Summary

Three differing rate treatments of Bayer Crop Science’s new nematicide Velum, one high rate treatment of Velum with a Movento MPC over spray, one standard rate of Temik, and one untreated check were compared for thrips and nematode control in this trial. The three differing rates of Velum were 10, 14, and 18 ounces per acre. The rates for the Velum / Movento were 18 and 8 ounces per acre respectively and the Temik rate was 5 pounds per acre. This trial was set up in an RBD design with four replications. Plots were planted in a pivot irrigated field belonging to Kent Springer on the Hale / Swisher County line north of Edmonson on May 12, 2014. All Temik, Velum, and untreated treatments were made on the May 12 date at planting by a combination of turned on or off chemical boxes on the planter that had been recently calibrated, or were made as a liquid in-furrow with a CO2 backpack sprayer, also turned on and off as needed, that was rigged, fitted, and attached to the planter with a four row modified soil injector boom. Plots were planted four rows at a time with a through and equipment was set for needed application between plots. Both Movento applications were made over the top via backpack sprayer at pinhead square stage on June 28, 2014 and again fourteen days later on July 12, 2014. Once the field established, data collection began immediately with per acre stand counts and continued with weekly thrips counts until the field developed passed economic thrips damage. Nematode counts began roughly sixty days post planting but ended quickly due to lack of nematode pressure.

All treatments outperformed Temik in plant stand counts on May 29 (P=0.005) and significant differences were found between Temik, the 18 ounce rate of Velum and all other treatments in thrips numbers on June 12 (P=0.0354). No nematodes or nematode damage was found in any plot and it was assumed there was no nematode pressure in field. No other significant differences were found throughout the trial, which included yield data. No numeric differences of note arose to follow the trend of the significant differences in thrips counts that were found on June 12. 2014 was a very light thrips season for the area and differences could have been coincidental. At this time any thrips control possibly offered by Velum remains tantalizingly promising but unconfirmed.
Objective

Since the loss of Temik to producers in seedling cotton for thrips and nematode control there has been a shortcoming of tools to control these cotton pests. For 2015 Bayer Crop Science plans to release Velum, an in-furrow liquid product for nematode control that could also offer some protection for thrips. Actual field trial data for Velum’s performance was in short supply, especially in terms of thrips control. This company designed protocol was one of a few planned in 2014 in Texas to capture that data. This trial conducted in Swisher County was specifically designed to capture some much needed data on thrips particularly.

Materials and Methods

This company conceived protocol required three differing rates of Velum, 10, 14, and 18 ounces per acre, one 18 ounce rate of Velum to be over sprayed with 8 ounces per acre of Movento at pinhead square and again at 10-14 days later, a 5 pound rate of Temik, and an untreated check. This trial was set up in an RBD design with four replications. Plots were planted in a pivot irrigated field belonging to Kent Springer on the Hale / Swisher County line north of Edmonson on May 12, 2014.

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on June 28, 2014 and again fourteen days later on July 12, 2014. Plots were 4 rows wide by 40 feet in length.

Data collection began with stand counts and thrips data once field stand was established. On May 29, 2014 data on stand counts were taken by measuring 1/1000 of an acre three times within each plot, counting live cotton seedlings per area, and adjusting counts to a per acre basis. Thrips counts were conducted by making five whole plant inspections for each plot and recording number of adult and nymph thrips present. Thrips data collection continued weekly until thrips were no longer an economic threat to the field on June 19.

Nematode counts were made on just one date, July 19, due to lack of pressure. Nematode data was collected by carefully digging 5 random plants from the outside two rows of each plot, carefully removing and dusting roots clean, and inspecting for the cotton roots for nematodes and nematode damage.

Harvest was conducted on October 27 by hand stripping ten consecutive feet from the one of the inside two rows from each plot. Samples were stored until ginning at the Texas A&M AgriLife Research Cotton Improvement Lab in Lubbock on December 23, 2014. Data was collected on burr weight, seed weight, and lint weight. All data was statistically analyzed via ARM at $P=0.05$ utilizing AOV / LSD.

**Results and Discussion**

Significant stand count differences appeared on the May 29 when the Temik treatment was outperformed by all other treatments, including the untreated check.

![Figure 2. Stand Counts in Plants per Acre May 29, 2014.](image)
On the May 29 date, very few thrips were present in field and no significant differences were noted.

![Figure 3. Thrips per Plant on May 29, 2014 (P=0.4509).](image)

By the June 5 date, thrips had begun moving in-field, but were still very light and no significant differences were noted.

![Figure 4. Thrips per Plant on June 5, 2014 (P=0.3199).](image)

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On the June 12 thrips data collection date, a spotty population of thips had arrived in field and significant differences in treatments were found. The 18 ounce per acre treatment of Velum and the 5 pound per acre Temik treatment outperformed the untreated check and the 14 ounce per acre treatment of Velum. This data was held in suspicion as the thips population was so spotty and light across the treatment area and the field in whole.

![Figure 5. Thrips per Plant on June 12, 2014 (P=0.0354, LSD=2.30t).](image)

By the June 19 date thrips had increased slightly but the population remained light and thrips had begun to migrate to other newly available area food sources and by this time the plants had developed passed economic thrips damage. There were no significant differences found on this date.

![Figure 6. Thrips per Plant on June 19, 2014 (P=0.1468).](image)
On the lone nematode check date of July 19 there were no nematodes or nematode damage found in any plot or treatment. No other nematode checks were taken due to lack of pressure. Yield data failed to find any significant differences between treatments for any data measure.

Figure 7. Grams burr weight cotton per 10 foot sample by treatment ($P=0.7017$).

Figure 8. Grams ginned cotton seed per 10 foot sample by treatment ($P=0.7660$).
**Conclusions**

Conclusions about this trial are difficult to glean due to lack of pest pressure. Unseasonably cool and wet conditions at the start of the 2014 growing season, combined with a light and somewhat early terminated wheat crop in the area severely impacted the thrips population to a point that there never was adequate pressure to make a true evaluation of Velum’s thrips control potential. While nematode control and data collection was part of this protocol, and was followed, damaging nematode populations are not typically expected or experienced in the area. Not finding any was no surprise and the true effort of the trial was to see if nematode treatments of Velum could have any impact on thrips control in the Hale & Swisher County areas.

The significant differences that were found in this trial cannot be ignored. The June 12 thrips data did show significant differences in thrips by treatment. Seeing Temik, a known performer for thrips control, perform well was no surprise. Having the 18 ounce per acre treatment of Velum performed just as well as Temik was promising and it was hoped that this trend would continue in a heavy pest pressure situation over the next few weeks. This assumption was never able to be tested as the already light population of thrips moved to other, more desirable host plants as they became available. It is possible that the differences in thrips population on June 12 could be little more than a weak and light population of thrips not distributing evenly through the trial, or they could be completely valid. Today the promise of thrips control from Velum remains tantalizing.

The significant differences in stand count look to be affiliated with Temik hindering stand establishment somehow and not an improved quality that Velum adds as none of the Velum treatments performed any better than the untreated check.

Figure 9. Grams ginned cotton lint per 10 foot sample by treatment ($P=0.2101$).
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