



## Identifying Honeys with Potential for Geographical Indication Protection: Motivation for Land use Improvement and Honey Bee Conservation.

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### Introduction

Discussions on geographical indications (GIs) in Africa have increased due to a belief that Africa has unique and diverse natural resources and cultures that facilitate production of food products with GI qualities (Addor et. al., 2003; Nyaga. 2004). To cement this dialogue, the African Regional Intellectual Property Office (ARIPO) and the European Commission's DG AGRI culture and Rural Development (DG AGRI) has agreed to improve the protection of traditional agricultural products in Africa (EU press release, 2012). A GI is defined in Article 22 of TRIPS (Trade-Related Aspects of Intellectual Property Rights). as, indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin,". Appiah, (2011) mentions that GIs increase producers' premium and enhance valorization. Over 54 billion Euros was contributed to the EU in 2010 through the sale of GI products (EC, 2014). In the case of the only GI registered honey in Africa, the price of Oku White Honey of Cameroon, jumped approx. from 3.0 USD to 7.0 USD per liter after registration in 2013, and is estimated to contribute between FCFA 30-40 million (52,000-70000,USD) to the local economy p.a. (Bainkong, 2014).

Honey production, is largely practiced by crop farmers in Ghana as an alternative income generating activity and is contributing to improved livelihoods (Akangaamkum et al., 2010). An estimated 26,500 people are involved in the beekeeping in Ghana, of which 4,400 are employed workers and 22,100 are producers with an average of 5 beehives each (Akangaamkum et al., 2010). These honey producers (mainly smallholder farmers) own the beehives and represents the stewards of pollination within their crop landscapes, native habitats and flora (Akangaamkum et al., 2010). Though the extent of pollinator decline is not documented yet in Ghana, Kwapong (2014) mentions that the agro-ecological environment is challenged by illegal logging, improper mining, negative agricultural activities, deforestation, overuse of pesticides and wild fires. According to Ritter and Kleinschmit (2014) pollinator decline is a global challenge with hundreds of species on the verge of extinction, and reported to be caused by many interrelated factors including pesticide exposure, habitat loss and disease. Pollination is essential for food production and estimated to value US\$ 190 billion/year globally (Gallai et al., 2009). Bees (Hymenoptera: Apiformes) including managed honeybees (*Apis mellifera*) are the primary pollinators for most of the crops requiring animal pollination (Delaplane and Mayer, 2000; Klein et al., 2007; Winfree et al., 2011).

In developing countries where harvesting and commercialization of biological resources remains largely non-differentiated by brand names or other consumer-oriented indications, GIs may serve as a tool for legally regulating harvesting practices and promote rational land use strategies that relate directly to *in situ* conservation of biological diversity (Larson Guerra, 2004). Ghana developed a GI ACT, in 2003 (ACT 659) but it is currently under a review and not yet enacted. This study aims (1) identify geographical regions in Ghana with quality honey production with potential for GI protection and (2) assess the possibility of conserving local pollinators and improve land use management using GI honeys.

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### Materials and Methods

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The study was carried out in three communities: Pampawie Amanta, Koru and Dodo Tamale in Kadjebi District of the Volta Region on the Eastern part of Ghana and the target respondents were beekeepers belonging to local beekeeper associations. The climate is characterized by average monthly temperature of about 25°C and heavy rainfall between 1400 mm and 1800mm. 90% of the district is predominantly covered with secondary rain forest and characteristic landscapes with an average height of about 180 meters above sea level rising to about 600 meters. Three major rivers run through forested areas namely: Asukawkaw, Wawa and Menu rans through the forest. The most predominant soil types: forest ochrosol and alluvial loams, supports the vegetation and agricultural crops. This observation may strengthen the GI case for the honeys. Data collection consisted of a literature review, interviews, focus group discussions (FGDs) and honey sample analysis. 16 honey packager's contacts were generated from 20 shops and were interviewed on their opinion regarding honeys with good reputation in Ghana. 31 honey producers in two communities Koru (18) and Pampawie, (13) responded to a questionnaire. In-depth interviews with two leaders of each producer group, and focus group discussions were held in all three community. FGDs were mainly on honey production systems, links between honey uniqueness, quality and land scape, and initiatives that add value to the honey sector. Quality evaluation of six honey samples, three each from two communities (Koru and Dodo Tamale), were analyzed for their physio-chemical quality according to the European Directive 74/409/EC. Data was validated by triangulation using the various collection methods. Quantitative data was entered into an Excel template, transformed and processed and interview data was transcribed. A combination of qualitative and quantitative analysis was applied.

## **Results and Discussion**

### **Reputation and honeys specificity**

Reeves and Bednar (1994) considers quality from four viewpoints: Excellence or superiority; Value; Conforming to specifications; and meeting or exceeding customer expectations. Akangaamkum et al. (2010) found the Volta region to have honey with good reputation for quality and selling at superior price and this was confirmed during interviews with honey packagers who all, acknowledged the Volta region as an area with high quality honey. The reputation of quality is based on characteristics of the honey which they believe to be pure, clean, of good aroma, original, smooth in the mouth, thick and having medicinal properties. According to Giovannucci et al. (2009) and Vandecandelaere et al. (2010), consumers' preferences for products from certain origins compared to other origins are based on the consumers' past purchasing and consumption experience. This experience forms part of the foundation of a GI supply chain and is instrumental in facilitating producers to transform a geographically based value into an economic value (Bramley and Biénabe, 2013). The reputation of the Volta region as a location for production of quality honey strengthens the GI case.

### **Honey production system and collective action**

According to Belletti, (1999), producer associations or other kinds of organization is necessary to put in operation a common code of conduct in production processes, which will establish the reputation of the product and prevent challenges of information asymmetry and free riding on reputation. In the case of Oku White Honey, the Apiculture and Nature Conservation Organization was key actor in the GI registration process (Blakeney et al., 2012). In the Volta region, majority (about 85%) of beekeepers are organized in the Volta regional beekeeper association (VORAB), which offers training in hive management, honey harvesting and extraction, technical advice, bee health and environmental management. These trainings, as well as knowledge sharing, are perceived by the respondents to help them (i.e harvesting, cleaning of hives after each harvest, application of smoke, detection of pests in hive, methods of harvesting suitable for bee retention and extraction of honey) in beekeeping. Furthermore, VORAB could work as an important driver in the case of a honey GI process.

### **Geographical link**

The unique natural and geographic setting of a region is an important contributor to the distinct qualities of potential GI product recognized by consumers (Blakeney et al., 2012; Bagal et al., 2013). The honey from Koru and Dodo Tamale communities is poly floral and foraging bees have access to unique diverse flora sources throughout the year, **Table 1**. The characteristic natural setting of the Kadjebi district described above, being mainly covered by secondary rainforest in an otherwise eco-agricultural landscape, strengthen the GI case for the honeys.

## Main Occupation of Beekeepers

In the present study, majority 23 (74%) of the respondents are small holder farmers confirming the studies of (Akangaamkum et al., 2010). Five (16%) are civil servants and three (10%) are petty traders. 12 (38.7%) placed their hives near their farms, 12 (38.7) placed theirs near both farm and wild while seven (22.6%) placed them in the wild. This provides a good platform to discuss challenges within the agro-ecosystem (Kwapong, 2014) as stewards of pollination (Akangaamkum et al., 2010). Honey production is part of all respondents' income portfolio generating income in-between crop seasons for the farmers. Any additional income as a result of GI registration may make them prioritize beekeeping and provide the honey producers with an incentive to protect the very environment that supports their honey production; e.g. through control of wildfires and consideration to bee health during pesticide application on farms.

## Analysis of honey samples

Four of the six sampled honeys meet the EU quality requirements for categorization as table honeys (highest quality category). A common set of descriptors of the EU registered European GI honeys is honey safety attributes<sup>2</sup>. According to Blakeney et. al. (2012) the Oku white honey is tested for safety before bottling and packing. The clearing of the four samples, (**Table 1**) is a good indication of a good harvesting and extraction processes which are essential for a GI qualified honey. Contrary, the rejection of the last two samples is probably due to inadequate processing, storage, or mishandling of a sort.

**Table 1.0:**  
**Analysis of honey samples based on EU Quality**

Honey Samples	Main Floral sources	EU Status
Koru (Rejected)	Acanthaceae; Acacia sp. Combretaceae; Myrtaceae; Poaceae and Julbernardia.	Starch grains (>10≤30%) too high –Rejected
Koru (Table honey)	Acanthaceae; Myrtaceae; Poaceae and Acacia sp.	Accepted as Blossom/Honeydew honey is in accordance with Art. 2 (2b) of the current EC-Honey Directive.
Koru (Table honey)	Acanthaceae; Myrtaceae; Poaceae; Acacia sp. Julbernardia and Viguiera (Tahonal)-Type	Accepted as Blossom honey is in accordance with Art. 2 (2b) of the current EC-Honey Directive.
Dodo Tamale (Table honey)	Acanthaceae; Acacia sp. Combretaceae; Myrtaceae; Poaceae; Julbernardia and Ceiba tree.	Accepted as Blossom/Honeydew honey is in accordance with Art. 2 (2b) of the current EC-Honey Directive.
Dodo Tamale (Table honey)	Anacardiaceae; Combretaceae Myrtaceae; Poaceae; Schefflera- (Ivy Tree)-Type and Ceiba tree.	Accepted as Blossom/Honeydew honey is in accordance with Art. 2 (2b) of the current EC-Honey Directive.
Dodo Tamale (Industrial honey)	Poaceae; Schefflera- (Ivy Tree)-Type; Ceiba tree; and Myrtaceae	Accepted as Back/Industrial honey in accordance with Art. 2 (2b) of the current EC-Honey Directive.

## Key Challenges mentioned during FGDs

A number of issues related to the beekeeping and agro ecosystem were mentioned at FGDs and during interviews. Key amongst them were bush fire, improper timber harvesting, challenges of agro chemicals and improper land tenure policies which hinders proper use of natural resources most of which also serve as floral sources to honey bees. These were also mentioned by Kwapong (2014), as challenges to agro ecosystem in Ghana and part of factors reported to affect pollinators (Ritter and Kleinschmit, 2014). By the recognition of these factors, respondents could take measures capable of reducing these challenges within the local areas, based on the economic incentives from the quality honey production – provided that GI will be recognized and create economic value to the producers.

## Conclusion

Honey producers in the Volta region could have the opportunity to valorize their honeys through protected geographical indications (PGIs) if the GI bill is finally reviewed, and at same time protect their products from imitations and earn a premium. Also, as most producers are crop farmers, registering their honeys as GIs may create an economic incentive for producers to be more concerned with honeybees and the environment: a good

<sup>2</sup> (<http://ec.europa.eu/agriculture/quality/door/list.html>)

opportunity to promote pollinator-friendly and land management practices since most of the threats to pollinators and land use mostly lie within agro ecosystems. The GI concept is new to Ghana hence a need for promotion and education among the public. Honey packages, literature and expert opinion on honey reputation and quality were attributed to origin. Four out of the six honey samples honey products were declared as quality honeys according to EU directive parameters -a finding that strengthens the potential of the honeys. A detailed study to understand key pollination benefits to crops, the link of honey uniqueness to land scape, requirements for registration and protection of potential honeys as PGIs in Ghana is currently ongoing.

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