DEVELOPING AN ALFALFA HAY EXPORT MARKET IN THE HUMID EASTERN UNITED STATES

Chris Teutsch, University of Kentucky, Kyle Quick, DowDuPont, and David Reed and Robert Grisso, Virginia Tech

The arid conditions found in the west allow for the production of high quality hay for export. However, hay production in this region is highly dependent upon irrigation. There is significant interest in developing a hay export market in the humid eastern U.S. Therefore, a greater understanding of the challenges and opportunities with containerizing hay in high humidity environments is needed. The objective of this study was to evaluate the impact of hay preservatives on the stability of containerized hay. Treatments included 1) propionic acid at baling, 2) propionic acid at baling + surface applied propionic acid at container loading, 3) propionic acid at baling + ammonization of the container after loading, and 4) no preservatives. Propionic acid was applied at a rate of 2.5 kg Mg^{-1} of hay at baling to all treatments except the control. Hay was then stored for 5 weeks before compressing to a density of 320.0 kg m^{-3}. Immediately before containerizing hay, treatment 2 received a surface application of propionic acid at a rate of 3.4 g $bale^{-1}$. After loading hay into containers, treatment 3 was ammoniated at a rate of 1.5 kg NH_3 Mg^{-1} DM. Temperature and relative humidity in the containers were monitored for the 45-day storage period. Hay was sampled at compression and immediately after opening the containers. There were no treatment effects on nutritive value parameters after containerization ($P > 0.05$). Neither propionic acid at harvest, nor treatments at containerization had an effect on mold development in this study ($P > 0.05$). Our data indicates that containerization of double compressed dry hay in eastern U.S. does not require treatment to control microbial growth during shipping if the hay is < 140 g kg^{-1} in moisture before being compressed and containerized. Hay preservatives may still be an important part of the hay production systems in the humid east in terms of facilitating the timely harvest of hay. Our project also established the Alfalfa Information X-Change, a resource that organized and consolidated on-line resources for the production and utilization of alfalfa. We also conducted a one-day workshop focusing on intensifying alfalfa management in the humid eastern U.S. Camtasia videos and the proceedings of this conference can be found on the KYForages YouTube Channel and the Kentucky Forages website, respectively.