Summer Experience at Mahyco in India

During last year’s spring semester, I made the decision to fulfill my international experience requirement by spending eight-weeks at the Maharashtra Hybrid Seeds Company (Mahyco) in Dawalwadi, India, a small town located approximately forty-five minutes outside of Aurangabad. With approximately half of the country’s workforce involved with agriculture and the country’s increasing presence in the global economy, India seemed like the perfect place to pursue my interest in international agribusiness. Mahyco, one of India’s premier agri-biotechnology companies focusing on the research and development of various hybrid seeds, was a perfect fit for me to learn more about Genetically Modified Organisms (GMO’s) and the future role they will play in global agriculture.

Because I do not have an extensive background in Biology, I entered the experience expecting to spend the majority of my eight-week experience shadowing various scientists to observe their everyday activities and performing housekeeping tasks, like cleaning test-tubes. However, this was not the case at all. Although I did spend the first week shadowing my colleagues, they made it their priority to explain the procedures they were performing in great detail and teach me everything I needed to
know. By the beginning of the second week, I was given experimental tasks to be performed on my own, such as Polymerase Chain Reaction (PCR) tests and bacterial vector cultivation. It was definitely a bit overwhelming to be thrown into the mix so abruptly, however, it did not take long to become acclimated. In addition to performing experiments in the lab, I also spent a great deal of time in the company greenhouses, where my lab performed a summer-long, two-thousand plant experiment on the third-generation of the Nitrogen-Use Efficiency (NUE) rice variety. In performing this experiment, we attempted to mimic the climate conditions and farming practices that local Indian farmers used in the area. This required us to construct three large raised seed beds out of mud to place our various seed-types. I found this exceptionally fascinating because I wrote a research paper on raised seed beds, and it gave me the opportunity to take the theoretical information that I learned in my agriculture courses at Cornell, and apply it practically. Following the cultivation of the various rice crops, we collected samples from each of the two-thousand rice plants, extracted the DNA from each sample, and performed PCR tests to identify which plants contained our desired gene. We then collected the seeds from the plants with the desired genes, and saved them to use for fourth-generation experiments. With an average of seven generations being tested before a product is commercialized, this experience opened my eyes to just how much time and effort it takes for an agri-biotechnology company to get a seed on the market.

Although the knowledge I gained from this experience is invaluable, the most rewarding part of my trip was the people that I had the opportunity to interact with on a
daily basis. Whether it was riding a motorcycle into town to get groceries with my friend and lab mate, Ganga, or playing cricket outside the complex with the staff’s children, I had an absolutely amazing time immersing myself in the Indian way of life. At times, being thousands of miles away from my family and friends in the United States was tough, but the people at Mahyco did everything from inviting me to family dinners to teaching me Marathi, the local language, in order to make me feel at home. I highly recommend everyone who is considering India for their abroad experience to consider spending their eight-weeks at Mahyco. I can honestly say it was a once in a lifetime experience.

Below, I have attached some pictures from my summer experience at Mahyco:

_Above:_ Greenhouse experiment on the third generation of the NUE rice variety
Above: My colleagues and I taking our mid-morning tea break.
Above: Extracting the DNA from our greenhouse samples