

# AMARANTH GRAIN

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Its Role In Reducing Malnutrition

Ideal Health Care Wellness Centers

- My name is **John Kabugi**, a founding director of **ideal Health Care And Chemicals East Africa ltd**. I am currently serving the company as the Managing Director.
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- I am a Health coach and researcher on African herbs and Nutritional foods and their effect on the general health and individual well being. I am a businessman, teacher, trainer and coach on health issues with experience of over 30 years.

- I have taught health education on Radio **Sauti ya Injili** , **Moshi Fm** and **Fountain Fm** for many years .  
Our weekly Radio program (**Kilimo Na Afya**) is a popular program with over 25,000 listeners.

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- Our Head office is in Moshi Town in the Kilimanjaro Region in Tanzania.
- We operate Herbal and Nutritional wellness centers in Moshi, Mwanza, Mbeya, Dar es salaam and Arusha.

- We are committed to God's word and work and With our sister Organization, Chuo cha Elimu kwa wote, we give Educational seminars on Nutrition, good eating habits, hygiene, food quality and good agricultural practices incorporating conservation of the soil and food security.

We at Ideal Health Care strongly believe that Africa has the capacity to feed its children affordably and cost effectively if its vast resources are well harnessed and developed bringing an end to the continents constant food shortages and the shameful food handouts from other continents which do not enjoy the same kind of resources as Africa. We have the necessary resources in Africa that can turn the continent into a major food exporter and the Bread basket of the world within a short space of time.

- Our biggest problem remains to be lack of knowledge and willingness to use the available knowledge to produce results sometimes due to bad and outdated cultural practices and beliefs.
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- At Ideal health care Wellness centers, we have used Amaranth in combating Malnutrition effectively for many years now and we have testimonies of people whose health turned around after eating food fortified with amaranth.

- Remarkable cases include 3 adults with cases of stroke (in Moshi) who are now healed completely. One of them a school teacher used only amaranth flour and in a record 3 weeks she was out of danger.
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- In Dar es Salaam we treated a child who was hospitalized at Muhimbili National hospital and was booked for an operation but after 10 days the doctors called off the operation, thanks to the great amaranth seed.

- Not only that but the other fascinating case:
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- In Hydom hospital Manyara Region last year a baby was born with a condition that the doctors said if the baby survived then he would be retarded and would never be able to walk. Today the baby is not retarded and is walking... thanks to the tiny amaranth seeds.

- Poverty and food insecurity is widespread in developing countries. More than 1.2 billion people in Africa, Asia and Latin America Live in absolute poverty subsisting on less than 1 dollar a day and a further 2 billion are deficient in one or more micronutrients (Azam, Ali and Battcock, 2001).
- Of all the regions of the world, poverty is most intractable in Africa where a half of its population of about 1.3 Billion people lives on less than a dollar a day. There is therefore need for governments in Africa to incorporate grain Amaranth in their policy measures to curb malnutrition.

- Tanzania and its neighbors in East Africa are still striving to meet their long-term goal of food sufficiency in both quantity and quality. Effective nutrition is when both quality and quantity of food are administered in adequate amounts regularly to achieve and maintain health status.
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- One of the opportunities to be exploited among others in grain amaranth cultivation is the fact that it has the potential to contribute to food security, nutrition, health, income generation and therefore poverty alleviation. Amaranth grain has a characteristic of producing high yields even in relatively dry areas within a short period. Frequent droughts and often floods, poor farming methods, pestilences and post harvest losses or any of their combinations often precipitate crises in the food supply chain and in some neighboring nations, political upheaval cause displacement of populations from their land.

- Requests for donor-provided food aid to mitigate the ravages of famine especially in the arid and semi arid regions often draw billions of dollars in responses across stakeholders, this situation is cyclic in nature, meaning a repeat is eminent any cropping cycle, and we shall spend more such billions.
- My desire is indeed to see a policy led pre emptive action by the same stake holders and in my assessment spend millions of dollars to save ourselves from having to spend billions amid humanitarian crises.

# Trends

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- In 2015, more than 2.7 million Tanzanian children under 5 years of age were estimated to be stunted and more than 600,000 were suffering from acute malnutrition, of which 100,000 were severe cases.
- The prevalence of low body mass index among girls aged 15–19 years remained unchanged between 2010 and 2015 (approximately 18 per cent).
- There are high rates of anaemia among women (45 per cent overall). Fifty-seven per cent of pregnant women and 46 per cent of breastfeeding mothers are anaemic { [https://www.unicef.org/tanzania/nutrition\\_situation.html](https://www.unicef.org/tanzania/nutrition_situation.html) }

- Though malnutrition rates in Tanzania have decreased for children under five since 1999, it is still highly prevalent and statistics are worryingly high in some regions of the country.
- Nationally, chronic malnutrition or stunting affects 34.7% of children under the age of five. Severe stunting affected 11.5% of children nationwide. Stunting is irreversible and we are talking of 3 million kids in just the under 5, their bigger brothers and sisters would replicate this trend in every 5 year demographic across the entire population. The sad reality of this trend is it is generationally cyclic, threatening to permanently imprison this group in the under class
- Tanzania is one of the most peaceful, stable and prosperous countries in Africa. Despite growth averaging 6.5% and aspires to middle income status by 2025, (Inter Agency Regional Analysts Network, East & Southern Africa, march 2017), notably, this could happen, leaving a significant portion of the demographic stranded.

# AGRONOMICAL TRAITS

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- Amaranth does not belong to the grass family as other cereal do but produces seeds which are grains and are classified into the family of pseudo cereals (National Academy of Sciences, 1984).
- The agronomic importance of amaranth is that it is a fast-growing plant, has tolerance to drought conditions, can grow in poor soils, and can be cultivated throughout the year (*Brenner and others 2000; Avanza and others 2005*). Has the capability of doing well when intercropped with other crops a quality which makes it a potentially viable and adaptable to farmers and farms already allotted to other crops).



- These features make amaranth an important crop that can be utilized in regions where conventional crops cannot grow and there is less risk of crop failure with amaranth (*Gupta, 1986*).
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- So it will naturally inherit large chunks of cheaper land which would be unviable for cropping the common grains. Amaranth, a food plant, is relatively fast growing is resistant to moisture stress and produces good yields of grain on heads similar to those of sorghum.

# NUTRITIONAL FEATURES

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- The principal parts of the amaranth plant are roots, stem, leaves, inflorescences, and seeds (*Rastogi and Shukla 2013*) Compared to other plant sources, such as wheat and rice amaranths are gluten free and contain 30% more protein with complete set of amino acids. It can improve the digestive system and reduce constipation due to the high content of dietary fiber which is three times that of wheat.

# PROTEINS

- Its nutritional value is mainly due to its protein fraction (*Gorinstein [9] Oleszek [10]*). It has a high concentration of proteins with excellent nutritional quality (*Quiroga and others ' 2010*).
- Products from animal sources such as eggs, milk ,fish and meat are the best sources of protein with high quality. However, they have a high cost and in some cases produce some allergies or intolerances. Plant proteins can be substituted for them either partially or completely (*Tavano and others 2008; Shevkani and others 2014*).The grain of amaranth presents a high-quality protein with an excellent amino acid balance, which is better than that of cereals and some legumes (*Shevkani and others 2014*). The protein in amaranth grains (13% to 19%) has high digestibility (90%) (*Grobelnik Mlakar and others 2010*). Proteins from amaranth are rich in lysine ranging from 4.9 to 6.1 g lys/100 g protein, a limiting amino acid in all other cereals (*Grobelnik Mlakar and others 2009*)

## LIPIDS

- Amaranth also is a good source of lipids (5% to 13%), Its lipid content is comparable to that found in cod liver oil, a product given to children to strengthen their immune system. (*Poverty Eradication commission 2007*).
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## MINERALS AND VITAMINS

- Minerals such as Ca, Fe, Mg, Mn, K, P, S, and Na, and vitamins of B complex.
- Elements like manganese, iron, copper, calcium, magnesium, potassium and phosphorus necessary to maintain adequate electrolyte balance in the body. The presence of lysine (an essential amino acid) along with vitamin E, iron, magnesium, phosphorus, potassium and vitamin C helps to fight against free radicals responsible for ageing and formation of malignant cells which helps in fighting against cancer. The high calcium present in amaranth leaves (two times that of milk) is helpful to reduce risk of osteoporosis and other calcium deficiency- related disorders

## STARCH

- The principal component of amaranth is starch (62%)
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## DIETARY FIBERS

- Amaranths contain dietary fiber in high proportion, which improves lipid metabolism (*Gorinstein [9] Oleszek [10]*).

# TECHNOLOGICAL ASPECTS

- Simply stated, processing of amaranth grain into diverse products to literally give it wings to reach all demographics.
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- Amaranth has been successfully processed in combination with other grains to produce cold, breakfast cereals. It is also being used for mixes that are used to prepare hot breakfast cereals and pancakes. In addition, there are breads, crackers and pastes on the market. Popped amaranth grain continues to attract considerable attention. The popped grain provides opportunities for processors to develop innovative products, apart from extending the availability of wheat flour, and they are looked upon as carriers of nutrition. There is a great opportunity for employing wheat– Amaranthus mixtures in programmes to improve the diet. The other main concept is to use the locally grown non wheat cereals or millets, which not only give the value addition but also provide the avenue for local taste.

- Several workers have investigated new applications of amaranth seed in various food products as it can act as a promising food crop on account of its nutritional qualities and can be used to complement other cereals as an extender or as a supplement for adding nutritional value to foods. The amaranth grain, because of its high nutritional qualities has various baking applications. Moreover the nutritional composition of the grain, like total protein, amino acid composition, mineral and vitamin composition have been found to be comparable or even better than that of common cereal grains.
- supplementing flour with protein rich non-wheat flours. This will enable promotion of the utilization of non-wheat cereals and their by products by the larger segment of population

# summary

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- Amaranth is profitable as an adaptable hardy plant, effective nutrient provider and a medicinal remedy
- Unfortunately, in the market, this precious commodity costs tshs 5000 per kg, way above the cereals it is intended to supplement, a clear play of supply and demand.
- To increase supply, this plant has to be popularized among farmers and its benefits published broadly to targeted consumers by all educational means.
- A weekly radio program can offer a platform, that can be further developed with financial support, among other initiatives by government and stakeholders.

# Summary cont'd

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- With knowledge already in our grasp and further to be acquired and a collaborative effort with like minded partners, we can jointly devise initiatives to reach and interest both the farmer community and the consuming public

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THANK YOU SO MUCH FOR LISTENING  
GOD BLESS YOU ALL!!