

**ADDRESSING FOOD SECURITY/  
SUGAR SHORTAGE IN KENYA  
WITH STEVIA FOR SOCIAL  
ECONOMIC GROWTH THROUGH  
AGRIBUSINESS**

**BY**

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# STEVIA IN THE NURSERY



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# SAMPLE STEVIA PICTURES



# STATEMENT OF THE PROBLEM

- \* Agriculture is the mainstay of the Kenyan economy and currently represents 24 per cent of GDP and accounts for 18% of total formal employment in the country
- \* There are more than 5 million smallholders engaged in different types of agricultural activities in the country. Large scale farms of various sizes are fewer in number and make up a smaller part of the sector due to land problems.
- \* Food crops make a significant contribution to Kenya's GDP (at 32 per cent of Kenya's agricultural GDP) and are also important for food security. The **vision** for the agricultural sector is to be **“innovative, commercially-oriented and modern farming sector”**. Then (stevia rebaudiana) is one of the innovations which best fits the nation's vision 2030's agricultural vision which addresses food security in particular sugar shortage in Kenya with stevia for social economic growth through agribusiness.

# LITERATURE REVIEW

- Stevia, also known as sweet leaf or sugar leaf, is a genus of herbs and shrubs native to South America. Stevia plant (*stevia rebaudiana*) belongs to the composite sunflower family plants. It was used as a sweetener by indigenous native groups in Paraguay and Brazil.
- \* **Chemical Composition** of Stevia is *steviol* glycoside. In 1931 two French chemists isolated the glycosides that gave stevia its sweet taste. They found two compounds, *stevioside* and *rebaudioside*, and these two they found were between 250-300 times as sweet as sucrose (sugar cane)
- \* The two compounds are heat stable, pH stable and not fermentable (M. Brideled and R. Lavielle, 1931)
- \* The Kenya sugar industry (KSI) factories are composed of Parastatal Companies and Private Companies.

# Conti...lit review

- \* The Ministry of Agriculture has the overall responsibility for the sugar industry development. It also has its representatives in the board of directors of all the sugar mills. Sugar cane research and advisory services to farmers also falls under the Ministry. Government bodies such as the Kenya Sugar Board (KSB) are involved in the policy formulation and implementation. The KSB acts as a technical unit to advise the Ministry in promoting all aspects of producing, processing and marketing of sugar cane, sugar and molasses.

# Cont...lit review

- \* With the liberalization of the sugar sector in early 1990s, all sugar manufactured in the country was sold to Kenya National Trading Corporation (KNTC), which was responsible for distribution of the sugar throughout the country therefore stevia should find its place in the competitive process in addressing the food security in the agricultural sector.



# CHALLENGES FACING CANE PRODUCTION NOT FACED BY STEVIA PRODUCTION

- \* Diseases
- \* Fire
- \* Flooding of production
- \* Delays in harvesting reduce the quality tonnage
- \* Requires more human labor in harvesting unlike in stevia.
- \* Closure of some factories- such as Ramisi and Miwani.

# Cont...challenges

- \* Poor feeder roads- delayed delivery of cane to the factory
- \* Droughts
- \* Poor management in the manufacturing plants

# KEY FINDINGS

- \* The glycosides that give stevia its sweet taste was isolated and two compounds , *stevioside* and *rebaudioside* were found to be 250-300 times as sweet as sucrose, heat stable, pH stable and not fermentable.
- \* Other reports say that stevia contains '*estevin*' a substance that weight for weight is 150 times heavier than sucrose.
- \* Stevia doesn't present any longterm dangers, andrew Weil, (2008)

## cont..findings

- \* In Kenya, stevia is increasingly becoming an important cash crop as well domestic use.
- \* The leaves being 30 times sweeter than ordinary sugar and with zero calories, it is likely to become the major source of high potency sweetener for the growing natural food market in the years to come. This is because stevia finds its use as a natural sweetener replacing the chemical sweeteners and even the table sugar making it safer to use.
- \* There are also minor side effects associated with stevia:

# Cont..findings

- \* Stevia has proved to have a negligible effect on blood glucose unlike ordinary sugar and is suitable to people on carbohydrate controlled diets. Stevia has many uses, apart from being a source of natural sweetness; the leaves are also used to make medicine. It is used as a weight loss aid, for treating diabetes, high blood pressure and heartburn, for lowering uric acid levels and for increasing the strength of the muscles that pump blood to the heart.

# Stevia side effects

- \* Stevia has been known to be allergic to people with an allergy to plants in the compositae or Asteraceae family i.e., ragweeds, daisies and marigolds.
- \* Stevia may also cause mild stomach upset after being consumed raw.
- \* Medication interactions: lithium has been known to interact negatively with stevia. Stevia acts as a diuretic which can prevent the body's ability to rid itself of lithium which may lead to dangerous side effects.
- \* Diabetes medication may also interact negatively with stevia as both are used to lower body's blood sugar. If the blood sugar drops too low it can be dangerous, so those with diabetes should monitor the usage closely

# RECOMMENDATIONS

- \* Stevia being a natural food sweetener has a range of advantages over artificial sweeteners among them being chemical free, calorie free, does not impact blood glucose level etc.
- \* A 2011 research found that the use of stevia sweeteners as a replacement for sugar would likely benefit diabetic patients. A 2009 review study found that stevioside and related compounds may have anti-hyperglycemic, anti-hypertensive, anti-inflammatory, anti-tumor, anti-diarrheal, uretic and immunodulatory actions. This gives it a great advantage over other sweeteners.

# CONT..RECOMMENDATIONS

- \* Stevia has an untapped market that would be exploited to create jobs and help improve the economy of the country. If grown in both small and large scale, it would be used as a source of revenue through export and at the same time reducing the import of sugar.
- \* It is the most suitable form of self employment to the 70% of the Kenya's population who are the youths and the most productive group in any country.



# Conti...recomendations

Stevia production best fits the vision for the agricultural sector which is to be “innovative, commercially-oriented and to be a modern farming sector” this in turn fits the nation’s vision 2030’s agricultural development by addressing food security in particular sugar shortage in Kenya for social economic growth through agribusiness.

**THE END**

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