



First-Round MSc Students' Research Results

Ethiopia MSc Research Grant Scheme

A4NH Food Systems for Healthier Diets Flagship

INTRODUCTION

The Food Systems for Healthier Diets (FSHD) flagship in the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) seeks to promote co-learning with national partners in Ethiopia through its competitive small research grants that engage youth at Ethiopian universities in FSHD research. The grant aims to support up to six Masters Research projects on topics related to food systems.

The first call for competitive small grant proposals was announced on 1st September 2017 with the following thematic areas - qualitative, quantitative, or mixed methods research studies clearly linking diet quality and food systems. Fifteen proposals from five different universities were received. Of these, five were chosen as per the criteria set and received a maximum of US\$4,500 grant per student to be used to cover only direct costs related to the research project.

SUMMARY OF STUDENTS' THESIS REPORT

1. Pregnant Women's Perception of the Food Environment and Factors Associated with Their Diet Diversity in Kilteawlaelo District, Tigray, Northern Ethiopia

by Shewit Engdashet

A mixed sequential cross-sectional study design was employed on 423 pregnant women to explore their perception of the food environment and identify factors associated with diet diversity. Of the total pregnant women studied, only 48.2 percent achieved the minimum women's diet diversity score with mean women's diet diversity score of 4.65 \pm 1.88 95 percent CI (43.00, 52.70). Occupation, food availability, food affordability, number of market days in a week, and appetite of the mother were

found to be significantly associated with diet diversity. Pregnant women reported in their group discussions that foods were not sufficiently available at home, not affordable in the market, and the market was difficult to access due to distance and lack of reliable transportation.

2. Factors Influencing Household Dietary Consumption Patterns in Toke Kutaye District, West Shoa Zone, Oromia Regional State, Ethiopia **By Misgana Legesse**

The study assessed household dietary consumption patterns and related socio-cultural and production factors in 421 rural farm households. A majority (69.1 percent) of households in the study area had

medium dietary diversity. Income, home gardening, ownership of smaller livestock, and access to irrigation were positively associated with high dietary diversity of households. Access to cultivated land and nutrition training were positively associated with high dietary, and negatively correlated to low dietary, diversity. The use of farm inputs was negatively associated with low dietary diversity.

3. Minimum Dietary Diversity and Associated Factors Among Children 6 to 23 Months of Age in Ambo District, Oromia

By Bikila Amenu

A community-based cross-sectional study design with mixed methods of data collection was employed to assess dietary diversity in relation to food environment among children 6 to 23 months old. The result showed that 21.5 percent of children met minimum dietary diversity (MDD). Maternal education, information about diversified child feeding, wealth status, and physical distance from market were found to be independently associated with the MDD. From FGD factors that influences practicing of MDD were: price of food, geographic access, seasonal variation in availability of food, and some food types, like fish, not available in their area.

4. Dietary Diversity and Associated Factors Among Reproductive Age Women in Jeldu District, West Shoa, Central Ethiopia, 2018

By Gudisa Merga Gadeffa

A community-based cross-sectional study was conducted to assess dietary diversity and associated factors among reproductive age women. In this study, the proportion of women who achieved adequate dietary diversity was 81.9 percent (95 percent CI; 78.9-84.9 percent). Agroecological zone, having large livestock, radio, mobile phone, and women making purchase decisions for the household were found to have significant association with dietary diversity.

5. Nutritional Quality and Consumer Preference of Vegetables Grown in Aquaponic Systems in Ethiopia

By Dereje Wolde

The study aimed to compare the nutritional quality and customer preference of lettuce (*Lactuca sativa* L.) and kale (*Brassica carinata*) grown on aquaponic system with conventionally grown in soil-based system. Proximate composition of lettuce and kale was determined using standard methods of AOAC and mineral content was determined by Inductively Coupled Plasma Optical Emission Spectroscopy. Sensory tests were determined by using discriminatory, preference, and rating acceptance methods.

The aquaponic lettuce from Shewa Robit site had significantly higher amounts of crude fiber, magnesium, potassium, iron, copper, and boron compared to soil-grown lettuce ($p < 0.05$). Meanwhile, the aquaponic lettuce from Addis Ababa University (AAU) site had significantly higher amounts of crude fat, crude ash, crude fiber, calcium, magnesium, phosphorus, iron, boron, copper, and manganese than soil-based lettuce.

Aquaponic kale had significantly higher amounts of crude protein, crude fat, crude ash, crude fiber, zinc, copper, manganese, and macro minerals than the soil-based kale. However, the aquaponic lettuce and kale at both sites had a lower concentration of vitamin C and β -carotene than the soil-based lettuce. A higher concentration of nitrate (78.48gg/g) and (70.73gg/g) was obtained in aquaponic lettuce at Shewa Robit and kale at AAU, respectively, than in the soil-based products. The concentration of chromium, lead, and nickel were lower in the aquaponic lettuce than the soil-based harvests at AAU. Aquaponically-grown lettuce and kale at AAU had a lower sensory preference score compared with the soil-based produces. The microbial load of the aquaponic lettuce and kale was within the safety range for such products.