One of the unique traits of the native perennial grasses is that they were naturally selected for persistence in the face of biotic and abiotic stresses characteristic of North American ecosystems. This does not imply, however, that these grasses are invulnerable. Indeed, a stress imposed at a vulnerable time, at a great enough severity, for a sufficiently long period will inevitably cause plant death. For example, clipping too closely, too frequently, and at a vulnerable stage of development will stress and weaken stands of warm-season grasses (Weaver & Hougen, 1939; Jame-son, 1963).

Harvest management of native grasses most often focuses on forage production for livestock. Warm-season native grasses, however, may be used as bio-fuel crops in the future (McLaughlin, 1993; Sanderson, et al., 1996; Vogel, 1996). Harvest management for biomass production may be different than for hay production because the objective is to obtain high yields of lignocellulose and digestibility is not a consideration. Thus, a single late-season harvest may work best for biomass fuel cropping. Producers, however, may want to integrate forage and biomass cropping for flexibility and diversity in the farming operation.

This chapter focuses on the cutting management (machine harvest) of native warm-season perennial grasses and how the morphology and physiology of the plant dictate appropriate machine harvest systems. The response of grasses to herbivory is discussed in another chapter in this publication (Anderson, 2000, this publication). Most of the discussion centers on the species from the tall grass prairie, viz., switchgrass (*Panicum virgatum* L.), big bluestem (*Andropogon gerardii* Vitman), indiangrass [*Sorghastrum nutans* (L.) Nash], and eastern gamagrass [*Tripsacum dactyloides* (L.) L.] because these are most often machine harvested for conserved forage.