My internship has been an amazing, eye opening experience and I could not ask for a better place to learn about the nursery/greenhouse industry. I am grateful for AFE providing me the opportunity to participate in this program and connecting me with North Creek Nurseries. I have learned so much regarding real-world situations that the floriculture industry must solve, as well as how my collegiate knowledge and experience fits into solving complex production issues. I have always wanted to propagate and grow plants since I was in high school and this internship helped strengthen my passion for general production of plants. My title at North Creek was Production Intern so I spent most of my time in the production department. I spent from two to three weeks with other departments to learn what their role was in the company. North Creek’s main goal was for me to learn every single aspect of the company so I would get a well-rounded knowledge about them and how important each department is in the overall success of the business. North Creek Nurseries has two locations that I was able to spend time at, Landenberg is their production and primary office location and Oxford is their shipping and holding area.

At the beginning of my internship, I started with shadowing the production department from working on the line and cutting crews, prepping for the next weeks planting and cutting schedule, scouting for cuttings two weeks in advance, printing sticky labels and tags for the line, and working the seeder. I spent time with Erin, Amy, Victoria and learned what their roles are in the production department. I learned how to run the seeder machine, collect seeds such as *Rudbeckia maxima*, *Callirhoe*, *Chasmanthium*, *Tiarella* and *Dicentra* and keep an accurate seed records of inventory from Amy who runs the seed department of production. I spent time working in both receiving and stock areas for half of my internship with Victoria. I learned about how stock and receiving are the two most critical areas when it comes to having high quality plugs in massive quantities. In the receiving department, I learned how to receive unrooted cuttings and tissue culture that are sent to the nursery from their suppliers. I was able to use my knowledge of pests and their signs and symptoms to assess the crops for any possible damage. In the stock houses, I worked on stock potting new crops or crops into bigger containers. I learned about what plants have to be put into a force house to break dormancy earlier and those that have to be put into a cooler to influence early dormancy in crops that require a longer dormancy period. The reason to do this is to get cuttings from certain crops during the mid to late winter. I
worked on the production line learning how having three to four people working together (by having each person fill two to three rows of a flat then passing it down to the next person) can increase the efficiency of a line significantly. This process was influenced by LEAN Management, which North Creek employs.

LEAN management is a method that was developed by the Toyota company. The method focuses on avoiding unnecessary waste and increasing efficiency in the workplace, increasing the quantity/quality of products produce. An example of the LEAN system on the production line would alter the historic flat filling method whereby a single person fills a single flat. Instead, three people fill one flat together. This helps reduce waste of time and labor by having the workers work in teams of three, so if one person is slow at filling flats then you can put them in the middle of two faster people. I learned about this style of management from Tim McGinty, General Manager & COO, when I sat down with him to learn about North Creek and how to run a large-scale greenhouse/nursery. Tim taught me how LEAN management has made their company more efficient at producing high quality plugs in massive quantities. I also learned about SANC certification and how important it is for the nursery. SANC stands for Systems Approach to Nursery Certification. This certification helps reduce the risk of pests spreading within and outside of a production facility by setting a standard on what actions need to be taken to move/ship plant materials. It helps nurseries be able to send their produces across the U.S. without having to be inspected by the state’s Ag inspector upon receival. This also helps customers get their products in on time and know that they receive high quality produces that are pest free.

I worked with the Research and Development (R & D) for three weeks learning about the gardens that they use around the Landenberg location. I got to help install a floating island into one of the ponds on the property to serve as a nitrogen and phosphorous sink. I learned about the research that Brigitte (New Products Manager) conducts to see which new plants fit into North Creek’s production regime. I got to attend a native plant conference and be part of a workshop program. The workshop that we did was about the rain gardens that are implemented all around North Creek and we got teach how to install one in a trail garden. After that workshop, I started volunteering to help with tour guides that Steve, co-founder and owner, and Tim would give around the nursery especially when college students were apart of the group. I learned more about why the greenhouses were built in certain locations and the benefits of all the different gardens around the property. I also got to talk about my experience as an intern and about the benefits of doing an internship before graduating college.

When shadowing the growers at North Creek, I had to first learn about how to run and set a mist system manually and the proper hand watering techniques on cuttings that have just been stuck into trays. I learned how set the mist system at different ratios of seconds to minutes when the greenhouse has unrooted cuttings and tissue culture on two separate tables. Maddie, Grower Manager and IMP Coordinator, taught me how to scout and record pest problems so you know in the future when you need to start using preventative methods during the growing season. For example, she orders beneficial insects to be applied two weeks before thrips start migrating to the nursery and keeps using the insects until two weeks after thrip populations move south during
the fall. She also showed me how using soft chemicals are more beneficial for plants and all the employees at North Creek. I learned how to operate a boom system in a large-scale greenhouse that has multiple bays and how they use a program called Damatex to operate the booms and the greenhouses ventilation system. I went to Oxford to see how the growing operation there compares and contrasts with the Landenberg location. There are significant differences since all of their plants (at the Oxford location) are grown plugs waiting to be shipped or picked up by customers. The covered growing areas in Oxford are comprised of hoop houses with manual mist systems and a large-scale greenhouse (once a cut flower greenhouse) that does not have a mist system; and where everything has to be hand watered.

In Oxford, I spent time with the shipping department, inventory department, and growing department. I started with the shipping crew learning about they organize orders, netting flats, packing them in boxes, weighing and taping shut. All boxes have their weight and order number written on it so Jody in the office can print off the shipping labels and write the final bill for the customer. She makes sure that every order has an inventory list with a return address and shipping. Packages are shipped with either UPS or FedEx depending on the customers request and the location the packages are being sent to. She puts together all the pick orders on individual racks and organizes racks so pull crews can pull orders efficiently. Sarah is the inventory manager who keeps track all of the plants in both Landenberg and Oxford. She taught me how to observe a crop to see if it is going to finish on its expected finishing date or will it complete earlier or later. She taught me how to inspects flats to see how many flats were going to be full and how many were going to be counted as lost (partially full). Lost flats are flats that are incomplete due to plug death. She taught me how that the two locations are different because the flats in Landenberg are not finished while those in Oxford are. I learned that her job requires her to update the online availability pdf files daily on North Creek’s website and to be in constant contact with the Sales Team, Production team, and the growers at both nurseries.

In the office, I spent time with everyone learning about their jobs. I learned about marketing from Carrie and all of the different websites and brochures that they have that are tailored for specific types of customers such as landscape contractors, wholesale nurseries and retail nurseries. I learned so much from the sales and customer service teams about what they have to do on a day to day basis. They work so hard to fill in orders and work with customers and production department. I got experience firsthand working with a potential future customer when I shadowed Angie (sales rep) and learned how to work with customers in person. I got to train on Excel PowerPivot and SBI with Gordon (special operations) and I learned how much these programs help with everyday operation and how they are tailored specifically for each department. I wish I got to spend more time learning more about these programs, yet after my brief training, I had a better understanding of the programs that each department uses.

Overall, I learned and gain more knowledge from my internship than I have from some of my college classes. My time at North Creek has sparked my interest in working in the production and propagation side of the nursery. I got the opportunity work on two propagating projects on *Laurentia* and *Gelsemium ‘Margarita’* to see how to increase rooting percentage. These two projects increased my passion for conducting experiments on problematic plants to see how to
increase rooting percentage and uniformly. When I presented my findings, my boss Erin and my mentor Victoria were really impressed with the result and wanted to continue the Gelsemium project after I left North Creek. I believe working at North Creek has been an amazing experience and has made me evolve over those six months not only professionally but personally. I see myself using all that I have learned at North Creek to pursue a job as a propagator for either a plant liner company or a wholesale nursery. I am grateful for my advisor Dr. Paul Thomas, who pushed me to do this internship program and Victoria at North Creek for being my mentor and friend throughout my internship. I feel ready to pursue the next stage of my career and personal path and appreciate AFE’s support in making this wonderful experience a reality for myself and fellow interns across the U.S.
This is the group from the workshop during the Millersville native plant conference.

L: I am receiving Iris ‘Purple Flame’ tissue culture. R: Stocking potting Solidago ‘Golden Fleece’
My advisor Dr. Paul Thomas came to visit me during North Creek’s open house.

I am presenting the SBI and excel programs with Victoria during the open house tour.
T: This is the seeder that I worked with Amy when learning about the seeding portion of the propagation.

B: I am transferring the Solidago ‘Golden Fleece’ to one of the stock hoop houses after planting.