CORRELATING YIELD WITH PHENOLOGICAL AVERAGES
TO INCREASE EFFICIENCY IN WHEAT BREEDING

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A great deal of work has been done in Greece during the last decade to improve the acre yield of wheat. An important part of this work has to do with testing and propagating imported varieties and selections from native varieties. Due to the great diversity in climate and soil types which characterize Greece, as well as to the great variation in weather conditions from year to year, this task involved a good deal of time and energy and every possible effort should be put forth in carrying on an efficient wheat breeding program with the limited means and personnel available.

Such efforts should be directed not only toward defining ecological areas and properly locating the experimental fields, but also in establishing general principles and specific criteria which would aid in selecting strains from local stock and varieties created abroad without waiting for yields. Furthermore, certain of these principles and criteria should be employed to determine how long one should continue testing promising varieties, or at what stage of the testing process the undesirable ones should be discarded.

A review of the literature on this subject indicates that formerly agriculturalists who dealt with wheat problems in this country thought of the introduction from abroad of earlier varieties as one of the most effective means for improving the wheat yield on the theory that in eastern Greece, where the annual rainfall ranges from 15 to 20 inches and dry weather prevails late in the spring when the wheat crop matures, these varieties would be able to escape the spring drought and hot winds to which were attributed the low yields obtained in this country. Later it was found that the black rust was also responsible for reducing the yields.

As early as 1892, Chassiotis (2), working in Thessalie, the largest wheat-producing district of Greece, analyzed the factors affecting wheat yield and pointed out the need for the introduction of wheat varieties from abroad which "would be more productive, of a better quality, early maturing, and resistant to drought and to lodging."

Yenadious (12) in discussing the advantages of Rieti wheat, especially its earliness and high gluten content, recommends its testing with the hope that by escaping the hot wind which blows usually in May, it might give good results.

Zalokostas (11), testing the Australian wheat Cedar in Yiannina, and Evelpidis (3) the wheat Indian in Patras, report that these wheats present special interest for Greece on account of their earliness.

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2Assistant agronomists. The writers wish to thank Prof. Papandreou for making available the material on which this study is based. They are also indebted to Prof. H. H. Love for having read the manuscript and given valuable suggestions.

3Figures in parenthesis refer to "Literature Cited," p. 723.