

NRCS USDA Internship

Isabel Lambert

College of the Sequoias

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Executive Summary:

During the entirety of the summer, I had the pleasure of working primarily with Bradley Pannett, NRCS's Engineer Tech, and under Kelli Woods and Joe Williams. Although we were not given an actual project to complete, we were instead given a glimpse into how NRCS works, and how branches inside NRCS function together. At the beginning of the summer, we received training at Cal Poly, San Luis Obispo, at the Irrigation Training & Research Center. The other intern, Blake Doyle, and I primarily confirmed that producers had followed their contracts by conducting field visits. We learned how to use the programs and tools used by NRCS daily.

Project Objectives:

During the internship, the other intern and I were not given a specific project to work on, instead, I focused on familiarizing myself with the AutoCad system, Trimble Survey Equipment, and how NRCS works. I applied to this internship in the hopes that I would gain experience working with engineers on conservation projects, and that I would become familiar with AutoCad. Later, as the internship progressed, I also began working on familiarizing myself with the Trimble Survey Equipment and the ArcGis system. During the internship, I became increasingly familiar with farms and dairies and could begin identifying most of the equipment and buildings I saw while conducting field visits. Although my major chemical engineering has little to do with NRCS specifically, I would love to go into a field that designs new materials using recycled materials.

Project Approach:

The other intern, Blake, and I spent most of our time driving to fields and systems to check that no pre-existing system existed, that the system had been installed per the contract, or that the installed system worked correctly. Using proposed irrigation system maps, we learned to calculate gallons per minute and the PSI required for a system to work.

Early in the internship, we were sent to the Irrigation Training & Research Center at Cal Poly, San Luis Obispo for a week-long seminar. At IRTC, we were taught to evaluate a field based on its irrigation map, and how to take Distribution Uniformity tests. We practiced techniques on site at Cal Poly, and on an avocado orchard and a vineyard. We also learned how to identify the many different components in an irrigation system, and how to identify the manufacturers.

While at NRCS, we were taught to use the Trimble Survey equipment and ArcGIS systems to survey concrete slabs on dairies. NRCS will cost share to put in a new concrete slab, or to replace a slab over 15 years old. Concrete slabs on dairies are essential for storing both feed and the waste from cows. If not stored on slabs, the feed and waste excrete a leachate which is nitrate rich, and poisons the ground water. Concrete slabs will have drains that move the leachate to the lagoons where they are treated.

Additionally, we used the survey equipment to map out oil on roads. Oil on the roads is used to control dust mites that are kicked up by passing cars, and enter orchards, and to control the dust. Oiling roads helps to keep the air clean and the orchards and fields clear of mites.

To conserve the air quality, we also accompanied Thomas when conducting tractor evaluations. A producer may apply to receive help buying a new tractor if they have an old tractor that is heavily polluting the air. If the tractor qualifies, it is destroyed, and a new cleaner tractor is bought by the producer with help from NRCS. We also went to vineyards to ensure that stakes were being recycled correctly and not burned, burning stakes heavily saturated in chemicals can be a major air pollutant.

We also spent a large portion of time confirming that no preexisting systems existed before the contract was signed, that the contract was being followed, and that the equipment installed and cost shared by NRCS was working as specified.

Project Outcomes:

I gained valuable experience working with several engineers, and conservation branches in NRCS. While at NRCS, I worked with several individuals from the other area offices, including Dave Kriedemeyer, the head engineer of area 3. I also learned to use the different survey equipment and mapping systems on AutoCad. I was certified to conduct Distribution Uniformity Evaluations on producer's land. During the internship, we were able to both start and finish contracts. Our field visits were important as they confirmed that all prerequisites for a contract were fulfilled, and that contract could now begin.

At the end of the summer, I gained the knowledge to accurately judge the health of a field, and the quality of an irrigation system. I am now able to identify the many components in an irrigation system, and the many different buildings on a farm.

I have also come away with a deeper understanding of the challenges that face conservation groups or branches of the government. Moreover, I have increased my knowledge of the different kinds of conservation currently being conducted in California, and the challenges they face.

Despite not receiving a project to complete this summer, I felt I came away with a deeper understanding of NRCS and what its goals are.

Conclusions:

In the future, I would recommend the interns do more desk jobs, and learn more about the actual mapping of irrigation systems, and are allowed more opportunities to evaluate fields on paper. This internship has given me great experience and knowledge on conservation and preservation, and I will definitely be using their common sense conservation approach in my next internship or job if applicable. Although I do not believe I will work with NRCS in the future, I will certainly attempt to obtain a job that allows me to continue conserving resources, albeit in different ways.