

Bear Creek Farms, Inc.

Summer 2010

Amy Hinkle



In the middle of May, I packed my car and headed to the hottest place I have ever been to: Stillwater, Oklahoma. I was in for one of the most exciting learning experiences of my life working at Bear Creek Farms, Inc. for 12 weeks. While working for Vicki Stamback at Bear Creek, I learned how to grow and harvest over 90 different kinds of cut flowers, market those flowers to local florists and wholesalers, and evaluate how business was actually going on the paperwork side of the company. I also learned how to prevent, ID, and manage many insects and diseases that affect flower crops. Personally, I studied the effect of floral preservatives on the vase life of zinnias, scented geranium, and coleus cuttings. I also had the opportunity to work with many florists in the Tulsa and Oklahoma City metro areas. This internship opened my eyes to American specialty cut flower production.

The following is the internship plan I created before leaving Penn State. It detailed what I wanted to learn while I was at Bear Creek farms. All the tasks on this plan were successfully accomplished in the three month period I had in Oklahoma.

Internship Plan

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Employee Management & Farm Operations

Responsibilities: I will be working with 2 Hispanic works. It will be my task to supervise these women and learn from them.

- Learn how to harvest all flowers grown on the farm
- Learn how to hydrate, preserve, and cool all flowers
- Learn how to communicate with Spanish workers

Insect & Scientific Investigation

Responsibilities: I will be working with the entomologist on staff and learning how to take an IPM approach to floral pest management. I am expected to learn how to recognize insects correctly, come up with solutions for the problem, and do my best to keep insects under control.

- Learn which insects affect specific crops
- Learn how to prevent insect problems in the greenhouse and field
- Learn how to use biological control methods in the greenhouse

- Learn how to recognize insect damage on plants and match the defect with the pest
- Learn how to control insects in the field

Marketing, Sales, and Communication

Responsibilities: I will be learning the business side of a floriculture operation. I am expected to go with Vicki to the florists, learn how to sell, and how to keep records. I will be responsible for keeping the books for part of this time. I will also be expected to do crop audits on certain flowers being grown.

- Learn how to market cut flowers to florists
- Learn how to evaluate and audit an individual crop to determine if it is a profitable product
- Learn how to keep accounting records
- Learn what florists want in fresh cut flowers: how to read them

Personal Interest Projects

Responsibilities: I have the freedom to choose what I want to do for the remainder of my internship. This part will be clearer once I find out which part of the farm I would like to know more about. Possible projects I will be working on during this time, or throughout the internship are listed below.

- Run an experiment to see whether holding, hydration, and floral preservatives really work
- Test the new chlorine tablets being marketed for Zinnia stems for actual vase life improvement data
- Run audits on more crops so I fully understand this process

While working at Bear Creek Farms, Inc., I observed that many of the practices used were similar to those taught at Penn State, while others were not. The main differences I saw involved greenhouse structures, field irrigation, floral harvesting and preservation, styles of arrangements that are currently popular, pest control methods, and style the method of evaluating and auditing crops.



In the greenhouse management class, we talked about greenhouse cooling systems. Passive summer cooling was discussed as needing roof and side vents. In Oklahoma, they had roll up sides, end vents and cooling fans. The sides allowed wind to pass through, bringing in cool air, while the fans acted just like the open roof drawing out the hot air through the end vents. It was Oklahoma, so the greenhouse was still hot; however, compared to the two

greenhouses that only had vents & fans, the roll up sides made a significant difference in the greenhouse temperature.

Irrigation was also different there. It was not discussed how to deal with a city water system in class. You cannot inject fertilizer or chemicals into the main water supply. At home, we have our own well and inject things directly into our main pipeline to the field. At Bear Creek, that line drained back into the water source: the same one used for faucets and drinking. So, they must inject the fertilizer and systemic pesticides using a small fertilizer injector designed for the greenhouse that prevents backflow. This system could only fertilize ten rows at a time and took a significant amount of time. More emphasis on how to deal with city water issues is needed in course curriculum. An irrigation installation, maintenance, and troubleshooting class would be beneficial to all horticulture and landscape students since most of us will be involved in irrigation management at some point in our career.

How to treat flowers when cutting them was also different there. I have always been told to cut the stems diagonally and put them in water immediately, followed by direct cooling. We cut at any angle. In the greenhouses, we cut until we got a large handful and then went up to the building and put them in water. In the field, we did cut into water fairly quickly. There was water at each acre in the field, via a water faucet. Then, sometimes the flowers were left out for up to 7 hours in the heat of the building, which was usually about 80-90 degrees, until we were able to bunch them in the afternoon. To me, this seems to reduce vase life, but it was not viewed as a huge issue at the farm. Some sensitive things were placed in the cooler until we were able to bunch them, like asclepias.

I am very interested in lengthening the vase life of flowers to provide maximum quality to customers; therefore, I chose to do independent research at the farm concentrating on postharvest

handling to improve vase life. Literature that I've read from floral preservative companies suggests placing flowers in a hydrating solution like OVB or Professional #1 (Chrysal Products), for four hours and then transferring the stems to a holding solution before selling them to a florist. Then the florist puts



them in food. There is no plain water in the process. There was no definite research that showed how long the flowers being growing at the farm would last longer in the different floral preservatives on the market. For this reason, I decided to research the effect of three holding solutions and two hydrators on the vase life of 'Oklahoma' zinnias, 'Benary's Giant' zinnias, peppermint geranium, citrus geranium, variegated geranium, and coleus cuts. I am concluding the research at the moment and hope to draw some conclusions soon. I rated the flowers using qualitative observations of how the flower appeared visually. The following evaluation system was used:

Rating System:

- 1.) Flower is perfect. No petal drop, browning, or fading. There are still petals opening. Looks like it was just cut fresh and ideal from the field. Able to be sold from Bear Creek.
- 2.) Flower still looks fairly good. More petals open, a little fade. No brown petals, no petal drop. Salable from Bear Creek.
- 3.) Flower is starting to go downhill. Lower petals are browning. Fading has begun. Not many petals opening. This flower can still be used by the florist with some pampering, but is no longer salable by Bear Creek.
- 4.) Flower is no longer usable by the florist. Petals are browning on the top, color is faded, and no more petals are opening. Consumers would still keep the flowers on the table for sentimental reasons, but they are no longer appealing to look at.

- 5.) Flower is totally gone. Head has dropped, all the petals have shriveled up, or mold has started to form on the flower head. Not appealing to anyone in the floral chain.

The first round of tests on zinnias was completed in early July. A second test on zinnias and a first test on geraniums and coleus was conducted in late July into early August. The data will be



sent to John Dole to run through SAS and determine some statistical results later this season after a final September study is completed by another employee. Though we won't know too many details until the numbers are run through SAS, it appears that zinnias prefer a hydrating solution only and being cut in the

evening to maximize vase life. I hope to continue testing vase life potential in the future. To me, it is very important to guarantee a certain vase life to customers when they buy my floral products. The only way to know how long they last for my customers is to run tests and make improvements when better preservative solutions are found.

While in Oklahoma, I also had the privilege of working with many expert floral designers: Toni Foss (Toni Foss; Oklahoma City), Greg Wilmes (Dulaney's Floral; Oklahoma City), Tony Garner (Tony's, Tulsa), Anne Marie Foy (The French Bouquet, Tulsa), and Steve Harris (Little Shop of Flowers, Stillwater.) At each shop, I learned current trends and the latest contemporary designs. I worked with each florist for 2-5 hours and had the opportunity to see how retail florist shops operate. Every shop is different in their design, clientele, and sales



approach. Toni Foss is a very contemporary designer who likes to use tropical flowers and foliage. Here, I learned how to make a Cha Cha, which is a floral bracelet made out of ribbon,

and in my case, orchids. Ann Marie is an upper class wedding designer who likes to design extravagant, luxurious, and artsy floral work for large weddings or intriguing venues. I learned how to design bridal bouquets and bridesmaids' bouquets without greenery here. Dulaney's has lots of foot traffic in there store. Their clients desire flowers and other artwork, so they focus on small flower arrangements, authentic artwork, and emotion enhancing gifts. Here, I learned how to design "roundie moundies", a low circular arrangement designed in a small square vase. Tony's is a very busy shop that is well known for contemporary work and traditional work if desired. It is here that I learned how to make a pauve; this is a square of oasis hidden by salal leaves and topped with rows of flowers in straight lines. This style of arrangement is popular in the south. Little Shop is the place to go for new, contemporary work in Stillwater. Serving a college town, they do many weddings, sorority work, banquets, and other student events. I assisted with four weddings here.

All of my work with the florists showed me that design work has changed from what I learned in Penn State's floral arranging class. The use of greenery is very limited now. Instead, large flowers like hydrangeas are used to cover up the container. In



wedding work, the hand tied bouquets are often made with no greenery, leaving the bottom of the flowers exposed for an authentic look. They are wrapped with ribbon and pinned with pearls, but there is no greenery. Many times hydrangeas are used as the base of bridal work. In one case, I designed bridesmaid bouquets that only had white hydrangeas in them. The use of many colors and many different types of flowers is also being implied. Customers want lots of color, outstanding arrangements, and many flowers for their buck. The use of tropical flowers is also increasing as it becomes easier and easier to ship things around the world. Penn State's floral

design class does a good job of teaching the basics of floral design, but it does not allow much room for creativity. True floral work is an art, not a science. Making triangles, S shapes, and planned lines and curves is not how a true designer's mind thinks. I think giving a more diverse selection of flower options to students and a theme for some arrangements in the latter part of 352 instead of a specific copy arrangement would help encourage the creative, contemporary style that is currently the trend.

Pest management at Bear Creek was performed like Penn State classes taught me. First, do everything in your power to prevent pest problems like weeding, planting plants that the pests don't like nearby, and maintaining a sanitary growing environment. If pest problems did occur, removal of plants in isolated cases was the solution. Then, natural controls & biological controls were implemented if the problem was bigger. If the situation got too far out of hand, then harder chemicals were used to extinguish the pest problem. This is just like the IPM taught at Penn State. The only difference was that Bear Creek uses chemical action much faster than the PSU greenhouse does, exterminating pest issues promptly before they get out of hand.



Crop auditing and evaluation is also much more informative and easier if done on a computer program like Quick Books Professional, compared to hand evaluations done in Hort 453. With this system, you insert all expenses and profits into the computer system. You can divide products by categories like seed, soil, labor, etc. You can also create vender lists so you know who you bought from and sold things to. The computer system then keeps track of all transactions. At the end of a crop season, you can look at the expenses and earnings of that

particular crop and determine if you made a profit. You can also see where costs are highest and make cuts where they are necessary. The program will also put the information into charts, displaying valuable information like the breakdown of expenses by % spent. You can also look at which months had the highest and lowest sales. All that you need to know to use QuickBooks to perform audits is the total square footage of each crop, all expenses, and all earnings. There are many other benefits of QuickBooks Pro that assist with accounting. I plan to use QuickBooks to aid in accounting and crop audits in my future business endeavors.

This internship showed me that I truly do enjoy working in the floral industry every day. Working in the floral shops taught me that I do not enjoy the high stress environment of floral design. Growing and marketing is what I enjoy most and where my strengths are in the horticulture industry. In the future, I still plan to open up my own cut flower business. I will definitely focus on wholesale accounts with florists and city wholesale distributors, rather than farmer's markets. After observing the florist industry, I believe that having floral accounts is a crucial component to a successful floral farm. I believe having another, year long experience is crucial before I try to open my own business so that I can fully understand the annual progression of growing specialty cut flowers. Over the next few years, I plan to work at several other horticulture businesses to solidify my career plans. Eventually, I hope to open up my own cut flower business.

To sum it all up, I had a great time working at Bear Creek Farms, learned a ton of valuable information, and made many good network connections in Oklahoma. My personal working experiences and my Penn State education definitely helped me succeed at this internship, but like anything else in life, there is always room to gain knowledge of different production and management methods. This experience helped me determine if production floriculture is really

for me. I would recommend an internship at Bear Creek Farms, Inc. to any other horticulture student who is interested in production floriculture.



