The warm-season (i.e., C4) grasses are the backbone of livestock systems in much of the world. These forages make up perhaps 85% of the feed supply for meat, milk, and fiber production in warm-climate areas. They are usually grazed, but can be conserved as hay or, less likely, silage. Quality of C4 grasses can be quite excellent early in the growing season, but they grow and mature rapidly. Like the C3 grasses, the quality of C4 grasses declines with maturity. Unless C4 grasses are managed properly, they may only meet maintenance requirements for adult animals. Laksesvela and Said (1978) noted that all tropical pastures in Kenya are energy deficient for medium or high yielding dairy cows. Protein may be excessive or seriously deficient, depending on the pasture species, season, and maturity of growth (Poppi and McLennan, 1995). The C4 grasses are biologically different from C3 grasses in several respects. Not only do C4 grasses contain more cell wall constituents and less cell contents, their cell walls are structurally different. Despite their limitations, C4 grasses are the staple diet of a majority of the domesticated ruminants in tropical and subtropical regions. The objective of this chapter is to examine the factors limiting quality of C4 grasses that may, in turn, suggest management strategies that will optimize their utilization.

OVERVIEW OF FORAGE QUALITY

The general subject of forage quality has been investigated extensively, and the literature is voluminous. Several reviews on the general subject of forage quality have been published recently (Reid, 1994; Moore, 1994; Coleman et al., 1999) including symposia (Fahey et al., 1994) and books (Givens et al., 2000). It is im-