Method for the Prediction of the Rate of +b Color Change in Upland Cotton (*Gossypium hirsutum* L.) as a Function of Storage Temperatures

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Previous studies have indicated that HVI +b values of baled Upland cotton increase due to prolonged storage with uncontrolled temperature conditions. This change in +b is accompanied by decreases in reducing sugar content and pH. The present study attempts to elucidate the dependence of this trend on storage temperature and time, and to develop a model capable of predicting +b changes at any given temperature and time. A single bale of cotton was subjected to varying temperature and time conditions, and resultant values of reducing sugar content, pH, and +b were determined. Exponential regressions gave rate constants that were temperature dependent and obeyed the Arrhenius expression. A model was constructed that allows prediction of +b as a function of time and temperature. The model will be used as a basis for the construction of a more extensive model that can be used to predict color change in any Upland cotton based on initial +b, reducing sugar content, and pH values.