this help to the marginal areas might encourage the more fortunate land holders to expand their own enterprise to include development of marginal lands. In any case, Ellison believes that Britain or any other country with marginal lands can't afford to let them remain that way in view of world population growth and a trend to increased per capita food consumption, especially in countries which previously had exported large surplus quantities of food stuffs.

Chapters include a history of experimental work on marginal land, distribution and extent of marginal land, improvement of the land, increasing soil productivity and methods of utilizing increased productivity. There are numerous illustrations of types of land, original vegetation and grasses. The book in general is a clear picture of this practical aspect of agriculture as Britain faces it, and should give any reader, regardless of his field, an insight into the human problems toward which experiment and research are aimed.