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Experience in Taiwan

I. Introduction

It's been six months; time flies so fast, and my TEEP student journey is now going to end. I remember the first time I knew that I was a candidate for the scholarship of the Taiwan Experience Education Program. I was shocked and started to doubt myself. I kept on asking myself, "Am I ready to leave my country for this opportunity?" "What if I fail and can't continue?" "Should I take the risk?". I shrugged off those doubting thoughts and took the opportunity because, just like William Cobbet says, "You never know what you can do until you try." I told myself to get out of my comfort zone and explore the things the universe was giving me. This might be a tough battle, but I believe it will be worth the fight.

II. Course Subject

I am beyond grateful for the opportunity given to me to become a master's student at Nanhua University under the Department of Green Technology for Sustainability. I learned a lot of new things from the four subjects: Technologies for Sustainable Agriculture, Apiculture, Organic Agriculture, and Orchid Production.

II.1 Technologies for Sustainable Agriculture. This subject taught us about different technologies that are used for sustainable agriculture. I learned about artificial intelligence (AI) and its importance to agriculture. AI and the technologies created by the modern era really help the agriculture industry minimize input and maximize output. Technologies such as artificial insemination, tissue culture, hydroponics, GPS, and machines make agriculture processes more effective and efficient.

II.2 In my **Organic Agriculture** subject, I acquired knowledge of how organic methods are important in producing fruits and vegetables. I learned about BD composting, green manure, cover cropping, and soil identification for organic matter. *Cassia fistula* and *Cinnamomum burmanii* are plants that can help control and prevent invasive pests like golden snails in rice and spodoptera insects in leafy vegetables. We made KKF, an organic liquid fertilizer made of beneficial microorganisms. Furthermore, the subject taught us how rice, potatoes, and beetroot were cultivated organically.

II.3 Orchid Production. For the past six months, I have learned about the management of producing orchids. The subject introduced the three main species of orchids, which are Phalaenopsis, Dendrobium, and Oncidium, but we focused more on Phalaenopsis. I was amazed to find out that Phalaenopsis species take time to grow from the mother plant before they start to flower. I also discovered how crucial tissue culturing is in orchid production. Seedlings from tissue-cultured orchids can produce double their number and can multiply even more. I learned about the proper sterilization of sphagnum moss, potting, fertilizer computation, pests and diseases, and air and water shipment of orchids.



(Potting of orchid in a 3.5" Taiwan pot)

II.4 In Apiculture, I learned that bees contain more than three million hairs in their bodies. I am also fascinated by how their behavior controls their colony, their body system that produces honey, and their ways of protecting the colony. In six months, I acquired ideas on how to take care of the hives in the fall, winter, and spring seasons—cooking sugar water and making bee bread—because worker bees can't forage due to the extreme cold temperature, and fixed bee frames. We harvested and packed more than 20 liters of honey. The experience was incredible and unforgettable, except that I got stung three times by the worker bees.



(Putting of beeswax in a bee frame)



(Checking of beehive)

III. Conference, Seminars, and Workshops

III.1 Conference

On April 15 and 16, the Department of Green Technology for Sustainability held its "7th Sustainable Development and Green Technology International Symposium" at Fo Guang Shan, Kaoshiung. Speakers from other parts of the world shared their knowledge about sustainable ways to help the Earth. The symposium helped us acquire more knowledge about the 17 goals of Sustainable Development. I was very grateful to be given the opportunity to present my research about the effectiveness of seed pretreatment on Bok choy. I met a lot of international people and gained insights about their different topics.



(TEEP students together with Professor Chen, Bo-Ching, Miss Aujero, Miss Galon, and Miss Castel)



(The 7th Sustainable Development and Green Technology International Symposium, April 15, 2023)

III.2 Seminars

I attended seminars about microbial-induced carbon precipitation (MICP) and coffee production. MICP was presented by Professor Guo, Yi-Hao. It is a technology that uses a specific bacterium and aims to provide solutions to engineering problems such as leakage in water sources and soil erosion. The topic sparked my curiosity to know more about MICP and how it could help in the field of agriculture. The coffee production was presented by Professor Chen, Shih-Shiung, and he explained the factors to consider when starting a coffee orchard farm. We also went to the NanHua University Sustainable Farm and planted more than 100 seedlings of coffee.



(Professor Guo discussing about the bacterium used in MICP)

III.3 Workshops

I attended a workshop held by our department on December 21, 2022. The workshop discussed numerous studies and methods to obtain carbon-neutral agriculture. Speakers from different schools, such as National Chung Cheng University, Kaoshiung University, and Ming Dao University, together with NanHua University teaching staff, presented their respective studies, and I acquired new insights about their topics.

Recently, the department organized a workshop about grafting roses. I am very glad that I was given the opportunity to experience how to graft a rose since I am used to grafting plants like croton, bougainvillea, citrus trees, mango trees, and other fruit trees. I listened carefully to the step-by-step process of grafting roses taught by the professor because it is crucial to learn things like grafting flowers.



(Workshop Towards Carbon Neutral Agriculture, December 21, 2022)

IV. Internship

IV.1 NanHua University Permaculture Farm

Within six months, I learned many things on the permaculture farm at NanHua University. I was able to acquire knowledge about mushroom farming, beetroot cultivation, orchid raising, and bee farming. Since I came from a two-season country, the ways and methods of crop cultivation here in Taiwan were different from ours. The climate was a thing I needed to adjust to and consider. It was also a great experience to learn new approaches to farming and cultivating crops such as lettuce, beetroot, spring onion, eggplant, passion fruit, corn, and okra.



(Plotting and weeding of the area for okra garden)

IV.2 City Bear Farm

On March 22, 2023, we chose three strong hives from other colonies. These bees will serve as nurse bees to the queens-to-be because they will sustain the feeding of the queen cells. Then, we looked for a brood with newly born larvae aged 1 to 2 days old and marked it. We prepared the queen's cells by cleaning them with an air compressor. We also prepared the tools and materials needed, like the grafting tool that will scoop the larvae out of the worker cells, the beeswax, the bee frame, and the royal jelly. We filled the queen cells with royal jelly and pasted it to the bee frame using beeswax. Then, we look for the 1-2-day-old larva, and using the grafting tool, we scoop out the larva and put it in the center of the queen cell with royal jelly. The scooping of larvae is quite a challenge for me because I have shaky hands, and the workers cells were too small to see. I squashed about two or three larvae before I got the perfect ones.



(My fellow TEEP student and I were looking for a 2-day-old bee larvae)

IV.3 Winter Camp at Nanhua University

On February 6, 7, and 8, we were tasked with leading groups in the Winter Camp for Climate Change: International Environmental Education Activity. I was tasked with leading a group of young and adorable grade school students. The three-day camp consists of activities such as lectures, planting activities, games, and role plays. The students learned about global warming, the 17 goals of the UN SDGs, carbon emissions, and bees. They were also engaged in activities such as lettuce planting, poster making, and reporting, and made a role-play skit. They also enjoyed the 17 UN SDGs game, in which they rolled big dice, asked questions, and hopped to reach the end of the boxes. On the last day, the students presented their role plays, and our group showed how important trees are to the environment. I am very proud of our group, even though I was challenged to handle them. From day 1 until day 3, they were interactive, and they engaged themselves to learn more about climate change and sustainable ways to save Mother Earth.



(Winter Camp for Climate Change: International Environmental Education Activity Awarding Ceremony, February 8, 2023)

IV.4 TaiDa Horticultural Co., Ltd.

Recently, we went to TaiDa Horticultural Co., Ltd., and I experienced my very first internship in orchid production. Professor Simon Lai arranged a two-day internship at their company. The company taught us the whole process of producing their orchid, Phalaenopsis. I learned how Phalaenopsis were tissue cultured, potted, watered, and even arranged the overgrown roots back into the pot. The first day, the process of tissue culturing tested my patience and my shaky hands. Cutting the small mother plant and putting it inside a narrow-mouth glass bottle without contaminating the plant was a challenge for me. But it was indeed a great experience for me. The second day was when I learned how to arrange the overgrown roots back into the pot. I was assigned to 3.5-inch pots, and they are really big for my tiny hand to squeeze. The pots might be big, but I managed to carefully insert the roots back into their pots. My hand was challenged, but my mind was filled with new experiences that day. The professor toured us around the greenhouses, showed us their machinery, and showed us the beautiful full-bloom Phalaenopsis orchids. Thank you so much, Professor Lai.



(Tissue culturing the mother plant of the Phalaenopsis)



(Fixing the overgrown roots and arranging the Phalaenopsis plant, photo taken at TaiDa Horticultural Co., Ltd)

V. School Activities and Tours

They said that Taiwan has the best places, people, and food, and yes, that's indeed true. I am mesmerized by the beauty and culture of this country, and all of my curious thoughts and questions were answered within the first six months of staying here. The following were some of the tours and activities held by the Department of Green Technology for Sustainability and Office of International and Cross-Strait Affairs, NHU (OICA-NHU)

V.1 Department of Green Technology for Sustainability Tours and Activities

The department arranged numerous educational activities and tours for us TEEP students. In this manner, we can learn new things not just inside the lecture room but also outside the school campus. In Tainan, Professor Simon Lai brought us to the Taiwan International Orchid Show, where we saw exhibits about different species and varieties of orchids. In Changhua, we went to the City Bear farm owned by Professor Chen and experienced queen bee raising, and we also went to Professor Yi Sung's farm to learn about his organic farm. In Maolin, we went to Maolin Eco Park and learned about a species of butterfly called the "Purple Crow Butterfly" and how it migrated from the Philippines to Taiwan.



(Taiwan International Orchid Show 2023, Tainan)



(International students together with Professor Zhou, Jian-Ming at Maolin Eco Park)



(Purple Crow Butterfly)

V.2 OICA-NHU Tours and Activities

The OICA-NHU aims "... to promote internationalization and activate integration between different culture..." Every semester, they held numerous activities and tours for international students to introduce them to Taiwan's culture, food, and places. We went to Hukou Hakka Cultural and Creative Park, Hsinchu, and learned about the history and lifestyle of Hakka people. We also visited Hukou Old Street and found many agricultural products, foods, furniture, and accessories. We were invited to learn how to make Indian and Malaysian foods together with the Yang Ming Vocational High School students. I was very happy to interact with the high school students; we shared about the beautiful places in our country, and we enjoyed eating and learning how to make "Pani Puri" and "Kuih Ketayap". The OICA-NHU invited us to workshops such as "Bamboo Weaving Workshop" and "Run Bing Making". I learned to weave bamboo and made a flower out of it. I find making run-bing interesting because it's like how we make "lumpia" in the Philippines, except that they have different ingredients and tastes.

We experienced our first Nanhua University International Cultural Festival, held on December 21, 2022. One of my colleagues joined the singing competition, and she won fourth place. I had a fun experience since we showcased our Filipino food (adobo and lumpia) and were able to interact with local and other international students. We also had a Spring Festival International Student Dinner Party with the President of Nanhua University, and he gave us red envelopes that wished us luck.

And recently, we went to Alishan Forest Park. I was amazed by the big cypress trees that had aged over a decade or centuries. The forest was very rich when it came to its biodiversity of fauna and flora. I just love how the different shades of green help me relax and be calm for a little while.



(International tour with international students of Nanhua University at Alishan Forest Park)



(Persimmon-dyeing with my fellow TEEP scholars and Miss Cheska Aujero)

VI. Conclusion

The feeling of gratefulness was overflowing in my heart. I am very thankful to Professor Hong, Yao-Ming and Taiwan's government for giving me the opportunity to be a scholar in the Taiwan Experience Education Program. This opportunity is a once-in-a-lifetime experience for me. I gained knowledge and experienced new things that were out of my comfort zone. Studying and living might be hard, but as time goes by, I adapt and challenge myself even more. Thank you very much for the great experience, and may this program continue to inspire more international students.