Warm-season grasses are characterized by the C₄ photosynthetic pathway. This pathway occurs in 18 families of flowering plants, and 61% of the species belong to the grass family. C₄ plants are usually found between 30° N and 30° S latitudes; however, some species extend beyond this range (Moser et al., 2004). The C₄ pathway gives the warm-season grasses an advantage for performing in hot and dry climates and is one reason why these groups of grasses are found mainly in the tropics and subtropics (Clayton and Renvoize, 1986).

Developing warm-season grasses for turf is a relatively new concept that began about 60 yr ago. Most of these grasses were used in their native habitat or introduced for use as forages because they could survive under low fertility and in extreme environments (such as drought). Many stoloniferous grasses are somewhat “plastic” and can be changed by management conditions to perform well for different uses (e.g., forage, turf, water conservation, etc.).

Cultivar Development

Many of the warm-season turfgrass have genetically controlled self-incompatibility systems (see below), which aid in making crosses. If these systems are not present, then marker genes controlling stem, flower, and anther color can often be effectively used to distinguish self-pollinated plants from crosses. Plant material for individual crosses should be identified and managed properly before pollination. Crossing can be accomplished in most of these turfgrass species by placing