

# Shea Innovation Symposium

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- ▶ American Shea Butter Institute
- ▶ 10<sup>th</sup> Annual International Shea Butter Convention
  - ▶ Georgia International Convention Center
    - ▶ Atlanta, Georgia, USA
    - ▶ October 13, 2012



# Outline of Presentation

- ▶ Presentations
- ▶ Questions and Answers  
For speaker
- Panel Questions and Answers
- Summary



## Topics:

### Session 1: Socio-Economic Perspective

*Topic: Project of Sheanut and Sustainable Poverty Reduction: A case study of West Gonja District, Ghana—Mr. John Akuleme, CEDEP Consultancy Services*

### Session 2: Bio-Processing Technologies Perspectives

*Topic: Innovative Ideas: Predicting the Effects of Nanotechnology on Quality, Efficacy, and Cost of Shea Butter for Skin Treatment— Dr. David Noye, Nano Research*

### Session 3: Product Development Perspectives— Development and Management of New Shea Based Product Concepts

*Topic: Test Marketing and development of New Product Concepts— Including Small batch development techniques and equipment— Ms. Margaret Haven, ASBI Advisory Board Member*



## Session 1:Socio-Economic Perspectives

Topic: Project of Sheanut and Sustianable  
Povery Reduction: A case study of West Gonja  
District, Ghana

Mr. John Akuleme, CEDEP Consultancy Services



# West Gonja District

- ▶ Set in 1300 square miles of land, the **Mole Game Reserve** is the largest, longest fully established national park in Ghana.
  - Over 90 mammalian species including elephants, buffalos, roans, kobs, hartebeests, waterbucks, reedbucks and other antelopes.
  - It also has lions, hyenas, leopards, monkeys, crocodiles and over 300 kinds of birds.
  - 734 species of flowering plants have also been recorded in the park
- ▶ Capital, Damongo is the seat of the Gonja Kingdom and the birthplace of the current president.

# West Gonja District

- ▶ Larabanga Mosque



- Larabanga Mystery Stone



- Jintigi Fire Festival

## Session 2: Bio-Processing Technologies Perspectives

Topic: Innovative Ideas: Predicting the Effects of Nanotechnology on Quality, Efficacy, and Cost of Shea Butter for Skin Treatment

Dr. David Noye, Nano Research



# Nanotechnology

## ▶ National Chemistry Week, October 21–27.

The theme for this year is "*Nanotechnology: The Smallest BIG Idea in Science!*" and will focus on how nanoscience and nanotechnology help us take better care of the environment, improve our health, and develop improved materials.

- nanosensors built into packaging
- nano-engineered materials for superior filters
- shea butter nanoparticles can help resist wrinkling and bacterial growth

■ **2012 Nobel Prize in Chemistry**



# Session 3:Product Development Perspectives– Development and Management of New Shea Based Product Concepts

Topic: Test Marketing and development of New Product Concepts– Including Small batch development techniques and equipment

Ms. Margaret Haven ASBI Advisory Board Member

# Making Shea Butter



Our production crew



ripe shea fruit



raw shea nuts



Shea "karité" tree



crushing shea nuts



crushed shea nuts



cooking crushed nuts



grinding shea nuts



Mixing with water



shea butter forming



cooking shea oil



hot fresh shea butter



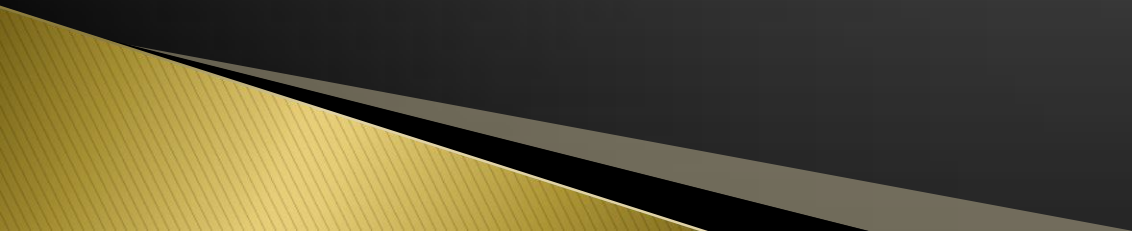
finished shea butter

# Questions and Answers Comments & Summary

- ▶ Panelist and Open Floor

# Acknowledgement

- ▶ Dr. Samuel Hunter
- ▶ American Shea Butter Institute



# Other Components

- ▶ Other Vitamins
- ▶ \*alpha-tocopherols



- ▶ \* Fat soluble vitamin E that cannot be synthesized by animals
- ▶ –responsible for reducing degenerative diseases and for mopping up free-radicals responsible for oxidative damage of cell membrane and causing cancer

These components maybe more essential to current applications

# Factors That Influence Composition

- ▶ Rainfall
- ▶ Soil Fertility
- ▶ Maturation Period
- ▶ Agronomic Practices
- ▶ Average Temperature
- ▶ Elevation
- ▶ Post Harvest Storage



# Properties

- Melt at Body Temperature
- absorbed rapidly in the skin





# Uses



- ▶ \*Cosmetics
  - ▶ Moisturizer and Emulsifier
  - ▶ Hair Conditioner
  - ▶ Soap (5–7% ) – large non-saponifiable component
- 
- \*25% growth rate year–year

# Use

- ▶ Food
- ▶ Frying
- ▶ Chocolate & Confectionery



# Use

- ▶ Medicinal & Pharmaceutical
- ▶ Anti-inflammatory
- ▶ Emollient
- ▶ Humectant
- ▶ Sun block
- ▶ Massage



# Uses

- ▶ Others
- ▶ Waterproofing
- ▶ Candles
- ▶ Wood, Calabash (gourds) and Leather – enhance durability



# Uses

- ▶ Food
- ▶ Frying
- ▶ Chocolate & Confectionery
  
- ▶ High levels of unsaturated fats makes it better than most edible oil
  
- ▶ -improve digestibility
  
- ▶ -easily infiltrate the bile salt and binds to low weight proteins
  
- ▶ -beneficial in reducing blood levels of low density lipoproteins (LDL)-lower risk of coronary heart diseases
  
- ▶ Antioxidant – Profile similar to green tea
  - Total similar to virgin olive oil
  - Higher than ripe olives

# Future Applications

- ▶ Lubricant



# Challenges

- ▶ Improve nutrition
- ▶ Boost food supply
- ▶ Foster rural development
- ▶ Support sustainable land care



# CHALLENGE

- ▶ “Since **certification** of shea butter shea kernel is going to become important in world markets, the demand for **consistency** in quality of shea products exported to such highly regulated markets ...”





# Reference

- ▶ 1. Okullo, J. B., *et al.*, *African Journal of Food, Agriculture, Nutrition and Development*, Jan 1, 2010.
- ▶ 2. Maritz, F. D. *et al.*, *J. of Brazil Chemistry*, 2006, 17 (2): 403–407.
- ▶ 3. Ezeagu *et al.*, *Ecology of Food and Nutrition*, 2004, 43(4): 295–305.

# Acknowledgement

- ▶ Dr. Samuel Hunter
- ▶ American Shea Butter Institute



**emollients** /i'mɒliənts/ are complex mixtures of chemical agents specially designed to make the external layers of the skin (epidermis) softer and more pliable, by increasing its hydration (water content) by reducing evaporation.

A **humectant** /hjuː'mɛktənt/ is a hygroscopic substance. It is often a molecule with several hydrophilic groups, most often hydroxyl groups, but amines and carboxyl groups, sometimes esterified, can be encountered as well; the affinity to form hydrogen bonds with molecules of water is crucial here. Since hygroscopic substances absorb water from the air, they are frequently used in desiccation or for humidity buffering.

Tocopherols  
compounds of  
which many have  
vitamin E activity