

**USE OF PREP, STARFIRE, COTTONQUIK,
AND FINISH FOR BOLL OPENING**

**A. M. Stewart, K. L. Edmisten and R. Wells
Dept. of Crop Science, North Carolina State
University
Raleigh, NC**

Abstract

Boll openers are often used when terminating a crop in order to open immature bolls, hasten harvest, and possibly increase yield. Studies were conducted in 1996 and 1997 to determine the boll opening effectiveness of Prep (ethephon), Starfire (paraquat), CottonQuik (ethephon + aminomethanamide dihydrogen tetraoxosulfate), and Finish (ethephon + cyclanilide). Field locations in 1996 were at Rocky Mount and Lewiston, and at Rocky Mount and Clayton in 1997. Treatments were an untreated check, Prep 1.33 and 1.67 pt/a, Starfire 6, 11, 16, and 24 oz/a, CottonQuik 2 and 3 qt/a, Finish 1.0 and 1.5 qt/a, and Def/Folex 0.5 pt/a. All treatments with a boll opening material also received 0.5 pt/a of Def, and an additional treatment of 1.5 qt/a of Finish alone was added in 1997. Plots were four rows wide and 50 feet long. Hand harvests were taken every 3-4 days from 3 meters of one inside row of each plot. Data were analyzed as percent of total harvestable yield on each harvest date in 1996 and percent open bolls in 1997. Additionally, plots were rated visually for defoliation effectiveness.

A comparison of the 1996 results from Rocky Mount indicates an advantage to using boll opening materials over the untreated control and Def/Folex treatments. With the exception of the two low rates of Starfire (6 and 11 oz/acre) the treatments with boll opening compounds all approached 100% of the harvestable yield (cumulative yield divided by total yield for each plot) within 14 days after treatment (DAT). An interesting rate response was observed within the Starfire treatments. The 11 oz/acre rate of Starfire seemed to delay boll opening compared with the other three rates. At 21 DAT there was still a significant difference in percent harvestable yield between Starfire at 11 oz/acre and all other Starfire treatments. Starfire was slower and less consistent at opening bolls compared to the ethephon based products. In 1997, the 24 oz/a rate of Starfire was the most effective rate at opening bolls, however, it never significantly differed from the untreated check. Other studies with Starfire have indicated that the 24 oz/a rate may be susceptible to desiccation and hard locking of bolls. Overall rate response to Starfire is erratic and its boll opening properties seem to be limited.

Overall response to boll opening compounds was slower at Lewiston in 1996 than at Rocky Mount. The treatments

were applied 9 days after Rocky Mount to later planted cotton. The slower overall response in boll opening at Lewiston may be due to cooler temperatures and higher rainfall that occurred at that site. As 100% harvestable yield was approached at 20 DAT, a significant response to the boll opening compounds over the Def treatment was seen only in the CottonQuik at 3 qt/acre and the Finish at 1.5 qt/acre treatments.

In 1996 at Rocky Mount and Lewiston, the two CottonQuik rates and the two Finish rates all opened bolls at a consistently high rate compared with all other treatments. No significant differences were found between these four treatments after 7 DAT at Lewiston, and Rocky Mount. In 1997, a comparison of the ethephon based products shows very few significant differences. CottonQuik and Finish, however, consistently opened bolls at a faster rate than Prep showing the advantage of the synergist with ethephon. A comparison of Finish 1.5 qt/a + Def 0.5 pt/a and Finish 1.5 qt/a alone indicates that the addition of a defoliant does not reduce the boll opening effectiveness of Finish.

These studies indicate the advantage that can be gained from applications of boll openers. In each location the ethephon based products were ready for harvest sooner than the Def treatment. In terms of overall boll opening effectiveness data suggests that CottonQuik and Finish are faster than Prep, which is faster than Starfire.