

**THE INFLUENCE OF APPLICATION TIMING ON HARVEST AID EFFICACY AND FIBER QUALITY****Cayden B. Catlin****Wade Young****Bradley R. Wilson****Andrea J. Althoff****John M. Long****Hailin Zhang****Bobby Weidenmaier****Seth A. Byrd****Oklahoma State University****Stillwater, OK****Abstract**

Applications of harvest aids in cotton are recommended to occur when there are 4 nodes between the uppermost first position cracked boll to uppermost first position harvestable boll (NACB). However, most of the recommendations rely on data from the southeast and mid-south regions of the Cotton Belt, which do not reflect the conditions in much of the southwestern region. Further, many producers in Oklahoma delay harvest-aid applications until the crop is nearly fully mature, potentially sacrificing fiber quality to weathering. The objective of this study was to determine the impact of applying harvest aids at various NACB levels in Oklahoma's short-season environment. A standard harvest aid mix was applied at 4-5 day intervals at two locations, Perkins, OK, 2019, and Fort Cobb, 2019-2020. Applications were made at 5.5, 4.0, 3.7, 3.2, and 2.7 NACB in Perkins, 2019, 7.0, 4.8, 4.0, 2.7, 1.7 in Fort Cobb, 2019, and 7.6, 6.5, 5.6, 4.5, 3.7, 3.5, 2.6, 2.2, 2.6 in Fort Cobb, 2020. A non-treated control was also included at both locations and both site years. Prior to application boll diameter was measured to categorize bolls as either harvestable, or greater than or equal to the diameter of an American quarter ( $\geq 24$ mm) which is commonly used as an example for harvestable boll size, or undersized ( $< 24$  mm). It was concluded that the earlier applications resulted in a greater percentage of open harvestable bolls, although traditional timings allow for plants to naturally senesce. By seven days after application, approximately 80% of harvestable sized bolls were open regardless of application timing. The greater daily and total heat unit accumulation after application likely played a significant factor in the success of harvestable boll opening in the earlier application timings.