Two studies were conducted on established switchgrass plots at Columbia and Mount Vernon, Missouri. The first study examined the feasibility of harvesting switchgrass for biomass and summer forage within a single season. Yields and forage quality were compared between four harvest management treatments: a single post-frost harvest for biomass, a forage harvest at boot stage followed by a post-frost biomass harvest, biomass harvest at post-anthesis with summer regrowth harvested as forage, and biomass harvest at pre-anthesis with summer regrowth harvested as forage. Summer regrowth was minimal at Mount Vernon due to shallower rooting depth at that site, which reduced the amount of water available to the plant roots. Regrowth had greater lignin content and as a result, was less digestible to livestock. The second study attempted to determine the effect of switchgrass maturity on efficiency of conversion to glucose through enzymatic hydrolysis. These maturity stages included boot stage, pre-anthesis, post-anthesis, full seed, and post-frost. Lignin was not shown to negatively affect efficiency of enzymatic hydrolysis. Rather, hemicellulose was shown to negatively impact conversion efficiency, possibly because acid pretreatment was incomplete and thus some hemicellulose remained in the digested material and inhibited the action of cellulase enzymes.