

2020

FDACS Formosan Termite Alate Trapping Report



Photo courtesy: Dr. Nan-Yao Su

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Purpose

The Formosan termite (*Coptotermes formosanus*) came into the Florida Panhandle about 60 years ago on infested wood packing materials in ships coming from Asia after WWII. Ever since, they have spread rapidly throughout the Southeastern US and thrive in the region's high temperatures and humidity. Formosan termites cause billions of dollars of damage each year in the US alone. This project is designed to detect Formosan termite spread throughout the Western Panhandle by trapping alates during their major swarm season in April to July. Trapped alates are counted on a weekly basis to determine peak swarming periods and correlated with local weather data. The presence or absence of alates is also documented in key communities throughout four counties. This data can aid citizens on Formosan termite presence and activity level in their municipalities.

Materials and Methods

The simple termite trap consists of a sticky card in proximity to a bright, reliable light source. The white, gridded 7" by 4" sticky card is zip tied to a six-foot, plastic coated metal stake and placed under strong, predetermined street lights. These street lights are chosen for brightness, location out of the way of human activity, and lack of competing light sources. Traps are checked weekly during the months of April to July. Alates are identified using a microscope when needed, counted and recorded in an Excel worksheet along with pertinent local weather data obtained from Weather Underground: <https://www.wunderground.com/history/>.



Figure 1: Formosan termite alate trap

Spring Trapping 2020

Twenty-two trap locations were originally selected in 2015, each representing a key Panhandle community with at least one location North of I-10 within each of the four counties. The same locations are used again every year from 2016 to 2020.

Results

Out of the total 22 traps, twelve traps were positive for Formosan termite alates throughout the four Panhandle counties (see Figure 2).

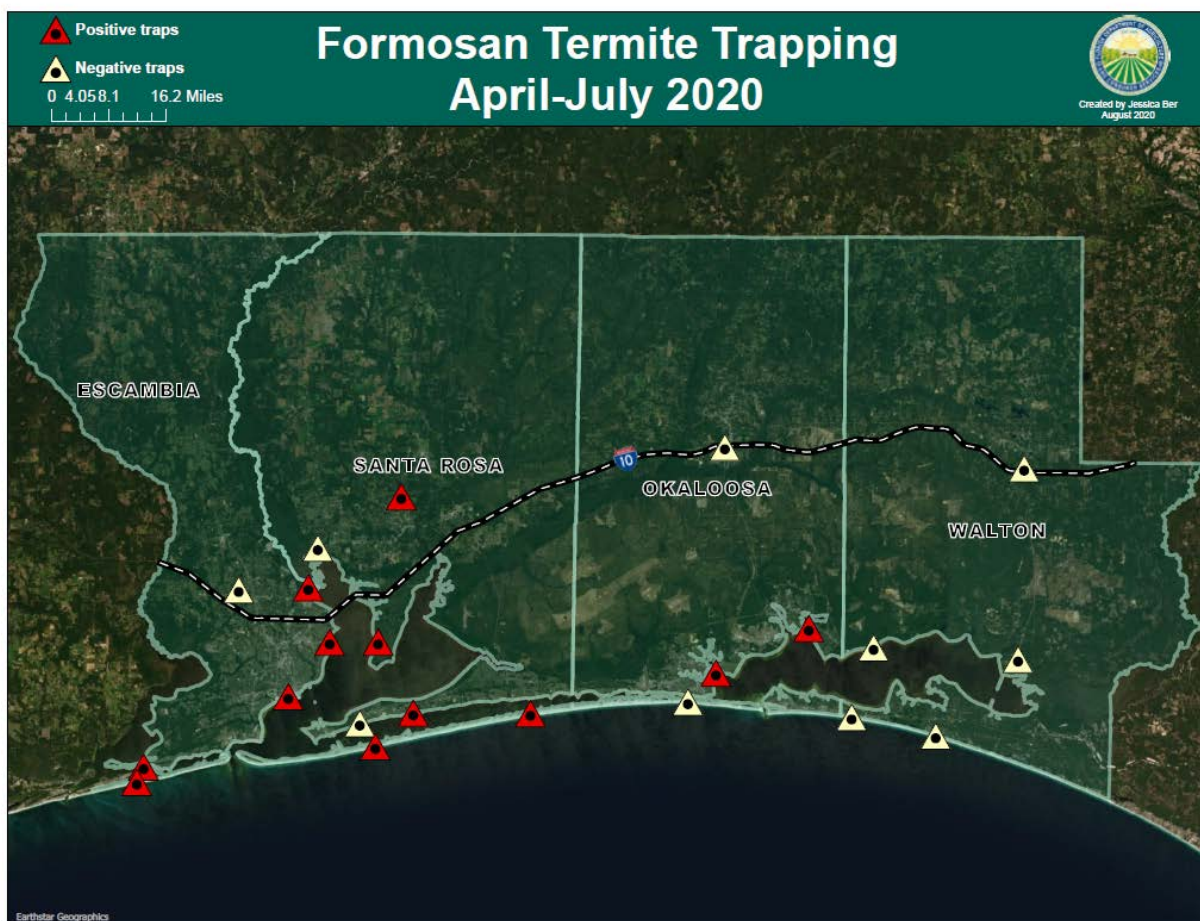
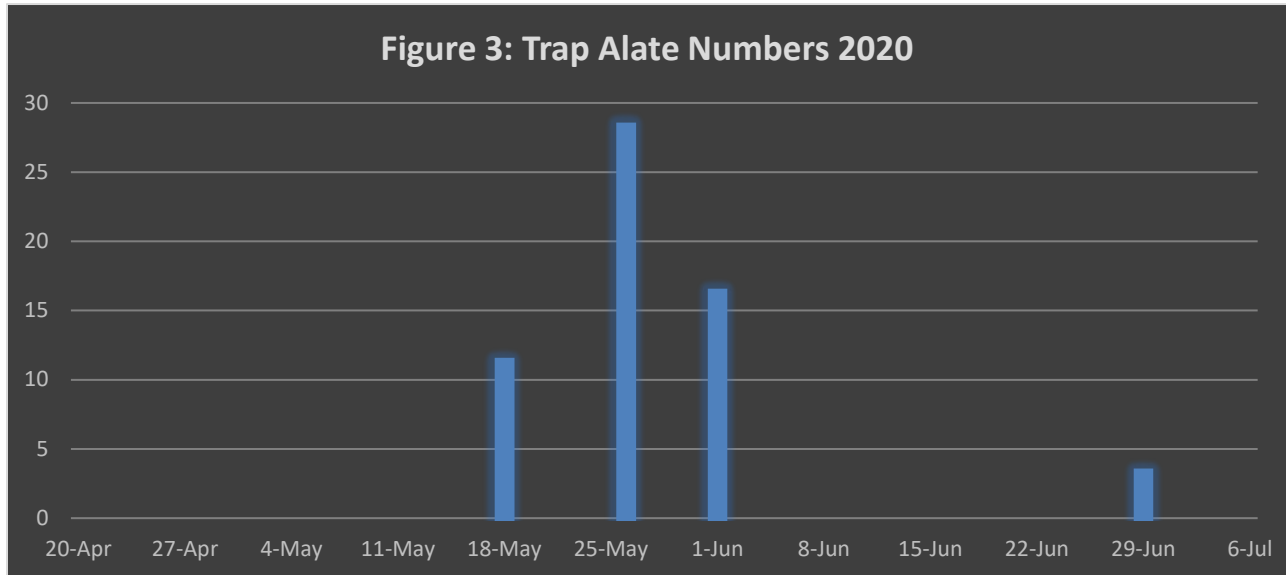


Figure 2. Map of positive traps.

Formosan alates were caught during 4 of the 12 weeks of trapping. Alate numbers from all 22 traps were counted weekly and are represented in Figure 3 below. Swarming started at the end of April and alates were found in traps mid-May and peaked on the fourth week of May with swarms ending in the last week in June.



Weather data was collected during the peak alate swarming time of 8 pm and averaged for each week. As temperature and humidity increased throughout the trapping weeks, Formosan alate counts increased as well. Optimal temperatures this year for the peak in flights was in the high 70°F range with humidity at or above 70% as indicated in Figures 4 and 5 below.

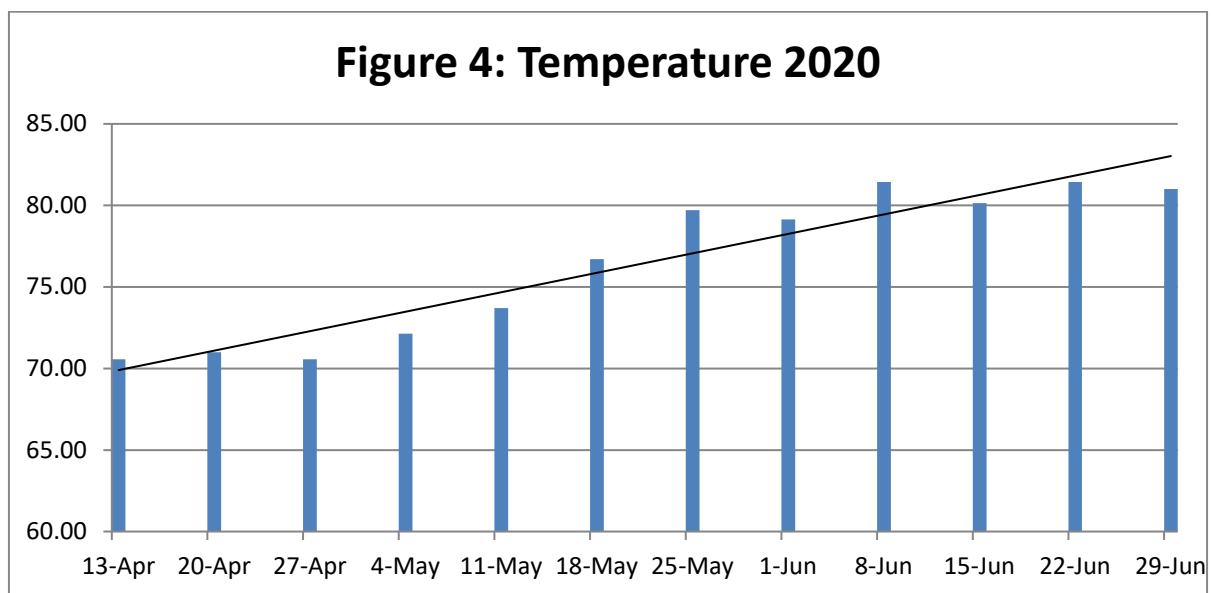
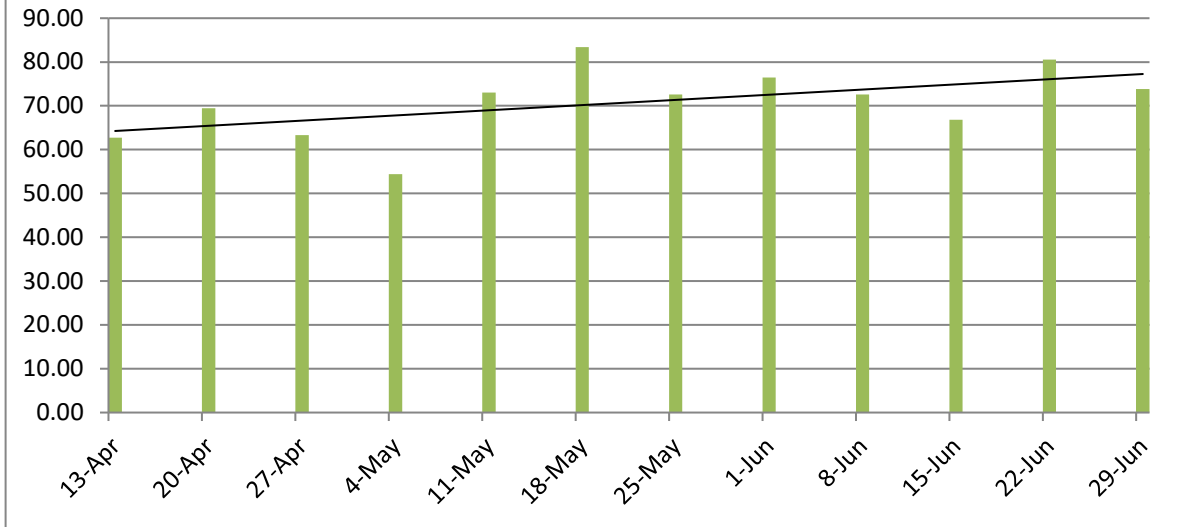


Figure 5: Humidity 2020



Wind speed was consistently low and decreased slightly through time; barometric pressure was constant through time as indicated by Figures 6 and 7 below.

Figure 6: Wind Speed 2020

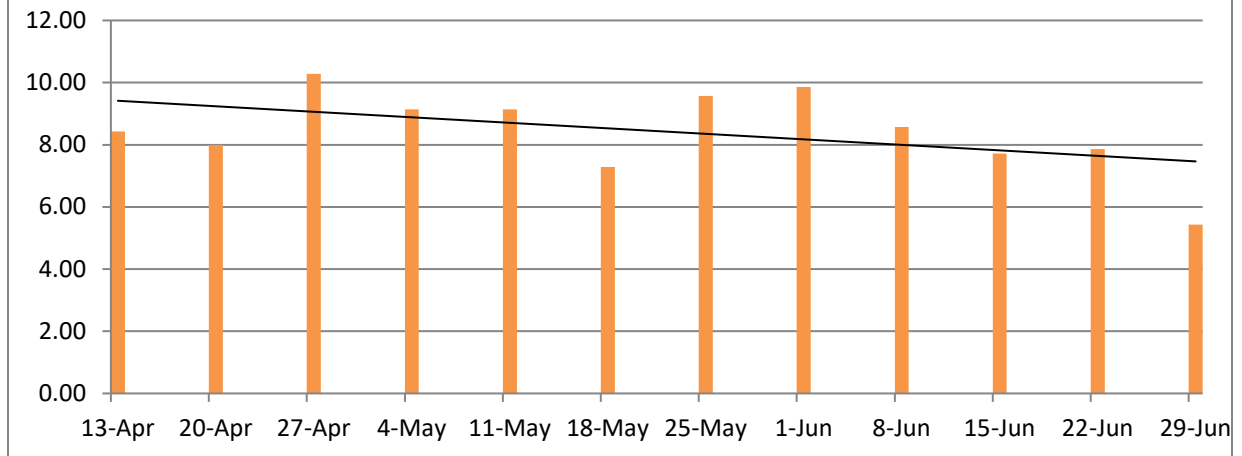
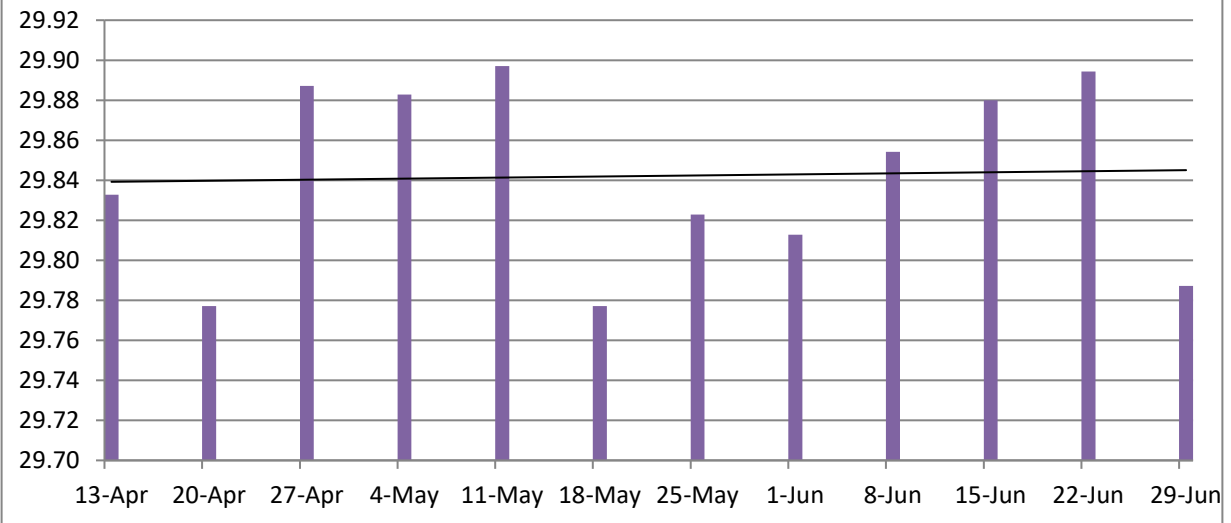
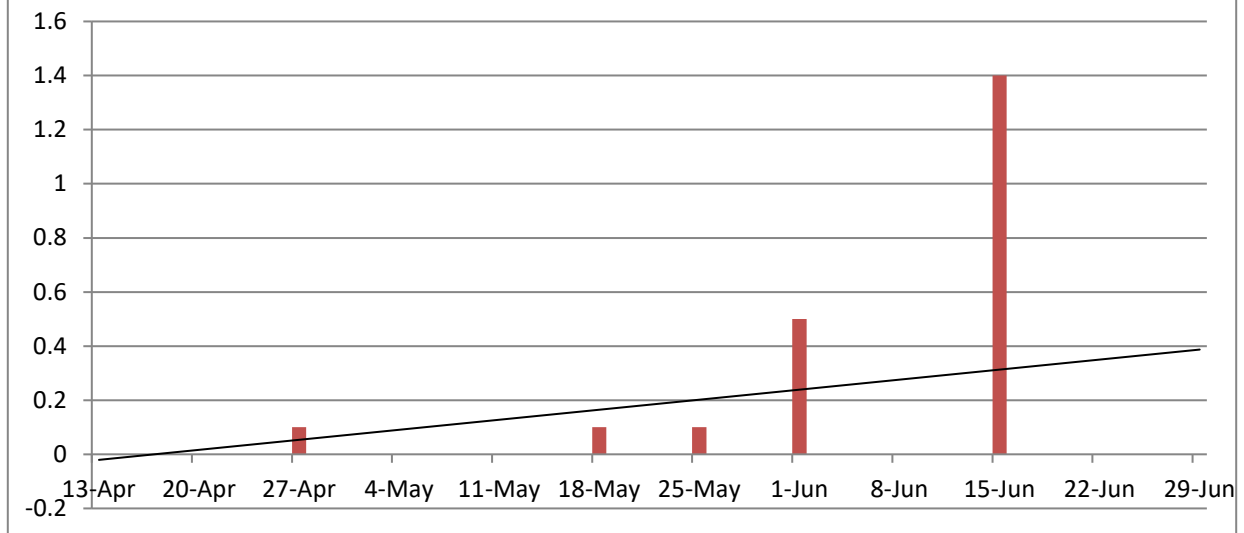


Figure 7: Barometric Pressure 2020



Rainfall was recorded in five weeks of the trapping period and increased through time as indicated in Figure 8 below.

Figure 8: Rainfall 2020



Discussion

Comparison of 2020 vs. Previous Year's Data

Please see Appendix 1 at the end of this report for maps and graphical trap and weather data from 2015 to 2019. From the trapped alate counts for 2020, overall counts were lower and a normal amount of traps were positive compared to previous years. The documented swarm season was four weeks which was the lowest number of swarming weeks ever recorded for this project. The swarm season again started at the end of April, which is earlier than any other years except for 2019. Also, from the trap count data in 2020, there was only one major spike in swarming that occurred at the last week of May which is consistent with the majority of the other trapping years.

Collected 2020 weather data follows the same pattern as in previous years that as temperatures increased through the end of April, alate swarming activity started and then increased. Temperature and humidity were on par with previous years with the major peak in swarming occurring in the high 70°F temperature and 70% humidity ranges. Wind speed was also on par with all previous years, being low and in the 8-mph range. Barometric pressure was steady throughout the weeks of trapping in 2020 with no trend of increase or decrease as seen in all previous years except 2019. Rainfall for 2020 was on par with most of the previous years and documented in five weeks of the trapping period.

Conclusion

The Formosan alate trapping project was again successful this year with an earlier swarming start of late April instead of around Mother's Day in mid-May. Although swarming continues to start earlier, and twelve traps were positive, there were less weeks of swarming documented which was the lowest amount ever recorded for this project of four weeks. Since weather patterns appeared to be normal in 2020, it is hypothesized that the very active swarm season last year of nine weeks may have taken a toll on Formosan termite alate production in colonies as well as the much higher humidity in 2019.

In order to continue to provide a more complete picture of alate swarming in the Panhandle, this project must continue to be performed on an annual basis to more fully understand changes in alate numbers, influences of weather conditions, and trap activity in each location over time. The project can also help identify new areas of Formosan activity in the future. This will contribute to increased and more widespread education, understanding of the range of Formosan territories and possibly even a swarm forecasting system for citizen and pest control groups in the Florida Panhandle.

Fall Trapping 2020

Every September and October, a Fall trapping is performed in Escambia county to document any Formosan termite alate swarming activity. This time of year has weather conditions similar to Spring and swarming events are possible. Two trap locations were used that had high catches of alates in the Spring. These locations were also near the Florida/Alabama border where most of the Formosan termite spread has come from originating in New Orleans, LA.

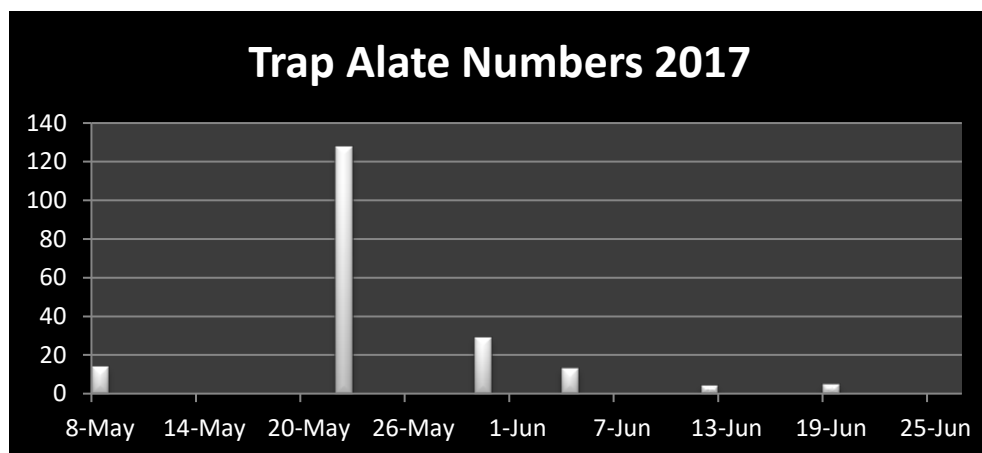
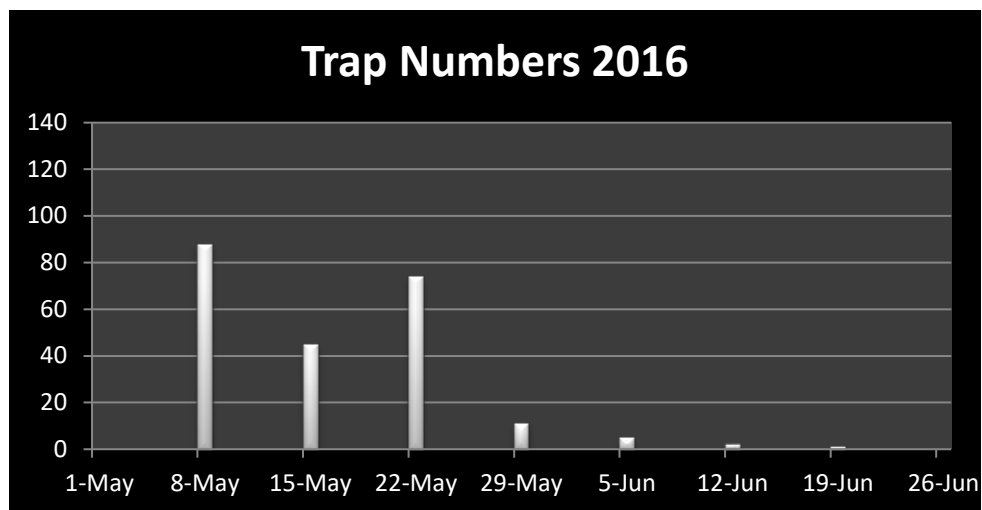
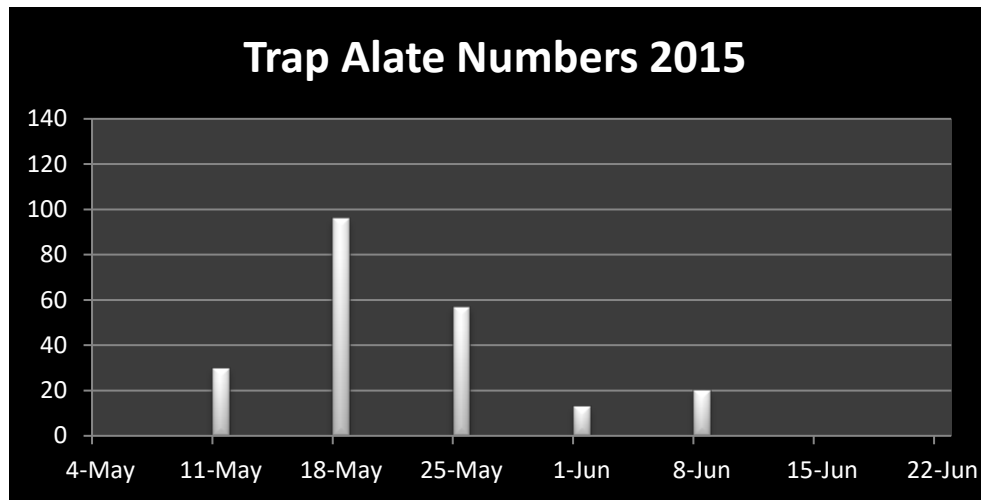
Results and Discussion

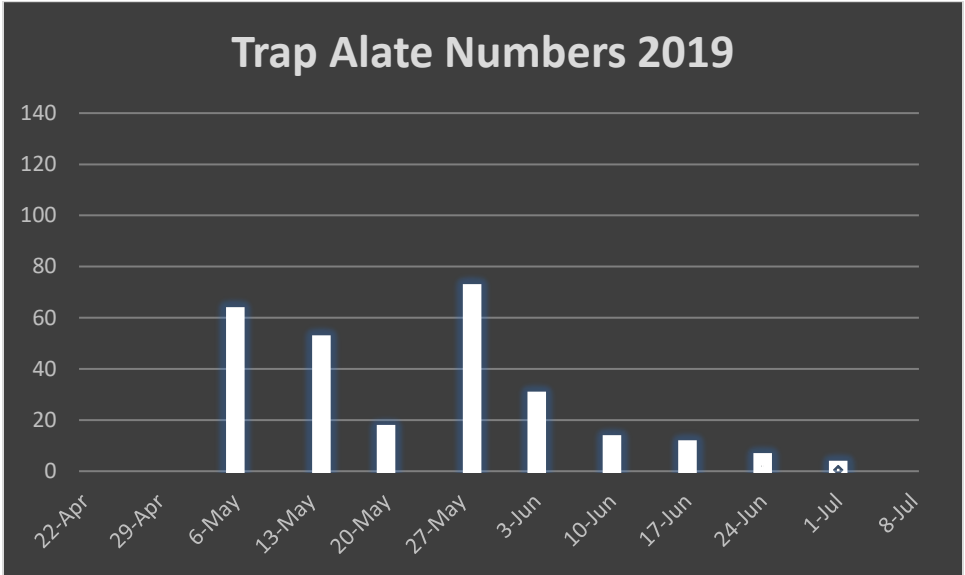
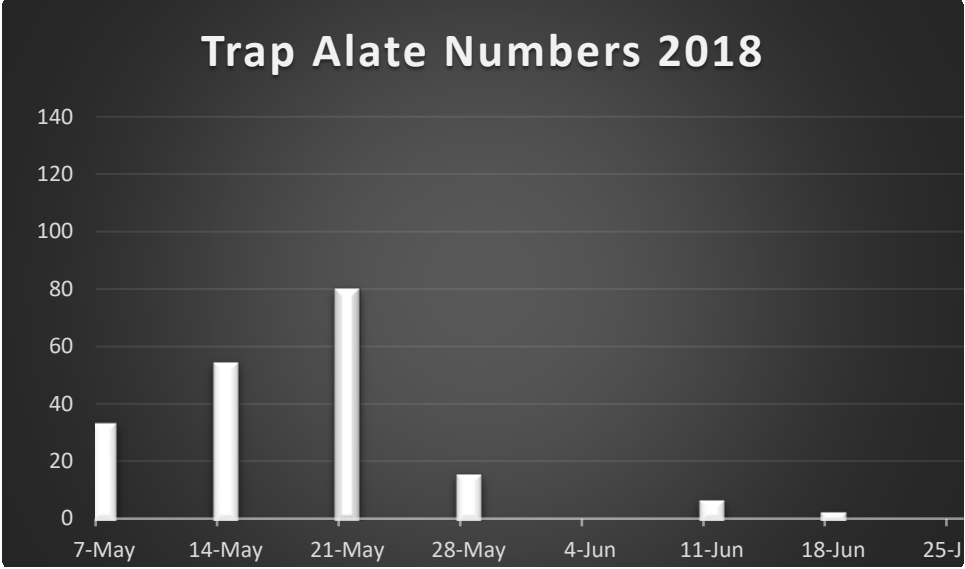
The Innerarity point trap was checked weekly for eight weeks and the Perdido Key trap was checked for three weeks then was unable to be located after Hurricane Sally came through in September. No alates were found as indicated in Figure 1 below.

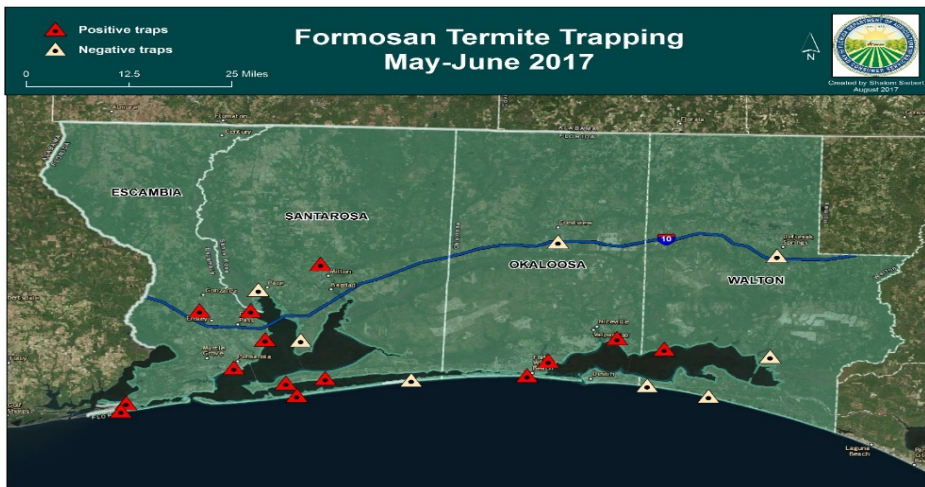
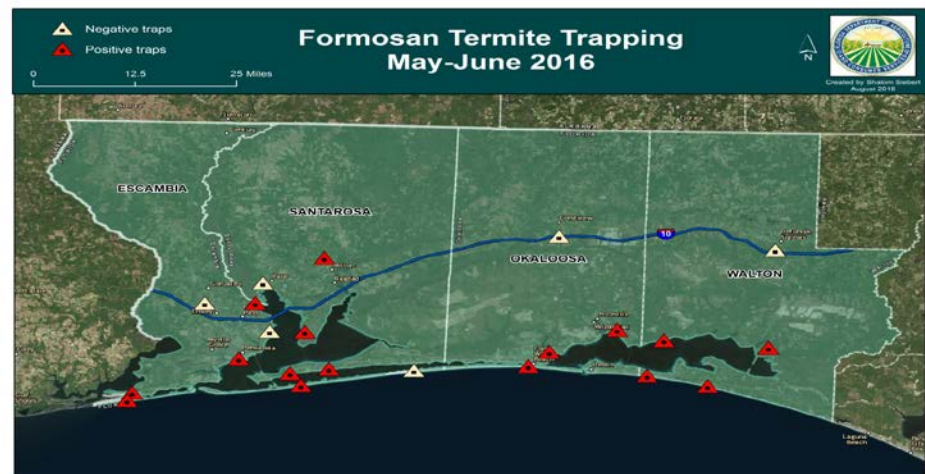


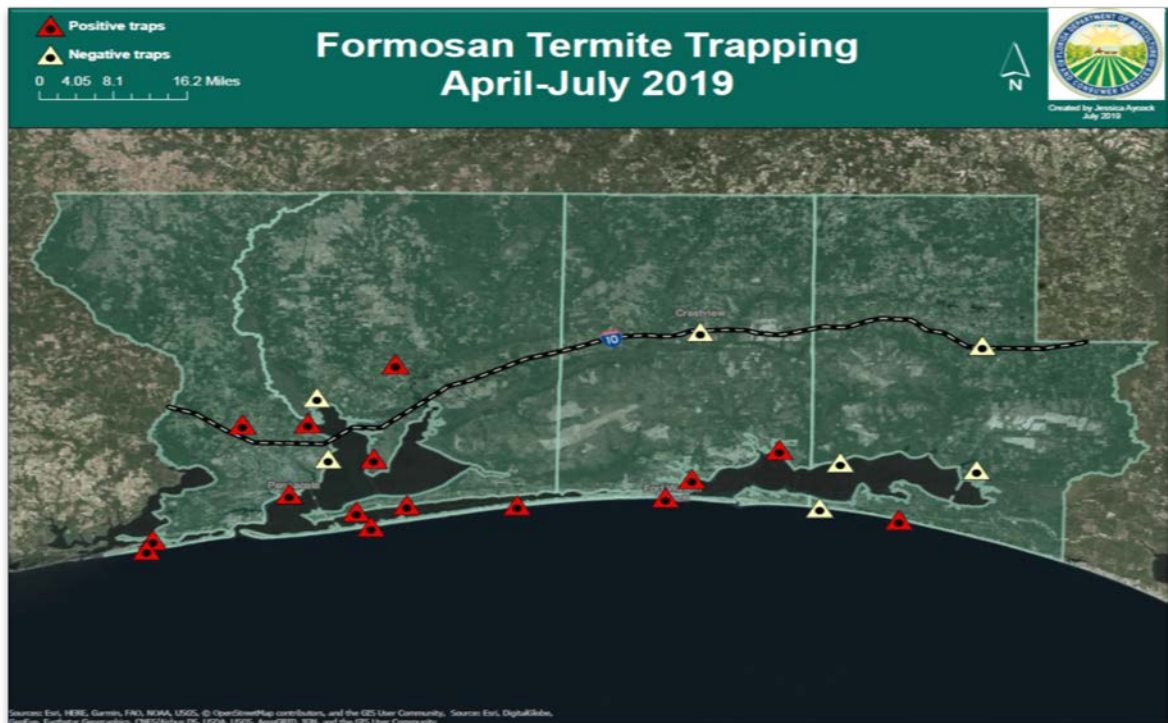
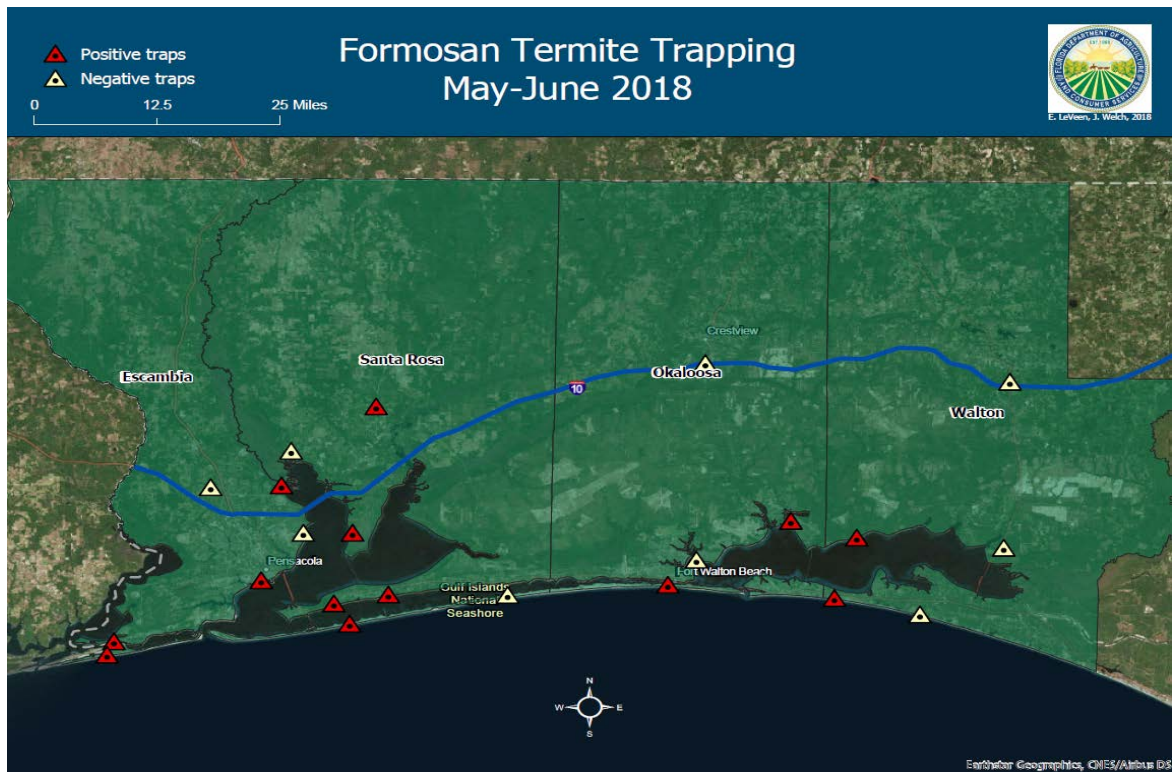
Figure 1: Map of negative Fall traps.

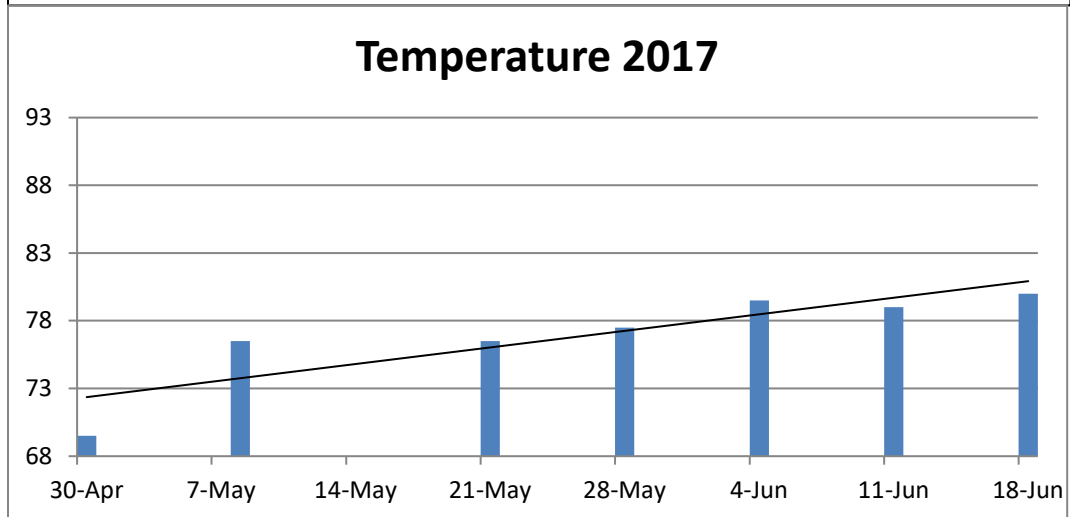
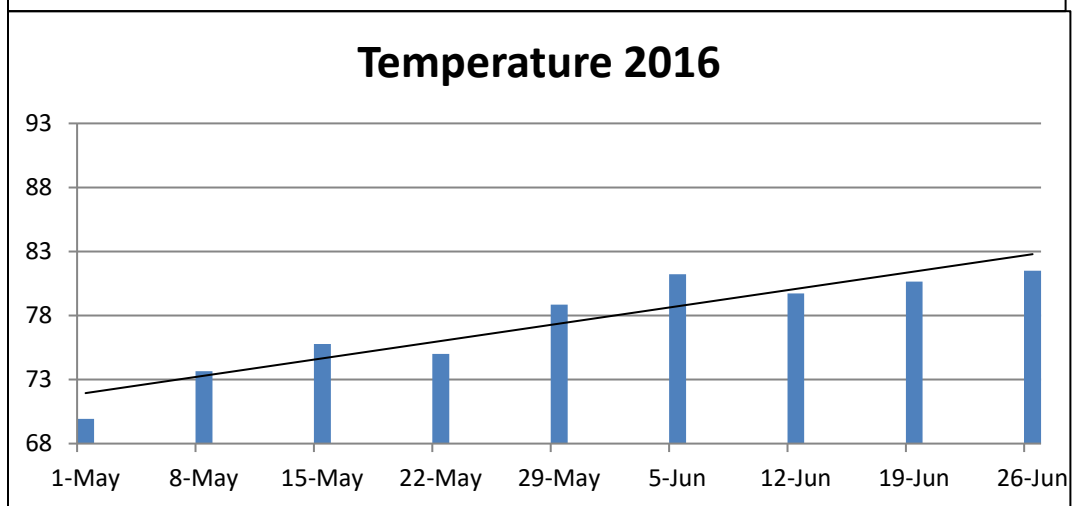
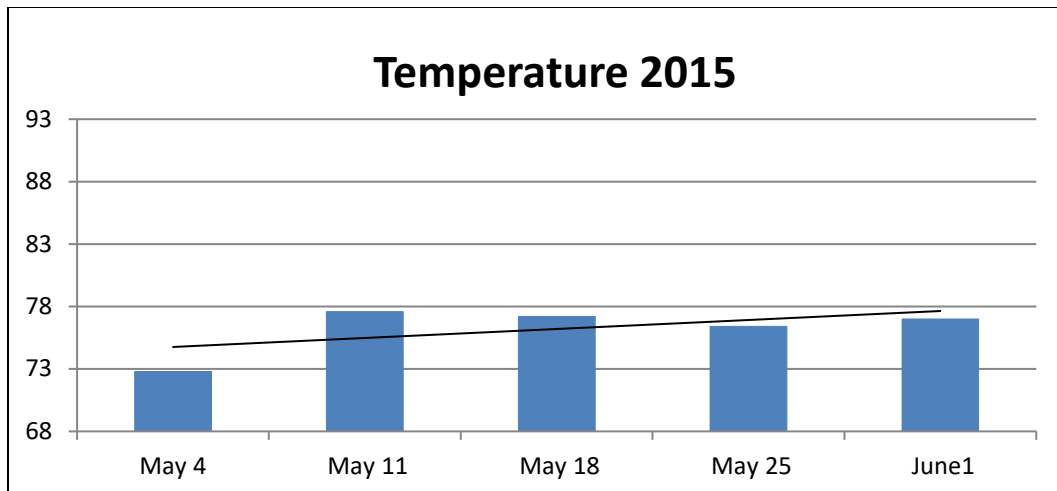
Appendix 1: 2015-2019 Trap and Weather Results

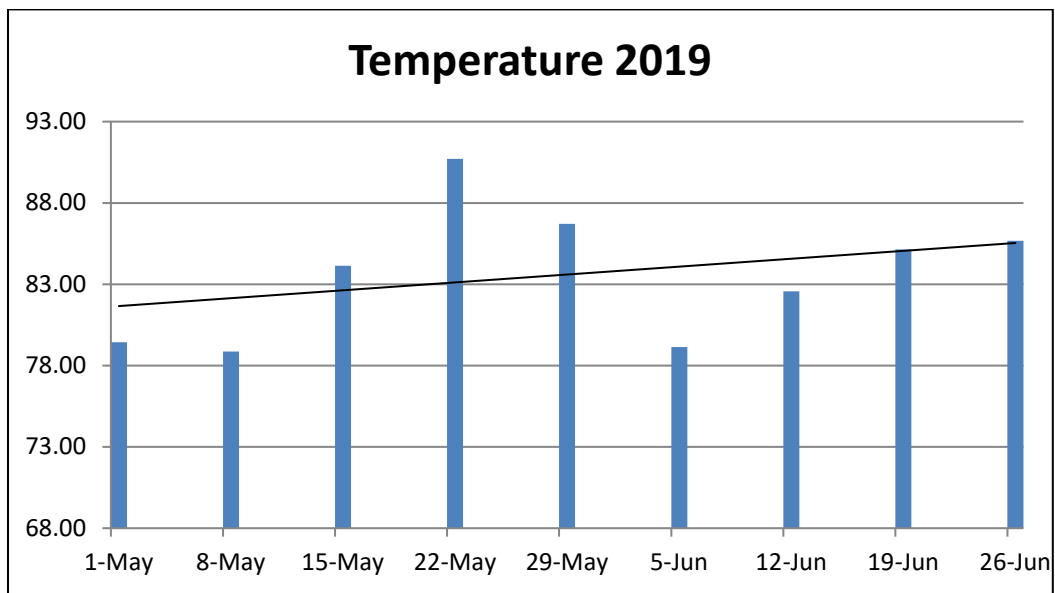
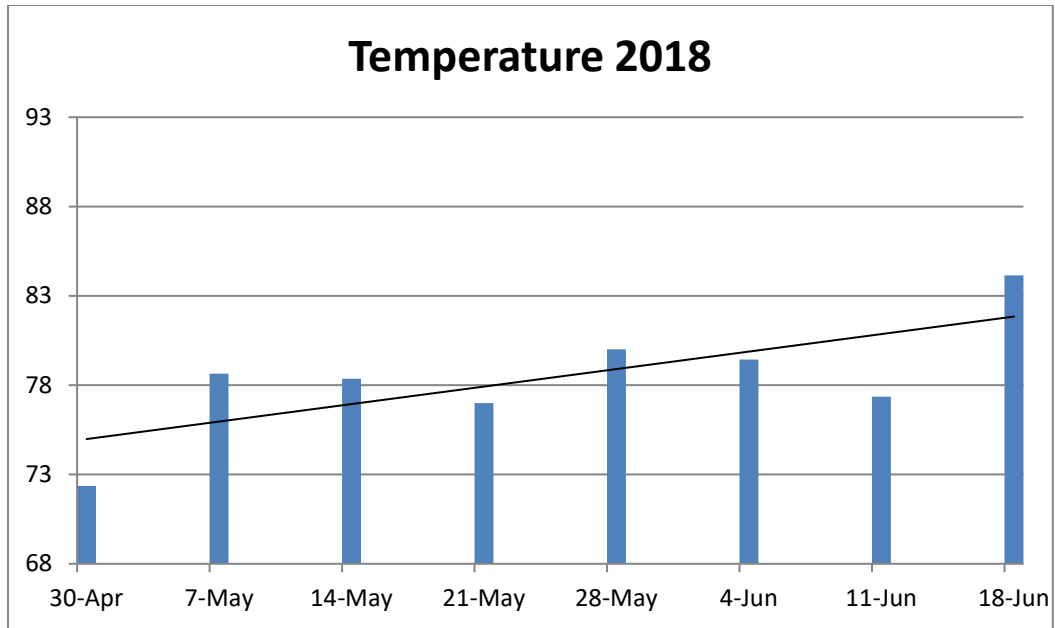




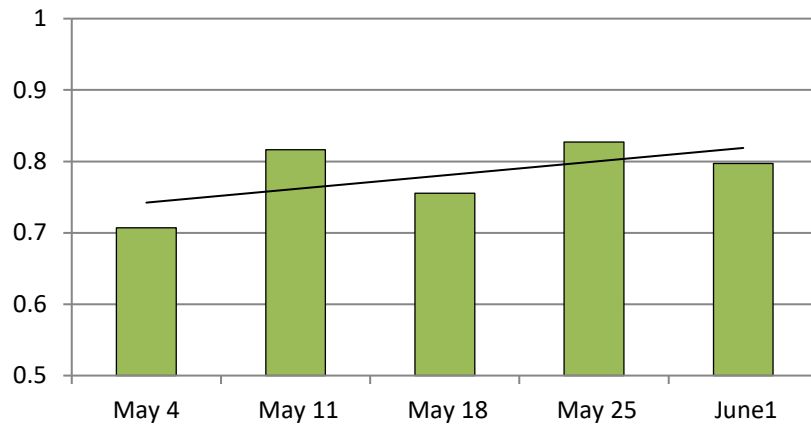




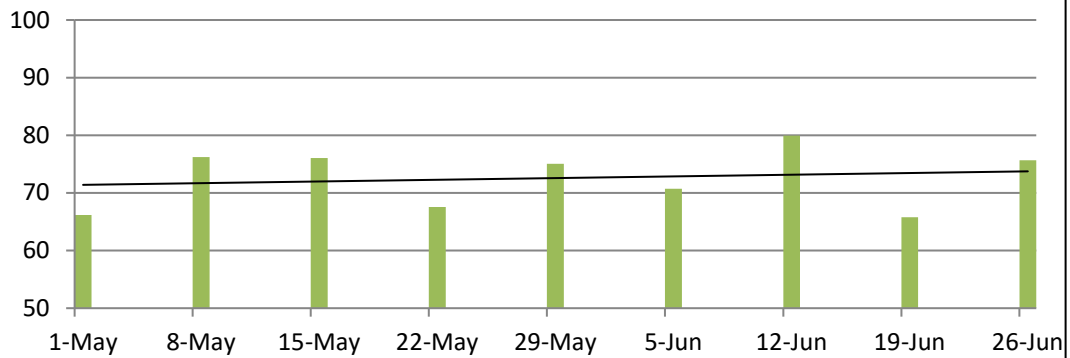




Humidity 2015



Humidity 2016



Humidity 2017

