

PREFACE

Few plants give such an impression of vitality and lavish luxuriance as the dandelions, flowering in tens of thousands in our lawns. Their abundant seed set and effective seed dispersal are well known by everybody who has blown away the seeds from a dandelion head. Yet the dandelion has turned its back on the process of sexual seed formation characteristic of most higher plants. The seeds are formed without the process of fertilization — the pollen is functionless and shows tendencies of degeneration.

What has the dandelion in common with maize, rice and wheat? Well, in these and other crops, breeders are today looking for prospects of introducing modes of reproduction similar to that of the dandelion. A success in this area could be as important as any progress in gene technology. Why? And how does this mode of reproduction function?

The problems connected with asexual seed formation — which to the authors of this book means the same as apomixis — have long fascinated scientists in different fields of biology. Gustafsson's monograph "Apomixis in Higher Plants" (1946 through 1947) summarized the knowledge at that time and is still a very important source of early references. Since then, a large amount of new data has accumulated. New areas of investigation have been explored and new methods and techniques have been developed to assay the problems of apomixis.

The literature on fields related to apomixis is very extensive and around 100 scientific papers appear each year. It is self-evident, then, that we cannot cover all fields in detail. Our ambition has rather been to outline basic facts, to demonstrate the level and short-comings of our present knowledge — especially areas where different scientists disagree — and to point out areas where interesting work is under way, or which ought to be subjects for future investigations. Above all, we wish to supply our readers with relevant references for detailed studies.

We thus feel convinced that a modern monograph is needed, not only for specialists in this field but also for scientists in and students of plant genetics, breeding, taxonomy, and embryology, as well as plant and animal evolution, ecology, and population biology.

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