

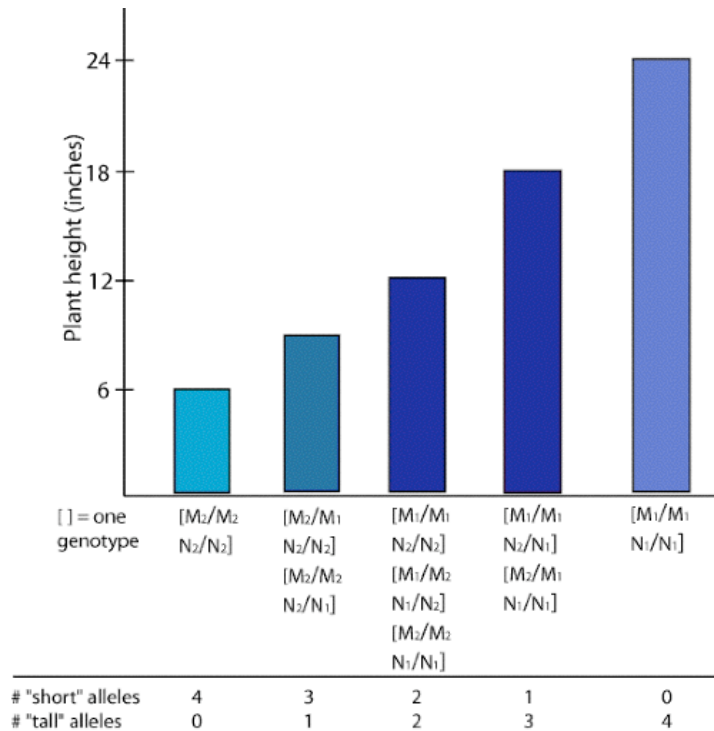
# Polygenic Inheritance



**Wild Columbine: an example of a trait being affected by more than one gene.**  
Columbine flowers are the state flower of Colorado. San Juan mountains, Colorado.

Credit: Gregory Ochocki / © Photo Researchers, Inc.

Sometimes when more than one gene influences a given trait, their effects on that trait are very similar. For example, in the wild columbine (*Aquilegia canadensis*), gene M can have allele  $M^1$  or  $M^2$  (neither is dominant), while gene N also has two different alleles available,  $N^1$  and  $N^2$  (again, neither is dominant to the other). The presence of any  $M^1$  allele makes the plant taller, while any  $M^2$  makes the plant shorter; similarly, any  $N^1$  makes the plant taller, while any  $N^2$  makes the plant shorter. The very shortest plant would have this genotype:  $M^2/M^2 N^2/N^2$  while the very tallest plant would have this genotype:  $M^1/M^1 N^1/N^1$ . The genotype  $M^1/M^2 N^1/N^2$  would be exactly in between. The nine different possible genotypes and the plant heights they produce could be graphed as follows:



If a trait were affected by many more loci with similar effects, the variation in height would become continuous; every possible height between short and tall would be represented by some genotype. Such variation is called **polygenic inheritance**.

