

Book review

H. H. Koepf, B. D. Pettersson & W. Schaumann: *Biologische Landwirtschaft. Eine Einführung in die biologisch-dynamische Wirtschaftsweise* (Biological agriculture, an introduction to the biologic-dynamic agricultural management). 300 pp., 32 photographs and 17 diagrams. E. Ulmer, Stuttgart, 1974. Price DM 42.

A preliminary Dutch report on alternative methods in agriculture appeared recently ('Alternatieve landbouw', Commissie Onderzoek biologische Landbouwmethoden. Pudoc, Wageningen 1974), in which the ideas of eight 'biological' movements are outlined and compared with those of conventional agriculture. The organic-biologic and the biologic-dynamic movements are the largest groups represented. The ideas of the former are summarized in a book by H. P. Rusch 'Bodenfruchtbarkeit' (Haug Verlag, Heidelberg 1968); only the book 'Die Fruchtbarkeit der Erde' by E. E. Pfeiffer (5th ed. 1969, Geering, Dornach) and some scattered publications were available about the biologic-dynamic movement. The present volume gives a general account of its ideas and achievements.

The biologic-dynamic movement began with an agricultural course given by Rudolf Steiner in 1924. It is not only against the use of chemical fertilizers and pesticides, but advocates cultivation adapted to the habitat and emphasizes the importance of humus and soil micro-organisms, of self-sufficient agricultural holdings ('Betriebsorganismus') with decentralized animal husbandry, recycling of waste, rotation of several different crops, maintenance of soil fertility over decades and good quality crops which do not deteriorate in storage.

The introduction includes basic ideas on the position of biological agriculture, the role of the agricultural holding in the landscape, soil life and fertilization, biotic substance and biologic-dynamic preparations (mainly horn-manure broth for the soil and horn-pebble broth for growing plants). The book deals with agricultural practice, animal husbandry (in particular sick animals), gardening, fruit and wine growing, and finally with assessment of quality, questions of production and consumption. Eight pages of references and an index conclude the book.

There is no chapter on plant diseases, but it is repeatedly stated that recommended practices are generally sufficient to grow disease-free plants; much hope is placed on natural control of pests by predators and of diseases by antagonistic soil micro-organisms (unfortunately without experimental proof). Yields often equal those of conventional agriculture, although they require more labour. It is claimed that biological agriculture could feed the whole earth's population better than present-day methods without problems of environmental pollution and natural disasters.

The book reports various experiments without giving details that would permit a critical judgement, but the authors honestly state that many of the recommended techniques are not yet sufficiently understood, although 'experience has confirmed the success repeatedly'. The reviewer can only question such recommendations as the determination of sowing or pruning dates by the phase of the moon (little details in the text), the improvement of compost fermentation by adding medical herbs (*Achillea*, *Matricaria*, *Urtica*, *Quercus*, *Taraxacum*, *Valeriana*), the use of ashes of weeds, colorado beetles, etc. for preventing renewed infestation, the characterization of soils and manures by means of colour patterns ('chromatograms') produced by an extract on filter paper, or the judgement of the quality of plant saps by crystallization figures when added to copper chloride on glass plates. In some instances, growers reported successful treatments against threatening plant diseases, e.g. with *Equisetum* tea or horn-pebble broth against various fungal infections; application of 'Bio-S' (containing small amounts of sulphur) against apple scab and stinging-nettle juice against aphids are recommended; *Pyrethrum* and *Derris* extracts or *Ryania* are permitted against codling moth larvae. The authors took notice of numerous publications of conventional agricultural sciences, although their selection of such references is rather meagre.

There is an almost unsurmountable gap between conventional and anthroposophic thinking and practice. At least some of the latter's principles – although often not new – are healthy and worth general consideration. After scientific investigation they may enrich the methods of integrated pest control. This book should contribute to their propagation.

W. Gams