

## **FERMENTATION CHARACTERISTICS AND CONSUMPTION OF SILAGE MADE OF HAY TREATED WITH DISCARDED MILK**

**Rafael L. Negrón, Milca R. Rosa, Angel A. Custodio, and Abner A. Rodríguez**  
**Department of Animal Science, University of Puerto Rico, Mayagüez**

Silages made with hay and milk has been proven to ferment well but no actual experiment was done on animal consumption. The purpose of this study was to determine the quality of the silage made of hay treated with discarded milk and its consumption by sheep. We divided the study in two trials: 1) silage preparation and evaluation and 2) the evaluation of sheep consumption preferences. In first trial three different silages were evaluated: 1) hay hydrated with water, 2) hay hydrated with milk, and 3) hay hydrated with milk whey. Triplicates of each treatment were done in micro silos made of PVC pipes. The silos were opened after 21 days and evaluated for pH and aerobic stability determined by changes in pH and temperature. The second trial consisted of six cages, each one with two sheep. In each cage the animals had the opportunity to choose between hay and one of three different treatments: 1) silage made of hay and milk, 2) hay hydrated with milk and 3) hay hydrated with water; to compare the relative preference of consumption. Results from first trial showed good fermentation characteristics (pH < 4.5) for silages made of hay hydrated with milk or with milk whey. Not good silage (pH > 5) from hay hydrated with water was obtained. The aerobic stability test showed that the pH change was affected by treatment ( $P < .01$ ), time of exposure to air ( $P < .01$ ) and by the interaction between treatment and time of exposure ( $P < .01$ ). Temperature, however, was only affected by the time of exposure to air ( $P < .01$ ). In the animal consumption test, sheep were resistant to eat the silage at the beginning of the test. Later in the test individuals who started eating silage continued consuming it. It is important to note that this was their first exposure to silage. This suggest that silage made of hay hydrated with milk has good fermentation characteristics but it is unstable when expose to air. Initially sheep may be reluctant to eat silage made of hay and milk, but given enough time to get used to it, they are likely to eat it.