# FOCUS on South Plains Agriculture

A newsletter from the Texas AgriLife Research and Extension Center at Lubbock

Sydney Glass, IPM Intern, spraying pumpkins. Photo Credit: Patrick Porter

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http://texashighplainsinsects.net

http://lubbock.tamu.edu/focus

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### Crop Update

Currently in the Texas High Plains and Panhandle regions, 50% of the 3.7 million acres that were planted remain. These remaining acres are in various stages of growth and conditions. I have observed however that with the high, but not oppressive (only 6, 1, and 3 days above 100° F, in June, July and August so far, respectively) daytime temperatures and relatively normal night temperatures, many fields are progressing toward cutout (nodes above white flower = 5) fairly rapidly. Compared to 2011(39 days >100) and 2012 (20 days >100) for the same time period, 2013 has had significantly fewer (10) days above 100° F, which has allowed, in my opinion, some of these fields to develop at near optimal rates. This is fortunate considering the difficulties observed during the early part of the season that put the crop 10-14 days behind. These temperatures, recent precipitation events, and generally low insect pressures have resulted in high first and second position fruit retention providing an opportunity for the region to predict potentially higher yields than what would have been predicted earlier in the season. Generally, the last effective bloom date for a "harvestable" boll in the Lubbock south region is August 20th to 25th. Under normal conditions, it takes approximately 850-950 heat units for a bloom to reach "full" maturity. Bolls with lower maturity may still contribute to yield, but will likely be of poor quality. A good, open fall with continued warm temperatures through September will be needed for the blooms we are seeing today to reach full maturity. Finally, as we approach the end of the growing season, producers should continue to monitor fields closely for insects, and prevent any undue moisture stress to maintain the current fruit loads. Small bolls are sensitive to heat and moisture stress during the first 10-14 days after bloom. After that, insects should continue to be monitored until bolls have become "insect-proof". Irrigation termination should also be on the mind of our producers who have received recent rainfall events in their fields. This is a difficult decision to make even in the best of years. Terminate too early and small bolls could shed and fiber quality could be at risk. On the other hand, late irrigation termination generally results in a crop that is difficult to prepare for harvest with harvest aids. Ideally, a crop should be steadily "weaned" off irrigation and be running out of moisture and nitrogen as the season ends. A cotton crop that is nearing cutout and going into maturation phase of development will require less water than was observed during peak bloom. Irrigation termination decision aids developed by Dr. Dana Porter are available on the Texas A&M AgriLife Research and Extension Center Website. For more information or for assistance please feel free to call or text me, Mark Kelley, at any time at (806) 781-6572 (mob), or (806) 746-6101 (ofc), or e-mail m-kelley@tamu.edu. MSK

# Cotton Insects

## Results of a cotton bollworm insecticide trial in Gaines County, Texas

Manda Anderson, Scott Russell and Apurba Barman

On 31 July, high bollworm numbers were reported on a non-Bt cotton field in Gaines County. The next day a trial was set up with the objective of evaluating different insecticides against bollworm populations.

There were 5 different treatments (including an untreated control) and these were replicated 4 times. Each plot was 50 feet long and 4-rows wide. In each plot, 10 random plants from the middle two rows were inspected thoroughly and number of bollworm or other types of worms (fall armyworm and yellow striped armyworm) along with their size was recorded. All treatments were applied with a $CO_2$ pressurized hand boom (@40 psi), calibrated to deliver 10 gallons/acre. The boom consisted of two hollow cone TXVS-6 nozzles per row, spaced at 20 inches. The worm count data was subjected to analysis of variance (ANOVA) and means were separated using Tukey's HSD and separated at the 0.05 level of probability.

The worm count before the application of the treatments (0-DAT, days after treatment) indicated that the worm population was above the economic threshold (>5000 per acre, large worm) in all the treatments except one. Since the initial population was low on that particular treatment, results from that treatment are not reported here. The vast majority (93%) of those worms recovered in the pre-treatment counts were bollworm (Fig. 1) and of these, 67% were probably 10-12 days (Fig. 2). The distribution of bollworms in different treatment plots was not uniform and there were high variations among the plots within a treatment.

At 4-DAT (days after treatment), the number of bollworms was fewer than in the pre-treatment counts. The number of bollworms in the untreated control was reduced by 50% on 4-DAT from 0-DAT. However, the population in the untreated check was still above economic threshold level and numerically higher than any other insecticide application treatments (Fig. 3). There was no significant difference among the insecticide treatments. The bollworm population was still slightly above the threshold in the plots receiving Belt® application. There was 66% drop in bollworm numbers at 4-DAT in Prevathon® treatment, while this drop was 90% in the treatment receiving Belt® + Baythroid® application.

At 7-DAT, the untreated control treatment had the highest number of bollworms among all the treatments and the number was above the economic threshold level. The highest reduction in bollworm numbers from the previous sampling date (4-DAT) was observed in the Prevathon® plots. Similarly, bollworm numbers were decreased in case of Belt® on 7-DAT from the previous sampling day (4-DAT) and this number was below the recommended economic threshold level, but not significantly different from the untreated control. Bollworm numbers in the Belt® + Baythroid® treatment were significantly lower than the control, and statistically similar to the Prevathon® treatment. A clear difference between the insecticide treatments and the control was observed on 7-DAT.

The bollworm population declined significantly by 11-DAT, and no treatments were near the economic threshold. While a few bollworms were found in the control and Belt® + Baythroid® treatments, the number of bollworms in Prevathon® and Belt® reached almost undetectable levels on 11-DAT.

From this trial it can be concluded that the Belt, Prevathon® and Belt® + Baythroid® were not statistically different in their control of bollworms, and Prevathon® and Belt® + Baythroid® reduced bollworm numbers below those in the untreated check. During the time of this trial, a large share (67%) of the initial bollworm population was composed of older worms. It could be the case where some of the large bollworm larvae may have pupated during the study period. This phenomenon may have contributed in part to the declining population of bollworms across different treatments, especially seen in the control treatment. Nonetheless, we were able to track the population effectively until 7-DAT. MA and AB

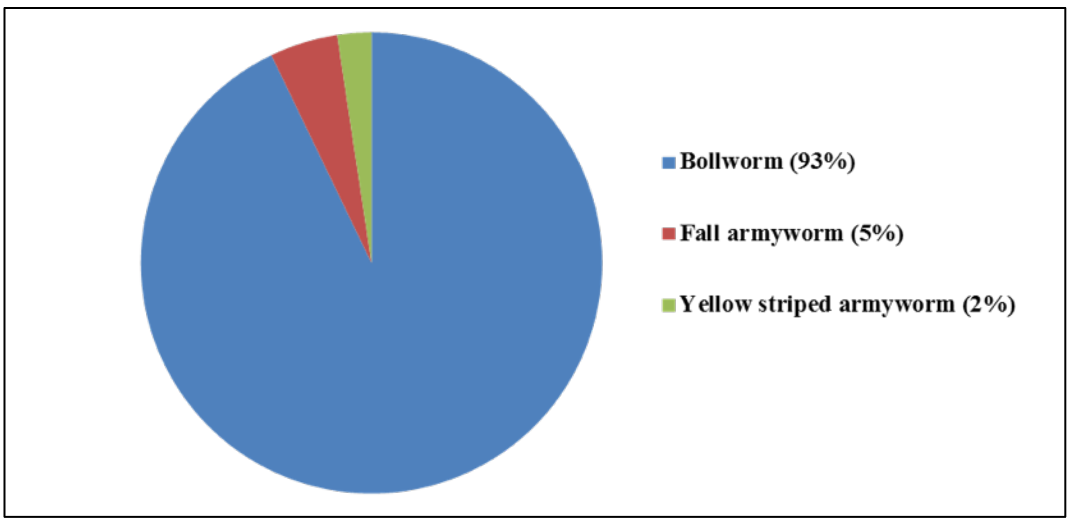


Fig. 1 Composition of caterpillar pest species recorded before the treatments (0-DAT).

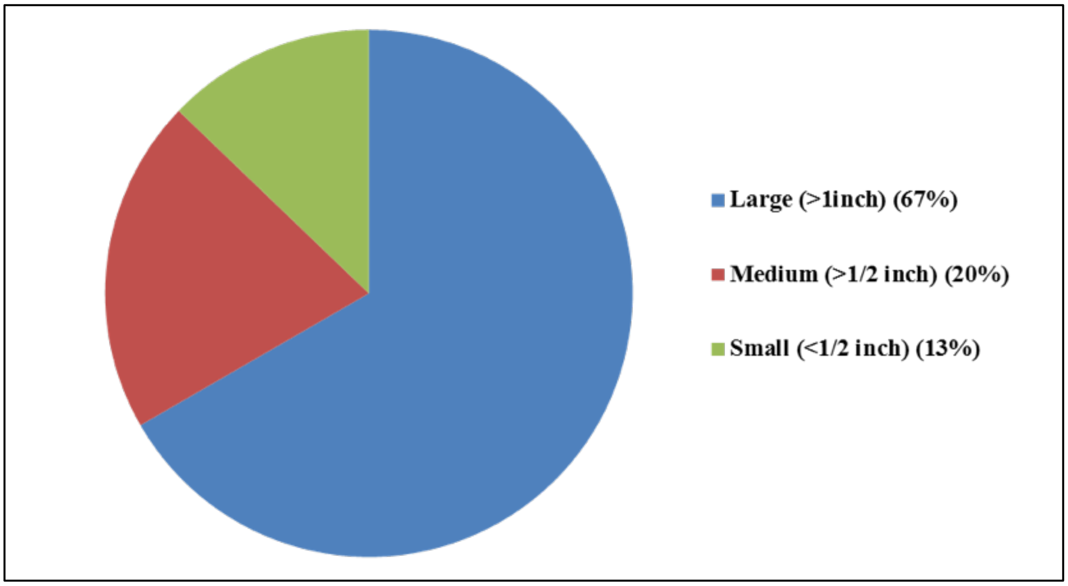


Fig. 2 Size variation in the bollworm population recorded before the treatments (0-DAT).

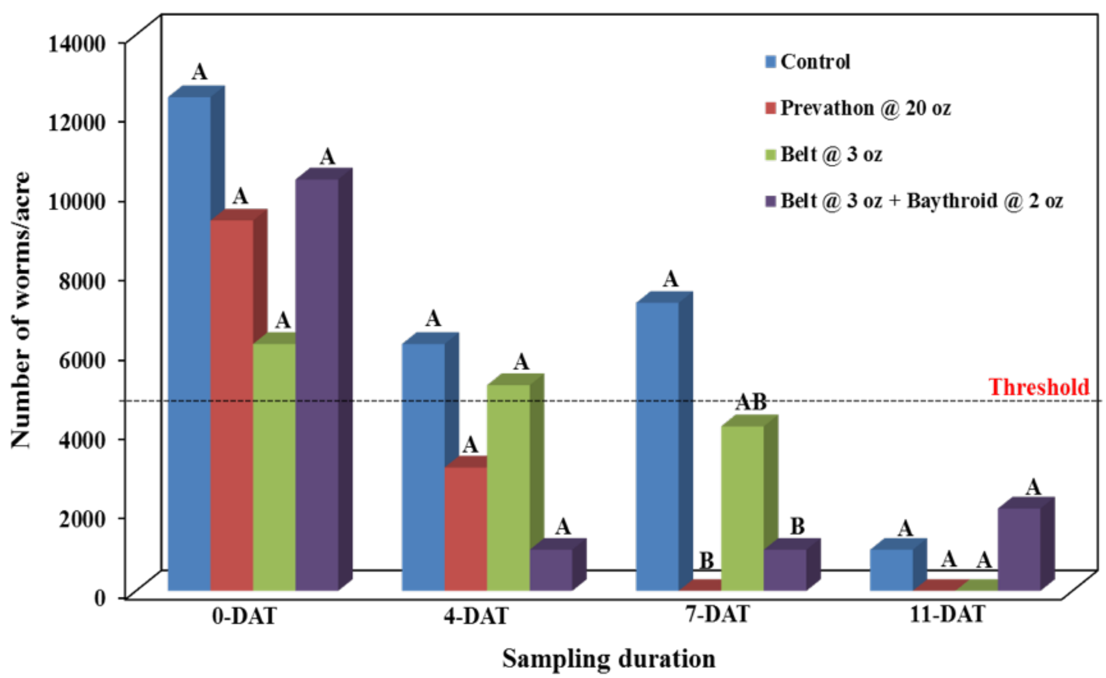


Fig. 3 Number of bollworms per acre at four different sampling dates: before treatment (0-DAT), 4-DAT, 7-DAT, and 11-DAT. Means are separated using Tukey's HSD at 0.05 level of probability.

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## Useful Web Links

Water Management Website, TAMU, Irrigation at Lubbock, IPM How-To Videos, Lubbock Center Homepage, Texas AgriLife Research Home , Texas AgriLife Extension Home, Plains Cotton Growers

## County IPM Newsletters

Castro/Lamb, Dawson/Lynn, Crosby/Floyd, Gaines, Hale/Swisher, Hockley/Cochran, Lubbock, Parmer/Bailey, Terry/Yoakum

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