

and supplemental nitrogen fertilization with adapted hybrids, are ignored. Modern methods for weed control with chemical sprays are mentioned but not explained.

Apparently the authors have tried to cover too much too fast. Thus, they avoid specificity, yet specificity is essential in farm management. The result is a mixture of old concepts and comparatively old practices, some good and some mediocre. It is far behind the modern successful farmer.

*Farm soils* is a more useful book. First of all, the author has confined his attention largely to soil management and thus not attempted to cover so much ground. Yet, relatively, it is less up to date than the earlier editions. Too much old material has been retained and not enough of the new results and new methods explained.

The author's concept of soil management is largely one of maintaining the soil. He writes that "farm soils tend to become acid." More often "farm soils" that need lime were acid at the start. Our problem with lime, organic matter, plant nutrients, and soil structure is, generally, as much or more one of improving the natural soils as it is of maintaining them.

The discussion of soil classification as a basis for predicting yields under alternative practices is outdated by 15 years or more. And even the system presented is not integrated with the recommendations in a way to permit these to be applied to specific conditions.

The moldboard plow is defended almost too much. Under dry-farming in regions of low rainfall he writes: "Therefore, plow to a depth of 7 or 8 inches promptly after crops are harvested." The greatly improved tillage methods now used by good farmers for the Chernozem, Chestnut, and Brown soils are inadequately explained.

This book is much better than *Crop management and soil conservation* on lime and fertilizer. Worthen stresses the savings to be made from home mixing of fertilizers and explains how it is done. He emphasizes the great savings resulting from the use of high-analysis materials rather than low-analysis ones. Yet, one wishes he had gone further and not written that "the 5-10-5, with a total of 20 percent of nitrogen, phosphoric acid, and potash, would class as a high-analysis or a high-grade fertilizer. . . ." But he shows the advantage of really high-analysis kinds. There are little errors such as "complete" for "mixed" fertilizer and "alkali" for "saline" soil. Generalizations are used where published data, if reviewed, would have permitted specificity.

Like the earlier editions, this book has a place for vocational agricultural courses in high schools and junior colleges, particularly in the humid-temperate part of the country. But it will need careful correction and supplementing by the teacher, using local soil surveys and recent bulletins of state agricultural colleges and the U. S. Department of Agriculture.

Two books are badly needed—one in agronomy and one in soil management—that can compare with *Farm management* by Black, *et al.* and *Feeds and feeding* by Morrison. Neither of these comes close to filling this need.

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