

## Abstract

Innovative and high efficiency agricultural techniques are required to keep up with the world's growing population. Maximizing a global and multicultural perspective is becoming increasingly important for upcoming professionals to remain competitive in the field of agriculture and keep pace with these global demands. International student exchange continues to provide a means of fostering these ideologies. In the summer of 2016, an international student exchange occurred between University of Hawaii, Kauai Community College (KCC), U.S. and Obihiro University of Agriculture and Veterinary Medicine, Japan. Five undergraduate KCC students enrolled in an advanced Plant Biology and Tropical Agriculture course (PBT 290W), visited Obihiro University. The course was structured around the presentation of research projects to Obihiro University students but also included tours of the local farming industry, cultural outings, and guest university lectures. Post trip, students reflected on their experiences and prepared their research findings for future publications in peer-reviewed journals. A summary of the post-trip reflection had been documented as students' take-home message on several agricultural disciplines such as Integrated Pest Management and temperate zone Japanese crop husbandry, and presented at community events such as 2016's Kauai Conservation Expo. Through these experiences, undergraduate students were exposed to cross-cultural interactions, regional specific crops and farming methods, different agricultural economic models, and a holistic understanding of preparing and presenting research findings. Additionally, inter-university relationships were established to allow future exchange of knowledge and academic collaborations between students and faculty, ultimately strengthening the collective competitiveness of both institution's faculty.

## Preparing and Presenting Research

- Conducting and presenting research at an undergraduate level has proven itself as a powerful **developmental experience** for students.
- The main objective of course PBT 290W was to **expose students to the rigors of the academic world**.
- By using independent research, **within a plant biological and agricultural context**, students were able to focus their academic goals before, during, and after the trip and relate their experiences to the research they conducted.



Fig 2. (A) Local Obihiro green onion farm, (B) Chinese pan processing factory, (C) University garden, (D) University meat processing facility.



Fig 3. (A) Local Obihiro restaurant, (B) Food using at seafood eatery.



Fig 4. (A) International agricultural group, (B) Obihiro University professor giving a tour of his entomopathogenic fungi lab.



Fig 5. Faculty and students of (A) Obihiro University on Kauai, USA, and of (B) Kauai Community College in Tokachi, Japan.



## Local Farming Industry

- KCC students visited 5 farms within the Tokachi subprefecture, Hokkaido. Discussion during and after visits occurred between students and growers (Fig. 2A).
- Besides traditional farms, food processing factories within and outside Obihiro University were visited (Fig. 2B).
- Exposure to temperate regional crops allowed students to discuss differences with Hawaii crops and see how their **research related disciplines** (e.g. IPM, crop improvement, conservation) could be **applied** in these areas.

## Cultural Outings

- Nights were followed with cultural outings where students experienced regional cuisine (Fig. 3A, 3B).
- **Global & multicultural competency** were the goal of cultural outings and gave an outlet for students to relax after the long academic focused days.

## University Guest Lectures

- Guest lectures and presentations gave students a glimpse in to the **diversity of knowledge systems**. For example, the way scientific problems are approached or how a scientific question is posed (Fig. 4B).
- Research facilities and methodologies also gave students future ideas to implement in their own future research.

## Lessons

- Allowing students to prepare and present their research nurtured confidence in their selves and their work.
- In a horticultural and plant biology context, students were able to see how and why specific crops are grown in that specific soil type, climate, and economy.
- Witnessing different types of scientific procedures, methodologies, and facilities allowed students to frame questions with more than one perspective in mind.
- Exposure to a different culture challenged cognitive idealizations of the world, stimulating thoughts on why we do research and who it may benefit.
- Besides personal student growth, the Plant Biology programs at both KCC and OBU created a foundation for future collaborations for students and mentors.

## Limitations & Suggestions

- KCC's PBT is a two-year degree program which makes it difficult for students (especially part-time) to commit to research projects longer than a semester.
- Longer **discussions between KCC and Obihiro students** could leave a greater experiential impact and create future **collaborations** between students.
- **Language** is somewhat of a barrier and basic **proficiency tests** could be used before trips.

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Fig 1. Obihiro University students at their end of the year research plot harvest. Weights of harvest was recorded for each crop and treatment.