Silage is a term used to define a product that has undergone fermentation in a silo. More precisely, silage refers to the product of a controlled, anaerobic fermentation of fresh forage in which epiphytic lactic acid bacteria (LAB) convert sugars into lactic acid. Storage structures (silos) establish an anaerobic environment within which fermentation occurs. The success of ensilage is principally dependent upon creation of both sufficient lactic acid bacteria and adequate fermentable carbohydrate in the crop. As a result, the pH decreases and the silage is preserved.

THE ENSILING PROCESS

Various factors have been identified that influence the ensiling process, which include: initial pH, forage buffer capacity, temperature, mass of bacteria, water soluble carbohydrate content, dry matter content, total protein, and total N content, hemicellulose content, and volume of air per volume of herbage (Woolford, 1984; Pitt et al., 1985; Muck, 1988).

The chemical and microbiological characteristics of high quality silage include high lactic acid concentrations relative to concentrations of acetic and butyric acids, low pH, low content of ammonia and volatile N, and low numbers of spore forming anaerobes (Langston et al., 1962a,b; Whittenbury, 1968; McDonald, 1976). Organic acids function as silage preservatives and as energy for ruminants (McDonald et al., 1991). Physically, the criteria used to identify normal silages are green color, pleasant smell and good texture (Newmark et al., 1964).

Respiration

Pitt et al. (1985) has described the ensilage process as having three phases: aerobic, lag, and fermentation. When a forage is harvested, water leaves the plant from surface pores in the surface and cut ends. Surface pores close =0.5 to 2 h