

Book review

R. Diercks & R. Heitefuss (Eds), 1990. *Integrierter Landbau*.
BLV Verlagsgesellschaft, München. ISBN: 3-405-13527-3. Price 76 DM.

The growing awareness of adverse impacts of current agricultural practice on the environment has led to calls for change. Other forms of agriculture have been proposed, including sustainable, integrated or ecological agriculture. Unfortunately such terms are not defined unequivocally. This also applies to 'Integrierter Landbau', notwithstanding a lengthy definition in the introductory chapters. However, the essential objectives of integrated agriculture are clear, and include reduced reliance on chemical crop protection by emphasis on other means of controlling pests, diseases and weeds, by minimization of loss of nutrients from the system, and by reinforcement of the ecological diversity of the agro-ecosystem. A variety of methods and measures is available in crop protection, for instance, well planned crop rotation, choice of suitable cultivars, optimum exploitation of genes for resistance in plant material, biological control and, for weeds, mechanical control. Integrated plant nutrition requires knowledge of crop demands for nutrients and soil processes such as mineralization. Soil tillage has several consequences, for instance on soil life, erosion and weeds. Integrated agriculture means also integrated deployment of methods. This implies that choices have to be made. In decisions, the objectives of the action, the suitability and limitations of alternative methods and risks are all elements that need to be explicit and must be taken into account, especially in computer-supported decision making.

In the book, 24 authors deal with such questions and many more. The book is primarily meant for farmers, extension officers and agricultural colleges. For such users and for scientists interested in agricultural practice or extension, the book contains a wealth of useful information. Thorough theoretical analysis of the principles of processes and methods are not presented. The first half of the book deals with general aspects of integrated production. The second half provides examples of methods and measures that are ready for implementation in practice. The examples apply to arable crops, vegetables, apples, hop and grassland.

The book apparently focuses on Germany and on neighbouring countries with similar agriculture. All but one of the authors work in west Germany and the references include few from elsewhere. In view of the purpose of the book, this is justified, but selective use of the experiences of integrated farming elsewhere could have improved the book.

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Book review

Rudolf Heitefuss, 1989. Crop and plant protection: the practical foundations. Ellis Horwood Series in Agrochemical and Agricultural Science. Ellis Horwood Ltd., Chichester (UK). 261 pp., 86 figures and 22 tables. ISBN: 0-7458-0523-X (Horwood Ltd.) £ 39.95; 0-470-21385-X (Halsted Press) \$ 87.95.

General textbooks on applied plant protection are rare. One of them is Heitefuss' 'Pflanzenschutz: Grundlagen der praktischen Phytomedizin', a remarkable and successful introductory textbook written in German. Recently, a translation in English appeared under the title 'Crop and plant protection: the practical foundations'. This book brings together several disciplines, such as entomology, herbology, nematology, phytopathology and virology, which contribute the basic ingredients of plant protection. These disciplines are thoroughly mixed and packed in a framework consisting of agronomy, economics and legislation.

The eleven chapters of the book can be arranged in three parts. The first part, consisting of five brief chapters, provides the reader with a general background of basic notions on crop protection. The second part, consisting of one very long chapter, mainly describes chemical control. The third part, consisting of five chapters, reflects modern views on how to reduce the undesirable side-effects of pesticides.

A brief Chapter 1 on 'Global and national importance of plant protection' points to plant protection as a decisive production factor. Chapter 2, on 'Importance of farm economic management of plant protection', provides an economic background for plant protection. Chapter 3, quite brief, gives a rather elementary introduction to 'Propagation of noxious organisms', limited to fungal diseases (epidemiology) and insects (population dynamics). Too little is said on the dynamics of nematodes, viruses and weeds. 'Prognoses' are the subject of Chapter 4. The concept of economic threshold (in the sense of 'economic injury level') is introduced. Chapter 5 deals with plant protection as an aspect of good crop husbandry, leading to avoidance of diseases and pests. Here, the practical foundation promised in the English title of the book are discussed, such as the importance of rotation, tillage, fertilizers, planting dates, and varieties.

Over a third of the book is taken up by Chapter 6, dealing with 'Direct control measures'. Application methods of pesticides are discussed briefly. Then follow over 70 pages on fungicides, insecticides, and herbicides, with mention of acaricides and nematocides. The treatment is concise and up to date. Safety to bees is considered, but not the ruinous effect of endosulfan (p. 141) spills on fish. This chapter, rather a reference work, is logically followed by Chapter 7 'Consequences of the use of chemical plant protection agents', dealing with residues, accumulation in soil and food chains, and environmental risks.

Beginning with Chapter 8, 'Biotechnical measures', the author steers a less conventional course, discussing physical and chemical stimuli affecting insects which could be exploited in pest control. Why not combine this chapter with Chapter 9, on 'Biological plant protection', mainly of insect pests but with mention of fungal diseases and weeds? Too little is said on virus prevention and on production of healthy seed and planting stock. Chapter 10 considers crop husbandry in 'Integrated plant protection'. It introduces the concept of 'integrated crop management'. The future-oriented author gives a modern view on agriculture as an industry, in which the manager relieves the husbandman. Chapter 11, on 'Legislation in plant protection', is the only chapter rewritten and extended for the present international edition. It provides some essentials of British, German and United States law on plant protection and on protection of consumers and environment.

An index, not very extensive but adequate, completes the book. The book is soberly illustrated

with line figures. Explanations are often inadequate. In Figures 2 and 3, the reader has to guess what the figures along the horizontal axis represent. The tables give appropriate information, but they do not use official SI units.

The initiative to provide the international readership with a translation of a successful German book is excellent, but why was this done so half-heartedly? The translator worked hard, translating every single word, but not hard enough, because idiomatic differences between German and English were ignored. Sometimes I had to go back to the German text to understand the English one. Several technical terms were wrongly translated, e.g. p. 20 'infestation' for 'infection'. Translation of the Continental European term 'Biozönose' into 'ecosystem' is correct but why maintain the wrongly spelled word 'biozöenosis' (should be 'Bioc(o)enosis') which is not current in Anglo-Saxon literature? Which English reader understands the meaning of the typically German abbreviation dt (= 100 kg)? 'Sommergerste' is usually called 'spring barley' in English and not 'summer barley' (p. 55), and 'Ölrettich' is neither 'oil radish' (p. 53) nor 'oil-seed rape' (p. 52) but 'fodder radish'.

The publisher carried through a good idea in a poor way. The original title was concise, the English title is pleonastic. A preface addressing the international readership I would consider to be a minimum courtesy. It might have explained that a book with a Continental European background had something to offer to the international public. The references could have been adjusted to accommodate the English-reading public.

Notwithstanding these critical comments, this book is a good and timely one. It contains much information in a modest volume of print, information is presented in a most useful way for the uninitiated, and maybe even for insiders. The book is rooted in economics (Chapter 1 and 2) and it returns to these roots (Chapter 10) by elaborating the concept of 'integrated crop management' as an avenue to a future with a prosperous and more sustainable agriculture with due respect for environment and human health. The book is warmly recommended for students in agriculture, who only need an introduction into crop protection, crop protection specialists, who require a general background for their specialism, managers in the farm supply industry and in the governmental administration, extensionists and crop consultants, and scientists such as biochemists, botanists and zoologists with an interest in agriculture.

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