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BOOK REVIEW

GRACE, J.: Plant Response to Wind. — SUTCLIFFE, J. F. (ed.): Experimental Botany: An International Series of Monographs Vol. 13. Academic Press, London - New York - San Francisco 1977. 204 pp., £ 9.80.

The relationship between single components of weather and the growth of plants is a puzzle which has interested agronomists, foresters, ecologists, botanists and other plant scientists for a very long time. One of the most important climatic factors is wind, which has been rarely taken into account, when the relationship between plant and its environment was examined. Attention has been paid to this problem only recently using the experiments with controlled environment which make possible the investigation of plant response to individual weather variables. Regrettably, the papers on this subject are straggled in journals and books of various disciplines as botany, plant physiology, crop production, forestry and many others. The author has summarized the published material on this subject and, as formulated by himself, he prepared a book with two main objectives in mind: firstly to introduce the botanical investigator to the essential physical ideas and techniques which are necessary for the experimental investigation of the response of plants to wind; and secondly, to draw together the scattered information and to evaluate the present state of knowledge. In the first chapter "Nature, Measurement and Control of Air-flow" the author expertly introduces readers to the terminology involved in the study of wind, considers the nature of air-flow in the vicinity of plant surfaces, deals with instruments and practical difficulties of measurement of the wind, with regulation of its velocity in experimental works and with possibilities of using phytothrons and wind tunnels. The second chapter "Response of Single Leaves to Wind" is dedicated to quantitative effects of wind-speed on leaf temperature, transport of CO_2 and H_2O through the boundary layer and by this way its effect on transpiration and photosynthesis. The third chapter "Response of Whole Plants to Wind" is devoted to the influence of wind on plant growth and stability in soil. In the next chapter "Wind in Relation to Crops" attention is paid to its effect on exchange processes between canopy and atmosphere, methods of experiments in the field, problems of wind damage in agriculture and forestry, role of wind in dispersion of air pollutants and pathological agents, and to the basic theory required for the understanding of shelters and their effect on the physiology and yield of crops. The last chapter "Ecological Aspects" reviews knowledge of two ecologically different regions — mountains and coast, in which wind is one of the most important climatic factors. At the begining of this well arranged and printed book is a very useful "List of Symbols" used uniformly throughout the book. Text is illustrated by 22 tables, 89 pictures, and complemented by the 557 "References" and "Subject Index", containing also Latin plant names. This comprehensive book is valuable not only for botanists and agronomists but also for many other plant scientists.

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