

Sinoquet, H., Cruz, P. (ed.): **Ecophysiology of Tropical Intercropping**. - INRA, Paris 1995. 484 pp., 195.00 F.

Intercropping consists in growing two or more crops together with the main objective to increase resource use efficiency and to improve sustainability of agroecosystems. This promising practice, widely used in many tropical countries, is based in most cases on empirical knowledge only. Exact experimental studies on mechanism of plant interactions and actual benefits of intercropping are urgently needed. New research activities in this field were discussed at the First International Meeting on the Ecophysiology of Tropical Intercropping, held in Guadeloupe. Selected and revised papers from this meeting were compiled into the reviewed book.

The book is divided into five parts introduced by an excellent review article written by G. Lemaire ("Ecophysiological approaches to intercropping"). The most comprehensive is undoubtedly the second part "Resource partitioning between mixture components: above and below-ground interactions". About one half of the articles in this section is focused on radiation partitioning in intercropping systems with special attention devoted to radiation capture by the understorey crops, and also its consequences for crop yield and transpiration. Water and nutrient use efficiency is discussed in several other papers, which describe not only water and nutritive relations of plants, but also rainfall interception by plant canopies and nutrient cycling in soil-plant system. Five articles in the part three are devoted to growth and morphogenetic responses of intercrops to changes in resource availability (soil water deficiency, low concentration of nutrients, shade). Morphogenetic effect of changes in light quality and foliage pruning is also discussed. Much attention is paid in the present book to mathematical modeling of growth and development of mixed crops (part four). Ecophysiology-based simulation models are extraordinary useful tools for analysis of such complex systems - not only for prediction of yields, but also for assessment of system stability and development of better management strategies. Very interesting overview of existing models, modeling approaches, and also knowledge gaps and limits to intercrop predictability is given by R.M. Caldwell. Several simulation models are described in detail in the following papers. Eight case studies of tropical crop-crop and tree-crop systems are presented in the final part of the book. In spite of the fact that the book is especially intended for agronomists and scientists involved in tropical agriculture, it contains much valuable reading on plant-environment interactions in general, which is widely applicable in solving ecological problems anywhere, and thus important to all interested in ecophysiology of plants.

J. GLOSER (*Brno*)