Corn is genetically the most accessible and the most characterized among the higher plants, whether for study of biological phenomena in general or toward understanding and manipulating germ plasm for increased productivity and utility. The species is easy to culture systematically on any scale from single plants or small nurseries to hundreds of hectares; the pollen-bearing inflorescence (tassel) atop the plant is handily separated from the female inflorescence (ear) along the culm, such that both can be easily manipulated, removed, or bagged; and the harvested ear, though bulky, is readily labelled, scanned, and stored as a progeny unit. Pollen production is so prodigious (as many as $10^7$ grains/day for a plant in the peak of a 7-d flowering period) and pollination is so convenient that it is often possible to pollinate 50 or more ears with a single day’s collection of pollen from one plant. An experienced person can complete 300 to 500 individual controlled pollinations in a single day under excellent conditions, each ear yielding several hundred kernel progeny. The very bulk and robust stature of the corn plant, tassel, ear, and seed contribute greatly to the ease with which these manipulations can be done and to the ease of observation of traits, especially in the kernel. In addition, precise cytological and cytogenetic experimentation can be carried out efficiently on key stages of meiosis (Carlson, Chapter 2); various tissues and developmental stages can be defined, dissected and explored systematically; and molecular studies in corn have advanced to the point that many genes have been cloned, several parts of the genome have been characterized or sequenced in detail, and the occurrence of a remarkable degree of polymorphism in the DNA has opened even greater potential for experimental analysis and manipulation (Walbot and Messing, Chap-