

# PLANT BREEDING REVIEWS

Volume 1

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## **Editorial Board, Volume 1**

Dermot P. Coyne  
John M. Poehlman

# PLANT BREEDING REVIEWS

Volume 1

edited by  
**Jules Janick**  
Purdue University



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# Preface

Plant breeding, the domestication and systematic improvement of crop species, is the basis of past and present agriculture. Our so-called primitive progenitors selected practically all our present-day crop plants, and the improvement wrought through millenia of selection has so changed some of them that in many cases their links to the past have been obliterated. There is no doubt that this ranks among the greatest of human achievements. Although plant breeding has been a continuous empirical activity for as long as humans have forsaken the vagaries and thrill of hunting for the security and toil of agriculture, genetic crop improvement is now very much of a twentieth-century discipline. Its scientific underpinnings date to the beginning of this century with the discovery of Gregor Mendel's classic 1865 paper on the inheritance of seven characters in the garden pea. If any science can be traced to single event, the best example is surely found in the conception of modern genetics that appears in this single creative work.

The relationship of plant breeding progress to advances in genetics has become closely entwined. Mendel himself was concerned with crop improvement and worked on schemes for apple and pear breeding. Plant breeding also has claims on other scientific and agricultural disciplines—botany, plant pathology, biochemistry, statistics, taxonomy, entomology, and cytology, to name a few—and has also impinged on our social, ethical, economic, and political consciousness. Recently world food supplies have been in precarious balance with population growth in many areas of the world. The acceleration in the spread of modern agricultural technology in the 1960s (known as the Green Revolution) was based on advances in plant breeding, specifically the introduction of short-stemmed, fertilizer-responsive wheat and rice that staved off food shortages and famines; at least for the short term. With the increasing cost of energy inputs for crop production, breeding efforts are required to develop more biologically efficient crops adapted to biotic and abiotic stresses. Recent advances in molecular biology, under the sobriquet of genetic engineering, have been touted as our saviors for the

long term. Time will tell. Clearly plant breeding and modern biology have merged destinies.

Notwithstanding its pivotal position in agricultural progress, plant breeding has been slighted in the scientific communication system. Few journals are devoted exclusively to plant breeding (none in the United States!), and although there are two international review journals devoted to general genetics, topics in plant breeding have been few and diminishing. It may be that traditional plant breeding information has tended to become craft- and commodity-oriented, which has eroded the concept of plant breeding as a unique discipline.

The resultant fragmentation of the plant breeding literature suggests that a review journal devoted to this subject is particularly appropriate. Thus, the goal of *Plant Breeding Reviews* will be to consolidate all aspects related to crop improvement. It will endeavor to emphasize the major agronomic, horticultural, and forest crops whether for food, fiber, ornamental, or medicinal use; but species of minor economic importance will not be slighted. It will consider crop plants in the broadest sense, including fungi and bacteria. Topics dealing with the theory of breeding systems and methodologies, testing, and evaluation, as well as matters pertaining to the profession of plant breeding including plant breeders' rights, will be included. We shall not neglect plant breeders themselves and in each volume will recognize the career and achievements of at least one of our own. I am pleased to dedicate Volume 1 to the late Dr. H. A. Jones.

It is a pleasure to acknowledge Drs. Dermot P. Coyne and John M. Poehlman, members of the Editorial Board for Volume 1, and to recognize W. W. Tressler of AVI Publishing Company for his assistance in bringing the concept of *Plant Breeding Reviews* from an idea to an actuality.

Jules Janick

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