contracts with institutions worldwide to find and

manage sources of carbon offset credits. Through this initiative, they hope to amplify the monetary benefits of investing in sustainable agricultural and arboreal markets. This summer, I answered three questions posed by their research team and offered my insight into ways they can more accurately measure and report their carbon sequestration and emissions. These questions were: how much carbon is emitted from plantation fires at different levels of severity; how much carbon is sequestered in the roots compared to the above-ground shoot of various tree species; and lastly, how can we better model the expansion of carbon sequestration and emissions facilities using quantitative carbon modeling to

estimate tree growth patterns in a changing environment.

I coupled my time reviewing scientific articles with getting involved in the melatonin research conducted in the Logan Lab. Specifically, we looked at how different applications of melatonin impact the chlorophyll content and photosynthetic properties of turfgrass flats subjected to different drought. I then took measurements of their photosynthetic rates and chlorophyll

content to make inferences about how melatonin may impact the productivity of turfgrass. While melatonin does not appear to impact photosynthetic rates of turfgrass, our findings suggest that melatonin may reduce the need for turfgrass to rely on higher chlorophyll B concentrations to decrease the production of reactive oxygen species at higher light intensities. This reduction may be due to melatonin's ability to enhance antioxidant capacity, as cited in previous literature. Further analysis of our data will continue through the fall semester.