

Influence of Cotton Cultivar and Planting Date on Arthropod Populations (Field 5A)

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Objective: Monitor seasonal abundance of *Lygus*, fleahopper, and predators as affected by cotton cultivar as well as planting date window.

Methodology: The treatments consisted of four commercial cotton cultivars and two planting dates in a randomized complete block design with four replications for a total of 32 plots. Cotton cultivars included Stoneville 2454R, Paymaster 2326RR, Paymaster 2145RR, and Paymaster 2167RR. Planting date treatments included a timely planting (within the optimum planting date window recommended for the southern High Plains), and a late planting date that coincided with the crop insurance replant cut-off date for the region. Timely planting and late planting dates for this study were May 7 and June 11, respectively. Arthropod sampling began on June 25 and continued through the growing season on a weekly basis. A vacuum sampler (2-cycle backpack aspirator) was used to monitor arthropod populations in all 32 plots. Five different sampling methods were used to sample only the cultivar PM 2326RR to evaluate the comparative efficacy of sampling methods for insect monitoring. Sampling methods included the vacuum sampler, sweepnet, beat bucket, drop cloth, and visual inspection. Sample units for each sampling method varied, but the sample counts were converted to numbers per acre.

Results/Summary: Seasonal abundance of fleahoppers and predators varied significantly with cultivar (Table 1). Paymaster 2145RR supported a significantly higher number of fleahoppers compared with ST 2454R and PM 2167RR; ST 2454R supported a significantly higher number of predators when compared with other cultivars. There was no significant difference in seasonal *Lygus* numbers when comparing cultivars.

Planting date significantly affected seasonal abundance of cotton arthropods in our study. Timely planted cotton had significantly higher numbers of fleahoppers and predators compared with late-planted cotton. Planting date had no significant effect on seasonal abundance of *Lygus*.

Sampling methods varied in their efficiency (capture rate) to monitor arthropods. The beat bucket captured significantly higher numbers of fleahoppers and predators. Although not significantly different, the beat bucket also detected the highest number of *Lygus*.



Fig. 1. Timely and late-planted cotton under a center pivot at Helms farm.

Table 1. Seasonal abundance of arthropods (numbers/acre) at Helms Farm, 2003.

Cultivar	Fleahopper	Lygus	Predators
ST 2454R	2283 b	35 a	754 a
PM 2326RR	2775 ab	17 a	571 b
PM 2145RR	3520 a	48 a	471 b
PM 2167RR	2522 b	22 a	431 b

Planting Date	Fleahopper	Lygus	Predators
Timely	3485 a	20 a	656 a
Late	2065 b	41 a	457 b

Sampling Method	Fleahopper	Lygus	Predators
Beat Bucket	25135 a	396 a	20544 a
Sweepnet	3662 c	189 a	2055 c
Drop Cloth	4372 c	137 a	8665 b
Vacuum	512 c	17 a	571 c
Visual	10767 b	158 a	10735 b