This chapter presents an overview of topics associated with growth and development of wheat (*Triticum aestivum* L.), with particular attention to those events and physiological processes that directly influence grain yield and quality. It can serve as an access to more extensive consideration of each topic. Several other general reviews of wheat physiology exist (Austin and Jones, 1975; Evans et al., 1975; Evans and Wardlaw, 1976; Langer and Dougherty, 1976).

3-1 PHYSIOLOGICAL HISTORY

Diploid and tetraploid wheat were first domesticated in the Middle East at least 9000 yr ago. In agriculture, seed saved from a previous crop generation is deliberately sown to produce the following crop. This differs greatly from the situation where wild stands are gathered and each new generation is produced from nonharvested seed dispersed by natural processes. Domestication had a great effect on wheat, with results such as reduced grain shattering and increased inflorescence size (Harlan, 1975). More than 6000 yr ago, hybridization of a tetraploid and diploid to produce hexaploid bread wheat broadened the range of adaptation of domesticated wheat (Zohary et al., 1969).

The domestication of wheat and the subsequent increase in ploidy caused shifts in morphological and physiological characteristics. Modern tetraploid and hexaploid wheat genotypes have larger leaves and grain than wild forms of the diploid (Evans and Dunstone, 1970). Domestication has shortened the tillering phase, resulting in fewer spikebearing tillers per plant for modern wheat. The harvest index (proportion of aboveground plant mass in the grain) and grain growth rate are higher in modern wheat (Evans and Dunstone, 1970). The grain in modern wheat is more dependent on the leaves than the spike for photoassimilate,