Sorghum Breeding Research & Development
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Advanta US

Company Description

Advanta’s Purpose and Vision:
“To Provide Innovative Plant Genetic Solutions by Driving Sustained Growth Through World Class Plant Genetics and Innovated Technology”

Advanta is a global company able to focus on the traditional aspects of agriculture by utilizing modern science and technology to produce a world class seed. The College Station branch focuses on the research and development of grain and forage sorghum with the objective to out-yield the competition. (Fig. 1 & 2) The Advanta seed production strategy focuses on reducing the cost of the seed while simultaneously ensuring that maximum reliability, efficiency and timeliness of production of high quality seed is achieved. The ability for Advanta to breed sorghum under certain conditions is achieved by the use of biotechnology and plant genetics. Advanta is able to engineer seeds that are salt-resistant, cold-tolerant, and insect resistant depending on the conditions of the target planting region. Advanta sorghum research focuses on three key areas; inputs, bioenergy, and market expansion. Advanta is committed in the development of elite hybrid grain and forage sorghums for animal production, grain sorghum for human consumption, and specialty sorghums for bioenergy.

Internship Objectives

My objectives for my internship at Advanta Seeds were to:

- Gain field experience working with sorghum and understand how all factors of the disease triangle correlate with plant disease
- Be able to properly manage and record inventory (Fig. 3)
- Work with a team to observe and document the growth of sorghum lines that are bred for certain conditions (Fig. 4)
- Assist with seed packing, pollinating, planting, harvest and threshing, and assist with data collection
- Secure a position after graduation

My experience at Advanta relates to my overall career goals because I have been able to learn the importance of being flexible on the job by being able to complete different tasks in a time efficient manner. I have learned the importance of teamwork is order to get a task completed. My ultimate career goal is to apply to graduate school to study soil science. I have learned that soils play an important role in agriculture and can affect the long term success of a crop. The knowledge of plant pathology given to me in PLPA 301 has allowed me to see the importance of the disease in sorghum production. To ensure the lowest rates of disease, seed treatments are used before planting and planting only occurs during the third week of March to ensure that the environmental conditions do not lead to disease incidence. Since sorghum can be bred for bioenergy, Advanta relates to the field of Bioenvironmental Science because it is a source for the production of biofuels and a renewable resource.

References

http://advantaus.com/

Description of Experience

When I was first hired at Advanta, I believed that I was going to work in an office managing online records and inventory. What I quickly realized, however, was that I was going to be working in the research warehouse, conducting several projects in order to meet the planting deadline in March. Since Advanta was short-staffed when I was hired, I quickly had to learn how to be flexible in the workplace. One of my first tasks was sorting inventory at the warehouse by the source codes and year of harvest. What I did not realize at the time was that many of these sources had the same pedigree code and essentially were the same seed. Another one of my first tasks was threshing the 2016 harvest and placing them in order as well (Fig 7). My main task throughout my internship was to set up planting trials by finding sources that met the pedigree codes needed. This was determined by the master list that had the entry number and codes written on it. This was not listed on the labels, however, because some of the trials went to third party companies to ensure that no bias was given on the fertility and yield rates. An example of the trial label and pedigree and source code can be found in Fig 6. After the source was found, the seeds would then need to be treated with a seed safener and an insecticide. Depending on the trial location, a different amount of seeds would be placed into an envelope. The process would be repeated for each entry and each trial. Each entry would have a different range and row number. The trials would then be placed into planting order by these numbers and then strung up on a spiral to be planted. This can be observed in Fig 5. After the planting strings were in place, two workers would then go on the planter and plant the seeds in the ground. The planter is able to plot the exact location through GPS that is triggered by a cable in the field. As a member of the Advanta term, I was able to plant some of the ranges as seen in Fig. 8.