

CLIMATE CHANGE EFFECTS ON GRANULATION OF HONEY AS IT AFFECTS ITS MARKETABILITY: A CASE STUDY ACROSS SOUTHWEST, NIGERIA

By

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Introduction

- Climate change is one of the most serious environmental threats facing mankind worldwide.
- It affects agriculture in several ways, including its direct and indirect impacts on food production.
- Available evidence shows that climate change is global, likewise its impacts; but the most adverse effects will be felt mainly by developing countries, especially those in Africa, due to their low level of coping capabilities (Nwafor 2007; Jagtap 2007).



Introduction

- Nigeria is one of these developing countries (Odjugo, 2010).
- Farmers face prospects of tragic crop failures, reduced agricultural productivity, increased hunger, malnutrition and diseases (Zoellick 2009).



Causes

- The tendency of honey to crystallize depends on
 - The ratio of fructose-glucose: The higher the fructose-glucose ratio, the slower the crystallization occurs. The presence of seed crystals of glucose, pollen, air bubbles, particulate matter and other accelerate crystallization.
 - The ratio of glucose to water: If the glucose-water ratio is below 1.7, the honey does not crystallize, and if it is above 2.1, it crystallizes rapidly.



Climate change effect

- According to the IPCC the earth is experiencing a warming trend occurring at a rate of about 0.2°C per decade.
- Continued greenhouse gas emissions at or above current rates would cause further warming and lead to many changes in the global climatic system in the 21st century that is likely be larger than those observed during the 20th century.
- This mainly attributed to anthropogenic sources of greenhouse gases.



Impacts of increase warming

- Changes in climatic conditions such as temperature, can promote granulation in honey.
- Currently, granulated honey is not acceptable in the Nigerian society.
- Granulated honey is classified as fake because of the low level knowledge on the granulation of honey among the population.
- Granulation of honey could potentially reduce farmers sales and lead to financial and productivity loss.



Aim of the study

The aim of this study was to assess the impact of increasing temperature on the granulation of honey and its marketability.



Methodology

- A survey of beekeepers in southwestern, Nigeria was carried out.
- The local beekeepers were reached through the local association of South-West beekeepers.
- The States in this region included in the survey are Osun, Ondo, Ogun and Oyo.



Methodology

- In addition, samples of granulated honey were collected from the participants.
- The exercise was during the harvesting period between December 2015 to March 2016.



Results



Fig 1. A local beekeeper holding a freshly harvested granulated honey in Southwestern Nigeria.



Results

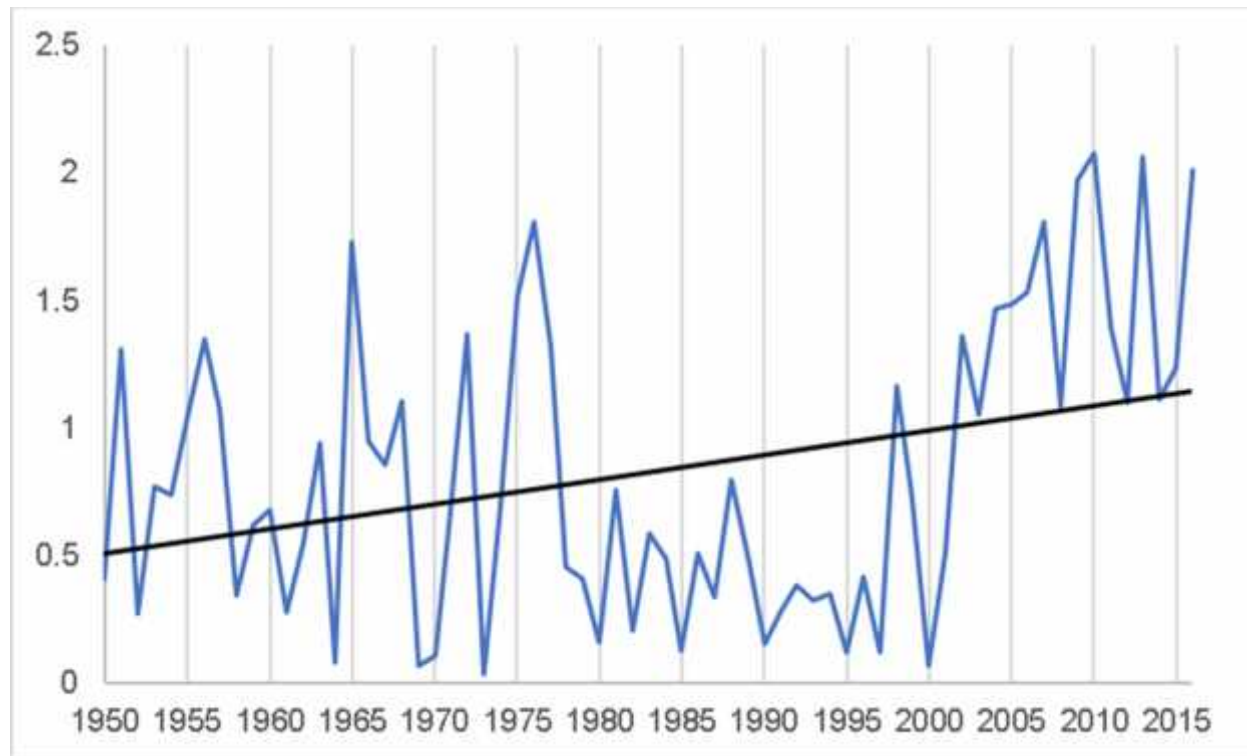


Fig.2 Chart showing degree rise in surface warming between 1950 and 2016 for Southwestern, Nigeria.



Results



Fig.3 Granulated comb honey



Possible inferences

- The harsh weather experienced during the year affected the bees and the honey harvested.
- Increasing temperature could be a major cause because the continuous rise in temperature promotes evapotranspiration.
- The bottled honey above were rejected by customers. Most of the harvested honey in the year 2015/2016 were converted to soap and cream.
- The general believe is that the product has been adulterated with sugar and Hence the reason for the granulation.



Thank You!

