

## Homegardens in Uganda: Diversity and Potential

CORY WILLIAM WHITNEY<sup>1,2</sup>, JENS GEBAUER<sup>1,3</sup>

**Key words:** Uganda, homegardens, Organic potential, rare plants, indigenous crops, agrobiodiversity

### Abstract

*Ugandan homegarden systems are sustainable small-scale solutions for food security and conservation; they contain a great diversity of indigenous plant species and act to preserve the associated, and time-tested, traditional knowledge of both nutrition and conservation. These systems and traditions are under threat. Ugandan Organic may hold some of the keys for the revitalization of these oases of diversity and culture. More in-depth investigations of the influences on homegardens biodiversity are necessary.*

### Introduction

Ugandan homegardens are complex farming systems (Buyinza 2009) important to rural living in Uganda (FAO 2011). Ugandan homegardens hold many underutilized food plants (Tabuti 2012) and strong potential exists for the expansion of homegarden biodiversity and the promotion of indigenous plants (Tabuti et al. 2011). Potential also exists for the promotion of this underutilized diversity in Ugandan Organic. However, more research is needed, to understand both the influencing factors on agrobiodiversity (Scales & Marsden 2008), and the dynamics of homegarden systems (Buyinza 2009). Knowledge of general effects is substantial, but more information at the local level is needed to accurately predict biodiversity responses (Scales & Marsden 2008).

### Material and Methods

This review was conducted to ascertain the biodiversity in homegardens and Organic markets in Uganda. What follows comes from journals and library databases, as well as available information from the National Organic Agriculture Movement of Uganda (NOGAMU) and the Uganda Organic Certification Ltd. (UgoCert).

### Results & Discussion

#### Ugandan Homegardens

Ugandan homegardens are complex and small-scale farming systems (Buyinza 2009) optimized to meet multiple needs and maximize resources with high levels of plant diversity, characteristic of areas where production is particularly difficult i.e. semi-arid, high altitude, and isolated communities. These homegardens persist, and are very important to life in the extremely variable production environments of Uganda with limited access to resources and markets (FAO 2011).

Many indigenous plants are found in these homegardens (Eilu et al. 2007), close to homesteads, in crop gardens and in young fallows (Tabuti et al. 2011). Over many generations, local people have been carefully selecting these plants for optimal food security and risk insurance against environmental stresses (FAO 2011). They are also preferred for their natural regeneration, ease of management, fast maturation, seedling availability (Tabuti 2012), yield, maturity period, taste, quality, storability, drought resistance, marketability, ease of processing, among other cultural and traditional uses (FAO 2011). These plants grow in a wide diversity of farm niches<sup>4</sup> playing additional ecological roles (Tabuti et al. 2011).

#### Uses of Species by Ugandan People

Studies have shown that Ugandans are frugal and industrious when it comes to using plant resources. They have a diversity of uses for many parts of plants (Kakudidi 2004), primarily for food (FAO 2011), but also with

<sup>1</sup>Faculty of Life Sciences, Rhine-Waal University of Applied Sciences, Kleve, Germany, [www.hochschule-rhein-waal.de](http://www.hochschule-rhein-waal.de)

<sup>2</sup>eMail: CoryWilliam.Whitney@hochschule-rhein-waal.de

<sup>3</sup>eMail: Jens.Gebauer@hochschule-rhein-waal.de

<sup>4</sup>e. g. *Mangifera indica*, *Milicia excelsa*, *Ficus natalensis*, *Ficus sycomorus*, *Artocarpus heterophyllus* and *Albizia coriaria* in many homegardens in Nawaikoke sub-county

multiple other uses<sup>5</sup> including firewood, medicine, construction, environmental services, pest control (Eilu et al. 2007), as well as cultural<sup>6</sup> and social purposes such as ceremonies (Kakudidi 2004).

Despite this variety there are many underutilized food plants<sup>7</sup> in Uganda (Tabuti 2012). Their richness and abundance generally decrease with increasing prevalence of crop species, more intensive management and shortening of cultivation cycles (Scales & Marsden 2008).

In spite of their known ecological stability, homegardens are on the decline, mainly due to social and economic pressures (Buyinza 2009). Many useful indigenous species are in danger<sup>8</sup> due to over-harvesting<sup>9</sup>, destructive harvesting, pests, lack of farmer's knowledge, and droughts (Tabuti 2012). For example a study in Nawaikoke sub-county it was found that indigenous species are depleted<sup>10</sup> and that most face some level of threat through destruction of seedlings and saplings (Tabuti et al. 2011). In Kamuli district, it was found that smaller holdings are generally more intensively cultivated than the large and very large holdings but that the fragmentation of land eventually makes some of the holdings too small and uneconomical and people move away from farming (Buyinza 2009).

## Potential

Potential exists for the expansion of homegardens in Uganda and the subsequent promotion of indigenous plants for traditional food and nutrition. This promotion should have a special focus on native species that provide shade, fruits and timber, encouraging farmers to plant and utilize these plants, or at least allow them to grow naturally (Tabuti et al. 2011). Furthermore, in developing local solutions, it is important that users are brought together based on common interests (Eilu et al. 2007), especially related to the use and associated conservation of indigenous plants. These interests may span across socio-economic characteristics such as age, sex, and occupation.

As was described above homegardens have many indigenous plants and the people of Uganda have many uses for these species. Potential exists for the Organic movement to utilize this diversity and to take full advantage of the diversity of crops being produced in homegardens. According to National Organic Agriculture Movement of Uganda (NOGAMU) and the Uganda Organic Certification Ltd. (UgoCert), the Ugandan Organic markets have fresh and dried fruit<sup>11</sup>, herbs<sup>12</sup>, tea<sup>13</sup> and spices<sup>14</sup> nuts and butters<sup>15</sup>, and processed essential oils with around 20 species of bark cloth<sup>16</sup> (Nogamu 2013, UgoCert 2013). Not all of these species are indigenous and the diversity of products has a lot of room for expansion to meet the diverse demands of the Ugandan people.

The Ugandan Organic movement can embrace this diversity and help to increase and encourage diversity for the benefit of small producers and indigenous plant species. By working to open up markets the Organic movement can help farmers and improve the state of agrobiodiversity in the country while at the same time getting a more healthy and diverse diet of indigenous plants to people of Uganda.

<sup>5</sup> e.g. for *Cymbopogon nardus*, *Ficus natalensis*, *F. ovata*, *Hibiscus fuscus*, *Phoenix reclinata* (Kakudidi 2004).

<sup>6</sup> e.g. 87 cultural plant species of 36 families and 66 genera in Tororo District (Eilu et al. 2007)

<sup>7</sup> e.g. *Arundinaria alpine*, *Colocasia* spp./*Xanthosoma* spp., *Vondzeia subterranea*, *Cucumis figarei*, *Corchorus tridens*, *Crotalaria ochroleuca*, *Hyptis spicigera*, *Phaseolus lunatus* in Eastern, Northern and Western Nile Regions (FAO 2011).

<sup>8</sup> e.g. *Milicia excelsa*, *Albizia coraria*, *Combretum molle*, *Terminalia glaucescens*., *Coffea* spp., *Combretum collinum*, and *Citrus* spp. (Tabuti 2012)

<sup>9</sup> esp. *Milicia excelsa* (Eilu et al. 2007)

<sup>10</sup> e.g. *Ziziphus pubescens*, *Casuarina* spp., *Maesopsis eminii*, *Psorospermum febrifugum*, *Psydrax parviflora* subsp. *parviflora*, *Sarcocaphealus latifolius*, and *Securidaca longipedunculata* (Tabuti et al. 2011).

<sup>11</sup> *Malus domestica*, *Musa* spp., *Persea americana*, *Mangifera* spp., *Carica papaya*, *Passiflora edulis*, *Ananas comosus*) and roots (*Zingeberaceae* spp.)

<sup>12</sup> *Agropyron* spp., *Cymbopogon* spp., *Hibiscus* spp., *Lavandula* spp., *Melissa officinalis*, *Mentha x piperita*, *Mentha* spp., *Mondia whitei*, *Moringa* spp., *Ocimum basilicum*, *Origanum vulgare*, *Ribes* spp., *Rosmarinus officinalis*, *Thymus* spp., *Urtica* spp.

<sup>13</sup> *Hibiscus* spp.

<sup>14</sup> *Capsicum annuum*, *Theobroma cacao*, *Vanilla* spp.

<sup>15</sup> *Sesamum indicum*, *Vitellaria paradox*

<sup>16</sup> *Broussonetia papyrifera*, *Artocarpus altilis*, and *Ficus* spp.

## More Studies Are Needed

In order to make this expansion of species diversity in Ugandan Organic a reality more research is needed. Simply opening up markets may not be the full solution for the loss of agrobiodiversity. A better understanding of the dynamics of homegarden systems is essential to create ecologically sound, economically appropriate and socially relevant solutions (Buyinza 2009). Further work is also required to discover the influence of the structure of these systems on biodiversity retention, and in understanding how to minimize loss of biodiversity with changing agricultural practices. Knowledge of the general effects of these systems on biodiversity is substantial, but more information is needed at the local level (Scales & Marsden 2008).

## Internet Resources

NOGAMU the National Organic Agriculture Movement of Uganda, [www.nogamu.org.ug](http://www.nogamu.org.ug), Accessed 20 Dec 2013

UgoCert the Uganda Organic Certification Ltd., [www.ugocert.org](http://www.ugocert.org), Accessed 20 Dec 2013

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