FRUITING AND DEVELOPMENT OF COTTON TREATED WITH COMBINATIONS OF MEPIQUAT CHLORIDE AND PGR-IV

Stephen P. Biles and J. T. Cothren
Texas A&M University
College Station, TX

Abstract

A study was conducted on the Texas A&M University Research Farm near College Station, Texas for the purpose of observing how the individual and combined use of two plant growth regulators affected flowering, distribution of yield and other yield parameters of cotton. The study consisted of four treatments:

1)	Control	Untreated	
2)	Mepiquat Chloride (MC)	MC	8 oz. MHS
		MC	8 oz. EB
3)	MIX	PGR-IV	4 oz. PHS
		MC	8 oz. PHS+10d
		PGR-IV	4 oz. EB
4)	PGR-IV	PGR-IV	2 oz. PHS
		PGR-IV	2 oz. EB
		PGR-IV	2 oz. EB+10d

Flowers were tagged every other day in a manner to designate the day the flower was white. Yield was taken in five harvests from one meter of row by removing individual bolls and ginning them separately. The data taken for each boll included position on the plant, seed cotton weight, lint weight, seed number and number of locks. The data was analyzed by fruiting position on the plant and grouped by nodes 5-9, 10-14, 15-19, and 20-22.
The average number of flowers for day 78 through day 82 showed that the MIX and MC treatments increased number of flowers per day compared to the untreated control (α = 0.1). The average number of flowers for days 83 through 87 showed that the MC treatment increased the number of flowers per day compared to both the PGR-IV and control treatments. The MIX treatment had more flowers than the untreated control for these same days (α = 0.05). All other five day averages were not different.

Total lint was not different between treatments, but significant variation was observed on the first position of the plants. The MIX and MC treatments had greater first position lint yield than the control and PGR-IV treatment. There were no differences in earliness between treatments when compared by harvest date or cumulative yield. The MC treatment had significantly greater lint yield for nodes 5-9 than all other treatments. At nodes 10-14 and 15-19, lint yields for the MIX treatment were higher than the PGR-IV and control plots. The MC treatment had more lint than the control at nodes 10-14 and more lint than the PGR-IV treatment at nodes 15-19. At nodes 20-25 the MIX and PGR-IV treatments had more first position yield than the MC treatment. These differences were a result of the number of bolls produced in these particular areas of the plant. The MC and MIX treatments had more first position bolls than the first position of the control. The MC and MIX treatments had more bolls for nodes 10-14 than the control and more bolls than the PGR-IV treatment at nodes 15-19. The MIX treatment also had more bolls than the control at nodes 15-19. Boll weights, percent ginout, seed number and seed weight were not different between treatments.

This data suggests that the combined use of both MC and PGR-IV in a PGR strategy program could enhance the effects found by the two used alone. However, more research should be done investigating the best possible combinations to be applied.

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