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## Does urban farming increase access to diversified diets? Evidence from Kampala, Uganda

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### Abstract

Little is known about the effect of urban farming on the access to a variety of foods in low and middle-class urban households. As Africa is urbanizing rapidly, poverty and malnutrition hotspots are moving from rural to urban communities. Urban farming might play an important role not only to increase access to food but also in increasing the variety and diversity of current consumption patterns. Thus, this paper aims to identify if households that are involved in and or have access to urban farming have a more diversified diet. The study was conducted in Kanyanya parish, Kawempe Division in the city of Kampala (Uganda). Kanyanya is a densely populated area with mainly low and middle-income consumers. A survey among 373 households was conducted asking questions about urban farming and household food consumption over the past week. Dietary consumption was assessed through different dietary diversity indicators using a 7-day food consumption recall and a 24-hour dietary recall. The indicators include the Household Dietary Diversity score (HDDS) and the Minimum Dietary Diversity for Women (MDD-W). Results confirm a positive effect of urban farming at the household level with a high HDDS and MDD-W.

**Keywords:** Agriculture, Uganda, urban farming, dietary diversity

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### Introduction

Africa is urbanizing rapidly, and poverty and malnutrition hotspots are moving from rural to urban communities. However, not much is known about the effect of urban farming on access to a variety of foods in low and middle-class urban households. This goes hand in hand with an increase in the consumption of unhealthy food. Especially cities are faced with the triple burden of malnutrition.

Urban farming might play an important role not only to increase access to food but also in increasing the variety and diversity of current consumption patterns. Especially perishable products like vegetables can be easily produced in urban areas. Thus, this study aims to identify if households that are involved in and or have access to urban farming have a more diversified diet. The study was conducted in Kanyanya parish in Kawempe Division in the city of Kampala (Uganda). Kanyanya is characterised as a low-income parish with high unemployment rates. Urban farming is defined as all agricultural activities.

The research was conducted in the context of the NOURICITY project, aiming to improve rural livelihoods and food and nutrition security in several African countries by addressing challenges that prevent access to healthy diets and nutrition in urban African food systems and identifying effective interventions jointly with local stakeholders

## Material and Methods

Kanyanya parish is a densely populated area in the northern outskirts of Kampala with approximately 26,800 inhabitants and houses mainly low and middle-income consumers (Uganda Bureau of Statistics 2016). The parish consists of five different villages namely Kikuubo, Kitambuza, Kiyanja, Lutuunda and Wampamba (Figure 1).

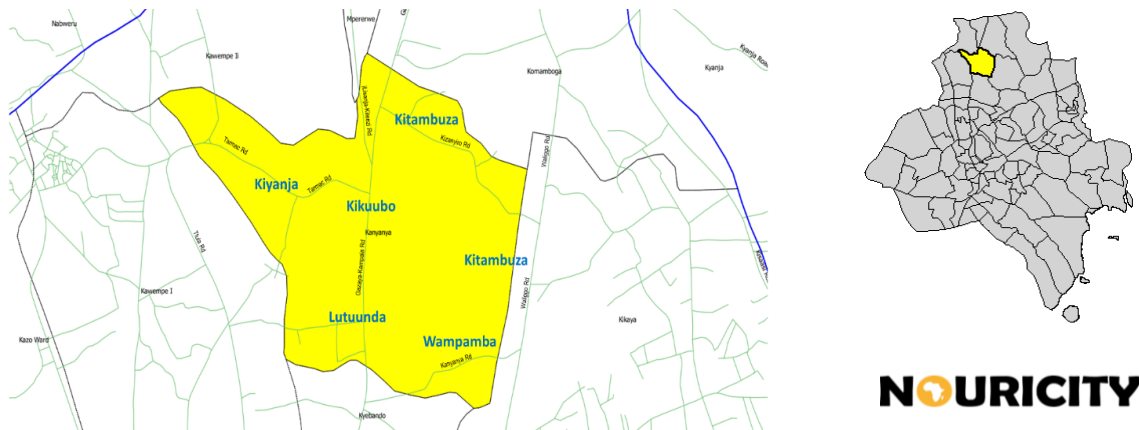


Figure 1: Map of Kanyanya parish in Kawempe Division of Kampala (source: authors own)

A survey among 373 households was conducted in December 2021 asking questions about urban farming and household food consumption over the past week. Dietary consumption is displayed using two different dietary diversity indicators. At the household level, the Household dietary diversity score (HDDS) was assessed through a 7-day food consumption recall. Additionally, dietary diversity for women of reproductive age (MDD-W) was assessed for a subsample of households, using a 24-hour list-based food group questionnaire. Differences in development might indicate differences in intra-household dietary diversity.

The HDDS describes the number of food groups consumed by the household in a given reference period and displays a proxy for household economic access to food and dietary energy (Swindale and Bilinsky 2006). The consumed food items of the household are allocated to twelve pre-defined food groups (Kennedy et al. 2011) and the score displays the sum of food groups ranging from 1-12. The MDD-W is based on ten pre-defined food groups, as a proxy measure for dietary quality (FAO 2021).

Urban farming activity is defined in several different ways in the current study. First, agricultural activity, includes any type of agricultural activity, including food crops grown and animals reared. Secondly, we counted the different food crops grown and different livestock species reared to determine production diversity (Muthini et al. 2020; Sibhatu and Qaim 2018). In total, the different food crops and livestock named were allocated to eight different food groups namely, cereal, white roots and tubers, dark green leafy vegetables, vegetables, fruits, meat, eggs and dairy.

## Results and Discussion

On average the households of the studied villages in Kanyanya parish are 43 years of age and 65% are male-headed households. Over 40% of household heads are self-employed and 18% completed O-level education (14-16 years of school). Around 13% of the household indicated

having a garden on their premises. The villages vary in various characteristics, which can be seen in Table 1. Kikuubo village has an average household size of 5 members and almost all households indicated access to a garden (98%), while this is much less in other villages with the lowest availability in the village Kitambuza (13%) and Lutuunda (15%). Wampamba village differs from the other villages. For example, the age of the household heads and the dependency rate are lower, as well as the average household size.

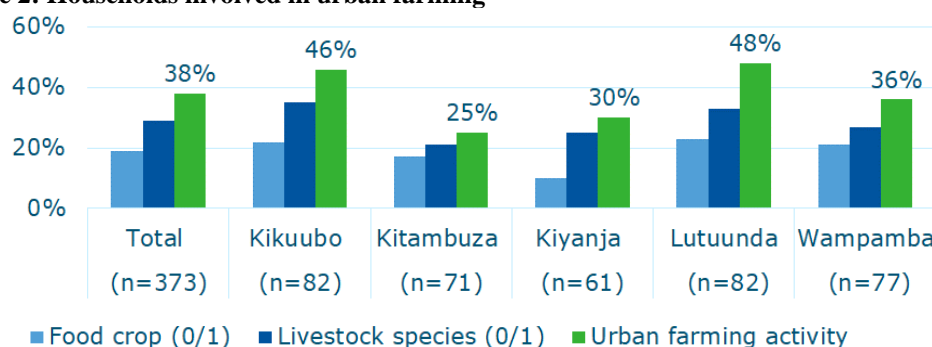
**Table 1 Household characteristics per village of Kanyanya**

|                              | Total | Kikuubo | Kitambuza | Kiyanja | Lutuunda | Wampamba |
|------------------------------|-------|---------|-----------|---------|----------|----------|
| Total number of Households   | 373   | 82      | 71        | 61      | 82       | 77       |
| Male Household Head (0/1)    | 0.65  | 0.70    | 0.68      | 0.67    | 0.61     | 0.61     |
| Age Household Head (years)   | 42.65 | 46.72   | 41.75     | 40.49   | 43.76    | 39.68    |
| Household Size (count)       | 4.92  | 5.02    | 5.06      | 5.30    | 4.84     | 4.47     |
| Availability of garden (0/1) | 0.13  | 0.98    | 0.13      | 0.49    | 0.15     | 0.22     |

Source: authors' own

Urban farming is present in Kanyanya and on average 38% of the responding households indicate that they are active in agricultural activities. Almost 20% of all households are involved in food crop production and almost 30% are involved in livestock rearing (Figure 2). The data shows us that only 62 households (23%) indicate that have access to a plot for agricultural farming. Most of them have their production in their own garden or are involved in sack gardening. Only very few households make use of agricultural land that is located somewhere else in the village. For livestock, often the households keep their chickens in the house.

**Figure 2: Households involved in urban farming**



Source: authors' own

One to five different food crops are cultivated within the urban settings, while one to three livestock species are kept. Although the majority of households kept one livestock species (86%), 12% kept two and 2% three different species. Most livestock kept are chickens used for meat (62%) or eggs (23%), and 11% of household owned goats for meat production and pigs. On average the household in Kanyanya consumed nine different food groups within seven days. Kitambuza village scores highest on HDDS consuming ten food groups (Table 3). Out of the five villages Kiyanja scores lowest on HDDS. Overall, 44% of women reached MDD-W (consuming  $\geq 5$  food groups), while on average 4.36 food groups were consumed (**Error! Reference source not found.**).

**Table 2: Urban farming characteristics in the villages of Kanyanya**

| Mean                                       | Total | Kikuubo | Kitambuza | Kiyanja | Lutuunda | Wampamba |
|--|-------|---------|-----------|---------|----------|----------|
| Number of households with urban farming    | 141   | 38      | 18        | 18      | 39       | 28       |
| Share of hhs involved in urban farming (%) | 37.8  | 46.3    | 25.4      | 29.5    | 47.6     | 36.4     |
| Production Diversity (0-8)                 | 1.39  | 1.39    | 2.06      | 1.11    | 1.18     | 1.43     |
| Number of crops (count)                    | 0.84  | 0.79    | 1.61      | 0.50    | 0.56     | 1.00     |
| Number of Livestock (count)                | 0.88  | 0.87    | 1.17      | 0.83    | 0.82     | 0.82     |

Source: authors' own

The mean of the HDDS has been compared for the different villages in Kanyanya and has been related to the urban farming activities (Table 3). The results show a positive correlation. This is supported by a  $\chi^2$ -test on the differences in the distribution of HDDS for both subsamples. Likewise, we compared the mean of MDD-W at the parish level seeing that women consume more and more women have reached MDD-W if the household was active in urban farming activities (Table 3).

**Table 3: HDDS and MDD-W for households with and without urban farming in the villages of Kanyanya**

| Villages  | FNS indicator | All households |     | Households without urban farming |     | Households with urban farming |     | Absolute value of t-statistic on difference # |
|-----------|---------------|----------------|-----|----------------------------------|-----|-------------------------------|-----|---|
|           |               | HDDS           | N   | HDDS                             | N   | HDDS                          | N   |   |
| Kikuubo   | HDDS          | 9.22           | 82  | 8.89                             | 44  | 9.61                          | 38  | 2.08*   |
| Kitambuza | HDDS          | 9.65           | 71  | 9.58                             | 53  | 9.83                          | 18  | 0.60  |
| Kiyanja   | HDDS          | 8.72           | 61  | 8.63                             | 43  | 8.94                          | 18  | 0.67  |
| Lutuunda  | HDDS          | 9.07           | 82  | 8.51                             | 43  | 9.69                          | 39  | 2.83**  |
| Wampamba  | HDDS          | 9.04           | 77  | 8.90                             | 49  | 9.29                          | 28  | 1.01  |
| Total     | HDDS          | 9.15           | 373 | 8.93                             | 232 | 9.51                          | 141 | 3.21***                                       |
| Total     | MDD-W         | 4.36           | 299 | 3.93                             | 185 | 4.80                          | 114 | 3.67***                                       |
| Total     | MDD-W (%)     | 0.44           | 299 | 0.33                             | 185 | 0.54                          | 114 | 3.73***                                       |

Source: authors' own; # significance levels: \*\*\* <0.01; \*\* <0.05 and \* <0.1.

## Conclusions and Outlook

Households in Kanyanya involved in agricultural farming have a significantly higher dietary diversity, as measured in the HDDS. Despite having a garden not many households in Kanyanya utilize it for urban farming. This offers great potential to promote urban farming and increase access to food for urban households.

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