



STAH ELI WEST

Reducing Baler Losses in Arid Climates by Steam Re-Hydration

Shinners, K.J. and W. M. Schlessler. Reducing baler losses in arid climates by steam re-hydration. Applied Engineering in Agriculture. 30(1):11-16.

Steam vs Natural Dew Experiment

In 1998, Researchers at the University of Wisconsin conducted field experiments on the effects of steam on hay during the baling process. Two experimental conditions were evaluated in all tests. Baling at night when dew re-hydration was apparent (natural dew) and baling in the day with steam rehydration when the hay was less than 12% moisture. Both balers (Hesston model 4900) were equipped with a plastic-covered frame that extended from the rear of the pick-up to just beyond the end of the bale chute so that material falling from the pre-compression chamber, bale chamber, and bale chute was collected. The baler was then stopped and the loss material on the frame was collected and placed in a plastic bag. Baling then proceeded until the full number of replicated bales were formed for the experimental condition.

The Results

The following results were reported in the ASABE publication referenced above:

“ Low-pressure steam was directed onto alfalfa hay at the baler pick-up and pre-compression chamber to reduce leaf loss typically associated with daytime baling in arid climates. The steam quickly softened plant tissue, resulting in reduced losses and greater bale density. Both large square and 3-tie balers were used to bale dry hay during the day with steam re-hydration and at night when dew re-hydration was apparent. Compared to baling with dew rehydration, steam re-hydration significantly **reduced baler losses by an average of 58%** (1.2% to 0.5%, respectively) for large square balers and 43% (0.7% to 0.4%, respectively) for 3-tie balers. Although not quantified, visual observation of steam re-hydrated alfalfa bales indicated that leaf retention on the stems was superior to that of bales formed with dew rehydration. Compared to bales formed with dew re-hydration, steam re-hydration **increased bale density by an average of 20% and 30%** for large and 3-tie bales, respectively. Bale nutrient composition was not affected by re-hydration method.

DEW MORE WITH LESS