The expected release of Enlist™ Cotton (2,4-D tolerant) by Dow AgroSciences and DGT Cotton (dicamba tolerant) by Monsanto are expected to be available to producers in 2015 or 2016. These new herbicide tolerant traits will provide some critical weed management options for cotton producers; however, it will present some challenges in South and Central Texas where the Boll Weevil Eradication Program is still underway. Chemical stalk destruction allows for a quick and efficient method of managing regrowth following cotton harvest. Currently, 2,4-D and dicamba products are the most effective herbicides for chemical stalk destruction. However, the presence of 2,4-D and dicamba tolerant cotton varieties will present some challenges for managing post-harvest cotton stalks. As a result, new alternatives to these two herbicides need to be identified and tested at various application timings. The objectives were to evaluate the efficacy various herbicides and application timings on post-harvest cotton stalk destruction and prevention of hostable fruit development. Numerous trials were initiated in South and Central Texas in 2010 and 2011, where over 20 herbicide treatments were evaluated for effective stalk destruction. These products were applied to standing stalks and mowed stalks. Treatments were rated for efficacy, regrowth, and percent hostable plants. In summary, 2,4-D at 1 lb ai/acre or higher remains the most effective and economical treatment for killing cotton stalks. Dicamba and Harmony Extra provided over 80% control, but allowed cotton plants to develop hostable plants with the treatments over a 40 day period. Some tankmix treatments will be further evaluated in the future.