

### One Health Nicaragua - Methods of improving cattle and poultry production in Sabana Grande, Nicaragua

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**Program/Project Purpose:** One Health Nicaragua is an interdisciplinary project led by University of California, Davis students to address interrelated human and animal health concerns in Sabana Grande, Nicaragua. Inadequate nutrition for both humans and animals is a community concern identified through previous years' work. Many families in Sabana Grande are subsistence farmers, so food animal production is an essential part of household economies in addition to being an important source of dietary protein. Students from the veterinary and medical schools, public health program, international agricultural development program, and Design Lab course have collaborated to address these challenges.

**Structure/Method/Design:** To improve human nutrition and increase income, the veterinary branch—focused on improving cattle and poultry production, as 96% of families own poultry and 48% own cattle. Last year, poor cattle nutrition was identified as an important factor limiting cattle production, especially in the dry season. Producing silage, stored fermented feed, was explored at the time, but it was not a scalable solution since it required silage to be chopped by hand. Collaboration with the Design Lab was initiated to develop a better method. To improve poultry production, the veterinary team implemented a year-long pilot project for 16 participating families. Families were trained to monitor and record data on their flock and helped to design and build coops for greater protection, easier care, and closer monitoring of poultry flocks. We also hosted workshops on coops and poultry disease prevention for the project families and other interested community members. Our objective is to increase poultry production so these families will have greater protein and incoming-generating resources.

**Outcome & Evaluation:** A silage chopper was built from materials available in the community, thus making the production of silage feasible for community members. A return trip to the community in December found that 14/16 families had finished building coops. Management data analysis is still ongoing.

**Going Forward:** By continuing to focus our efforts on cattle and poultry production, we hope to improve the nutrition of families in the community and empower them to share these techniques with their neighbors through farmer-to-farmer information exchange.

**Funding:** UC Davis Blum Center for Developing Economies Poverty Alleviation through Sustainable Solutions Graduate students grants program

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### Collaborating with Finnish nursing students: Expanding nursing education and global health

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**Program Purpose:** The purpose of this program is to provide nursing students a global health experience looking through the

perceptions of international peers and exchange ideas, improve communication, increase self-confidence, and understand healthcare systems. The nursing students were from Brigham Young University (BYU) in Provo, Utah and Mikkeli University of Applied Sciences (MAMK) in Savonlinna, Finland. Stakeholders of MAMK were selected because the students speak English and they were in an English nursing class. The class was interested in the program with BYU students. BYU students applied and were randomly chosen into ten slots to participate in a study abroad program to Finland.

**Method:** The Program took place between BYU and MAMK nursing students. The ten BYU students were each paired with two to three students from MAMK for a total of 30 MAMK students. The groups participated in e-mail and Skype encounters prior to one day of planned activities in Finland. After the day of activities, a 15-item questionnaire was given to each student. IRB and Finnish nursing school approval was obtained prior to students giving their consent and completing the survey. The responses were entered into Qualtrics for descriptive quantitative analysis. The Qualitative data was analyzed for themes. No funding was provided for this program.

**Outcome and Evaluation:** Findings indicated that students believed that working with a foreign peer increased their confidence and communication skills. While BYU students felt their understanding of healthcare systems increased; MAMK did not feel as robust in understanding health care issues in another culture. Although there were only a few structured interactions, the first year data indicates that this type of international collaborative learning is beneficial for nursing students to increase their cultural competency, communication skills, self-confidence, and understanding of healthcare systems.

**Going Forward:** There is a plan for Brigham Young University students to return to Savonlinna, Finland for a sixth year. Both parties are interested in continuing the learning experience and collaboration.

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### Water quality analysis of a nontraditional distribution system in Trujillo Peru

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**Background:** Due to the mass movements of Andean people to the Peruvian coast, many cities have designated additional residential zones. Alto Trujillo is one such periurban area on the outskirts of Trujillo, Peru. The housing units in Alto Trujillo do not have running water, but rather residents obtain water from 10,000 liter tanks dispersed throughout the community. The purpose of this study was to assess the water quality in the distribution tanks and in individual homes in order to understand the overall safety of this nontraditional water distribution system.

**Methods:** Water samples were obtained from central tanks and a convenience sample of homes in both Alto Trujillo and urban Trujillo. Water samples were analyzed for total coliform growth, E coli growth, temperature, total dissolved solids, turbidity, pH,