

Fryxell P A. Mode of reproduction of higher plants. *Bot. Rev.* 23:135-233, 1957.
[Department of Botany, University of Wichita, KS]

The reproductive mode (inbreeding, outbreeding, apomixis, etc.) of flowering plants is reviewed. Methods of measuring natural crossing are analyzed, especially their mathematical bases, as are factors affecting the reproductive mode. The literature is reviewed and summarized in tabular form concerning reproductive patterns known in ca. 1,500 species of flowering plants. [The SCJ® indicates that this paper has been cited over 145 times, ranking it among the top 10 for this journal.]

Paul A. Fryxell
Agricultural Research Service
US Department of Agriculture
and
Texas A&M University
College Station, TX 77843

December 13, 1984

Reproductive strategies are involved in evolution and systematics and also have applied consequences. This paper had its genesis during my graduate-school days. I was studying population genetics and allied topics and had occasion to take a course or two in plant breeding methods. It was obvious that the breeding methods one might apply to a given plant depended in part on the reproductive patterns peculiar to that species. Not having a strong background in agriculture, I was not all that familiar with the normal breeding patterns of the common crop species. So I sought references, thinking I would find a table of such data in a textbook somewhere. Not so. Thus, I began to compile a table of such information, simply for my own use, confining my attention initially to common crop species.

However, like Topsy, the table "just grewed." I quickly appreciated the significance of reproductive patterns to systematics and evolution and was soon tabulating information on all flowering plant species

for which I could find data. I began spending a lot of time at the library perusing literature. The extensive tabulation that resulted became a major part of the study, together with the more than 500 references cited in support of the tabulation. By this time, I was getting carried away with the subject and undertook an analysis of methodology, especially including the mathematical underpinnings of estimates of natural crossing, both in artificial experimental situations and in nature. This led to a consideration of the significance of the subject in terms of population structure and evolutionary consequences, but that discussion concerns subsequent studies more than it does this paper. Eventually I had to say enough—it is time to publish.

I am of course pleased that my colleagues have found this paper useful (citable), especially since this was my first "major" publication, appearing just shortly after I left graduate school. In addition, I am very proud that when I submitted the manuscript to a "quality" journal, the editor responded not only with an acceptance, but with an acceptance *without revision of any kind*. I took that (and still do) as a high compliment, and now I have the opportunity to say so.

Of course, much has been published on this subject in the intervening years,¹ and the time is ripe for another review article to update the information. The review will have to be done by someone else, because in subsequent years, my interests have gone in other directions, and I do not have the time to prepare such a review. Why has this paper been so frequently cited? Because, like review articles in general, it is a key to a large body of highly dispersed literature. (I also like to think that my analysis of methodology has been considered sufficiently original to merit this attention.) But the principal factor is that reproductive biology is a topic that touches a broad spectrum of aspects of systematic, genetic, and evolutionary biology.

1. Grant V. *Plant speciation*. New York: Columbia University Press, 1971. 435 p. (Cited 280 times.)